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Making multisectoral collaboration work

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MAKING MULTISECTORAL COLLABORATION WORK

The Partnership for Maternal, Newborn & Child Health

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Multisectoral collaboration for health and sustainable development

Learning together, from success and from failure

With 17 goals and many more targets, the all encompassing 2030 Agenda for Sustainable Development has been criticised as being too warm and cuddly,[1] and its unwieldy message can feel like little more than a call for everyone to work together. But this rallying call may, in fact, catalyse one of the greatest breakthroughs by 2030. We believe that much of the power of the sustainable development goals (SDGs) is in the 17th goal: "partnerships for the goals." This final goal could easily be overlooked by cynics as an administrative add-on, aiming merely to scoop up financing. It is here, however, that the goals' power is hidden within broad indicators such as "policy coherence" and "multistakeholder partnerships."

SDG 17 provides a powerful incentive to discuss matters regarded as beyond the remit of the health sector, as reflected in strategies and service delivery programmes and in the pages of medical journals. We also know that a substantial proportion of the gains for maternal and child health in the millennium development goal era were associated with interventions outside of the health sector.[2] And with a recent study of the health related SDG indicators showing off-target trajectories,[3] the collaborative power of goal 17 may be one route to getting us back on track.

This week, *The BMJ* publishes a series of articles that attempt to unpick how best to work across sectors to achieve better health and sustainable development.[4] The series reflects a collaborative process, conducted for over a year, involving over 500 participants from 12 countries, including authors and contributors to multistakeholder dialogues, and analytical work to develop country case studies. Country teams led the studies, guided by a methods framework[5] and partnership process with support from the Partnership for Maternal, Newborn, and Child Health (PMNCH), *The BMJ*, and a global steering committee.

The resulting 12 country case studies[4] of multisectoral collaboration, selected from over 300 initial proposals, provide rich insights and collectively inform a synthesis paper of key lessons and an emergent collaborative model.[6] The series provides advocacy and evidence for the power of a "learning society"—a phrase originally coined by educational philosopher Robert Hutchins[7]—that has continuous learning, active citizenship, and social wellbeing as its primary goals.

Four specific lessons stand out from the country case studies. Firstly, as with the universality of the SDGs, multisectoral collaboration has relevance across diverse geographical, economic, social, cultural, and historical contexts, and—crucially—the modalities employed are remarkably similar across settings. In other words, there is a knowledge base to share on "what works" in multisectoral collaboration.

Secondly, the case studies show the dynamic and evolving nature of multisectoral collaboration. Stakeholders and their engagement change across different components and periods, highlighting the importance of realistic time frames, diverse evidence and ideas, and of "learning and adapting while doing" to yield transformative results.

Thirdly, multisectoral collaboration is a managed process in response to a challenge or opportunity, aimed at disrupting "business as usual" arrangements and replacing these with intentional, innovative actions framed in a way that multiple sectors can contribute.

Finally, these "real world" examples of multisectoral collaboration, many taken to national scale, allow governments and development partners to learn from each other and so target investments to catalyse transformative change.

But let's be clear, the learning environment in which knowledge was developed and shared across sectors, as described in the 12 country case studies, is not easy to create or sustain. The case studies arose from an open call for submissions by PMNCH for "success stories" of multisectoral collaboration across the six thematic priorities of the Every Woman Every Child initiative. Success is a fuzzy concept, open to debate and multiple interpretations and metrics.[8] The invitation to learn only from success, however, sets up some interesting tensions.

One particular tension—which strikes at the heart of the use of case studies as a source of knowledge and as a basis for accountable reporting of progress—is the challenge of asking leaders to judge and report on the success of their own initiatives. The case studies in this series were subject to rigorous peer review and guided by specific questions in the methods guide[5] to encourage self reflection and critique. Important insights come from authors explicitly describing uncertainty and areas of challenge.

In the drive for "progress," particularly around emotive subjects such as the health and wellbeing of women and children, there is often pressure to suppress key lessons on what has not worked. This effect is evident in publication bias against negative trials, for example, and in the hard-to-reach internal project reports of funders or implementers. But all failures are opportunities to learn: "Ever tried. Ever failed. No matter. Try again. Fail again. Fail better."[9] A genuine learning society must allow room for open and confident sharing of lessons from failure. This environment needs nurturing at all levels, including sufficient incentives—political, financial, and societal.

We're launching the series at the Partners' Forum in New Delhi in December 2018, where the country case studies will provide a refreshing glimpse of the benefits of reflection and openness. But there's much more to do. We call upon the diverse communities in the readership of *The BMJ* and those attending the forum to push for more effective and open communication, not just on successes but also on the "heroic failures"[9] in health and development—namely, those other opportunities from which we must learn.

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Business not as usual: how multisectoral collaboration can promote transformative change for health and sustainable development

Shyama Kuruvilla and colleagues present findings across 12 country case studies of multisectoral collaboration, showing how diverse sectors intentionally shape new ways of collaborating and learning, using "business not as usual" strategies to transform situations and achieve shared goals

The 2030 Agenda for Sustainable Development states that if the "interlinkages and integrated nature of the Sustainable Development Goals (SDGs)" are realised, then "the lives of all will be profoundly improved and our world will be transformed for the better."[1]

In line with the SDGs, multisectoral action (box 1) is a key action area of the Global Strategy for Women's, Children's and Adolescents' Health.[2] It is central to other global health priorities, for example, universal health coverage, the prevention and control of non-communicable diseases, and the "health in all policies" approach.[3-5] A fundamental question arises: could the transformative changes envisioned in the SDGs be achieved by each sector acting independently, or do they require multisectoral collaboration (see box 1 for definitions)?

To achieve the SDGs, it is vital to know when multisectoral collaboration will be most effective, how to ensure efficiency, and what factors enable these collaborations to contribute to transformative change—to "business not as usual."

The series on success factors for women's and children's health and other studies found that during the years of the millennium development goals (2000-2015), sectors beyond health contributed

KEY MESSAGES

We present a model of enabling factors for effective multisectoral collaboration based on findings from country case studies and literature reviews:

- Drive change: assess whether desired change is better off achieved by multisectoral collaboration; drive forward collaboration by mobilising a critical mass of policy and public attention
- Define: frame the problem strategically and holistically so that all sectors and stakeholders can see the benefits of collaboration and contribution to the public good
- Design: create solutions relevant to context, building on existing mechanisms, and leverage the strengths of diverse sectors for collective impact
- Relate: ensure resources for multisectoral collaboration mechanisms, including for open communication and deliberation on evidence, norms, and innovation across all components of collaboration
- Realise: learn by doing, and adapt with regular feedback. Remain open to redefining and redesigning the collaboration to ensure relevance, effectiveness, and responsiveness to change
- Capture success: agree on success markers, using qualitative and quantitative methods to monitor results regularly and comprehensively, and learn from both failures and successes to inform action and sustain gains.

Box 1: Definitions

Stakeholders are actors, whether individuals or groups, who can influence or be affected by a particular concern, process, or outcome.[6] Stakeholders may include governments, non-governmental organisations (NGOs), civil society, private actors, international organisations, donors, service users, service providers, the media, and other groups.

Sectors comprise an array of actors and institutions linked by their formal, functional roles or area of work. Highlighted here are sectors related to specific policy areas or topics, including those relevant to the 17 SDGs. These sectors can be supported by institutions, which assume cross cutting functions, such as those responsible for budgeting or planning. These sectors and cross cutting institutions can include both public and private entities. The term "sector" also can be used to denote these entities, as in discussions about the "public sector" and the "private sector."[7]

Multisectoral action[8 9] can occur in three ways:

- Independent action: individual sectors independently undertaking their core business and advancing their own sectors' goals; in so doing they can also contribute to other sectors' goals. For example, health sector investments in children's health could also improve educational performance, and better health and education could contribute to higher productivity and wages in adulthood.
- Intentional collaboration: multiple sectors and stakeholders intentionally coming together and collaborating in a managed process to achieve shared outcomes. This is referred to in this paper as multisectoral collaboration. In the context of the SDGs, shared outcomes of multisectoral collaboration could include joint programmes for poverty reduction, better health and wellbeing, high quality education, improved nutrition, gender equality, economic growth, and other outcomes influencing health and sustainable development.
- Contextual, ecological interactions: there are individual, social, and environmental factors, beyond the remit of any sector, that intersect with and influence sectoral work. For example, individuals' biology and behaviours, sociocultural norms, political ideologies, and environmental phenomena. Sectors independently and collaboratively could seek to tackle how these matters influence implementation and impact.

Table 1 | Twelve case study countries by Every Woman Every Child theme and focal Sustainable Development Goals

Case study country and related EWEC theme focus*	Focal SDGs across the country case studies (illustrative analysis for the evidence synthesis)										
	SDG 1:No poverty	SDG 2: No hunger	SDG 3: Health	SDG 4: Quality education	SDG 5: Gender equality	SDG 8: Decent work and economic growth	SDG 9: Industry, innovation, and infrastructure	SDG 10: Reduced inequalities	SDG 11: Sustainable cities and communities	SDG 16: Peace, justice, and strong institutions	SDG 17: Partnership
Afghanistan *Humanitarian*			*			*		*		*	*
Cambodia *QED*	*	*	*	*		*		*			*
Chile *ECD*			*	*		*		*			*
Germany *ECD*			*					*			*
Guatemala *Empowerment*			*	*	*			*		*	*
India *QED*			*	*		*	*	*		*	*
Indonesia *Adolescent health*		*	*	*	*						*
Malawi *SRHR*			*		*		*	*			*
Malaysia *SRHR*			*	*			*				*
Sierra Leone *Humanitarian*			*	*	*		*				*
South Africa *Empowerment*			*	*	*	*		*			*
USA *Adolescent health*			*	*				*	*	*	*

The six EWEC themes in full are: adolescent health and wellbeing; early childhood development (ECD); empowerment of women, girls, and communities; humanitarian and fragile settings; quality, equity, and dignity (QED); sexual and reproductive health and rights (SRHR).
*Multisectoral collaborations have a thematic or functional focus related to the corresponding SDGs.

to around 50% of the reductions in child and maternal mortality achieved in low and middle income countries.[10 11] This work also showed that some countries' health and development outcomes were improved by health and other sectors acting independently, but in others, improvements were achieved by intentional multisectoral collaboration.[10]

The literature documents how multisectoral collaborations have been planned, implemented, and sustained in various fields of health and in other sectors.[8 9 12-14] For example, in the field of nutrition, multisectoral collaboration to reduce stunting in children in Peru was achieved when the government required related sectors to work together in "convergence" programming and to align targets and interventions.[13] With a focus on improving the wellbeing of First Nations people in Canada, a range of multisectoral determinants were considered with respect to community autonomy and governance, different belief systems, social capital, health and social services, and historical, ecological, and life course considerations.[12]

Limited evidence is available about how multisectoral collaborations work specifically to improve women's, children's, and adolescents' health, and about best practices and generalisable principles.[14] For example, while it is known that policy and context matter for efforts to improve child development and life outcomes,[15] there is less understanding of the specific entry points and opportunities for involvement by diverse sectors and stakeholders on these matters.[14 15]

To contribute to the evidence, the Partnership for Maternal, Newborn, and Child Health (PMNCH) supported the development of 12 country case studies. These were selected from responses to a global call for proposals, using weighted selection criteria.

Each country case study relates to one of six thematic priorities on which PMNCH and other Every Woman Every Child (EWEC) partners agreed to focus on for 2018-2020 to support country implementation of the global strategy.[16] Since the call for proposals intentionally focused on health and partnership across sectors, all the country case studies related to SDGs 3 and 17; other SDGs were covered based on the context of the multisectoral collaborations (table 1).

The papers in this series show diversity in the selected case studies—in relation to country income level, the type and number of sectors and stakeholders involved, breadth of scope from sub-national or pilot

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programmes to those at scale, and the time span. Some, for example, began as non-governmental organisation (NGO) led pilots implemented in remote rural areas and were scaled up to national coverage; others were initiated by a president or prime minister and rolled out nationwide over a matter of months. A few were established more recently and for a finite period to accomplish a specific goal; and several are ongoing and open ended, with the longest running since 2002.

We present a synthesis of the country case study findings, and develop a multisectoral collaboration model to inform further policy, action and research.

How success factors were elucidated

We anticipated that development of an underlying theoretical basis or model would be helpful in informing action and further development in relation to multisectoral collaboration.[17] Our model development used a combination of methods, incorporating narrative synthesis[17] and a multi-grounded theory approach.[18] This combined approach goes beyond summarising findings to synthesise higher level interpretive findings and systematically develop a theoretical model.

Three main steps were employed to synthesise the country case study findings and develop a multisectoral collaboration model in this paper (supplement 1): conducting preliminary analyses of the country case study findings; synthesising higher level, interpretive findings with reference to a theoretical model; and assessing the robustness of the higher level, interpretative findings and the multisectoral collaboration model.

Conducting preliminary analyses of the country case study findings

The literature review that informed the case study methods guide identified key components of multisectoral collaboration.[14 19] The semi-structured questionnaire in the study series methods guide[19] provided a template from which to extract, categorise, and analyse the findings from each country case study.

Synthesising higher level, interpretive findings with reference to a theoretical model

A thematic analysis was conducted to synthesise the recurring and prominent themes arising from the preliminary analysis into higher level, interpretive findings. The interpretive findings across the case studies were then analysed with reference to related best practice and a theoretical model.[8 9 12-14 19-21]

Best practices in planning, management, research, and other fields tend to follow a common logic, including experiencing a challenge or idea; defining a specific problem or question; developing evidence based solutions and innovations, and deliberating options; implementation and learning; and achieving harmonious resolution.[20] This logic also seems to hold true for multisectoral collaborations, as evinced in the literature review for this study[8 9 12-14 19-21] and additional references from non-communicable diseases,[22] early childhood development,[15] and nutrition.[13 23]

This common "logic of inquiry" was elaborated by Dewey in pragmatist philosophy as a systematic way to support societal learning and advancement.[20] It was applied in a "transactive rationality model" for public policy and administration,[21] and in other contexts including environmental policy assessment[24] and strategic crisis management.[25]

In this paper, we used the transactive rationality model[21] to help synthesise the higher level findings across the country case studies. We selected this model because it was comparatively assessed as covering all the key components of multisectoral collaboration identified in the literature review and case study methods guide[14 19] (supplement 1), and also as it was explicitly framed as a theoretical "hypothesis" for best practice across a range of contexts.[20 21]

To accommodate the specific higher level findings across the country case studies on what works in multisectoral collaboration, we adapted the reference theoretical model (supplement 1, fig 1).

Assessing the robustness of the higher level, interpretative findings and the multisectoral collaboration model.

To accommodate the specific findings on multisectoral collaboration, the reference model was adapted both thematically and graphically (supplement 1, fig 1). This process continued until "theoretical saturation" was reached: that is, when the components of the new multisectoral collaboration model could accommodate all the case study findings without needing further adjustment.[17] Robustness was also

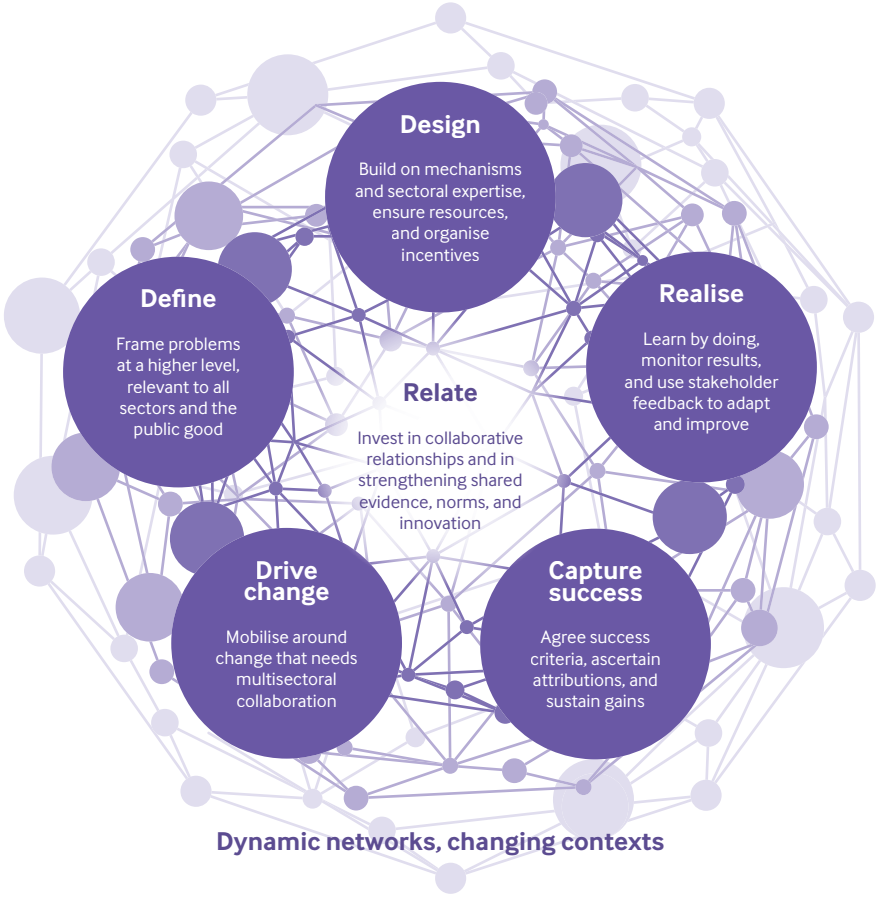

Fig 1 | A multisectoral collaboration model to achieve transformative change. Findings adapted from Dewey 1938[20] and Kuruvilla and Dorstewitz 2010[21] to specify "what makes multisectoral collaborations work"

assessed by triangulating case study findings from different countries, and by drawing on multidisciplinary perspectives in the literature. The global steering committee and country teams reviewed the model and interpretive findings and confirmed that these reflected their experiences and lessons learnt. Expert peer reviews further confirmed the robustness of the interpretive findings and model, identifying congruence with evidence from health and other sectors, as highlighted in the discussion section below. Supplement 1 includes more details on considerations on the quality of the methods and analysis.

How multisectoral collaboration works: country case study findings

The multisectoral collaboration model (fig 1) synthesises findings across the case studies on what works in multisectoral collaboration.

In the model, "Drive change" includes a range of actors and factors that identify a need for, and initiate, a multisectoral collaboration. "Define," "design," and "realise" are deliberate, coordinated actions taken by sectors and stakeholders to tackle the identified need. Multisectoral collaboration is supported by the central component—"relate"—which includes the collaborative relationship as well as the integration of evidence, norms, and innovation in relation to all the different components. "Capture success" refers to how the collaborations define success and measure the results achieved. All six components in the model occur within a broader context of ongoing interactions and changing social and environmental contexts, and create a new force for collective action, learning, and change.

We elaborate on the six components of the multisectoral collaboration model, with higher level interpretive findings and illustrative country examples.

Drive change

All the multisectoral collaborations presented in this series sought to disrupt the status quo positively by instituting "business not as usual." Across the case studies, drivers of change included a range of challenges or opportunities such as legislative, political, or socioeconomic changes, including the transition from low to middle income country status. In some cases, new data played a role by revealing a problem or gap; in others, scientific advances and innovation brought new possibilities for change. Media coverage and public attention often played an important part in instigating action, as did demands by stakeholders for harmonised policies and programmes to achieve common goals. In some countries, a high level "champion" was willing and able to kick start the collaboration and drive it forward.

Multisectoral collaboration being complex and requiring significant coordination and resources, stakeholders in all cases had to assess whether this was a better way to achieve the desired changes than reliance on action by an individual sector (box 2).

Define

Once a decision to engage in multisectoral collaboration was taken, the situation was strategically defined and framed so that all sectors and stakeholders could see their role and contribution to a common goal. Attention paid to defining the problem also influenced the type of solutions sought and the measures of success; "a problem well-put is half solved."[20] In most cases the matter was framed in terms of overarching

Box 2: Drive change: country examples

Germany: For more than a decade, Germany has been making a concerted effort to ensure all children grow up healthy and safe.

Germany's Early Childhood Intervention programme supports nationwide goals of providing equal opportunities for all children to develop to their full potential. The programme includes cross sectoral collaboration as a central component, particularly between the social services sector and the health sector. Efforts contribute to nationwide support for cross sectoral networks supporting early childhood intervention, such as family midwifery and nursing services, and are part of a long term focus to ensure children grow up healthy and safe, particularly for families living in difficult circumstances.

A key driver of this programme is the rising share of children living in a family receiving social benefits, despite overall prosperity and strong economic growth in the country. Burdened families often slip through the social net and are driven towards susceptibility to harmful parental behaviour and in some cases, child maltreatment. High profile cases of child neglect in Germany led the public to demand for urgent action.[26]

Guatemala: After more than a decade of post-war reconstruction, inequities in the levels of maternal mortality between indigenous and non-indigenous women remained stark, indicating that the health system was not adequately meeting the needs of indigenous women.

One study found that a large portion of ethnic differences in the use of institutional delivery services between indigenous and non-indigenous women was attributable to indigenous women not speaking Spanish. This study and a 2015 health systems assessment for Guatemala indicated additional challenges with availability, accessibility, and quality of services for indigenous women.

In response, Indigenous Women's Organizations for Reproductive Health, Nutrition, and Education (ALIANMISAR) began working to tackle these problems, including the improvement of the quality and cultural acceptability of healthcare provided to indigenous women. As part of its mission, ALIANMISAR monitors a range of public health services at national, departmental, and municipal levels, in collaboration with other community based organisations, the executive and legislative sectors of the government (such as the Ministry of Health and the Ombudsman for Human Rights) and with international partners. To date, joint monitoring has contributed to important improvements in health policy and legislation, health services and infrastructure for indigenous women.[27]

India: India's immunisation programme is the largest in the world, with annual cohorts of around 26.7 million infants and 30 million pregnant women. Despite steady progress, routine childhood vaccination coverage has been slow to rise, with an estimated 38% of children failing to get all basic vaccines in the first year of life in 2016.

In response to low childhood vaccination coverage, India's Ministry of Health and Family Welfare launched Mission Indradhanush (MI) in 2014 and, based on the programme's success, the prime minister spearheaded an ambitious plan to accelerate progress further, launching Intensified Mission Indradhanush (IMI) in districts and urban cities with persistently low immunisation coverage with the aim of reaching 90% full coverage. IMI targeted areas with higher rates of unimmunised children and immunisation dropouts. A chain of support was established from the national level through states to districts, with senior staff providing regular reviews of progress and receiving updates on progress.[28]

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Box 3: Define: country examples

Chile: A survey in 2005 found that 30% of Chilean children under the age of 5 were not reaching developmental milestones, with wide gaps between rich and poor.

Drawing on these survey results, Michelle Bachelet, a paediatrician and the first female president of Chile, set a goal to ensure optimal development for all children, regardless of background, origin, and socioeconomic status, by breaking the intergenerational cycle of poverty and reducing inequity.

The resulting initiative, Chile Grows with You (Chile Crece Contigo), is a comprehensive protection system for children from the prenatal period to 4 years, taking advantage of every encounter between children and health services, and providing coordinated services across different public sectors.[29]

Malaysia: The government of Malaysia approved funding for a multisectoral effort to support a human papillomavirus (HPV) immunisation programme for girls and significantly reduce the incidence of cervical cancer.

Prior to this, the cervical cancer screening programme had failed to achieve screening targets. There was increased political and public interest in the matter because of media stories about the illness and death from cancer of the prime minister's wife. There were also concerns that the vaccine could promote sexual promiscuity, be harmful to health, or not meet Islamic requirements.

Through a multisectoral effort, HPV immunisation was presented to stakeholders as a public good whose benefits outweighed its costs. Information from the telephone hotline, social media, and emails provided realistic and dynamic feedback on concerns about, and acceptance of, the vaccination programme. Key messages focused on cancer prevention and avoided sexual connotations, and the National Islamic Religious Authority issued a fatwa that the vaccine was permissible.[30]

South Africa: The South African government is increasingly concerned about the high rates of new HIV infections among adolescent girls and young women. It recognised that several social and structural factors underpinned this problem: poverty; unmet need for health and social services, including through educational institutions; gender inequality; and alcohol and substance abuse.

She Conquers, a three year national campaign launched by the government in June 2016, aimed to reduce the burden of HIV among women aged 15-24. The campaign moves beyond a focus on disease transmission and associated stigma to a narrative of power for adolescent girls and young women. Through multisectoral collaboration, the campaign expands a range of opportunities for adolescent girls and young women to claim their rights and decide their own futures.[31]

societal goals and values: for example, the human rights of indigenous communities, the agency and power of girls and women, and overcoming inequities in access to health and social services. In some countries the problem was further structured in more technical terms: for example, based on a specific health or sustainable development outcome, a service coverage gap, or the socioeconomic benefits of tackling a challenge (box 3).

Design

The solutions sought to the problems tackled by multisectoral collaboration were designed to build on existing structures, making innovations and adaptations for specific contexts. This process drew on diverse expertise from different sectors, and on feedback from stakeholders, to enhance relevance and impact. Although the design phase was often led by topic experts, the participation of stakeholders, including service users and the general public, was crucial. The feedback of service users in particular helped ensure the acceptability and perceived value of the designed solution.

Ensuring sufficient resources, for both the programme activities and the management of the multisectoral collaboration itself, was a critical concern. In some countries the coordination of multisectoral collaboration was funded from the outset. Others started with seed funding. Across all the case studies, transitioning a project into an institutionalised programme with predictable (often government) funding was a desired objective. Designing mechanisms for regular, open communication among the multisectoral collaborators was also emphasised in many of the case studies (box 4).

Realise

Implementation involved both doing and learning, sometimes requiring openness to change course to achieve desired results. Regular monitoring and evaluation enabled collaborations to redesign their approach when initial plans failed to achieve results, for example because programmatic barriers were not taken into account. Goals also evolved in response to unplanned effects and emerging political, health, and development priorities or events. "Realise" is therefore a learning process, in which goals and strategies are continually tested and adjusted, rather than an undeviating linear process.[21]

An enabling factor for collaboration in this phase, particularly when scaling up, was finding the optimal balance between national level standardisation, support, and quality assurance on one hand, and the flexibility to adapt to local needs on the other. For example, national efforts for standardisation and capacity building can support local implementation. Successful local adaptations and initiatives can inform national guidance and support and be shared or scaled up across a country.

The "realise" component is an iterative process, often needing collaboration to redefine or redesign its planned action, or a component of it. This might be because of changes in the sectors or stakeholders involved, whether individuals or organisations. As the case studies show, these changes are sometimes planned, sometimes organic, sometimes initiated by an external or internal factor, and sometimes unanticipated (box 5).

Relate

Relationship building is central to all multisectoral collaborations. Investment in collaboration mechanisms enables open and regular communication, and facilitates the mutual understanding, trust, and accountability needed to achieve shared goals. Also important are mechanisms for all stakeholders to provide feedback throughout the process, to inform any adaptations needed.

Aligned with a collective logic of inquiry,[20] multisectoral collaboration enabled diverse evidence and ideas to be tested, and encouraged innovation to tackle long standing constraints and achieve greater impact. Norms and

Box 4: Design: country examples

Indonesia: A schools based iron supplementation project for adolescent girls in Indonesia provided a scalable model for anaemia reduction. The project focused on existing platforms and policy frameworks to catalyse multisectoral collaboration. Political commitment from policy makers within each sector drove the collaboration, as well as commitments from school administrators. Capacity building was needed at all levels, but investments in strengthening individual and institutional relationships across sectors helped foster collaboration. Harmonisation and collaboration on data collection, monitoring systems, as well as joint responsibility for, and ownership of, shared results, outcomes, and goals were key to engagement from all stakeholders.[32]

Malawi: Chipatala Cha Pa Foni (CCPF)—Chichewa for "health centre by phone"—is a free health and nutrition hotline. Launched in 2011 as a pilot project in one rural district of Malawi, it is now available nationwide to anyone with access to one of two major communications providers in Malawi. CCPF originally focused on pregnancy, antenatal, and postnatal advice, and advice for callers to seek facility care when appropriate. The programme has since expanded to include all standard health topics including water, sanitation, and hygiene; infectious diseases; and nutrition. Youth friendly services were introduced, increasing access to sexual and reproductive health information for young people. The service has the flexibility to handle emergent problems, such as cholera outbreaks. CCPF was developed iteratively by public, private, government, community, donor, and non-governmental stakeholders. CCPF will be one of the first government run nationwide health hotlines in Africa when the handover is completed in 2019.[33]

Sierra Leone: In May 2014, Sierra Leone reported its first Ebola case in Kailahun, a remote, marginalised, and impoverished district bordering Liberia. The district experienced one of the highest concentrations of Ebola infections during this outbreak, during which over 1600 children were orphaned and gender inequalities were exacerbated. Public health control measures put in place by the Sierra Leonean government included closing all schools, and prohibiting public congregation. While many other educational services ceased operations entirely in Kailahun, the partners involved in Getting Ready for School redesigned the project into a radio education programme called Pikin to Pikin Tok (PtPT), meaning Child to Child Talk in Krio. Over 30 children affected by the Ebola crisis, who had been young facilitators in the original programme, worked alongside PtPT's field staff to develop the radio programmes, conduct interviews, make recordings for the radio programmes, and ensure the project remained child centred. Children involved in the programme became empowered, gaining experience as journalists and facilitators, and encouraged by listener groups to challenge adults, including parents and government representatives. They critically assessed their circumstances and how to support and protect each other, and openly discussed subjects normally regarded as taboo or difficult, such as sexual abuse.[34]

values were interlinked with evidence as an explicit consideration in the case studies, particularly in terms of respecting positive sociocultural norms, shifting away from harmful norms, or developing and formalising new norms, for example, through standards, guidance, or official agreements.

Multisectoral collaboration is a dynamic process that occurs within wider interactions and networks and changing political, social, and environmental contexts (figure 1). Different stakeholders were more or less strongly engaged at different stages in the collaboration, depending on their roles, which were defined more or less formally. In some cases, a cross cutting coordination

Box 5: Realise: country examples

Afghanistan: Decades of war and instability had left most people without access to primary health services. In response, Afghanistan's Basic Package of Health Services (BPHS) was introduced in 2003 at the primary care level and is an example of an innovative multisectoral collaboration implementing, scaling, and iteratively refining health service delivery in a poor, post-conflict crisis setting.

Afghanistan's distinctive BPHS was rolled out nationwide and the delivery of BPHS services in 31 of Afghanistan's 34 provinces was the responsibility of NGOs—through a contracting-out mechanism. The entire development of the BPHS reflected the multisectoral collaboration in its design, execution, and oversight. The programme was stewarded and implemented by the Ministry of Public Health with contributions from numerous ministries and is an example of how various stakeholders and sectors collaborate to implement a basic health structure.[35]

Cambodia: IDPoor is a step in Cambodia's ongoing evolution towards a comprehensive social protection system and promoting equity. IDPoor's origin is linked to the health sector and the introduction of the national Health Equity Fund to reduce financial barriers in access to healthcare. With assistance from development partners, the Ministry of Planning formulated a national, cross sectoral poverty identification mechanism to establish an integrated social registry to serve multiple social assistance programmes. The Ministry of Planning assumed an essential coordinating and administrative function, which was qualitatively different from the functions of technical line ministries that oversee service delivery. This cross cutting coordination function was essential to engage with a variety of sectors and stakeholders. Active involvement of relevant ministries at national and sub-national level, communal structures, NGOs, and development partners helped to build a consensus on the national guidelines and contributed to wide acceptance and use of IDPoor.[36]

USA: The Voices for Healthy Kids initiative launched in February 2013 as a multisectoral, multistakeholder collaboration co-created by the American Heart Association and the Robert Wood Johnson Foundation. The initiative engages, organises, and mobilises advocates to improve health in their communities by helping all children and adolescents achieve a healthy weight. This strategy is based on the premise that policy and environmental changes to improve food and physical activity settings are vital to support and enable people's healthy weight efforts, and can also promote public health. The initiative aims to build capacity in state and local coalitions by awarding grant funding to advocates of policy changes that make healthy foods and beverages and physical activity more accessible and affordable where children and adolescents live, learn, grow, and play. Voices for Healthy Kids now convenes and coordinates more than 140 stakeholder organisations from the arenas of social justice, physical activity, nutrition, education, transportation, food access, school health, and other sectors to advance policy changes.[37]

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Table 2 | Illustrative examples of a spectrum of successes in the country case studies

Success characteristics	Selected examples
Contribution to health and Sustainable Development Goals	Health related results, including for equity, gender, and human rights: • Around six million children were vaccinated within a three month period, with over 850 000 children vaccinated for the first time. Children fully vaccinated by 12 months of age rose by around 18.5% in IMI target districts to 69% coverage (India)[28] • Changes in the attitudes of health providers to the provision and access of culturally appropriate and high quality services for women from indigenous communities (Guatemala)[27]
	Multisectoral related results, including for equity, gender, and human rights: • Among the three million adolescent girls and young women aged 15-24 years in 22 priority sub-districts, more than 72 000 got support to remain in school, and to gain access to health and other social services (South Africa)[31] • Around 2.2 million people living in poverty (25% of them women of reproductive age and 30% children under 15) received an equity card from the governments' nationwide poverty targeting system, IDPoor, giving them access to free healthcare and other services (Cambodia)[36]
Collaborative relationships, innovation, and incentives	Collaboration management and mechanisms: • The non-sectoral Ministry for Social Development, experienced in managing social networks and promoting social development policies, promotes better coordination of multisectoral activities, rather than focusing on the activities of one sector (such as health or education). Coordination takes place across ministries and services at the same level (horizontal coordination) and across different levels of government from national to commune level (vertical coordination) (Chile)[29] • The decades old culture of collaboration between the health and education sectors gained new impetus through the opportunity for providing HPV immunisation to schoolgirls; new collaborations between public and private sectors emerged in response to resource constraints and a national emphasis on multisectoral collaboration (Malaysia)[30]
	Resources for programmes and for the collaborations: • Programmes in fragile settings were sustained by committed donor funding. Donors who were hesitant about providing direct funding chose trust funds as a more secure means of contributing, because of higher transparency and mutual accountability associated with this mechanism (Afghanistan)[35] • With robust evidence of its positive impact, the Federal Foundation for Early Childhood Intervention became a mandatory federal programme at the beginning of 2018, receiving approximately €51m (£44m; $59m) per year (Germany)[26]
	Research, monitoring, and evaluation: • Innovative measurement and evaluation processes were developed, to which all stakeholders contributed. An example is the concept of "policy wins," defined as the enactment of legislation, regulations, executive orders, or ballot measures, which Voices for Healthy Kids championed at state or local level. Over 140 policy wins were achieved, including to improve the availability of healthy food and opportunities for safe physical activity, and to reduce inequalities in social justice, education, transportation, food access, school health, and other sectors. Early and continuous investment in monitoring and evaluating a wide spectrum of results helped to drive continuous improvement and comprehensive change (USA)[37] • In the national Anaemia Prevention and Control Programme in Adolescent Girls and Women of Reproductive Age (WIFAS policy) data drove decisions and accountability. Sectors harmonised data collection and monitoring systems, with joint responsibility for, and ownership of, results; this was key to building trust and strengthening the engagement of all stakeholders (Indonesia)[32]
Scale and sustainability	• Access to education was maintained during the Ebola outbreak through child led radio broadcasts reaching over 500 000 people. Community awareness of the value of education, especially for girls, increased. The programme also acted as a catalyst for new programmes: Child to Child and Pikin-to-Pikin, in collaboration with Romeo Dallaire Child Soldiers Initiative and former child soldiers, are developing a further programme of radio broadcasts (Sierra Leone)[34] • Adherence to Ministry of Health guidelines and protocols was strengthened through training documentation, nutrition guidelines, and disease surveillance, for example. Transitioned from a local innovation serving one district to national scale, supporting 60 000 Malawians from all 28 districts. Ownership is transitioning from NGO to government (Malawi)[33]

function—through, for example, ministries of planning or finance—was helpful to connect specific technical sectors and engage a wide range of stakeholders.

A shared sense of identity in multisectoral collaboration often developed in response to a specific context, including the ability to learn, adapt, and evolve in response to ongoing developments on the ground. Global and regional stakeholders' contributions were also valued, especially in times of crisis and to tackle shortfalls in technical capacity or resources.

Capture success

The collaborations defined their successes across a spectrum of results (table 2). The country case studies were explicitly selected on the basis of their having described, in responding to the call for proposals, some degree of success relating broadly to health and sustainable development outcomes. The call did not predefine success but left this for applicants to describe. The diversity of interpretations, as manifested in the broad spectrum of successes reported, is a key finding in itself. It indicates that different paradigms and definitions of success are at play here, and that "there is no one truth" about what constitutes success in multisectoral collaboration.[21 38]

Nevertheless, across the case studies, three common components of success are evident: a contribution to health and sustainable development goals, including benefits perceived by service users; success within the collaboration in terms of strength of relationships, innovation, and incentives; and the scaling up and sustainability of the effort. These components highlight a common view that multisectoral action is valuable for both the means and the ends achieved.

The positive results reported by the case studies, however, need to be considered with caution. Two critical caveats are the self defined nature of the successes and the extent to which they are directly attributable to multisectoral collaboration (as a standard intervention), given the diversity of contexts and collaborations. For example, the studies did not involve comparison with populations who were not exposed to multisectoral collaboration, and few had pre-post measures. Nonetheless, based on evidence of improvements in processes and intermediary outcomes,[17 38] plausible assumptions can be made about the potential positive contribution made by the collaborations to health and sustainable development outcomes.

Capturing success also requires learning from failure and adaptation to challenges and change. In some cases, collaborative relationships took longer to establish because the problem was not framed in a way that all sectors and stakeholders could see the benefits of working together. This

often required several iterations. The lack of engagement of key stakeholders and experts in relevant programme components reduced the ability to coordinate action and to adapt—for instance to tailor services appropriately for high risk groups and local circumstances. It also led to delays in the transition to scaling up or government ownership of programmes.

The multisectoral collaborations faced a range of ongoing or new challenges which required adaptive and innovative responses, as highlighted in "realise." Adaptive strategies included raising additional funds to meet financial shortfalls; collaborating with media to increase public awareness of, and support for, the programme; strengthening systems to support multisectoral services; and regularly monitoring and responding constructively to changing political, demographic, and social changes, including emergency situations.

Discussion

Despite the case studies being heterogeneous in terms of their geographic, economic, social, cultural, and historical contexts, strong similarities were identified in how multisectoral collaborations were initiated, managed, and taken to scale (figure 1). These higher level findings and shared lessons allow governments and other implementers to showcase their achievements and learn from real world experiences of how multisectoral collaboration works.

The findings in this paper reflect and supplement those in the literature on multisectoral collaboration, including in the areas of education, nutrition, non-communicable diseases, and early childhood development.[12 15 23 39] Our findings highlight the need to build on local resources and structures, embed quality assurance mechanisms within implementation, and ensure relevance and adaptability to context, based on service users' experiences and perspectives. The importance of building a shared understanding of diverse stakeholder interests and contributions, investing in ongoing and open communication, and managing stakeholder relations is also evident.[8 12 22 23 40] Finally, the need for continued commitment when pursuing coordinated action is emphasised, with the flexibility to learn from results and to make required changes along the way.[41 42]

We provide new insights into the dynamics and effects of multisectoral collaboration. Multisectoral collaboration is not a constant configuration,[23] but a dynamic and evolving process, during which stakeholders and their engagement may change across different components and contexts of the collaboration. The collaborations were intentional new modes of collective action that generated new learning and new ways of working as they evolved, to achieve transformative results. Stakeholders strategically framed a challenge or opportunity that all sectors could relate to and explicitly deliberated on the evidence, norms, and innovation needed to shape all components of the collaboration.

Collaboration across the case studies show three common elements of success: contribution to health and sustainable development goals; collaborative relationships, innovation, and incentives; and scaling up and sustainability of the effort. More studies are needed to further define success for multisectoral collaborations and strengthen measurement.

The case studies' findings offer plausible associations for the positive results of multisectoral collaboration. These should, however, be interpreted with caution given the limitations in measurement, comparability, and attribution, especially with regards to health and development outcomes. There are challenges in demonstrating and attributing direct impacts of multisectoral collaboration as an intervention. Research and evaluation in this area is needed, however, to develop and test hypotheses about the specific factors that contribute to success, which would also inform investment and practice in this area.

Important areas for further work include the development and standardisation of indicators—such as on the perceived value of collaborative relationships and incentives, or on scaling up and sustainability. The case studies here focus on success stories: future efforts could focus on developing a systematic way to analyse failed collaborations and the lessons to be learned from them.

Specific methods and tools (box 6) could help to apply in practice the six components of the model presented here, and facilitate testing and further development.

Conclusion

This article and the country case studies offer fresh insight into how diverse sectors can intentionally shape new ways of collaborating and learning in order to transform situations and achieve shared goals. The strategies described above contributed to incentives for the sectors involved, and for the public good. The multisectoral collaboration model which has emerged from this paper is relevant for other partnerships and collaborative efforts seeking to work together better and achieve positive transformative change.

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Box 6: Examples of tools and methods to support the application of the multisectoral collaboration model

The multisectoral collaboration model is based on the "logic of inquiry" as an overarching method.[20] In addition, there are specific methods and tools to help operationalise the six components of the model.

1. Drive change: set agendas and mobilise a critical mass of stakeholders for change,[41] ascertain whether the situation is best tackled by multisectoral collaboration, and optimise linkages across sectors and SDGs[5 7 43]
2. Define: clarify the situation in a way that improves how problems are assessed, and enables stakeholders to agree on a course of action and develop a well defined project[44]
3. Design: build on existing mechanisms and sectoral expertise to plan programmes, set up governance for the multisectoral collaboration, and develop innovations that are relevant to stakeholders, contexts, and goals[8 12 45]
4. Realise: strengthen implementation, monitoring, and evaluation as iterative and adaptive processes that facilitate learning from successes and failures, and adapt to change[45]
5. Relate: systematically assess and strengthen synergies between sectors,[5 7 43] manage multisectoral collaborations,[8 12] and promote multistakeholder dialogue and deliberation[46]
6. Capture success: use a range of qualitative and quantitative methods to monitor and evaluate results comprehensively and promote learning from both successes and failures,[17 38] and formulate multisectoral collaboration as an intervention to which health and development outcomes can be attributed.[47]

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Supplement 1: Developing a multisectoral collaboration model: a methods roadmap

See www.bmj.com/multisectoral-collaboration for other articles in the series.

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Adolescent girls' nutrition and prevention of anaemia: a school based multisectoral collaboration in Indonesia

Marion Roche and colleagues highlight lessons from a multisectoral project implementing weekly iron supplementation for adolescent girls in West Java, Indonesia, which provides a scalable model for reducing anaemia

Iron deficiency anaemia is estimated to be the single largest cause globally of morbidity and mortality in adolescent girls; it is expressed as disability adjusted life years.[1] Disadvantages linked to iron deficiency anaemia include reduced academic potential; decreased wellbeing and productivity at home or in the community; and increased maternal and infant morbidity and mortality for adolescents who become pregnant.[2] The World Health Organization recommends weekly iron folic acid supplementation (WIFAS) to reduce anaemia in adolescents aged 10-19 years and women of reproductive age, in regions where anaemia is a public health concern, affecting >20% of females aged 15-49 years.[2] In Indonesia, the national prevalence of anaemia among females aged 15-24 years is 18.4%[3]; other surveys suggest a prevalence of 30% in adolescent girls.[4] Screening data from junior high school students in West Java, the most populous province with 47 million inhabitants,[5] indicated a prevalence of >50%.[6]

KEY MESSAGES

- A school-based iron supplementation project for adolescent girls in West Java, Indonesia provides a scalable model for anaemia reduction
- Existing platforms and policy frameworks for action help to catalyse multisectoral collaboration
- Political commitment from the highest policymaker of each sector or ministry is key, but local and institutional commitment, such as from each school principal, is also needed
- Capacity building is needed at all levels, but investments in strengthening individual and institutional relationships across sectors help to foster collaboration
- Data drive decisions and accountability, so harmonisation and collaboration on data collection, monitoring systems, and joint responsibility for, and ownership of, shared results, outcomes, and goals are key to engagement by all stakeholders

Indonesia's Ministry of Health updated its national programme for anaemia prevention and control in adolescent girls and women of reproductive age (WIFAS policy) in 2016 to align more closely with WHO guidance (box 1). As part of the revision, it was suggested that an existing school health programme, Usaha Kesehatan Sekolah/Madrasah (UKS/M), should deliver the service[7] (box 2). In Indonesia, adolescents rarely access preventive health services, but over 86% are enrolled in secondary school. Thus school based interventions are seen as ideal to reach adolescent girls, and are cost effective in other settings.[9] Although the WIFAS policy had been revised, it had not been implemented, and practical guidance from the Ministry of Health was limited. To overcome this challenge, the ministry received technical and financial support from an international non-governmental organisation—Nutrition International—in 2015, to introduce a demonstration project for adolescent nutrition. This project worked through the school health programme to understand the roles, challenges, and opportunities inherent in this multisectoral approach, with the aim of designing a scalable programme.

This case study was developed in response to a global call for proposals by the Partnership for Maternal, Newborn, and Child Health. It aimed to identify factors for successful multisectoral collaboration for women's, children's, and adolescents' health.[10] The methods used included document review and interviews with key informants to provide information for a working report, and a multistakeholder review of the findings of the working report (supplement 1).

Design of the demonstration project intervention

The adolescent nutrition WIFAS demonstration project was conducted between 2015 and 2018. It aimed to show how the revised national WIFAS policy could be introduced through the UKS/M school health programme, supported by four ministries: Ministry of Health, Ministry of Education and Culture, Ministry of Religious Affairs, and Ministry of Home Affairs (box 3). The Ministry of Health selected the peri-urban and rural districts of Cimahi and Purwakarta, respectively, in West Java (fig 1), as implementation sites. The districts reported high rates of anaemia (>50%) and had also shown leadership in championing adolescent nutrition.

The demonstration project involved three key strategic components based on broader adolescent nutrition programme work by Nutrition International. This includes both WIFAS and nutrition education for adolescents[11]; see also, project timeline (supplement 2).

(1) Increasing awareness of, and securing government commitment to, the WIFAS project and adolescent health, in general. This to be achieved through implementation of policies, ensuring budget allocation for procurement and supply of IFA supplements, training, supportive supervision, and providing resources through joint advocacy meetings at national, provincial, and district levels.

(2) Improvement of the supply of commodities through skills building of Ministry of Health staff in forecasting, procuring, and supplying IFA for district health offices, and by strengthening supply chain management systems. Programme work also included provision of joint

Box 1: Evolution of weekly iron folic acid supplementation (WIFAS) policies in Indonesia

- Since 1997, the government of Indonesia has had a mandate to introduce iron folic acid supplementation for adolescent girls, in order to reduce future maternal health complications. The original 1997 guideline recommended one supplement, once weekly for 16 weeks, and an additional supplement every day for 10 days of menstruation each month[7]
- This guidance was not aligned with the updated 2011 WHO guidelines for iron folic acid supplementation.[2] These guidelines recommend one supplement weekly for 3 months and then 3 months without supplements (6 months total/year), or the option to implement the programme once weekly during the school semester, as aligned with the school calendar[2]
- In 2015, academics and nutritional experts, including Nutrition International, participated in technical consultations led by the Ministry of Health, to align national guidelines with theWHO recommendations. The revised Indonesian guideline recommends WIFAS of
- 60 mg elemental iron +400 µg folic acid, once weekly for every week of the year.[7] The formula recommended by WHO (60 mg elemental iron + 2800 µg folic acid) was not affordable globally

and on the job training for teachers and primary health facility (puskesmas) staff, and district officials from the health, education, and religious sectors. This aimed to improve knowledge of, and skills to prevent, anaemia, WIFAS consumption and counselling, and forecasting and reporting. Teachers distributed WIFAS to adolescent girls, supervised, and recorded consumption, and provided instructions on the prevention and management of side effects. Following best practice elsewhere, a fixed day approach was followed—for example, every Friday at assembly.[12]

(3) Increasing demand, and acceptability of the project to different stakeholders, through a behaviour change intervention strategy, including a branded campaign "Healthy, beautiful, and smart without anaemia" (fig 2). Campaign messages were based on formative research with adolescent girls, parents, health staff, teachers, and religious leaders.[6] The behaviour change intervention strategy aimed to show that WIFAS and anaemia reduction would improve school performance and wellbeing of adolescent girls, rather than linking it to reproductive health (supplement 3).

Findings from the demonstration project could help to scale up the policy beyond these two districts. We estimate that the demonstration project might have contributed to preventing 4071 cases of anaemia, by reaching 52 000 adolescent girls with the WIFAS scheme in the two districts. These figures are based on estimates from Nutrition International's Outcome Modelling for Nutrition Impact Tool[13]; modelling based on the national prevalence of anaemia for women of reproductive age; and 27% cases of anaemia averted by WIFAS.[14] Details of additional achievements provided by the endline evaluation measurements are shown in supplement 4. Below, we examine the different components of collaboration that contributed to this success.

Box 2: Usaha Kesehatan Sekolah/Madrasah (UKS/M): national school health programme

The UKS/M programme, established in 1976, aims to improve students' educational achievement by encouraging a healthy lifestyle and creating a healthy environment for students[8]

The programme was updated in 1984, and endorsed by a joint regulation of four ministries: the Ministry of Education and Culture, Ministry of Health, Ministry of Religious Affairs, and Ministry of Home Affairs. Each sector has its own role and responsibilities for supporting UKS/M activities. These guidelines were updated in 2014. They provided a comprehensive list of activities for schools to adopt those most needed

The programme promotes intersectoral collaboration for school health among ministries with national, provincial, district, and subdistrict coordination teams. In schools, the head teacher and one or more teachers oversee UKS/M actions. Each school is expected to work with primary health facility (puskesmas) staff to carry out certain programme activities. In 2016 the national Ministry of Health requested that weekly iron folic acid supplementation should be one of the UKS/M activities

Enabling environment, political commitment, and local context

The multisectoral collaboration was driven by a change in policy. It was also enabled by an existing mandate for collaboration, political commitment at all levels, and by overall coordination across sectors by a non-governmental organisation (Nutrition International).

The Ministry of Health sent a letter to all heads of provincial and district health offices in Indonesia providing details of the WIFAS policy change.[7] The updated anaemia prevention and control guideline suggested that IFA supplements should be delivered to schools through the existing UKS/M school health programme (box 2).

The letter clearly prioritised this initiative by provincial and district staff in the health sector. However, three other ministries (religious affairs, education and culture, and home affairs) needed to be involved when the Ministry of Health mandated delivery through the UKS/M programme. They had not yet received guidance from their own leadership (box 2).

Political commitment from these three sectors was generated through joint national, provincial, and district level meetings, facilitated by Nutrition International. The meetings aimed to raise awareness among all four sectors of the burden of anaemia for adolescent girls and the benefits of anaemia reduction. After these meetings, the district planning and development agency (Bappeda) agreed to contribute funds to train additional UKS/M teachers, beyond those covered by the Nutrition International project. In Indonesia, the importance of government endorsement of a project, including issuing circulars to national, provincial, and district/municipal areas, cannot be overestimated. In schools, better commitment from the staff to implement WIFAS activities was achieved when the head teacher issued an official letter.

> "A key factor in the success of collaboration was the support from the head of the district and the legal standing of the project. Therefore, it can be merged into the district programme and consequently the budget will be secured." *Key informant interview, district social welfare officer (May, 2018)*

Although a programme and a written mandate for collaboration existed, assessment showed that the effectiveness of the UKS/M programme in schools was limited, with few activities taking place.

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Box 3: The roles of key partners and stakeholders in the weekly iron folic acid supplementation demonstration project

Ministry of Heath
- Develop programme planning and national coordination within the directorate general of public nutrition
- Facilitate coordination through UKS/M programme
- Ensure timely and adequate procurement of iron folic acid (IFA) supplements, in consultation with the district health offices, to ensure the availability of stocks at schools
- Support health staff and frontline health workers, through regular meetings and on the job training
- Strengthen monitoring and supervision of personnel; and review stocks and coverage of the IFA supplements

Ministry of Education and Culture and Ministry of Religious Affairs
- Support the programme by providing school and madrasah resources and infrastructure, including school staff and personnel
- Facilitate inclusion of health and nutrition education in the curriculum and activities for adolescents
- Include education sessions on a healthy school environment
- Encourage local government to improve the UKS/M infrastructure

Ministry of Home Affairs
- Facilitate implementation of the school health programme, including encouraging the district to develop local regulation for improving the UKS/M programme (including budget allocation)
- Support districts in establishing or strengthening the UKS/M secretariat

Nutrition International
- Technical support for procurement of IFA supplements and financial resources to fill any supply gaps
- Technical assistance through the provision of provincial and district coordinators
- Technical and financial support for advocacy meetings and training at provincial and district level; on the job training; development of training modules and behaviour change intervention materials; and evaluating the demonstration project with academic and research agency partners

Adolescent girls
- Participation in focus group discussions for the project's formative research
- Participation in the design, revision, and testing of behaviour change materials and nutrition education
- Peer leaders to support the focal point teachers
- Provide feedback on the programme during supportive supervision visits

This proved to be a key challenge with using UKS/M to deliver WIFAS, and collaboration with schools needed to be strengthened. District coordinators, supported by Nutrition International, were crucial for revitalising the UKS/M programme and involving each sector, through extensive communication (box 3). Project stakeholders emphasised that this initial investment in the coordinators was essential for bringing together the relevant personnel across the multiple ministries.

Defined roles and responsibilities were described in the UKS/M. However, challenges emerged from the different structures in management, communication, and reporting between health and education sectors. This was due to different levels and timing of decentralisation across sectors, and to changes of structures in the education system during the project (supplement 5). The demonstration project worked with 244 schools that were accustomed to reporting to the provincial office. On the other hand, health services, including nutrition, were coordinated by, and reported to, their respective district/municipal health office. The project moved the expected lines of reporting, and the network of health facilities and district health offices now coordinated with schools. Secondary school management was moved to the provincial level in 2017 soon after the WIFAS project was implemented. This resulted in changes in leadership for the demonstration project in the education sector.

Although misalignment between the health and education system reporting lines was a challenge, decentralisation also had the benefit of fostering innovation by local champions. Under the decentralised system, primary and secondary schools have autonomy to prioritise which UKS/M activities to implement in their schools and school principals played a vital role in leadership of WIFAS activities.[8] The district coordinators built relationships with school principals to create and maintain their interest in the project.

Building capacity and relationships

Joint capacity building succeeded in its original goals, but also had the unintended benefit of fostering relationships and communication. This proved invaluable for the collaboration. Project stakeholders across sectors agreed that the four day "training of trainers" course for district facilitators was the key entry point to collaboration.

The main lesson from workshops was that building relationships and trust among stakeholders was essential for improving collaboration. Such working relationships and communication across sectors were previously absent. Improving personal relationships was recognised by all as one of the main benefits of involvement in the project, in addition to improving knowledge of health and nutrition and identifying goals for the collaboration. Most informants used the term "silaturahmi" or "extending ties of friendships, fellowships, or fraternity" to describe their personal gain from the project (box 4). It was suggested that formal joint training and meetings should be followed up by informal networking, to improve collaboration and build trust across sectors. This was especially important at the district level, and revived the UKS/M programme in both districts, after a period of limited activities.

However, one challenge to sustaining relationships was to reduce the turnover of staff, especially in schools, as it was teachers who delivered the IFA tablets and

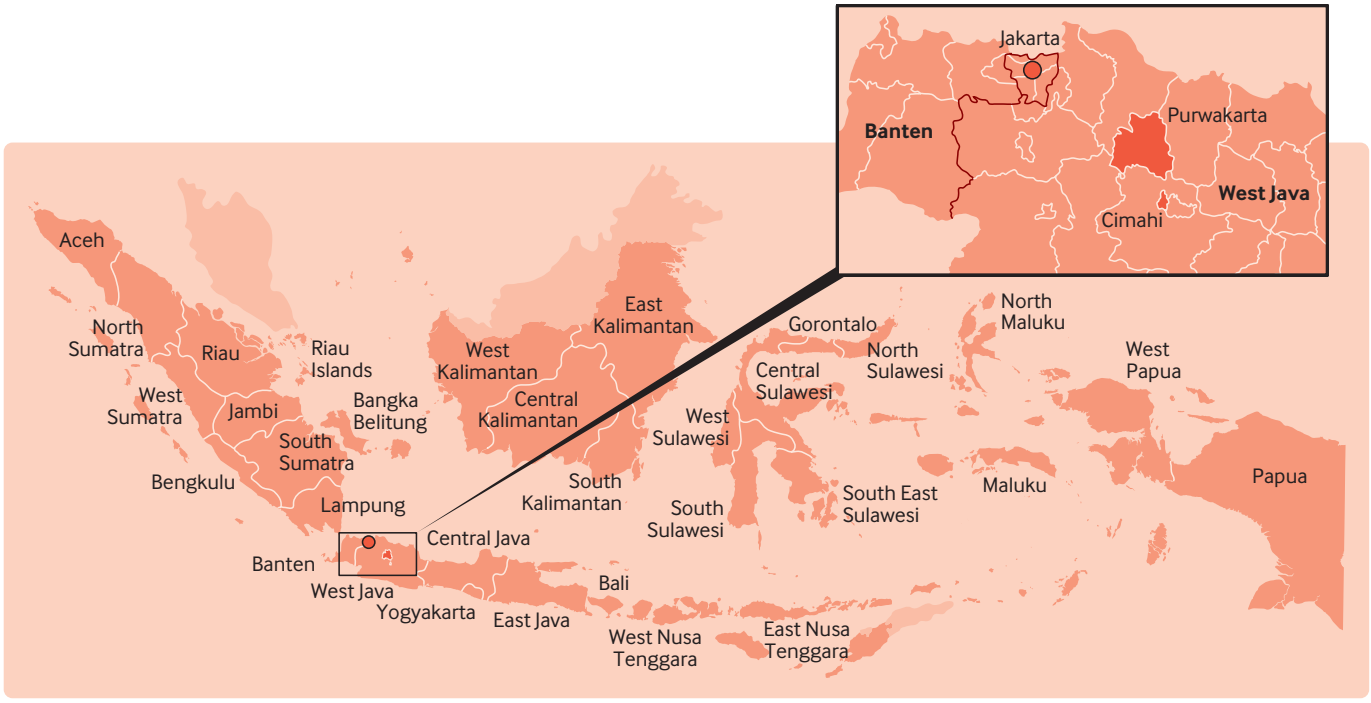

Fig 1 | Map of project demonstration sites

education to adolescent girls. Teachers could be easily transferred to other regions by the district or provincial education and religious affairs office. To reduce this problem the district health offices and Nutrition International conducted on the job training of teachers in schools, providing support and supervision. Some schools also used the WIFAS training manual to provide pretraining information for newly appointed teachers. Involving adolescent girls, such as those in junior Red Cross/Red Crescent groups, in distribution and reporting of WIFAS take up also helped the teachers.

Strengthening supply chain management and monitoring systems to mobilise resources

Providing local data to show the need for, and potential of, the project was necessary for the engagement of participants. School enrolment data from the education office were essential for estimating commodity procurement by the district health offices. After initial resistance, data sharing became smoother when relationships were built:

> "At the very beginning it was very difficult even to get a database of students to estimate the IFA stock for West Java... Now our head (provincial health office) is able to contact by phone her good friend at the provincial education office to get the data." *Key informant interview, provincial health officer (May, 2018)*

District budget constraints were also cited as a challenge to implementing the UKS/M programme. Little information about UKS/M financing at the various administrative levels is available; and without a monitoring and evaluation system, data are limited on the impact of the programme's activities.[8] Participants outside the health sector considered that monitoring and evaluation should be carried out by the health sector. However, there was no mechanism for schools to share data about WIFAS activities before the demonstration project. The district coordinators helped to support harmonisation and reporting across systems and sectors and shared health data with all sectors involved. This helped to build interest in the progress being made, and accountability for implementation across sectors.

Use of evidence and local data involved participants and drove the decisions made.

Fig 2 | Campaign image

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Box 4: The concept of silaturahmi and the importance of extending personal relations for collaboration

The Islamic-Indonesian term and concept of silaturahmi is very important in Indonesia for building personal relationships. It is based on the Islamic value of goodwill and fellowship, and the ability to extend personal ties of friendships to strengthen fraternity and mutual solidarity. To have a wide network of contacts is thought to provide many personal benefits. Thus, it is an important aspect of building relationships, contributing to successful collaboration across sectors for the WIFAS programme. This was expressed by one district stakeholder:

"Previously before the training of trainers we hardly knew each other, although we were all working under the district government. We very rarely had coordination meetings with other sectors, but after the training of trainers, we have been getting along very well ...it extends silaturahmi." Key informant interview, district religious affairs officer (May, 2018)

Budgeting for procurement of WIFAS commodities needed to align with district funding cycles. Thus support was needed for forecasting, with inputs required from both the health and education sectors. From 2015, the Ministry of Health planned to cover 20% of the cost of IFA tablets, increasing this to 30% by 2019. Districts were expected to provide the rest. During the demonstration project Nutrition International covered the gap in supplements. Timely evidence based advocacy for WIFAS, use of resources, and a specific government budget will be required to sustain and scale up the WIFAS project.

Engaging stakeholders at all levels

The prevalence of anaemia was high in adolescent girls at the start of the project. Nevertheless, awareness of the risk and consequences of anaemia was low. This resulted in little demand for iron supplementation and little commitment among parents, teachers, and religious leaders. Iron supplements were generally perceived as being primarily for pregnant women.[6]

Evidence of the local burden of anaemia and the effectiveness of WIFAS, with appropriate description of the problem and benefits of WIFAS, was critical in securing support from all involved, including adolescents. The project highlighted the potential benefit of WIFAS and anaemia prevention for school performance:

> "The district education office's mission is to educate children and young people... therefore we commit to working together and continue the [WIFAS] programme... if the children are not healthy, they will not be educated." *Key informant interview, district education officer (June, 2018)*

Adolescent girls have been underserved by the health system in Indonesia, so their cooperation is essential for the development of youth health services.[15] Involving girls in developing the intervention was vital to the collaboration, following Nutrition International's principle: "Nothing about her, without her." Nutrition education informed adolescent girls about their sex-specific nutritional needs, including iron, and the benefits of healthier diet and lifestyle choices. Teachers sought support from health staff to counsel girls who were rejecting supplements, but non-adherence was largely due to absence from school. Overcoming barriers to school attendance of girls, such as menstrual hygiene management facilities and early marriage, were challenges that remained. Furthermore, adolescent girls who did not attend school were beyond the reach of the UKS/M programme. Additional approaches to reaching vulnerable girls require further consideration.

Teachers were essential to success, as they distributed the supplements and counselled adolescent girls. Understanding anaemia and its effect on school performance and overall wellbeing, motivated teachers. However, with already high workloads, teachers needed to feel that the additional time required was worthwhile and recognised. Endorsement and acknowledgment by school principals and district health leadership was critical. This was achieved by sharing data showing progress in implementation in schools by assemblies and newsletters. This required project and district level results, compiled by the Ministry of Health, to be reported back to schools.

Parents may feel sceptical about interventions delivered outside the health system. They need to feel confident that products are safe and that the teachers delivering them are competent. For reassurance, parents were invited to meetings and sent letters stating the Ministry of Health endorsement of teachers, and details of the UKS/M programme. These were jointly produced by the Ministry of Health and the Ministry of Education and Culture. Schools that informed the parent school committee or met parents had better coverage and adherence to IFA consumption.

Path to sustainability

Although it is too early to confirm the sustainability of the project in the demonstration districts, some promising signs have been seen. These include establishment of the WIFAS project within UKS/M, revitalisation of the UKS/M, support from policymakers, and emergence of champions at every level. For example, project stakeholders at the district level have agreed to jointly pursue school operations grants and also funding from the universal health insurance programme. In Cimahi district, the collaboration has also expanded to include the district development planning agency (Bappeda), in support of implementation and to extend potential financial investments beyond the health sector.

Data from the project can stimulate interest, but it is still necessary to strengthen the internal monitoring system of the UKS/M programme, which currently depends on external support. Project participants were keen to improve coordination across sectors using mobile communication channels and to increase the quality of monitoring and evaluation. In Cimahi, the district health office and UKS/M are holding regular meetings on monitoring as a way to improve data quality and use. This is still in an early stage.

Importantly, scaling up of the WIFAS project is underway, based on the lessons learnt from the demonstration project. Expansion of external resources is taking place, with interest from both Canadian and Australian governments; while increasing financial commitments from district governments are being made. This case study shows that targeted investments in multisectoral collaboration will be critical for success.

The next steps should also focus on the 14% of adolescent girls who do not attend school in Indonesia, with gender inequalities, social norms, early marriage, and early childbearing making them all the more vulnerable to anaemia. Overcoming the limitations of this project to reach many of the vulnerable girls would be of interest to many district sectors. Given the many consequences of anaemia and gender inequality, concerted efforts for anaemia reduction are necessary to achieve the sustainable development goals.

Conclusions

This study of the WIFAS demonstration project in Indonesia highlights several key elements for successful collaboration: political commitment, enabling policy, shared goals, joint training and advocacy,

building relationships and informal communication, and sharing data. The success in reaching adolescent girls in school and the estimated anaemia reduction, are greater than possible by any sector working alone. This article, describing the perspectives and experiences of multiple stakeholders, has illustrated challenges and opportunities that should inform scale up in Indonesia. It provides helpful insights for other countries aiming to reduce anaemia and improve nutrition for adolescent girls.

Multisectoral collaborations require resources and coordination. To further reach adolescents, it will be critical to build such collaborations that respond to the unique needs of countries.

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Supplement 1: Methods for the WIFAS project case study
Supplement 2: The project timeline
Supplement 3: Behaviour change intervention strategy and campaign
Supplement 4: Endline achievements
Supplement 5: Decentralisation in the health and education sectors

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Voices for Healthy Kids: a multisectoral collaboration to accelerate policy changes that promote healthy weight for all children and adolescents in the United States

Emily Callahan and colleagues report how a multisectoral collaboration of more than 140 stakeholder organisations is advancing policy changes to improve food and physical environments in the United States to promote healthy weight for all children and adolescents

Voices for Healthy Kids is a multisectoral collaboration that seeks public policy changes to improve food and physical activity environments to promote healthy weight for all children and adolescents in the United States. Engaging and coordinating the initiative's many different stakeholder groups is complex and sometimes challenging, but key investments and strategies have led to enacted policy such as legislation or regulations ("policy wins") and other achievements.

We describe implementation of the multisectoral collaboration and key factors that have enabled and benefitted it, as well as some of the challenges the collaboration has faced and the outcomes. This example of multisectoral collaboration shows how organisations are responding to the society wide problem of an increased prevalence of child and adolescent obesity. We share lessons learnt from the initiative that may inform global efforts to improve health.

KEY MESSAGES

- The multisectoral collaboration model of Voices for Healthy Kids enables more than 140 stakeholder organisations to align resources in pursuit of shared goals. These stakeholders advocate for public policy changes to improve food and physical activity environments to promote healthy weight for all children and adolescents in the United States
- The collaboration is supported by ongoing commitments to regularly bring stakeholders to together, engage with , and collect their feedback
- A focus on equity in all the processes, strategies, and activities of Voices for Healthy Kids has strengthened the collaboration and is expected to contribute to remedying existing health disadvantages of target populations

A national health crisis

Overweight and obesity affect about one in three children and adolescents in the United States.[1] Inequities in prevalence exist between different population groups across race and ethnicity and by household income and education level. The prevalence of obesity (body mass index greater than or equal to the age- and sex-specific 95th centile of the Centers for Disease Control and Prevention growth charts) among non-Hispanic black (22.0%) and Hispanic (25.8%) young people aged 2 to 19 years was higher than among non-Hispanic white (14.1%) and non-Hispanic Asian (11.0%) young people, based on data for 2015-16.[2] In the same age group, the prevalence in the lowest, middle, and highest income groups was 18.9%, 19.9%, and 10.9%, respectively, based on data for 2011-14. In addition, during those years, the prevalence decreased with increasing level of education of the head of household: 21.6% (high school graduate or below), 18.3% (some college), and 9.6% (college graduate).[3]

We use "inequities" to refer to differences in health that are deemed to be avoidable and unfair, that are strongly influenced by the actions of governments, stakeholders, and communities, and that can be addressed by public policy.[4 5] Inequities in obesity prevalence reflect differential exposure to risk factors such as poor availability of healthy food and opportunities for safe physical activity.[6] Given the inequities in obesity prevalence, Voices for Healthy Kids included from the start a commitment to address equity so that all children and adolescents are reached.[7] This means organisations must identify obstacles faced by specific groups and tailor strategies to tackle the unique challenges identified for each stakeholder organisation.[7]

The excess weight epidemic is attributed largely to interconnected social and environmental changes that shape patterns in energy intake and expenditure. Multiple changes in US society have affected food consumption and physical activity patterns, with modern lifestyles characterised by a dependence on cars, jobs that require little physical effort, sedentary entertainment, and wide availability of relatively inexpensive, high calorie foods and beverages. These multifactoral drivers of obesity have led to consensus that there are no simple solutions for this complex problem.[6] Thus, governments, scientific and professional societies, advocacy groups, and funding agencies have called for public and private stakeholders in many sectors (such as health, education, transportation, and the media) to tackle the problem at multiple levels: individual, family, community, and society as a whole.

Developing a multisectoral collaboration to tackle a shared problem

Voices for Healthy Kids was launched in February 2013 as a multisectoral, multistakeholder collaboration co-created by the American Heart Association and the Robert Wood Johnson Foundation. The goal of the initiative is to help all children and adolescents achieve a healthy weight. It does this by providing grant funding to not for profit organisations to launch campaigns that engage, organise, and mobilise advocates to improve the food and physical activity environment at state or local levels. This strategy is based on the premise that policy and environmental changes to improve

food and physical activity settings are vital to support and enable individuals' efforts to achieve a healthy weight and can also promote public health.[6] The initiative also aims to avoid widening inequities between different groups by directing grants and providing support to those communities in greatest need of support first (for example, those with limited access to healthy foods).[8]

The initiative aims to build capacity in state and local coalitions by providing technical assistance, training, and access to science based resources. Its staff and partners support campaigns with strategic consultation, technical assistance, training, and resources such as toolkits, messaging or communication strategies, model policy language, and polling. Grant recipients may also receive support from consultants with expertise in media and grassroots advocacy, campaign development, health equity, and policy research.

Issues for policy change are selected based on evidence that suggests they are likely to have the greatest potential for impact[6]; state and local context helps determine what policy changes are pursued. Examples of policy issues (suppl 1 on bmj.com) include: ensuring that restaurant meals marketed to children meet nutrition standards; securing funding allocations to create walking and biking infrastructure—eg, sidewalks and trails; supporting sufficient amounts of physical education and physical activity in schools; and establishing statewide nutrition, physical activity, sugary drink, water access, and screen time standards for early childcare providers.

Implementation of the collaboration model

Before launching the initiative, many global and US stakeholders across a range of sectors were working together to tackle the obesity epidemic. To extend the work for a broader diversity of state and local advocacy efforts (box 1), the Robert Wood Johnson Foundation acted to fund a collaborative initiative linking a variety of stakeholders.

The American Heart Association is the coordinating agency for the more than 140 stakeholder organisations that make up Voices for Healthy Kids. These stakeholder organisations come from the social justice, physical activity, nutrition, education, transportation, food access, school health, and other sectors, and they seek to advance policy changes in the food and physical activity environment. In the national collaboration model, stakeholders engage through organisational membership in one or more national groups: a strategic advisory committee, issue specific coalitions, a media core team of communications experts, and a research policy network of leaders in academia. The organisations also engage as trusted collaborators with formal roles on ad hoc committees, or as technical assistance providers (suppl 2 on bmj.com). This article focuses on the national collaboration model, but the initiative also includes grant recipients that have built local and state coalitions of community groups, smaller non-profit organisations, and special interest groups that advance campaigns.

The model was initially centralised and in the beginning was perceived by some as inflexible because of an insistence on following certain operating procedures. For example, grant recipients had to request technical assistance through their regional campaign manager rather than being able to approach the initiative's technical assistance providers directly.[12] As the initiative has evolved, procedures have been established such as a technical assistance portal where grant recipients can access technical assistance providers directly; it also provides a system for documenting and tracking requests to technical assistance providers. The initiative has evolved to include a coalition model that funds stakeholder organisations to lead workgroups on specific issues and task forces that provide national level support for state and local policies. This supports collaboration between a wider group of organisations.

Impact of the collaboration

Increasing the prevalence of healthy weight in young people is expected to decrease obesity prevalence. Changes in the prevalence of obesity could be used as success indicators in the longer term (although there are limitations to this approach, for example, causality cannot be established).[13]

A core measure of the success is that campaigns result in state and local policy changes that improve food and physical activity environments (box 2). Selected policy wins are included in a timeline of milestones (suppl 3 on bmj.com), and the initiative also documents "success stories" of the work to engage, organise, and mobilise communities.[17]

Stakeholders expressed that, in addition to policy wins, other important indicators demonstrate the collaboration's effectiveness. These include connecting advocates, engaging community members (box 3), and integrating equity such as building the capacity of grant recipients to develop policy strategies that address social determinants of health and to better reach groups experiencing health inequities.

Methods

We report an analysis that aimed to establish the factors that enable the multisectoral collaboration and which may have contributed to policy and environmental changes to improve food and physical activity settings, which are vital to enable all children and adolescents to achieve a healthy weight. Findings came from a detailed review of documentation of the initiative's development, implementation, outcomes, and evaluation, including annual reports, key informant interviews, and findings from a multistakeholder dialogue held in June 2018 (suppl 4 on bmj.com).

Analysis of factors enabling multisectoral collaboration

The case study identified four factors that enable and benefit the work of the multisectoral collaboration.

Formalising opportunities to convene and connect stakeholders

The broad vision of Voices for Healthy Kids attracts many different stakeholders. This

Box 1: Context of state and local advocacy activities of Voices for Healthy Kids

The federal system of government in the United States delegates substantial authority to regional governments (the 50 states) in a system in which central planning and control is not held completely at either the federal or state level.[9] Operating in this largely decentralised system, Voices for Healthy Kids pursues policy changes at both state and local levels. State level changes apply to all the state's localities and can maximise reach, while local efforts where there is readiness and capacity for a particular issue can help establish and increase support for state level campaigns and policy changes. US law permits the American Heart Association, a non-profit organisation legally structured as a 501(c)3 public charity, to promote and influence public policy but limits the amount of organisational resources that can be spent on these activities. Accordingly, the American Heart Association closely monitors and reports lobbying expenditures.[10] Federal tax laws prohibit the use of funds from the Robert Wood Johnson Foundation for lobbying activities.[11]

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Box 2: Selected results from Voices for Healthy Kids

Voices for Healthy Kids tracks campaign outcomes as well as key processes that support campaigns and facilitate policy wins. To date, the collaboration of multisectoral stakeholder organisations has led to:

- 157 grants awarded to state and local coalitions, totaling $24.5m (£16.6m; €19.0m)
  - In states with the funding from the initiative, the bill enactment rate was 50% higher than in states without initiative funding [14]
  - The number of childhood obesity bills introduced and enacted increased in the United States between 2013 and 2016. The evidence based advocacy supported by the initiative appears to be greatly associated with the introduction of more state level bills to tackle childhood obesity but not enacted legislation [15]
- 18 advocacy toolkits [16] created for different policy issues and 16 100 toolkit requests from the field (toolkits contain materials and resources to help advocates conduct policy change campaigns)
- 142 policy wins reaching more than 167 million people in the United States. Examples include:
  - Securing funding for planning and infrastructure improvements that make it safer for students to walk and bike to school, such as safer street crossings and bike trails (state of Minnesota)
  - Passing legislation that creates healthier "default" beverage options for kids meals in restaurants (city of Baltimore, Maryland)
  - Securing funding to reduce food insecurity, including hiring a food access coordinator and providing funds to open large grocery stores or improve existing stores (city of Austin, Texas)

Source: Voices for Healthy Kids internal statistics tracking and Strategic Advisory Commitee Dashboard, 1 February 2013 to 9 August 2018

shows that healthy weight can be pursued through various strategies, including equitable access to healthy foods and beverages and physical activity opportunities. Action in these areas predates the initiative's launch, but stakeholders were not then always aware of each other's efforts. Many organisations shared similar goals related to improved nutrition, increased physical activity, and healthy weight, although their motivations and methods for achieving these goals sometimes differed.

The initiative found that a key driver of stakeholder engagement is the connection between stakeholders' missions and the initiative's goals—shared interests. This is the driver of engagement most frequently reported by stakeholders in surveys about the initiative. Other factors driving engagement include access to resources and funding opportunities, connections to other advocates and stakeholders, and opportunities to build organisational capacity, learn about strategies and research, and promote and support health equity.

Key informants report that involvement in Voices for Healthy Kids enables exposure, communication, and relationship building between multisectoral stakeholders with no previous relationships. One interviewee described it as "exceptionally helpful" to be part of the strategic advisory committee noting: "It helps all of us [to] connect on areas of commonality to make sure our messages are aligned and our work is complementary."

Stakeholders appreciate the opportunity to align their respective advocacy messages and complement each other's efforts. Pooling and leveraging resources (such as talent, expertise, and tools) expands stakeholders' collective power and capacity to advocate for policy changes around shared goals to improve food and physical activity environments (box 4).

A third party assessment including more than 50 confidential stakeholder interviews concluded that because the initiative has become a recognised and trusted convener, this is helping to build unity and minimise competition between those working in the field of healthy weight. It also reported that this strengthens stakeholders' capacity to guard against threats to the healthy weight movement, such as concern that public policies to change environments will limit personal freedom of choice.[22]

The collaboration also stimulates cross pollination of ideas and strategies. Collaborators take new perspectives, tools, and resources back to their organisations. Strategic advisory committee members report that their involvement in the initiativeI has contributed to changes in how both they, as individuals, and their organisations approach health equity. Another benefit reported by stakeholders who first connected through the initiative is opportunities to work together on other projects.

Investing in infrastructure to support the collaboration

The Robert Wood Johnson Foundation provided a four month planning grant for the American Heart Association to establish an infrastructure to coordinate and support the collaboration. The American Heart Association had an advocacy presence in all 50 states, but its policy work included only informal, ad hoc consultation or engagement of external organisations. To support a systematic approach to stakeholder engagement, staff were designated to recruit stakeholders, manage the forums where stakeholders are engaged (suppl 2 on bmj.com), and collect stakeholder feedback through an annual survey. Since the first survey in 2015, the proportion of

Box 3: Public engagement in campaigns

Community involvement throughout the policy change process is important for setting goals and strategies, obtaining influencer support, and if the policy is passed and enacted, ensuring intended implementation. Through grants, Voices for Healthy Kids positions and equips not for profit organisations with the resources and guidance they need to advocate for policy change. An example is the community advocates program created by DC Greens, a community based not for profit organisation in Washington, DC, using a grant received from the initiative. The community advocates program seeks to overcome barriers that prevent people who are experiencing food insecurity from participating in the decision making processes that shape their lives, their city, and their food. The main goal of the community advocates program is to build the power of communities most affected by food injustice to influence food policy at the city level.[18] Local recipients of federal nutrition assistance funds who have benefited from incentives to purchase and consume more fruits and vegetables can undertake paid training over six months to gain the tools, connections, skills and information to effectively advocate for policy change in their communities. These individuals advocate at city council meetings for increased support for similar incentives to benefit other residents facing food insecurity. The community advocates have contributed to the success of the grant recipient in securing $1.2m in municipal funding for food access.[19]

Box 4: Pooling resources for a policy research network

As Voices for Healthy Kids evolved, it became clear that a forum was needed for the policy research community to discuss important issues. Academic organisations within the Robert Wood Johnson Foundation and American Heart Association research circles were invited to attend the initiative's first policy research summit in December 2014.20 21 The summit led to the identification of research gaps in the policy priorities shared by Voices for Healthy Kids and academics. The summit also led to routine communications and gatherings of research organisations to continue dialogue and align work efforts. This has resulted in a better informed research agenda for researchers, advocates, and funders which aligns resources to study topics that are relevant to advocacy campaigns as they develop.

stakeholders reporting satisfaction with their engagement experience has increased (from 57% to 81%), the proportion reporting a neutral experience has decreased (from 37% to 16%), and the proportion reporting dissatisfaction has remained consistently low (6% or less).

Key informants have expressed that investing in permanent staff who are trained and dedicated to managing stakeholder engagement is essential for nurturing strategic relationships, providing direct lines of communication to support and build capacity in advocacy campaigns, and enabling reliable, consistent partner support. For example, a staff relationship manager is assigned to each strategic advisory committee member. This individual provides a formal orientation, holds routine follow up meetings, and sets annual goals for engagement.

A commitment to health equity

From its inception, the initiative committed to integrating health equity across its processes, strategies, and activities so that equity is the driver "and not just a passenger we pick up at our final destination."[7]

Health equity is a familiar concept to the missions and practices of some advocates and organisations, but for many stakeholders, the initiative found that it is vague and difficult to put into practice. Achieving acceptance for the "why" of integrating equity has been easy compared with determining the "how."

To help implement this commitment, health equity and social justice leaders were recruited to the strategic advisory committee. They inform and advise the initiative and hold it accountable for implementing equity into policy approaches, for example by identifying policy language or funding decisions that could unintentionally widen inequities (box 5). Key informants noted:

> "The initiative has pushed us to find better partners with a stronger health equity focus. … I think this has been an experience we will better be able to carry forward now in future advocacy campaigns and even those outside of the childhood obesity arena."

> "The prioritization of equity has been mutually reinforcing for the collaboration, and the influence of the initiative, together with Robert Wood Johnson Foundation, gives me cover to introduce equity in my own organization."

Collecting evaluation and feedback data to inform continuous improvement

The Robert Wood Johnson Foundation has funded third party evaluations since the beginning of the initiative to help assess its impact and share lessons learnt.[12 14 15 24] These use various techniques to measure changes in state policy related to the goals of the initiative, examine factors that help or hinder campaigns, and assess the effectiveness of the technical assistance provided. Evaluation results help identify measures of success and improve campaigns and their operational processes such as tracking requests for technical assistance.

The initiative also collects feedback through the annual survey. It assesses stakeholder awareness of the initiative's goals and activities, identifies the resources that stakeholders value most, and provides insight on stakeholder commitments to align resources to the initiative. A 2017 third party review drawing on confidential interviews with more than 50 stakeholders was another source of feedback. One interviewee noted, "It was brave [of the American Heart Association] to open themselves up to having so many of their internal and external partners assess their value." Results from these feedback mechanisms inform the communications, messaging, and ongoing engagement practices of the initiative.

The feedback mechanisms are important because there was not time to test different approaches or plan extensively for the collaboration's operation when it was set up. The feedback keeps the American Heart Association informed of stakeholder experiences as the collaboration grows and expands. For example, in an annual stakeholder survey, the initiative received feedback on the shortcomings of integrating health equity. This resulted in the creation of forums to consider innovative equity practices, led and supported by stakeholders with equity expertise.

Limitations and challenges

Stakeholders report that there were challenges with trust and transparency between the American Heart Association and collaborating organisations early on. For example, survey feedback in 2015 noted that a "culture of confidentiality" about the initiative's policy strategies was inhibiting collaboration. Additional feedback revealed a perceived lack of opportunity to contribute to policy development.

To increase trust and transparency, the American Heart Association now provides more opportunities to solicit and discuss stakeholder input on policy formulation and includes key stakeholders in an

Box 5: Practical strategies to put health equity into practice

- Dedicated American Heart Association staff to integrate equity across the initiative's activities, including the grant making process (grant applications must describe how work plans will incorporate health equity), campaign development, message research, and creation of technical assistance materials such as guidelines on incorporating health equity
- Including a health equity performance measure for the staff of the initiative
- Training stakeholders (through webinars, in-person events, and individual coaching sessions) to incorporate health equity into proposals, campaigns, and work plans
- Engaging health equity experts to audit the initiative's equity centred vision, framework, and action plan
- Piloting and scaling up a grant making project to increase funding for grant recipients that reflect and serves populations of greatest need
- Targeting grants for priority populations, such as improving access to healthy foods in the state of Ohio. Mapping of the state's communities identified areas of greatest need, including one county where residents had to travel 30 miles to access a store selling healthy food. An advocacy campaign resulted in $2m in 2015 to fund a healthy food financing initiative[23]

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annual policy review process. An example of how trust was built with collaborators by undertaking food and nutrition efforts outside of the initiative is described in box 6.

Several stakeholders have recognised the initiative's progress in putting equity into practice and noted room for improvement, while others have indicated that equity efforts are not yet meeting their expectations. Suggested ways forward included involving organisations that represent additional groups such as people with disabilities, undertaking a more detailed analysis of the underlying and structural determinants of inequities, and identifying measures of success that better reflect health equity. While the initiative seeks to remedy existing health inequities by prioritising grants to communities most in need, it is not clear what contribution this is making to reducing inequities in these communities or population groups.

Finally, stakeholders reiterated the need for other measures of success in addition to policy wins. They suggested more nuanced and comprehensive indicators of a campaign's impact such as the relative impact of policy change—for example, making progress in a state or community where the policy environment was previously not receptive to change. We suggest that ongoing evaluations of the effect of the initiative should also examine progress in enacting and implementing policies that promote healthy weight in an equitable way so that all children are reached.

Conclusion

The 2018 political declaration on non-communicable diseases reaffirmed the need for governments to develop adequate national multisectoral responses for the prevention and control of non-communicable diseases, as well as the importance of pursuing whole of government and whole of society approaches.[27] We have highlighted the experience of and challenges involved in creating and implementing a multisectoral collaboration to advocate for public policy changes to improve food and physical activity environments to promote healthy weight for all children and adolescents in the United States. Our analysis found that the conditions that enabled and benefited the multisectoral collaboration included the establishment of forums for stakeholders with shared interests to meet and connect, investment in staff to support the collaboration, a commitment to health equity, and collection of evaluation and feedback data to guide continuous improvement and build trust. Reflecting on the progress made, one stakeholder recalled another stakeholder once describing the collaboration as messy and noted that "despite this there is magic in the messy!" We hope that this paper provides insights for those interested in multisectoral collaboration and in improving the health of children and adolescents across the world as part of wider efforts to prevent and control non-communicable diseases.

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Box 6: One size does not fit all

The Native American population has some of the highest levels of obesity in the United States.[25] Voices for Healthy Kids commissioned a report in 2015 surveying the history and current state of Native American food access and health disparities.[26] It found that the initiative's model was not a good fit for the Native American population and an entirely different approach was needed. This was because action on policy change in the Native American population takes place at federal or reservation level, not at state level, so the initiative's approach to state and local action did not align. Furthermore, the American Heart Association recognised its lack of expertise in this area so its first step was to invest time and resources into learning and discussing. This led the American Heart Association and the Shakopee Mdewakanton Sioux community to partner to tackle the serious food, nutrition, and health problems in Native American communities throughout the United States. The two groups organised national conferences in 2015 and 2016 to bring together potential funders and discuss essential needs. Several funders have since provided support for work on food and nutrition with the Native American population.

This required trust on both sides: "Look how far we have come in three years. This needs to be uplifted as an example, particularly in terms of the investment that has been made in a period for learning, for creating a space outside of the initiative to pursue this work, and as an example of where the [American Heart] Association has partnered with tribal government as equal partners to pursue equity in healthy weight outcomes." (Key informant interview)

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Supplement 1: 2018-19 policy levers
Supplement 2: Voices for Healthy Kids stakeholders
Supplement 3: Timeline
Supplement 4: Details of methods

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Scaling up an early childhood development programme through a national multisectoral approach to social protection: lessons from Chile Crece Contigo

Helia Molina Milman and colleagues describe how intersectoral collaboration between health, social protection, and education sectors enabled Chile Grows with You (Chile Crece Contigo) to help all children reach their full developmental potential

An estimated 250 million children aged under 5 (about 43%) in low and middle income countries are at risk of not reaching their developmental potential.[1] Poverty, undernutrition, lack of effective medical care, and adverse childhood experiences can all have long term effects on brain development and cognition. Many of these adverse consequences can be avoided by interventions to prevent or manage developmental problems at an early age.[1]

KEY MESSAGES

- Chile Grows with You (Chile Crece Contigo, ChCC) introduced a new model of practice and fostered emergent behaviour in child development through political will, evidence informed advocacy, consensus based policy development, and use of existing functional systems
- Health, social, and education teams coordinated by the municipality are responsible for monitoring the development of children and coordinating the provision of services targeted to each child and their family
- Formation of a non-sectoral coordinating body—the Ministry of Social Development—improved management of social networks and promotion of social development policies, while direct transfer funding agreements promoted local accountability and quality
- Institutionalisation of ChCC by Law 20 379 in 2009, guaranteed consistent and increasing budget allocations, systematic collection and use of data for programme management, and coordination of health, education, and social services

Chile, a high income country with a population of 17.6 million, has made substantial progress in reducing infant, child, and maternal mortality in the past 40 years through considerable investments in public health, the development of a highly functional health system, and various social policies.[2-5] However, these overall improvements mask high levels of inequality linked to socioeconomic status and education.[6 7] The second national quality of life survey in 2005 found that 30% of Chilean children under 5 did not reach their expected development milestones, with the poorest quintile at highest risk of developmental delay (box 1).[9] Drawing on these findings and recognising the increasing global evidence of the importance of childhood development to economic and social progress, Michelle Bachelet, a paediatrician and the first woman president of Chile, made child development a priority for her government in 2006.[11]

The resulting initiative, Chile Grows with You (Chile Crece Contigo, ChCC), is a comprehensive protection system for children from the prenatal period to 4 years, taking advantage of every encounter between children and health services and providing coordinated services across different public sectors.[12]

Although existing evidence identifies interventions that can improve early childhood development, much less is known about how to translate this knowledge into sustainable large scale programmes requiring collaboration and coordination across sectors.[13] We aimed to identify the factors that facilitated a national scale-up of ChCC, 10 years after implementation began. Evaluation was led and coordinated by a working group with representation from the Ministry of

Box 1: Tracking early childhood development in Chile—the importance of equity

- National quality of life survey assesses early childhood development using standard measures on a sample of mothers and children aged 7 to 59 months
- A validated development assessment tool is used to measure cognitive, motor, language, social, and emotional progress compared with expected milestones for the child's age[8]
- Chile uses the terms developmental lag and delay to describe the degree of developmental risk:
  - *Developmental lag* is defined as children who achieve a normal overall developmental test score based on expected milestones for their age but are behind in a developmental sub-area
  - *Developmental delay* is defined as children who do not achieve a normal overall developmental test score for their age and are therefore behind expected developmental milestones in more than one area (reflecting a more serious developmental gap)
- In 2006, 16.4% of all children under 5 had a developmental lag and 13.5% had a developmental delay, with a total of 30% having either a lag or a delay. Children in the poorest quintile were 12.8% more likely to have a developmental lag or delay. Other disparities were found by sex and area of residence[9]
- Longitudinal studies show that children from lower income families have poorer development of cognitive skills than those from wealthier groups, a disparity which emerges early in life and continues after the age of 6[10]

Social Development and the University of Santiago, Chile, using a modified multistakeholder dialogue approach (supplementary file 1 on bmj.com). Our primary objective was to summarise the progress towards implementation of ChCC, investigating how cross sectoral collaboration and coordination were managed to provide integrated child development care on a national scale.

ChCC: policy development

ChCC aims to help all children reach their full potential for development, regardless of their socioeconomic status. It seeks to support children and families throughout early development, from conception to entry into preschool at age 4, through universal and targeted support services.[14] The programme is based on rights and sex equity approaches, building on the scientific evidence regarding the importance of the first years of life, including gestation, for comprehensive human development. It also recognises that inequities between the poorest and wealthiest quintiles of children influence development considerably and need to be tackled to improve developmental outcomes.[10 15]

In 2006, President Bachelet established the Presidential Advisory Council for Child Policy Reform. The council consisted of external experts from different fields and holding different political views. Experts reviewed international evidence and local data[11] and conducted 46 hearings with national and international experts in the field, civil society, multilateral and bilateral organisations, academic institutions, and other relevant organisations, both public and private. Members of the council held hearings in the 13 regional capitals with local organisations and individuals to discuss child health, education, and development. Issues discussed included resources needed for childbirth, improving housing and social services, access to education, and services for indigenous groups. Over 7000 comments were solicited from children, using a website which encouraged expression of opinions about how to improve community resources for learning and development, such as the availability of green space and educational and health services. Its final recommendations were reviewed by an interagency technical team in June 2006 and developed into ChCC.[11]

ChCC was implemented in 159 municipalities in Chile in 2007; the next year it was extended to the remaining 186 municipalities. In September 2009, Law 20 379 was enacted, institutionalising ChCC and providing a permanent line for it in the national public budget.[16] Development of the newborn support and parenting skills programmes began in 2008, with full implementation in 2009. The development, testing, and introduction of the electronic monitoring database began in 2009 and 2010 (box 2).

Box 2: Timeline of programme and policy inputs for the introduction and scale-up of ChCC

2005-06
- Pre-investment studies
- Presidential Advisory Council for the Reform of Child Policies formed
- Recommendations for early childhood development programme developed after consultations
- Creation of Chile Grows with You (ChCC)

2007-08
- ChCC implemented in 159 municipalities
- ChCC extended to all communes in 345 municipalities
- Development of training and communication materials begins

2009-10
- Law 20 379 institutionalising ChCC for the protection of children is approved, with a designated budget line
- Implementation of the newborn support programme parental skills workshops, Nobody is Perfect
- Implementation and refinement of the ChCC electronic database and tracking system

2011-13
- New postnatal parental leave (up to 6 months)
- Workshops for promotion of motor and language development started

2014-17
- Expansion of ChCC to children up to age 9 with the Integrated Learning Support Programme
- Pilot of the Children's Mental Health Programme

Structure, management, and financing

The ministries of health, education, and social development are responsible for administration and management of ChCC (box 3). The Ministry of Social Development is responsible for coordinating and managing the system at national, regional, and communal levels; it is represented in each region through the regional secretaries of social development. Coordination takes place across ministries and services at the same level (horizontal coordination) and across different levels of government from national to commune level (vertical coordination).

ChCC is financed entirely by the public sector, with agreements governing the transfer of funds to sectoral ministries, local governments (municipalities), and private stakeholders. A ChCC budget line was established for the Ministry of Social Development in the budget law of the Chilean public sector. Resources are allocated to the ministries of health and education through resource transfer agreements, and to municipalities through direct transfer agreements. Ministries implement services as part of the ChCC portfolio through existing networks and systems. Direct transfer agreements with municipalities support activities such as hiring and training staff and providing supplies for services. Transfer agreements also specify technical standards that must be met by institutions, which make fund transfer agreements an important mechanism for managing the quality of services.

Institutions receiving funds are required to report monthly expenditures and to specify how resources were allocated within the framework of the agreements signed. Hence a system of continuous accountability and feedback is established, linked with funding availability. Use of the electronic ChCC database allows the progress of children along the continuum of care to be tracked using key indicators; problem areas can then be identified and managed (see the monitoring and evaluation section below). Routine national and regional supervision to municipalities allows feedback in both directions. Strengths can be identified and built on; weaknesses can be identified and managed collaboratively.

The basic communal networks of ChCC, consisting of health and education teams

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Box 3: Ensuring that ChCC reaches children at highest risk in Chile: expanding coverage of health, education, and social services

Guaranteed healthcare services for all

- The public health system is used by around 80% of the population and is free for lower income groups. Services are provided by the National Health Service System (SNSS) through a national network of hospitals and primary care centres linked with family health community centres and rural health posts, based on a family and community health pla[n1]7

Free education

- Early education from 0 to 4 years is financed by both public and private bodies. ChCC guarantees by law that children from the lowest two wealth quintiles can access education free of charge, beginning with nursery care. At age 5 years, children attend kindergarten, the first mandatory educational level, and have free access to public schools.

Social protection

- The social household registry is used to assign vulnerability ratings to households and so determine whether they qualify for benefits under the social protection system. By July 2017, the registry had ratings data of about 73% of the national population[18]
- The social protection system includes psychosocial support for extremely poor families through the Security and Opportunities programme, preferential access to existing social programmes, and guaranteed access to subsidies or cash transfers provided by the state.[19] ChCC is part of the social protection system, therefore allowing all those in need to receive benefits

and coordinated by the municipality, are responsible for routine provision of preventive and curative services. Expanded networks include stakeholders from other municipal departments or local services that target children and their families. Communal networks are therefore responsible for coordinating cross sectoral services based on local resources available, geography, and any cultural factors needed to ensure services meet the needs of children and families.

Implementation

ChCC provides a public education programme on early child development for all families, caregivers, and providers using a website, social media platforms, a radio show, and print material (fig 1).

Monitoring, accountability, and learning

From the outset, the coordinating ministry developed a monitoring and evaluation plan for ChCC with two main components. The first is an electronic database of all pregnant women and all children entering the health system. This allows tracking of developmental assessments, core health interventions received, and progress across sectors. Clinic health workers enter data directly on to the database at each consultation. Data are managed centrally by the Ministry of Social Development. Key performance indicators are used to track completeness of reporting and outcomes for children classified with developmental delays. This system is used by staff in health, education, and social protection sectors to access and update information about the child's development, activate the necessary services, and make intersectoral referrals. The second major component consists of periodic evaluations to assess the effectiveness of programme services or activities. To date, more than 30 studies have been undertaken on ChCC, with different methodologies and approaches, including both qualitative and quantitative user satisfaction, impact, and process studies.[6 26]

Summary of progress

Between 2007 and 2017, annual budgetary allocations for ChCC increased progressively, rising from $7.8m in 2007 to $13.9m in 2008, and reaching $81m in 2017.[27] During this period, the number of pregnant women admitted to prenatal care under ChCC was 1 987 755, with the number of children under developmental observation in the public health system reaching 646 692 in 2017.[28]

By 2017, 94% of women registered in the public system received the newborn support package at birth and 94% received postnatal counselling, with significant increases in the number of comprehensive home visits for vulnerable pregnant women and children; improvements in prenatal, delivery, and postnatal practices; and increasing rates of preschool education attendance (table 1).[29 30] In 2017, all registered children diagnosed with a deficit in psychomotor development were referred to stimulation rooms, with 75% of those completing treatment discharged without deficits.[28]

The targeted ChCC programme is provided for caregivers, families, and children entering the public health system, representing about 80% of the population. The remaining 20% of the population obtains health services from private providers through private insurance or occupational coverage. Other mechanisms are in place to ensure that those in lower income groups have access to care without high cost barriers to care (fig 1, box 3).[20 21]

The core of the ChCC targeted approach is the Biopsychosocial Development Support Programme, which includes health checks during pregnancy, care during labour and birth, child health checks, screening for and timely treatment of developmental delays, care for hospitalised children, and child mental health using standardised tools (fig 2).[22] For example, evidence based interventions at birth include provision of a birth companion of choice, immediate skin-to-skin contact between mother and baby,

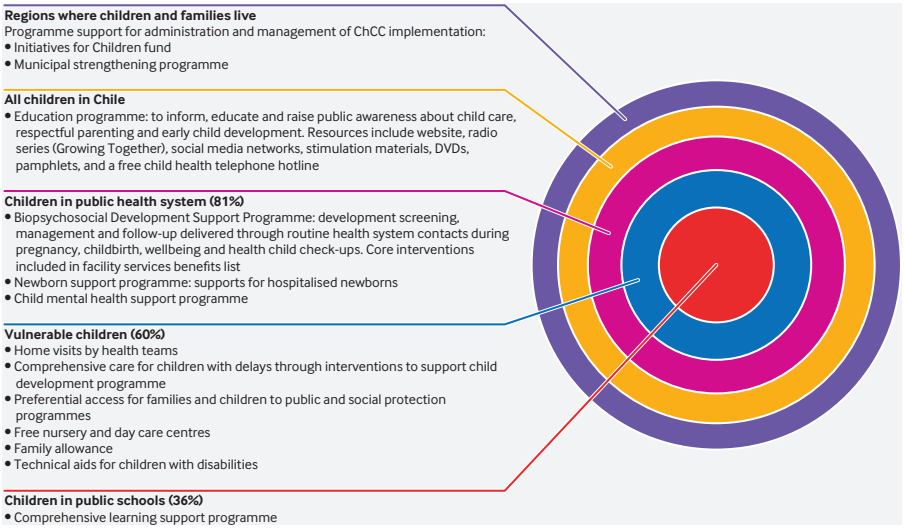

Fig 1 | Services provided by ChCC. Adapted from the Ministry of Social Development, Chile[14]

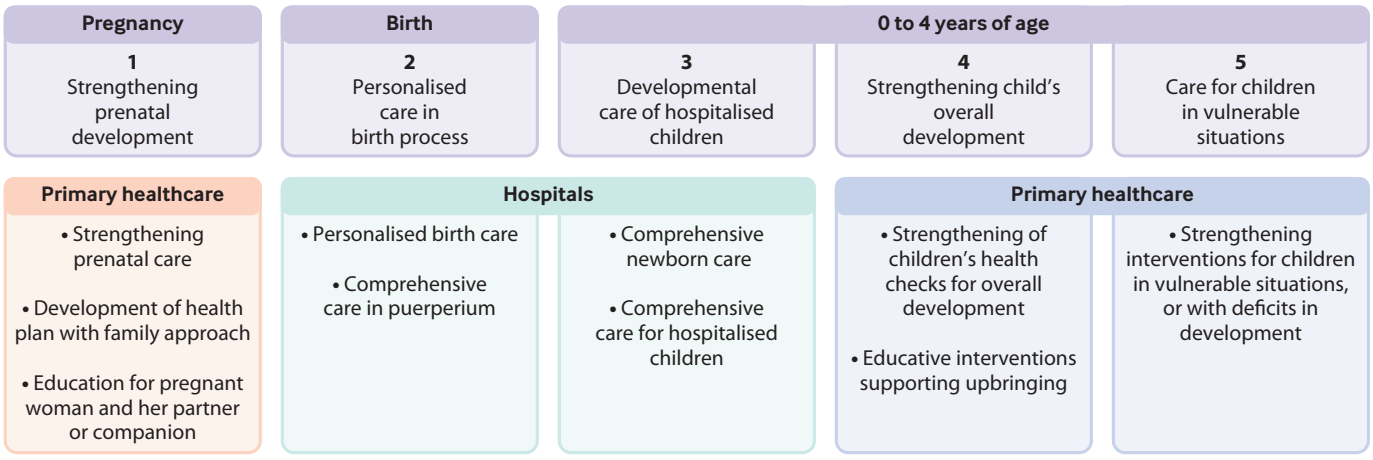

Fig 2 | Biopsychosocial support programme: services offered across the life cycle by ChCC Ministry of Social Development, Chile[14]

and early and exclusive breastfeeding—all associated with improved outcomes for both mother and baby.[23] The ChCC programme updated facility policies, changed work environments, and supported staff training and supervision to move towards consistent adoption of key practices. Screening for developmental delay is done using a national test applied at each health check.[22] Standardised screening also includes assessing maternal and family risk factors, such as low education, substance misuse, and depression. Targeted services are provided for children with developmental delays, including stimulation rooms, home visits, playgroups, and other services (box 4). Nobody is Perfect is a group education workshop for parents, mothers, and caregivers with children aged 0 to 5.[25] It promotes positive parenting skills, mutual support by participants, prevention of child abuse and maltreatment, and co-responsibility in parenting using hands-on practice. Training of primary care staff for all screening and programme components of ChCC is done by national and municipal facilitators using materials and job aids based on national standards.

Additional services are provided for families with fewer resources or at greater risk: these include financial support, free nursery and preschool places, and preferential access to public programmes. Vulnerable families have access to free infant or toddler care for children under 2, and preschool places for children aged between 2 and 3. Such families represent around 60% of the population; vulnerability criteria include teen mothers and those with postpartum depression, substance misuse, lack of family support, and low levels of education.

The ChCC network should allow children and families with risk factors for vulnerability to be identified at any contact with health, education, and social services and referred across sectors. For example, the health sector may identify developmental delays requiring home visits; preschool nurseries may identify developmental problems requiring screening or a housing problem related to poverty that requires support by the municipality.

Between 2006 and 2016/17, the proportion of children under 5 with developmental delay declined nationally from 14% to 10%. Considerable variation was noted between age categories, with the most dramatic falls in developmental delay noted in children aged 2 (from 11.6% to 6.2%) and aged 3 (from 25.1% to 11.4%) (fig 3).[31] In contrast, increasing proportions of children aged 7-11 months and 12-23 months were assessed with developmental delay. Data are not yet available by wealth quintile. These results are consistent with early intervention reducing developmental delay in older children. Evaluations of the biopsychosocial programme and the Nobody is Perfect parenting education programme have shown them to be effective at improving several measures of child development and parenting practice.[32 33] Services targeting children with developmental delays have been shown to be cost effective.[34] Of the beneficiaries, 73% describe ChCC as being fundamental to their personal experience of pregnancy and parenting, suggesting high levels of satisfaction.[35]

Persistent developmental delays in younger age groups noted in the most recent population based survey raised questions about the coverage of interventions delivered around delivery and very early in life, especially for high risk groups. A review of these data by wealth quintile and for other higher risk categories is now required to determine whether these groups are being disproportionately missed by the system. In addition, the quality of early developmental

Box 4: Services provided for children assessed with psychomotor, cognitive, social, or communication delay

- **Primary services offered:** stimulation rooms, home visiting, and a mobile stimulation service. Stimulation rooms can operate at health centres or community based spaces. One municipality can have one or more of each of the service modalities, depending on demand.
- **Average duration of initial treatment:** the average number of initial sessions is 6 with an average duration of 45 minutes. At the end of the initial sessions, further treatment may be recommended or a referral made for further assessment and management
- **Staffing:** most of the staff working with children are nursery educators or teachers, phono audiologists, occupational therapists, kinesiologists, or other professionals with formal qualifications in child development
- **Technical guidelines:** guidelines for staff teams providing services to children been developed and are used nationally for staff orientation and training[24]
- **Equipment and materials:** materials include a wall mirror, rubber mats, tulle or coloured gauze handkerchief mobiles, tunnels, balls of different sizes and textures, recorded music, books for children under 5, didactic toys with stimulation objectives (such as wooden blocks, rattles, musical instruments, dolls, food, animals), tables suitable for children, access ramps, and other relevant materials tailored to the culture or targeted area of delay

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Table 1 | Key ChCC country indicators, 2007-18*

Indicator	2006-10	2011-14	2015-18
Total public expenditure—ChCC ($m, 2017)	7.809 (2007)	72.715 (2012)	80.989 (2017)
Prenatal care			
Home visits: pregnant women with psychosocial risk (total number)	13 310 (2007)	88 103 (2012)	72 547 (2017)
Prenatal care with spouse, family member, or significant other (% of prenatal visits)	18 (2008)	30 (2014)	34 (2017)
Delivery and early postpartum care			
Birth companion (% deliveries)	—	59 (2012)	67 (2017)
Skin-to-skin contact for at least 30 minutes (% deliveries)	—	52 (2010)	76 (2017)
Exclusive breastfeeding for 6 months (% infants <6 months)	49 (2008)	43 (2012)	57 (2017)
Early child home care and education			
Home visits: children with psychomotor delay (total number)	2 754 (2007)	41 001 (2012)	46 033 (2017)
Parents attending motor and language development workshops (% of parents of children <1 year)	0 (2006)	—	63 (2017)
Routine health visits for children 0-4 years attended by father (% of health visits)	14 (2010)	16 (2014)	19 (2017)
Preschool education 0-3 years (% of children attending)	12 (2006)	26 (2011)	29 (2015)
Preschool education 4-5 years (% of children attending)	63 (2006)	83 (2011)	90 (2015)

*Source: Ministry of Health, Ministry of Education, Ministry of Social Development, and Budget Directorate, Ministry of Finance, Chile. Year of data in brackets

screening and care for high risk children in younger age groups requires review to ensure that these services are effective in tackling family and environmental barriers to development, and that they are received in a timely fashion. Although most higher risk children in Chile enter the public health system, they may subsequently drop out of care or services may not deal with problems effectively.

Factors associated with implementation and scale-up

Introduction, adoption, acceptance

Three factors were essential for the introduction of ChCC. Firstly, political support at the highest levels of government, owing to active leadership by President Bachelet and other national authorities, allowed ChCC to be designated as one of Chile's strategic objectives. Secondly, the evidence based design of the programme convinced both political and technical leaders of the importance and potential impact of interventions in this area. This included the use of data from disciplines such as neuroscience and developmental psychology to illustrate the high rate of return from investment in early childhood, aligning with the Convention on the Rights of the Child and focusing on the social determinants of health and the ecological model, Also, the needs of families were made central to the design of the programme.[23] Thirdly, broad consensus was achieved, beginning with the work of the advisory council, which consulted experts with diverse political and technical perspectives. Consensus was reinforced by national and regional public hearings with stakeholders representing civil society, academia, the government, and children. Early consultation led to broad investment in the programme by all sectors and communities and a common understanding of its purpose.

Building on existing systems to allow expansion

Three factors have been identified as important for the successful expansion of ChCC. Firstly, ChCC built on existing systems which already promote collaboration between the health, social protection, and education sectors in Chile. Around 80% of babies in Chile are born in public hospitals and receive follow-up preventive and treatment care in the public health system. Existing systems therefore provided an entry point for most mothers and children and a gateway for ChCC activities. ChCC also built on the social protection programme established in all municipalities, which guarantees cross sectoral support for children and is managed at the local level (box 2). Secondly, the formation of a coordinating body in the Ministry of Social Development, which was experienced in managing social networks and promoting social development policies, promoted better coordination of activities in all sectors rather than focusing on the activities of one sector, which might have occurred if responsibility had been given to health or education agencies. The budget for ChCC implementation is also allocated to the Ministry of Social Development, which transfers funds to the ministries of health and education and directly to municipalities, based on performance standards and indicators. This has created a system of financial and technical accountability and has been important in setting and maintaining quality standards. Thirdly, an emphasis was placed on community driven programming through municipal networks. The programmes and services offered by ChCC require communal networks that are flexible, adapted to local needs, and coordinated with local actors. By giving financial and technical autonomy to municipalities, they can implement core services according to local systems and population differences.

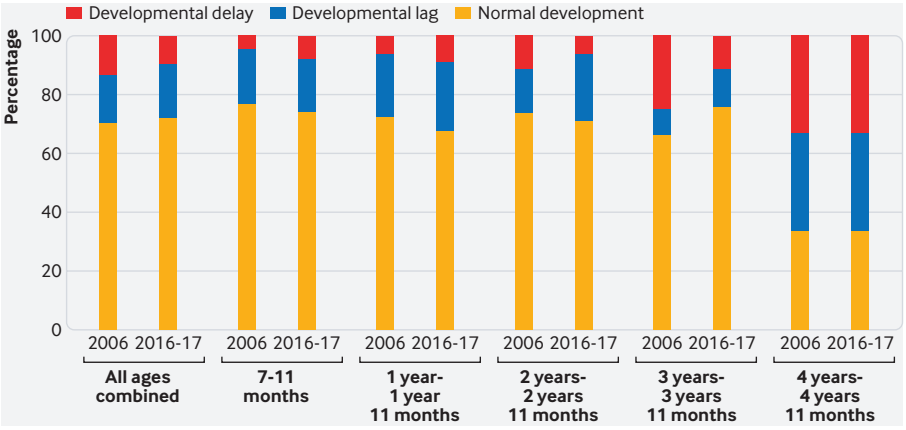

Fig 3 | Population based estimates of developmental status among children aged 6-59 months, Chile, 2006, and 2016-17 National Quality of Life and Health surveys, Ministry of Health, Chile, 2006 and 2016-17[9 31]

Building sustainability and adapting to new challenges

ChCC has been operating for more than 10 years and has been implemented throughout the country. The sustainability of this public policy is due largely to the following factors: the institutionalisation of ChCC through Law 20 379; consistent budget

Table 2 | Current strategies and emerging challenges for ChCC

Aim	Current strategies under ChCC	Emerging challenges
Improving routine systems to support intersectoral services	• Use of existing public health system provides a gateway to services • Multisectoral coverage by the social protection system • Management by the Ministry of Social Development and fund transfer agreements for quality and accountability • Integrated electronic monitoring and evaluation system	• Harmonise registration and monitoring system of ChCC with other government data systems to allow data sharing • Strengthen efficiency and timeliness of fund transfers for local activities, hiring staff, and meeting goals • Close gaps in the social protection system to ensure families receive housing, employment, mental health, or substance misuse treatment when required
Adapting to evolving problems	• Routine monitoring of biological and psychosocial risks of the family and child • Early intervention through the health system based on identified needs • Intersectoral links to foster appropriate care based on needs • Links with social protection services to ensure wider social problems, such as employment and housing, are tackled	Recognise and adapt the developmental approach to demographic and social changes including: • Child mental health • Children with disabilities • Indigenous people • Obese and overweight children • Children and families of new immigrants • Children raised in lesbian, gay, bisexual, and transgender families and transgender children
Improving parenting skills	• Nobody is Perfect parental education training offered to all mothers and families has been shown to improve general parenting skills	• Violence and maltreatment of children is believed to be widespread in Chile; more data are needed to allow better management • Better integrate interventions to promote caring and sensitive care across sectors
Reaching core populations better	• Access to care and education through routine prenatal, delivery, and postnatal contacts • Home visits to families and children identified as high risk, using intersectoral links • Many materials and web based links used for communication and education	• Improve access to services (eg, by changing locations and opening times) • Better use of social media for follow-up and reinforcement of skills or education • Develop mechanisms to hear children's views to improve services and communication
Expanding the target population	• ChCC is focused on the prenatal period and on children aged 0-4 years, the period of highest risk for development	• Local movement to expand ChCC to include children aged 5-9 through the education sector • Development of a formal policy promoting the rights of all children from birth to 18 years is under review

allocations guaranteed by law (table 1); effective coordination both at national level by the Ministry of Social Development and at local level by motivated health and education teams with experience in implementing maternal and child health programmes, who have up-skilled to gain further developmental skills and competencies; collection and use of data for programme management and intersectoral coordination using the programme monitoring system; regular evaluation of programme components and use of data for improving services; and increasing focus on developing and implementing quality standards, which are used for both tracking progress and providing incentives. Quality standards led to the creation of a benefits list for the biopsychosocial support programme implemented by the Ministry of Health.

Limitations

ChCC must evolve in line with Chile's changing health context and adapt to operational challenges to improve its efficiency and effectiveness. Several challenges have been identified for the next phase of implementation (table 2). ChCC systems need strengthening in some areas, including improving the efficiency and timeliness of fund transfers to municipalities and better integration of the monitoring system with other government data systems to allow data sharing. Some high risk groups do not always receive social services such as housing, employment assistance, or mental health services when required, and gaps need to be closed. Access to public services can be improved in some areas by changing the location and opening times of clinics and offices and by better promotion of care using social media platforms. Finally, new and emerging problems and demographic shifts in the country will require ChCC to adapt the range and type of services provided. These include management of childhood mental health problems, disabilities, and obesity, and the problems of new immigrants and indigenous populations. In the longer term there is a movement to expand ChCC services to older children aged 5-9.

Conclusions

ChCC has features of a complex adaptive system in which positive and negative feedback loops have a central role in the development and implementation of the programme.[36] Features include communal networks with multiple formal and informal connections between sectors to foster coordination of services and adaptation to local needs. Local budgetary authority allows resources to be allocated in accordance with local priorities. Feedback loops are used in the research and evaluation system to monitor and improve operations. The intersectoral and participatory structure allows continuous feedback at local level to tackle gaps and problems. ChCC instituted a phased transition to a new model of practice and fostered emergent behaviour in this area through strong political will, evidence informed advocacy, consensus based policy development, and use of existing functional systems. Interconnectedness within this network allowed progressive cultural change, which placed value on the principles of equity, coordination, and recognition that development needed attention. All of these features contributed to better uptake and effectiveness.

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Supplement 1: Methods for case study

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Improving psychosocial services for vulnerable families with young children: strengthening links between health and social services in Germany

Ilona Renner and colleagues describe cross-sectoral collaborative efforts in Germany to enhance the skills of parents to care for young children

In Germany, a priority within health and social care for over a decade has been improving parents' interactions with and care for their children. This was in response to a large study in 2007 of children's health and development[1] that identified 20% of children aged 3 to 17 years were at risk of a mental health disorder.[2] Furthermore, gaps in the child protection system were becoming obvious, with high profile cases of child neglect leading to public demand for urgent action. Burdened families were slipping through the net of social support and welfare and being driven towards susceptibility to negligent parenting and in worst cases child maltreatment.

Low socioeconomic status is closely linked to poor child health and development outcomes, as well as increased risk of adverse experiences in early childhood.[3 4] For example, in Germany, 26.0% of children living in families of low socioeconomic status show symptoms of mental health problems, compared with 9.7% of children in families with high socioeconomic status.[5] Poverty is associated with a broad range of psychosocial burdens, including early parenthood and parental adverse childhood experiences.6 These problems might lead to lower parental capabilities, potentially acting as mediators for children's poorer health and development, as well as higher risk for maltreatment.

Germany's Early Childhood Intervention (ECI) programme, implemented in 2006, supports the goal of providing equal opportunities for all children to develop their full potential. Subsequent expansion has been driven by the increasing proportion of children living in families receiving social benefits, rising from 12.5% in 2011 to 14.6% in 2017.[7] Despite overall prosperity and strong economic growth in Germany, the need for ECI is greater than ever.

The German programme (Frühe Hilfen) comprises prevention oriented, voluntary psychosocial services offered to all pregnant women and families with a child aged 0-3 years, with additional support for those in difficult circumstances. This approach is aligned with the evidence based Nurturing Care for Early Childhood Development Framework, launched during the 71st World Health Assembly in May 2018.[8]

One major challenge to improving psychosocial care for families is the "prevention dilemma"[9]; voluntary preventive services are used more by families with a lower level of need than by those who would benefit more. To overcome this challenge cross-sectoral collaboration is needed, especially between health and social services sectors. In Germany the use of social welfare services, and especially child and youth welfare services, is often highly stigmatised, as it can be seen to acknowledge or expose parental deficits. In contrast, healthcare services are highly valued: nearly all children, 98%, are born in a maternity clinic[10] and 99% attend regular well-child visits in a paediatric practice.[11] This creates a valuable opportunity to identify and deal with the psychosocial needs of pregnant women and parents of young children in a sensitive and non-stigmatising way and refer them to adequate support measures in the child and youth welfare sector.

We describe Germany's ECI programme and implementation between 2006 and 2017, analyse the factors enabling cross-sectoral collaboration to achieve programme goals and objectives, and examine the opportunities and challenges inherent in this collaboration. This case study was developed according to a methods guide produced by WHO Partnership for Maternal, Newborn and Child Health.[12] Methods included reviewing available data, interviewing 21 key informants from four municipalities, producing a working paper, and holding a stakeholder workshop to review the working paper and gather additional inputs (see supplement 1 on bmj.com).

Programme description

Germany's ECI programme established municipal cross-sectoral collaborative networks across the country as well as developing and implementing diverse voluntary psychosocial measures. Although most municipalities provided some preventive measures to support families with young children before the programme, systematic cooperation between the health sector and the child and youth welfare sector was often lacking.[13]

Following a pilot phase between 2006 and 2011,[14] scale-up ran from 2012 to 2017; the federal ECI programme is now operating at scale and in a consolidation phase (fig 1). In January 2018, with the establishment of the Federal Foundation

KEY MESSAGES

- Germany's early childhood intervention (ECI) programme aims to improve psychosocial care for families, promoting equal opportunities for all children to grow up healthy and safe
- It offers services to all pregnant women and families with a child aged 0-3 years, with additional voluntary psychosocial support services to those families most in need
- Since 2007, building on existing structures at state and municipal level, the national government has supported cross-sectoral ECI networks between health and social services sectors
- Cross-sectoral collaboration has been systematically enhanced through network coordinators, with a mutually reinforcing system of formal structures involving legislation, resourcing, professional capacity building and exchange, and standardisation
- Flexibility ensures programmes can adapt to changing local contexts and fosters ownership

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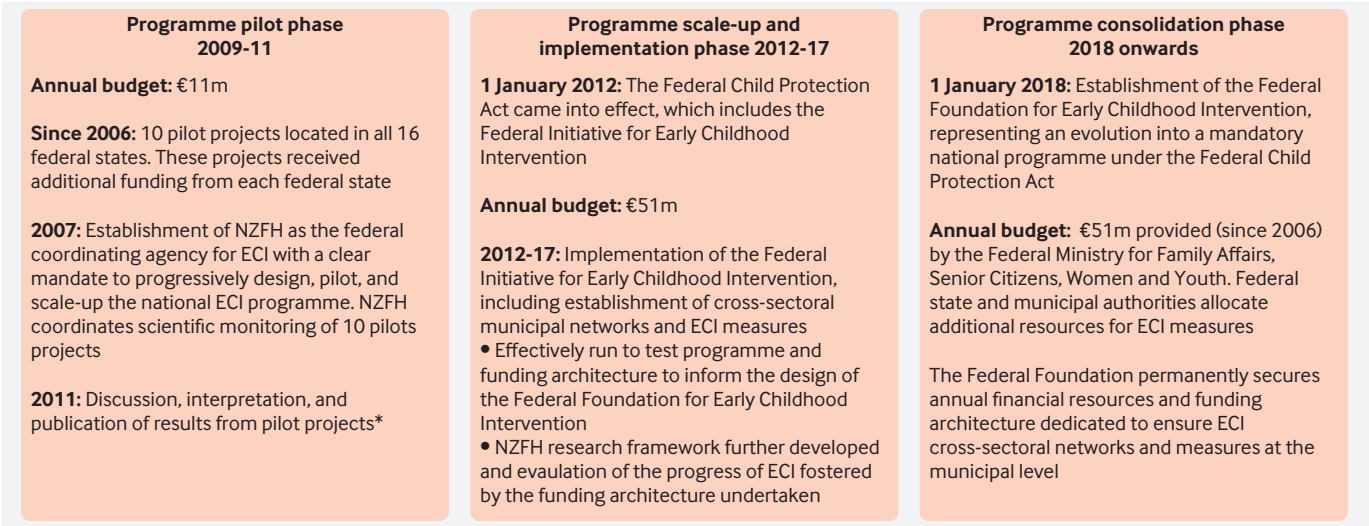

Fig 1 | Timeline for Germany's ECI programme

for Early Childhood Intervention, federal funding for ECI became mandatory, with all municipalities eligible to apply for financial support to further develop their ECI networks and measures. Since 2012, the federal government has committed around €51m (£45m; $59m) a year to bolster funding provided by federal states and municipalities.

The National Centre for Early Prevention (NZFH) was established by the Federal Ministry for Family Affairs, Senior Citizens, Women, and Youth in 2007 to steer and provide technical monitoring and support for the ECI programme. NZFH is hosted by the Federal Centre for Health Education and works in collaboration with the German Youth Institute.

Germany's federalist structure is a diverse cluster of shared and divided legislative power and managerial responsibilities across the national level, 16 federal states, and about 600 municipalities (supplement 2 on bmj.com). The ECI programme therefore requires collaboration at all three administrative levels to ensure that all relevant services provided by the health sector, the social services sector, and others are networked as effectively as possible (box 1).

The ECI programme offers services to all pregnant women and families with young children and additional psychosocial support services to families in need, an estimated 13% of young families[15] and about 300 000 children aged 0-3 years (box 2). Use of ECI measures is voluntary, and there is no screening to identify families in need as this could contribute to further stigmatisation of the target group. Other programmes and services exist for the relatively small number of cases (1-2% of families) in most need of support—that is, families for which state intervention or control is mandatory, including the possibility that the child is taken into care.

ECI networks in each municipality design and implement services to fit with and respond to specific local circumstances and community needs, within a country-wide framework that supports the institutionalisation of quality standards, professional training and qualification, and accountability, with the ultimate goal of ensuring fast and effective services for families (box 3; suppl 3 on bmj.com).

Box 1: ECI programme stakeholders at national, state, and municipal levels

National level
- Office of the Federal Foundation for Early Childhood Intervention—Manages the ECI Foundation assets and verifies states' use of provided funding
- National Centre for Early Prevention (NZFH)—Technically supports and monitors the ECI programme and is responsible for quality development, research, publicity, and cooperation
- NZFH advisory board—42 members (in 2018), representing various scientific disciplines and professional institutions and associations, including the national association of municipal authorities

Federal state level
- Political and public stakeholders (eg, coordinating offices for ECI, State Ministry of Health, State Ministry for Family Affairs, and leading municipal associations)
- Representatives and practitioners from relevant disciplines in health and social services
- Representatives from non-governmental organisations, such as welfare work agencies

Municipal level
- Key political and public stakeholders (eg, coordinators for municipal ECI networks, municipal steering committees, child and youth welfare offices, public health departments, local education authorities, job centres, and public childcare centres)
- Representatives and practitioners from relevant disciplines in the health system (eg, resident paediatricians, social paediatricians, paediatricians working in the public health system, paediatric clinics, obstetric clinics, midwives, and resident gynaecologists)
- Representatives and practitioners from relevant disciplines in the social services system (eg, family centres, independent providers of youth welfare services, counsellors for parents with mental illness, drug and addiction counselling), and from ECI programmes operating in the health system
- Representatives from non-governmental organisations (eg, welfare organisations and foundations)

Box 2: Risk inventory to identify families in need of psychosocial support in Germany

The risk inventory is based on a systematic review of national and international long-term developmental studies and systematic reviews.[16-18] Four or more of the following risk factors—experienced by 12.9% of German families with children aged 0-3 years—indicates the need for additional support to prevent adverse health outcomes or maltreatment:

- Single parent
- Unplanned pregnancy
- Infant regulatory problems related to sleep, feeding, or crying
- High parental stress
- High parental impulsivity or explosiveness
- Intimate partner violence (current or former)
- Symptoms of parental anxiety or depressive disorder
- Parental adverse childhood experiences
- Frequent conflicts in the current romantic relationship
- Young mother (‹ 21 years at birth of the child)
- Poverty (family receiving social benefits)

Progress towards implementation objectives

The ECI programme is based on four steps to achieve effective outcomes, which also underpins NZFH's research framework:

- Cross-sectoral networks and support measures are implemented in all municipalities
- Families in need make use of ECI support measures
- ECI support measures are assessed positively by target group
- ECI support measures are effective at enhancing families' competencies

During the scale-up phase from January 2013 to December 2017, progress on each of these steps was monitored at the federal level using various methodological approaches (box 4). NZFH collaborated closely with research institutions and universities to ensure methodological standards and critical assessment of research to identify achievements and areas where progress could be accelerated, and to tackle the challenges faced in evaluating complex interventions.[23]

Table 1 shows some examples of the results of these studies in relation to progress towards nationwide implementation. Survey results also pointed to areas in need of improvement. For example, in the 2015 municipal survey, 36.8% of respondents said their municipal ECI network needed to be further developed, and 53% said the ECI home visiting services in their municipality were insufficient (because of a shortage of professionals, especially midwifes and nurses).

Study results indicate that families in need are better reached and have higher uptake of the services targeted towards them than of services offered universally. Both groups assess the ECI services positively, which is critical given all use of ECI services is voluntary (box 5).

Although families in need are more likely to be supported by a family midwife or nurse than less vulnerable families, the difference in use is still not as big as might be expected, given this service is designed for parents with high psychosocial burdens. Strategies to improve access for vulnerable families might include training for health professionals in sensitive interviewing and need assessment. Vulnerable families also need more opportunities to participate in the design of support measures.

Critical factors for cross-sectoral collaboration

The ECI programme operates within Germany's decentralised structure of federal, state, and municipal levels and is affected by the challenges facing the health and social services sectors (box 6). These include human and financial resource constraints and substantial variation across the country in capacity to respond to population needs. Within this context, we discuss the factors at federal and municipal level, as well as interprofessionally, that supported implementation and operationalisation of cross-sectoral collaboration within the ECI programme.

New national structures, new legislation, and increased federal funding

Sustained high level political commitment to ECI since 2006 resulted in the enactment

Box 3: ECI programme components implemented at municipal level

Cross-sectoral ECI networks

- A network coordinator for each municipality with roles and responsibilities related to building and maintaining the ECI network and expanding and strengthening ECI activities and partnerships
- Network members, made up of stakeholders from the health, social services, and other sectors

Voluntary targeted psychosocial support measures

- Long term home visiting services for families with a child aged 0-3 years mainly by healthcare professionals who have additional qualifications related to psychosocial care (family midwives or nurses). Services provided include confidential interviews to assess family needs, care giver counselling, and help accessing additional professional support. Interdisciplinary collaboration with other institutions and professional groups is an integral part of this work; international evidence supports effectiveness of this service model[19]
- Volunteers, usually trained and supervised, also provide home visiting services, often to complement those provided by professionals. The services provided vary widely from municipality to municipality. For example, volunteers can care for children, help with household management, or recommend support measures.
- More intensive professional support is offered to families with high needs who are not subject to indicated (non-voluntary) support. For example, the STEEP (Steps Towards Effective and Enjoyable Parenting) programme supports the development of secure infant-parent attachment (a powerful predictor for child social and emotional outcomes)[20-22]

Other ECI services

These "pilotage services" include information, early identification of mothers or families in need, counselling, and referral to appropriate support services

- Maternity clinics—Pregnant women with potential psychosocial burdens are offered voluntary assessment by trained professionals (eg, social worker or midwife), who determine families' need for support. Mothers or families with high needs are offered an in-depth diagnostic interview and joint development of plans for appropriate support measures and referrals. After the family leaves the maternity clinic, these professionals monitor whether the family receives the planned support and remain available for further consultation
- Practice based paediatricians and gynaecologists—Similar strategies are being piloted in some municipalities with social workers offering regular needs assessment and counselling in the practices of paediatricians and gynaecologists, who recommend this service to families they think would benefit from it
- Home visits—One "welcome" visit after birth, usually by a social worker, to provide information on support measures offered in the municipality

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Box 4: Monitoring progress during 2013-17, selected examples

- Municipal surveys in 2013 and 2015 focused on the structural development and expansion of the ECI programme and collecting data from network coordinators, who are mainly situated in the social services sector but some are in public health authorities
- From 2013 to 2015 an observational longitudinal study was conducted to estimate the effectiveness of long term home visits on parental capabilities (n=937)
- A nationwide representative study from 2014 to 2015 involving more than 8000 mothers and fathers with a child aged 0–3 aimed to gain insights into the psychosocial stressors in families in Germany, how often they occur, associated (contextual) variables, and the extent to which families from different social groups use the professional support currently available, including ECI measures
- In 2015, 1019 mothers, selected from a register based random sample, were interviewed to explore their perceptions of, and satisfaction with, the ECI support provided by (family) midwives and nurses
- In 2016, a research cycle was launched to systematically monitor how maternity clinics (n=383) and paediatricians (n=815) and gynaecologists (data collection ongoing in 2018) with their own practices cooperate with the social services sector. Research questions concern both the intensity and quality of case related cross-sectoral cooperation. Baseline investigations (mixed method design combining quantitative and qualitative data collection) were carried out from 2017 to 2018, and representative surveys will be conducted at regular intervals for trend analyses.

of new legislation and increased public financing, which together enabled the shift from pilot to scale-up phase, including fostering cross-sectoral collaboration.

The government's decision to establish a new centre with a clear mandate proved instrumental to translating Germany's aspiring new ECI approach into reality. Working in the areas of quality development, research, advocacy, and cooperation, the NZFH has contributed to increased visibility and prioritisation of ECI in both public and political domains, and to greater formalisation and systematisation of ECI in Germany. The NZFH's multisectoral, multistakeholder, multilevel advisory board has fostered a stronger integration of science and practice and provided important legitimacy, critical oversight, and steerage. For example, the 2009 definition of ECI described the conceptual breadth and complexity of this newly established field of action, which resulted in heterogeneous psychosocial services being offered and cooperation structures. The subsequent 2014 mission statement provided guidance to all professionals in ECI, establishing common understanding.[34]

From 2007 to 2008, a systematic legal framework began to be established, with federal state laws on child health and welfare. Collaboration across sectors was instituted as a basic structure within these laws in some federal states (eg, Saarland, Schleswig-Holstein, Rhineland Palatinate). Germany's Federal Child Protection Act (Bundeskinderschutzgesetz) came into force on 1 January 2012. The experiences of professionals and the results of scientific monitoring of the ECI programme pilots were taken into account during its design.

The act institutionalised comprehensive approaches for ECI and child protection in Germany, as distinct but related concepts firmly centred on child protection as well as prevention. It created new powers for those working for children's wellbeing, with a major objective the strengthening of structural networking and cross-sectoral cooperation. The act acknowledged that responsibility for child wellbeing spans widely across family, state, and society, contributing to a shift in perspective and commitment by many stakeholders. In particular, it helped to close gaps and clarify the roles, responsibilities, and intersections between health and social services sectors, and supported orientation towards families rather than the goals of institutions or sectors.

Implementation of the act led to increased, more stable, funding arrangements. Municipalities can apply for additional resources specifically to fund cross-sectoral activities (eg, employing ECI network coordinators and staff for pilotage services). Application for funding contains flexibility to allow for adaptation to local needs and contexts (supplement 4).

Although the act's value is widely acknowledged, challenges remain. The legislation was primarily developed by, and through the lens of, the social services rather than health sector.[35] Some innovative efforts are underway, particularly at state and municipal level, to reinforce ECI in health legislation, and to strengthen engagement of health authorities. For example, in Berlin the "Babylotsen" scheme (box 8) in maternity clinics is funded by the Berlin Senate Department of Health, Care, and Equality. In the state of North Rhine-Westphalia, research into a pilot project for social workers to work within doctors' practices is being funded by the German Innovation Fund of the Federal Joint Committee, (decision-making body of the joint self-government of physicians, dentists, hospitals, and health insurance funds in Germany).

Table 1 | Progress towards implementing cross sectoral networks and ECI measures, in 2015

Target	% of municipalities implemented(n=432)*[24-27]
ECI network established	98.4
Maternity clinics are part of the ECI network	76.9
Paediatricians with their own practice are part of the ECI network	76.4
Binding agreement on cross-sectoral collaboration for the ECI network	60.0
Concept or mission statement on collaboration between network members	62.3
A document with an overview of all ECI measures available in the municipality	76.6
Long term home visiting services by (mainly) health professionals such as (family) midwives and nurses	87.9
Welcome visits	63.2
Long term home visiting services by volunteers	61.8

*432 municipalities with only one ECI network and funded by the federal initiative. Municipalities with more than one network were excluded because each of their networks may differ. Total number of municipalities in Germany is 579; number that applied for federal ECI funding is 566; number that responded to the survey is 555.

Flexible, cross-sectoral implementation architecture at municipal level

A great strength of the programme is that it allows for flexible implementation at municipal level, anchored around the municipal cross-sectoral networks. This enables innovation to local needs and contexts and a strong sense of local empowerment and ownership. It has also resulted in considerable diversity throughout the country in the implementation and funding of municipal networks (box 7).

These networks built on local existing conditions, partnerships, and needs. The regular exchange between municipal ECI networks (horizontally) and between

Box 5: Progress towards ECI's objectives with examples

Families in need make use of ECI support measures

In a 2014-15 survey among 8063 families with children aged 0-3 years, 13% indicated they received or had received long term home visits by a family midwife or nurse and 1.4% received or had received visits by a volunteer.6 Families receiving social welfare benefits were more likely to receive long term visits from a family midwife or nurse (17.8% of families receiving social welfare benefits *v* 11.7% of families not in receipt of benefits). In contrast, the families receiving social welfare benefits had much lower uptake of universal support measures than those receiving no social welfare payments, (eg, prenatal classes 34.1% *v*. 67.1%; midwifery care up to 8 weeks after birth 74.0% *v* 90.3%; medical services for mothers after birth (courses teaching postpartum exercises, etc) 27.4% *v* 64.7%).

ECI support measures are assessed positively by target group

In a 2015 survey of 1019 mothers, 618 had used long term home visits by a midwife or nurse,[28] 92.6% of the 148 women visited by a family midwife or nurse rated it positive or very positive and 94.3% of the 770 who had been visited by midwife nurse without family training. 90.1% of women receiving social benefits rated the visits as positive or very positive (n=204) and 95.7% of women not receiving social benefits (n=414). These results show that the visits are highly valued by the target group of vulnerable families. Most women would recommend the services to another family (98.7% for family midwife or nurse and 97.9% for midwife or nurse).

ECI support measures are effective with respect to enhancement of families' competencies

Long term home visits by health professionals (nurses) have been adopted by the German ECI programme because of convincing national and international evidence that they are effective.[19 29] The home visitation programme "nobody slips through the net" was tested in 2007-2011 in ECI pilot projects[30] and showed improved social development of children compared with those in the control group.[31] Mothers judged their 1 year olds' character as "less difficult" and the mother-child interactions in the intervention group were less "dysfunctional" than those in the control group. The home visitation programme "Pro Kind" showed a tendency for positive treatment effects on infant cognitive development at 6 and 12 months as well as improved parental capabilities at 12 months compared with controls.[32] A longitudinal observational study conducted by NZFH in 2013-2015 with 937 families receiving home visits by health professionals showed increased parental capabilities in five domains.[33]

municipal, state, and federal level (vertically) creates channels for sharing experiences, innovations, and lessons. This has supported the identification of successful local initiatives, which have then been rolled out in other areas or nationwide (box 8). This "learning by doing" approach was vital in the development of an operational knowledge base for the ECI programme.

Building capacity and generating interprofessional benefits

Capacity building and generating clear benefits for stakeholders have been critical for the implementation of the ECI programme and especially its vision for cross-sectoral collaboration.

The programme has engendered a shared understanding and a sense of common responsibility between stakeholders, and clarified the intersections and boundaries between their respective roles and responsibilities. The definitions and guidelines developed collaboratively by federal, state, and municipal stakeholders have laid out critical milestones in this evolution over the past 11 years. Capacities and skills for cross-sectoral collaboration have also been progressively developed among professionals, gradually bringing them out of their separate boxes.[25 26 38] As one network member from Frankfurt am Main said: "We consider ourselves as one unit: as a family, not as an individual service provider."

We noted increasing appreciation by professionals of the inherent value of cross-sectoral collaboration. A survey in 2016-17 among maternity clinics and paediatricians showed that health professionals felt increasing pressure to care for families with high needs, perceiving this as a severe challenge. Of the 815 paediatricians who responded (23.1% response rate), 77% said they "perceive ECI as a relief for their work," as it would help them identify and provide optimal support for families beyond medical care.[37]

Box 6: Strengths, opportunities, and challenges of Germany's federalised structural context for the ECI programme

In Germany's decentralised system, federal states and municipal authorities have autonomy to design and develop their ECI networks, services, and initiatives, including those specifically related to cross-sectoral collaboration. This flexibility enables a high degree of responsiveness to diverse and dynamic local conditions and needs. It also fosters local stakeholder ownership and empowerment.

The ECI programme, however, must try to implement and guarantee coordination, and a degree of standardisation and coherence, both horizontally between the two sectors at each level as well as vertically across the three federal levels. It can be complex and time-consuming to coordinate with and find agreement across the many stakeholders and representative agencies. Furthermore, federal level instruments (eg, guidelines, initiatives) are subsequently interpreted and operationalised at state and then municipal level, which may differ in terms of their legislative and bureaucratic structures, service provisions, and the individual and institutional vested stakeholders.

Concerns related to confidentiality, data protection, and information sharing can be an additional challenge for cross-sectoral collaboration between professionals for families. While the Federal Child Protection Law provided a greater degree of certainty on such issues, separate and changing codes of law continue to pose problems, and the EU-wide General Data Protection Regulation that came into effect in May 2018 may have increased concerns again.

Considerable demographic and socioeconomic diversity across states and municipalities in Germany influence the population needs and the availability of human, financial, and infrastructural capacity and resources to respond. Insufficient human resources in both the health and social services are a widely acknowledged challenge, affecting the ability and willingness of staff and agencies to implement initiatives and to engage in the cross-sectoral networks specifically.

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Box 7: Examples of how the ECI programme has fostered cross-sectoral innovation and best practices

Interprofessional Quality Circles (IQCs) involve health and social services professionals meeting regularly to discuss anonymised cases and develop strategies for individual cases.[36] This fosters reciprocal understanding, which directly benefits the practitioners' day-to-day work. These circles were initiated by NZFH and the Association of Statutory Health Insurance Physicians of the Federal State Baden-Württemberg, and are led by doctors in collaboration with professionals from the social services sector at municipal level. IQCs have been tested and adopted by other states, including North Rhine Westfalia, and are being considered by others.

Pilotage services in maternity clinics (Lotsensysteme) were first implemented in North Rhine Westphalia in 2006, followed in 2007 by "Babylotse" in Hamburg. These and similar models of a service for identifying, counselling, and referring mothers and families to appropriate support measures postnatally were adopted and implemented in maternity clinics in other federal states and municipalities. In 2017, 28.9% of 383 maternity clinics that responded to a survey (sent to n=673 clinics with more than 300 births a year, response rate 56.9%) offered this service to mothers with newborn babies.[37] These services are well accepted by the target group. An evaluation at Charité Universitätsmedizin Berlin showed that in 2013 only 2.5% of 1050 mothers identified as psychosocially burdened declined the offer of an in-depth interview with a Babylotse. In Dortmund, the one clinic out of four that implemented a pilotage service experienced a rapid increase in the number of births.

ECI quality dialogues started in 2018 and are an example of ongoing efforts to improve quality. 24 municipalities seized the opportunity to jointly identify challenges in their ECI policies—for example, concerning the participation of families or extending municipal collaboration beyond the health and social services sectors. The process will be evaluated and the results published and shared with other municipalities.

ECI professionals recognise this as supporting a shift towards a more holistic and family centred approach, as reflected in initiatives such as the Interprofessional Quality Circles (box 8).

Programme evaluation and stakeholder perspectives show that the success of formal mechanisms for cross-sectoral collaboration also depends on more informal and interpersonal efforts by network members. The formally established and funded municipal network coordinators serve as important boundary spanners, enabling and strengthening cross-sectoral collaboration. Their success depends largely on their informal brokerage and trust building. Likewise, partners view the interpersonal aspects of the municipal cross-sectoral networks as important. Network members also appreciate being able to discuss new or emerging issues in the network meetings and with other members, including outside the formal meetings. These interactions are an important way of sustaining and strengthening engagement between practitioners.

Lessons for the future

Several key lessons for enabling cross-sectoral collaboration can be drawn from our analysis. Firstly, the mutually reinforcing nature of structural and governance frameworks is critically important. Structural frameworks act as the collaboration's skeleton, but interprofessional and personal relationships make programme objectives achievable by empowering stakeholders and creating shared understanding and commitment, mutual trust, and respect, and thus strong social connectivity.

The importance of the people who drive cross-sectoral collaboration cannot be overstated. These people have essential roles as champions, bridge builders, and boundary spanners.[39] They find creative and innovative ways to shift and cross the sectoral, administrative, professional, and institutional boundaries to respond to the needs of stakeholders and beneficiaries. Given this vital role, ensuring their continuing presence, commitment, and active engagement is essential for programme sustainability.

> "Joint agreements take their time, but in the end this results in thorough satisfaction of all partners." *Network member, Dortmund, April 2018*

The process of establishing frameworks, together with professional understanding, capacities, and relationships, is often slow, and not a linear process. Different strategies can be used to foster and enhance collaboration across sectors and levels, using a mix of formal mechanisms (eg, working groups and standards), as well as capitalising on and strengthening interprofessional benefits. This can include fostering a working culture where professionals feel comfortable trusting each other and asking for support or advice.

The wider structural context can offer powerful means through which to mandate or foster cross-sectoral collaboration, but also presents challenges. In Germany,

Box 8: Examples of diverse implementation and funding at state and municipal levels

Frankfurt am Main, State of Hessen

The ECI network has a declaration specifying the network's structure, partners, and mandate. Collaboration includes information sharing, coordination on structural components, and operational issues, including to address challenges related to issues such as data security. Smaller sub-networks for specific geographical areas in the city facilitate the specific cross-sectoral collaboration needed to ensure that families can access ECI services in their day-to-day social context. The linkages between ECI and child protection services are strengthened through regular meetings between the respective networks for ECI and child protection via a working group on "Children's rights" in place since 2008. The ECI network in Frankfurt am Main has been able to leverage significant additional funding from well-resourced local charitable foundations that are entrusted to direct finances for population benefit.

Ortenau, Offenburg, State of Baden-Württemberg

A municipality-wide ECI steering group with the most important stakeholders aims to ensure equal standards throughout the municipality. This is complemented by ECI "competence centres" throughout the district which provide direct and coordinated psychosocial care, and sub-municipal "round tables" of relevant actors. Through federal, municipal, and other funding sources, the ECI network in Ortenau directly funds services based on cross-sectoral collaboration (eg, providing new parents with information about and support to access ECI and other services), which is not the case in all municipalities. A key outcome has been that families in need are identified and provided services much earlier with these structures in place — previously support was often only offered when it was in fact too late to prevent problems. Local evaluation found that 79% of all 600 families using the ECI system were reached very early (during pregnancy until the first birthday of the child), most of these shortly after birth.

legislative mandates and stable funding for cross-sectoral collaboration provided certainty, which increased network influence in municipal contexts and attracted stakeholder commitment. However, the structural challenges of health and social services sectors strongly affect ECI generally, and specifically cross-sectoral collaboration.

Human resource constraints in both sectors are especially problematic. Half of ECI network coordinators reported that the number of professionals employed for home visiting services were insufficient to meet municipality needs.[27] The shortage of midwives and nurses in general, and with specialist ECI training, generates strong competition for employment. Some ECI trained professionals move back to standard midwifery or nursing, which is better paid. Workplace pressure for all stakeholders may also act as a disincentive, discouraging people from working cross-sectorally or engaging in the networks.

Germany's success in involving health professionals in ECI networks seems at least partly due to a convergence between the progressive establishment of the collaborative structures and the increasing and changing population needs. Professionals could therefore see direct benefits of cross-sectoral collaboration for their work. Better ways to incentivise or enable health insurers to support ECI activities, including payment mechanisms for work spanning traditional sectoral boundaries, also need to be identified.

A strength of the ECI model is the high level of municipal autonomy enabling local adaptation. However, municipalities differ considerably in their overall economic, demographic, and social profiles and in their commitment and capacity to support ECI. Better measurement and evaluation of these equity dimensions and expanding the role of beneficiaries as active participants in the programme could further strengthen Germany's ECI programme.

A challenge for Germany's ECI framework and many municipalities might be to include more sectors in the multisectoral approach—for example, early childhood education services (eg, nursery and day care) and the labour market sector. This could strengthen service design and responsiveness and enable the programme to better account for and tackle other factors and social determinants relevant to child and family health and wellbeing.

The €51m annual federal funding secured by the Federal Child Protection Act in 2012 may not be sufficient. The funding does not take account of inflation and must be distributed to around 600 municipalities. Moreover, the proportion of vulnerable families in need of early psychosocial support is expected to continue to increase. In 2017, the total number of births increased for the fifth consecutive year, and this trend is expected to continue. This dovetails with increased needs from recent high levels of inward migration, including of refugees, many of whom are young and may be traumatised, and other immigrants with low socioeconomic status.

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Supplement 1: Methods for developing the German case study
Supplement 2: Germany's health and social protection system and federalist structure
Supplement 3: ECI programme components implemented at municipal level in Germany
Supplement 4: Performance guidelines for the implementation of the Federal Fund for Early Childhood Intervention

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Making the health system work by and for Indigenous women in Guatemala: a community led multisectoral collaboration

Claudia Nieves Velásquez and colleagues report how a community led national alliance of Indigenous women's organisations is working to improve the delivery of healthcare for Indigenous women through collaboration with other community based organisations, government (health and ombudsman), and international partners

Inequities in indigenous peoples' health persist, reflecting the continued disadvantage and discriminatory attitudes experienced by indigenous people worldwide that affect their use of health services.[1 2] For Guatemala, where nearly half of the population is indigenous—mainly Mayan groups—inequities remain a persistent challenge. Most of the country's Indigenous peoples have higher rates of poverty and were profoundly affected by the civil war (1960-96), with about 83% of the two million victims belonging to one of the Mayan Indigenous groups.[1 3-6] The Alianza Nacional de Organizaciones de Mujeres Indigenas por la Salud Reproductiva Nutrición y Educación (National Alliance of Indigenous Women's Organizations for Reproductive Health, Nutrition, and Education, ALIANMISAR) is one example of how Guatemala's Indigenous communities are working to deal with these challenges. ALIANMISAR's efforts built on the 1996 Peace Accords, which marked the end of the civil war and emphasised the need for civil society stewardship and active involvement in governance.[7] The accords also mandated a 50% increase in the public health budget, focused on preventing ill health, decreasing maternal and infant mortality, and eradicating polio and measles.

ALIANMISAR is a network led by Indigenous women and was formed in 2006 to improve the quality and cultural acceptability of healthcare provided to Indigenous women.[5] As part of its mission, ALIANMISAR monitors a range of public health services at national, departmental, and municipal levels, in collaboration with other community based organisations, the executive and legislative sectors of the government (the Ministry of Health and the Ombudsman for Human Rights), and international partners (see suppl 1 on bmj.com). Monitoring of health services by ALIANMISAR volunteers and staff from the ombudsman's field offices includes interviews with service providers and users and an inspection of the facilities, equipment, supplies and medicines. To date, joint monitoring has contributed to important improvements in health policy and legislation, health services, and infrastructure for Indigenous women.

We focus on the factors that have enabled this multisectoral collaboration; impetus for this analysis comes from recognition that multisectoral collaboration is essential to achieve the sustainable development goals.[8]

KEY MESSAGES

- ALIANMISAR monitors a range of public health services, in collaboration with other community based organisations, the Ministry of Health, the Ombudsman for Human Rights, and international partners, to generate evidence for improvements to the quality and cultural acceptability of health services for Indigenous women
- Previous work by Indigenous women as advocates in their own communities aided collaboration with ALIANMISAR, bringing additional technical and financial resources to enable further advocacy
- ALIANMISAR's methods and its presence in the political space for many years makes it a legitimate, credible, and trustworthy partner, facilitating of health and other sectors to respond to its advocacy claims
- A strategic review is needed to determine how to fund and structure ALIANMISAR in future to build on existing gains in a sustainable and equitable way

Why was monitoring needed?

After more than a decade of post-war reconstruction, inequities in the levels of maternal mortality between Indigenous and non-indigenous women remained striking, indicating that the health system was not meeting the needs of Indigenous women (box 1).[9]

Joint monitoring by ALIANMISAR and other sectors

ALIANMISAR began monitoring health services for Indigenous women in collaboration with the field offices of the Office of the Human Rights Ombudsman (box 3) in 2010. This was achieved through creation of local networks (REDMISAR; Network of Indigenous women's organisations for Reproductive Health, Nutrition and Education) and after receipt of technical and funding support from the USAID funded Health and Education Policy Project (HEP+). Monitoring is used to gather evidence about both problems and improvements. Other permanent stakeholders in the monitoring process include the Indigenous men's network REDHOSEN (Men's network for Health, Education and Nutrition), municipal government (eg, mayors), and the Ministry of Health (supplementary files 1 and 2).

ALIANMISAR uses an annual monitoring cycle (fig 2) to feed into advocacy efforts: the first four steps include updating knowledge (steps 1 and 2), reviewing data (step 3), and revising forms (step 4). Findings from monitoring, step 5, are used in political dialogue at municipal to national level with the Ministry of Health to bring about improvement in the delivery of high quality and culturally appropriate care and services (step 6).

From joint monitoring to change

The results of monitoring are used to inform advocacy efforts, including rec-

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Box 1: Inequities in Indigenous maternal mortality

In 2000, the maternal mortality ratio for Indigenous women in Guatemala was more than three times that of non-Indigenous women (211 and 70 maternal deaths per 100 000 live births respectively, and an absolute number of 653 maternal deaths overall). This difference fell to 2.1 times that of non-indigenous women in 2007 (163 and 78 maternal deaths per 100 000 live births respectively, and 537 maternal deaths overall), and to 1.75 times by 2015 (139 and 79 maternal deaths per 100 000 live births respectively, and 436 deaths overall).[10-12] One study found that a large portion of ethnic differences in the use of institutional delivery services between Indigenous and non-indigenous women was attributable to Indigenous women not speaking Spanish.[13] This study and a 2015 health systems assessment for Guatemala[14] indicate challenges with availability (eg, no qualified health staff at the clinic), accessibility (eg, clinic too far), acceptability (eg, "we cannot give birth the way we want to"), and quality (eg, clinic staff impolite or don't speak the local language) of services. The findings are also consistent with global evidence on Indigenous women's use of maternal health services and health outcomes, whereby recommended action by countries includes tackling discrimination; making health centres physically, financially, and culturally accessible; and ensuring equal access to health services.[15]

Service user monitoring generates knowledge and evidence that can be used to advocate for change and improvements. When combined with information on health provider performance and user entitlements, monitoring has been found to lead to better quality and more frequently utilised health services, and ultimately improved health outcomes.[16] Monitoring by health service users is also an integral part of ensuring the state's accountability for realising the health and human rights of Indigenous people [17]. Monitoring by Indigenous women is therefore key to ensuring the availability, physical and financial accessibility, cultural appropriateness, and quality of health and care services. Since 2008 ALIANMISAR, together with Ministry of Health authorities, has advocated for improved quality, availability, and accessibility of culturally appropriate health services (box 2).

ommendations for political dialogue, and are presented to the Minister for Health annually at a public meeting.[22 23] Monitoring has contributed to 67 documented improvements in health facilities and services to date[24]—for example, healthcare staff clearly identifying themselves and speaking the local language. ALIANMISAR has also used the results of monitoring to inform important civil society advocacy initiatives for the creation, approval, and implementation of norms, laws, and policies that guarantee access to high quality health services, emphasising cultural appropriateness, and that consider the health needs of Indigenous people (box 4).

We report an analysis aiming to establish the factors underlying ALIANMISAR's work which may have contributed to its success in collaborating with other sectors to improve provision of healthcare for Indigenous women in Guatemala. Findings come from a process of document review, key informant interviews, and dialogue with a range of stakeholders at national, departmental, and municipal levels (supplementary file 3).

Box 2: Culturally appropriate health services

In Guatemala, current legislation defines culturally appropriate health services as those that are:

- Free of discrimination
- Provided bilingually in Spanish and the local Mayan language so the service is accessible to people who communicate in a language other than Spanish
- Focused on the population they serve, with a care model that integrates traditional and modern systems.[18]

A focus on the population served includes the development of norms, practices, and standards to ensure that health services are culturally appropriate and enable Indigenous women to deliver in the most comfortable position for them. For example, vertical birth (giving birth in an upright or squatting position) is a common cultural practice among Indigenous women in Guatemala. This also requires provider training in skills and techniques related to communication, health education, and community engagement to appropriately respond to and respect the culture of Indigenous people.[19] Health services should also be designed, organised, and implemented in accordance with Indigenous peoples' values and way of life.

Enabling factors for collaboration

We identified five different but complementary factors that enabled ALIANMISAR to successfully collaborate with other sectors and contributed to knowledge and evidence that was used to advocate for changes to health services and care for Indigenous women in Guatemala.

Legislation and mechanisms for citizen participation

Firstly, having existing legislation and mechanisms that required and supported citizen participation including monitoring has been key. Guatemala's constitution mandates civil society to hold government accountable, obliging the state to create processes and mechanisms for citizen participation in the governance of health and social sectors.[26 27] This includes participation in the planning, supervision, execution, and administration of health programmes that are key actions for guaranteeing the right to health.[28] This meant that when ALIANMISAR was established there was no question about their right to participate in the governance of health services.

> This legislative framework has opened the window for the advocacy work of civil society organizations in the protection and promotion of women's development, based on the obligation of the State to provide services and the application of sanctions for violations to its integrity and rights, which is the foundation of the [advocacy] work of … ALIANMISAR (Andrea Santos, project coordinator, ALIANMISAR) [29]

As a signatory to the International Labour Organization 169 Agreement and the UN Declaration on the Rights of Indigenous Peoples[17 30] the State of Guatemala is obliged to support the right of Indigenous people to participate in decisions that affect them, including development priorities. ALIANMISAR makes use of these mechanisms, including legal and public policy frameworks, to advocate for change and improvements in health services consistent with a human rights based approach to guaranteeing the right to health.

Existing foundations and networks of ALIANMISAR

Secondly, an existing group of advocates recognised by their Indigenous communities was already in place when ALIANMISAR began. Many Indigenous women who joined ALIANMISAR were already working as volunteers in their communities before its foundation. Most were recognised as credible advocates within their own communi-

Box 3: Office of the Human Rights Ombudsman, Guatemala

The Office of the Human Rights Ombudsman was created by the National Assembly in 1985 and is responsible for monitoring public sector programmes and performance. The office operates under an agreement between the Office of the United Nations High Commissioner for Human Rights and the Government of Guatemala.[20] The functions of the ombudsman are to monitor human rights in Guatemala, to provide technical assistance to the government, and to advise state institutions and civil society to enhance the promotion and protection of human rights.

ALIANMISAR has developed over time with regard to its main collaborations and the public health topics monitored (fig 1). The range of topics monitored has increased, from reproductive health services in 2010 to include monitoring of nutrition services during the first 1000 days of life. These additions have been driven by political events, such as the health system crisis that led to a reduction in primary healthcare coverage in 2014/15, a reduction in immunisation rates,[14 21] and the ongoing high rates of chronic malnutrition. For monitoring nutrition services, ALIANMISAR is an elected member of two other entities working on this issue: INCOPAS (the social participation body for food and nutrition security in Guatemala) and CONASAN (the National Food Security and Nutrition Council).

ties and by other stakeholders. This meant that monitoring findings are seen as reliable with Indigenous communities, as well as with other stakeholders. ALIANMISAR volunteers brought a range of individual skills and experience, including working within the health system as community facilitators, midwives, and health promoters. Most volunteers speak their local Mayan language. Participation by Indigenous women speaking the local language is vital and gives other stakeholders (such as the ombudsman's office) confidence in the findings. ALIANMISAR's credibility was further bolstered by its commitment to ongoing follow-up on the results of monitoring to ensure the correct implementation of legislative and public policy mandates (box 4).

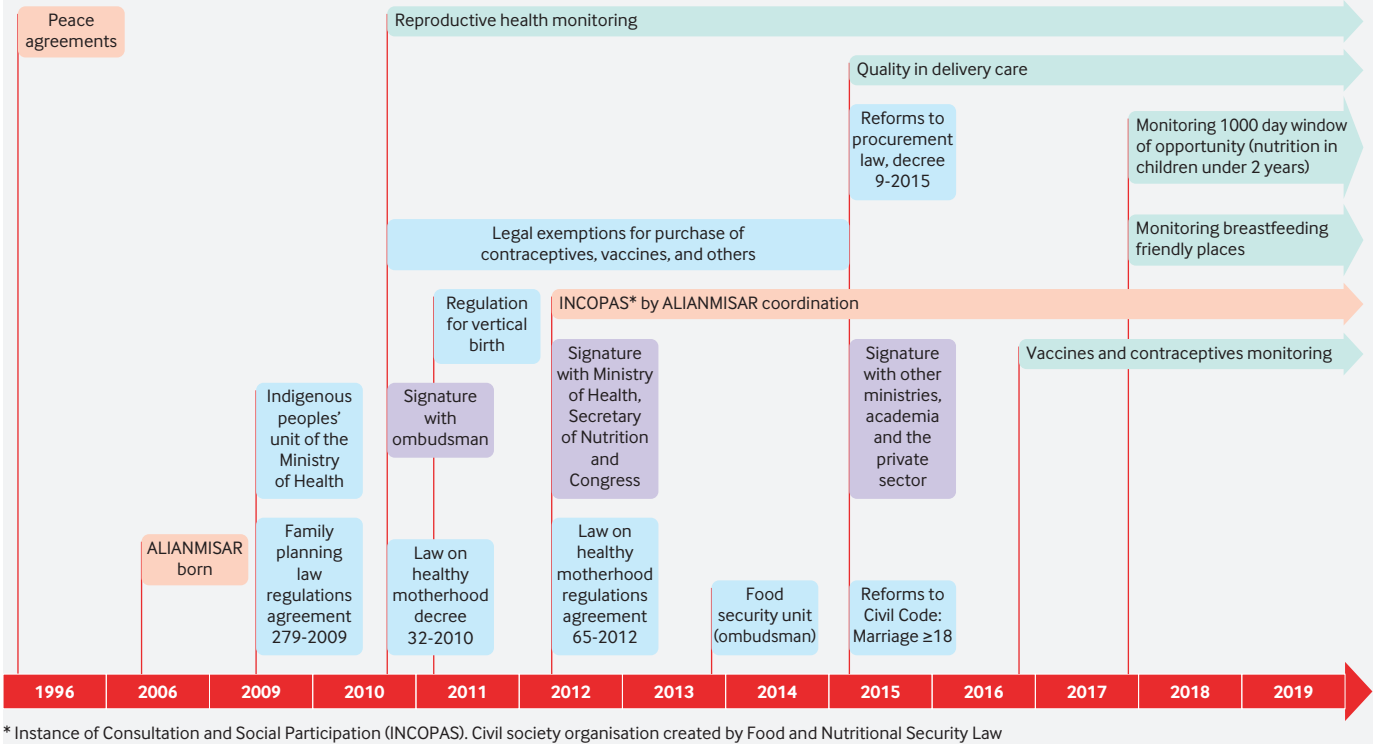
Health service stakeholders have also emphasised the value of ALIANMISAR's credibility for the collaborative work.

> When they [the local network] present the findings from the monitoring, we take the opportunity to ask them to talk to community members about using the health services which are open to them, because ... communities know them: their members have credibility, and that also helps us to gain their trust (Health sector key informant)

Resourcing: technical and financial

Thirdly, donor funding of about $160 680 (£125 000; €140 000) annually since 2010 via the HEP+ project has been critical to ALIANMISAR's work and existing HEP+ technical support. Funding has been used to pay for a national level technical secretary and an additional five technical facilitators to support networks at departmental and municipal levels, and to provide some funds to reimburse ALIANMISAR's volunteers for travel and related expenses when undertaking monitoring or advocacy activities. USAID funding covers 30 municipalities in departments prioritised by USAID for funding in Guatemala, not all municipalities where ALIANMISAR is active.[3 31]

Training and capacity building in human rights literacy, skills for negotiation, and advocacy with state authorities are important strategies for improving Indigenous people's participation and advocacy for their own interests.[6] ALIANMISAR volunteers are trained in the topics/health issues covered by monitoring, as well as in human rights, monitoring, reporting, advocacy, and political dialogue. The HEP+ project coordinator provides training to the HEP+ facilitators and sometimes directly to local network leaders. HEP+ department level technical facilitators assist in compiling, analysing, and presenting the results from monitoring, including prioritisation of findings and development



* Instance of Consultation and Social Participation (INCOPAS). Civil society organisation created by Food and Nutritional Security Law

Fig 1 | Timeline of ALIANMISAR

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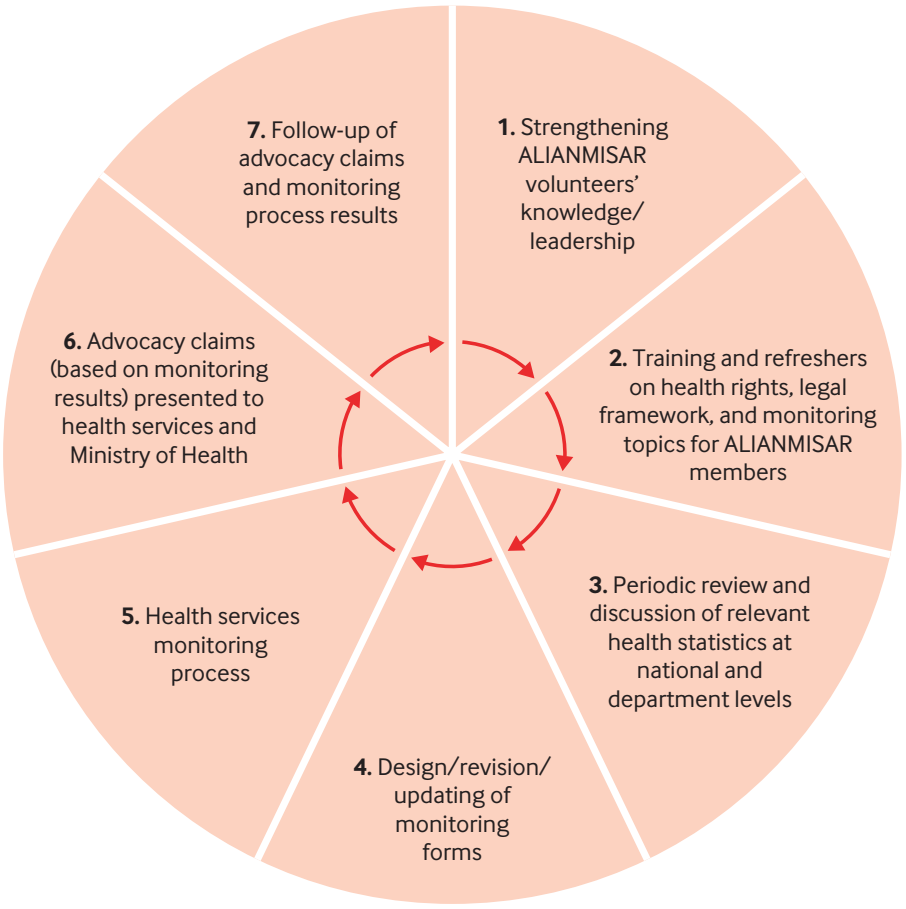

Fig 2 | ALIANMISAR's advocacy and political dialogue process

of recommendations for inclusion in reports, presentations, and petitions.

Stakeholders described ALIANMISAR monitors as technically knowledgeable about health rights for Indigenous women and a credible source for other community led organisations, as well as effective advocates, experienced in dealing with the authorities and the media. ALIANMISAR monitors underlined the importance and value of training.

> "The training has given me the tools and the confidence to exercise my role, and that has also facilitated successful monitoring" *(ALIANMISAR key informant)*

However, monitoring of health services by ALIANMISAR relies on Indigenous women working as volunteers. Reliance on volunteers was identified by some stakeholders as affecting the sustainability of ALIANMISAR, as volunteers often leave to take up paid employment. Some volunteers, however, noted that the training not only equipped them to undertake monitoring but also built skills that they could use to obtain and/or retain employment.

Box 4: Examples of changes to health policy, legislation, services, and infrastructure linked with monitoring and advocacy by ALIANMISAR

- Creation of the Ministry of Health's Indigenous Peoples' Unit in 2009, which is responsible for designing and implementing programmes, policies, and norms to contribute to political and strategic conditions for the right to health of Indigenous people
- Enactment of the Healthy Motherhood Decree of the Congress of the Republic of Guatemala in 2010, aiming to improve the health and quality of life of women and newborns and to strengthen national family planning and reproductive health programmes[25]
- Restoration of the supply of basic drugs, micronutrients, and family planning materials to the health post at Lagunas Cuaches, San Juan Ostuncalco, in October 2012; all key for the provision of preventive health services[24]
- Establishment in March 2017 of a new maternity unit in the hospital in the municipality of Quetzaltenango. This enables pregnant women living in rural areas remote from health services to receive adequate and culturally relevant care before, during, and after delivery[24]

Methods used for generating findings for change

Fourthly, the strength of the findings produced and used by ALIANMISAR for advocacy is both an outcome of collaboration with partners, such as the ombudsman and HEP+, and also one of the key enablers of collaboration with the health sector. Findings generated through monitoring fulfil several functions. They serve to identify potential for improvements in healthcare facilities, including service provision. For example, monitoring by ALIANMISAR in 2015 showed that culturally inappropriate practices such as washing women in cold water in health facilities are ongoing and contribute to Indigenous women's reticence to use those facilities to give birth.[4 32]

> After my delivery, they woke me up at 3:00 in the morning so that I could bathe with cold water; they said that if I bathe the doctor would check me, but the doctor never came to check me *(Health services user, Coban Hospital[32])*

The findings also provide a strong foundation underpinning ALIANMISAR's advocacy for improvements to health policy, protocols, health services, and facilities, resulting in improvements in care (box 4). Consistent and systematic documentation including annual reporting,[22 23 33] together with the use of media such as photography to document poor conditions of health facilities, and combined with the participatory nature of the monitoring[34] has been instrumental in persuading health and other stakeholders of the validity and reliability of ALIANMISAR's findings and the need for proposed changes.

> It was from the evidence and results generated by the monitoring exercises, and with their attitude to work, that they gained credibility in the eyes of other actors and improved communications between the different participants in the monitoring process *(Ombudsman KI)*

Sharing the evidence has also improved Indigenous women's health and human rights literacy.[6] Using monitoring to identify weaknesses and manage improvements in health services has increased communities' knowledge of what they are entitled to demand from their health services.

Shared goals

The fifth enabling factor is shared goals. Multisectoral collaboration is often under-

stood as different sectors acting together to achieve outcomes that cannot be achieved by one sector alone,[35] usually expressed in terms of shared interests. In this collaboration, however, the shared interests might seem less obvious, because ALIANMISAR has the role of monitoring a key stakeholder, the Ministry of Health. Key informants from health and other sectors reported that collaboration with ALIANMISAR has helped them to do their job better, achieve their goals, and, crucially, improve their own credibility. For example, in one health service, collaboration led to a change in communication style: the respectful behaviour by staff that had long been called for was finally achieved when it was formally recommended after an audit by ALIANMISAR. In another health service, a key informant said that the monitoring report produced by ALIANMISAR is a tool that can be used for follow-up with the Ministry of Health not only by ALIANMISAR but also by the health services. It provides them with documentation of the need for local resource allocation so that services and changes to facilities can be made to ensure culturally acceptable health services are available.

In terms of other sectors, the collaboration means that the local field officers of the ombudsman accompany ALIANMISAR monitors and can cover a wider geographical area in monitoring the right to health because the number of areas monitored is greater than they would cover alone. Furthermore, monitors from the ombudsman's office may not speak the language of the region where they work, so collaboration with women who speak the local language helps them to reach service users more effectively.

However, it has taken time for collaboration to be recognised as mutually beneficial. One stakeholder from the health sector described how they initially thought the purpose of monitoring was to audit the ministry but came to appreciate that its real purpose was to enable and support the health sector to do their job by pointing to the improvements in health services needed to achieve the goal of wellbeing for people (box 5). Some stakeholders identified frequent changes of administration and staff at all levels in Guatemala as a challenge for collaboration, since these changes often require local networks to rebuild relationships from the beginning.

We found that these five factors were key both to the collaboration and its success in advocating for change to health services for Indigenous women. ALIANMISAR's continuous presence in the political space, using existing legal frameworks, the reliability of findings from monitoring, and technical assistance to the health sector have made them a legitimate, credible, and trustworthy partner. This has increased collaborators' willingness to respond to advocacy for change as seen by improvements to health policy, infrastructure, and services.[36]

Challenges and limitations

Stakeholders indicated an ongoing need for ALIANMISAR's work and for its expansion. However, the review process also identified challenges for the collaboration and for ALIANMISAR overall. Firstly, questions surround sustainability and equity of resourcing: ALIANMISAR is funded by short term grants from donors. Resourcing for ALIANMISAR's work affects monitoring in a number of ways. Health services monitoring takes place in only six of the 22 departments, and other departments with Indigenous populations may be being missed. Additionally, USAID funding provides for 30 municipalities and does not cover all those where ALIANMISAR is present. In municipalities without USAID funding, ALIANMISAR still conducts annual monitoring exercises, sometimes with financial support from other stakeholders such as the local municipality and the ombudsman.

Secondly, while the voluntary nature of Indigenous women's participation in ALIANMISAR gives credibility to their work, it also presents challenges, including a high turnover of volunteers. The collaboration and its successes is also dependent on unpaid work by Indigenous women, which is inconsistent with the principles of equity and gender equity.[37 38]

These challenges do not detract from the collaboration's success nor from ALIANMISAR's achievements, but they do show that a strategic review of ALIANMISAR's collaborative work with the Ministry of Health, the ombudsman's office, and other stakeholders in improving the health and wellbeing of Guatemala's Indigenous women and their communities would be timely. As well as exploring how to fund ALIANMISAR in the long term it needs to include an evaluation of how it works, what it works on, and the outcomes and impacts for Indigenous women and communities.

Conclusion

Despite a commitment to formal mechanisms for civil society participation in governance post-1996 in Guatemala, Indigenous people, particularly Indigenous women, were not participating fully in those processes to effectively advocate for their interests and rights.[1 6 7] The creation of ALIANMISAR as an organisation run by Indigenous women for Indigenous women was an important response to this gap, both enabled by and resulting in more effective use of these participatory mechanisms.

We highlight the experience of, and challenges involved in, community led, multisectoral collaboration for improving the availability, accessibility, cultural acceptability, and quality of health services for Indigenous women. This experience shows what can be achieved in a low resource setting by an existing network of respected community volunteer advocates, with additional resources, capacity building, and a long term commitment to improving the health system. To produce long term improvements in Indigenous women's lives, it is essential to continue building on ALIANMISAR's work and successes in a sustainable and equitable way. The findings from the review process will therefore be used to inform future efforts by ALIANMISAR.

Box 5: Constructive dialogue with health professionals about culturally appropriate childbirth and delivery methods

To make childbirth practices and delivery methods in indigenous contexts more culturally appropriate, ALIANMISAR approached the medical and nursing schools of the State University, advocating that students be trained so that women can deliver in the position they find most comfortable. For example, vertical birth is a common cultural practice for Indigenous women. However, senior staff in the medical faculty were initially resistant. Volunteers had attended an exchange with Peru about their childbirth practices and ALIANMISAR subsequently returned to the university to discuss their findings with the medical faculty. Through this exchange, the university was motivated to implement a series of short training sessions on the topic to raise awareness among students completing supervised professional training in health services and plans to include these traditional methods in the school's training curriculum.

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Supplement 1: Stakeholder information
Supplement 2: Monitoring of health services by Indigenous women for Indigenous women
Supplement 3: Methods for the case study

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Tackling HIV by empowering adolescent girls and young women: a multisectoral, government led campaign in South Africa

Hasina Subedar and colleagues describe the intersectoral collaboration enabling She Conquers, a three year national campaign rolled out across South Africa, to tackle the multiple drivers of the high rates of HIV infection among adolescent girls and young women

Despite a recent fall in new infections, South Africa still has the largest HIV epidemic in the world and has not achieved the 50% reduction envisaged in its national strategic plan for 2012-16.[1 2] Adolescent girls and young women are disproportionally affected by HIV, with prevalence among 20-24 year olds three times higher in women (16%) than in men (5%), and females aged 15-24 years accounting for 37% of new infections.[1 3] Amid the competing priorities for HIV funding, the current national plan (2017-22)[2] calls for urgent focus on adolescent girls and young women.

Although many organisations and government departments target adolescent girls and young women, action has often been piecemeal, resulting in duplication of effort, funds not allocated strategically, and limited impact. On World AIDS Day 2015, South Africa's deputy president called for a collective and collaborative response to the high rates of HIV and its key drivers among adolescent girls and young women.[4] In June 2016, the government launched the three year She Conquers campaign.[5] The campaign seeks to reduce HIV infections, improve overall health outcomes, and expand opportunities for adolescent girls and young women to decide their own futures (table 1). The campaign moves beyond a focus on disease transmission and associated stigma to a narrative of power (see suppl 1 on bmj.com).

She Conquers primarily targets women aged 15-24 years, although interventions also target others in the HIV transmission cycle, such as older men and women.[6] Core interventions are implemented by a diverse group of partners to collectively tackle the social and structural determinants of HIV, and include programmes on sexual and reproductive health, HIV testing, gender based violence, positive parenting, and post-schooling education and employment (fig 1). South Africa's current deputy president provides high level leadership for the campaign.

This case study explores the nature of the intersectoral collaboration within She Conquers, highlighting the success factors, limitations, and challenges as well as the lessons learnt. The insights we report may be relevant not only for future strengthening of the campaign but also for others seeking to collaborate across sectors to tackle health and development challenges. Methods for the case study analysis were informed by a guide developed by the Partnership for Maternal, Neonatal, and Child Health[7] and included a review of literature, as well as one-to-one in-depth interviews with key stakeholders. Details of our methods are given in supplement 2 on bmj.com. A multistakeholder review meeting was held to validate the content of the case study.

KEY MESSAGES

- The She Conquers campaign has used extensive collaboration across sectors to tackle the social and structural determinants of HIV among girls and young women in South Africa
- Extensive advocacy, including high level leadership, helped to mobilise support for the campaign
- Activities were coordinated through existing national, provincial, district, and subdistrict structures
- She Conquers exploited existing resources to deliver key programme goals
- Partners' programmes were aligned with national policies, campaign objectives, campaign theory of change, and a core package of evidence based interventions
- Communities were mobilised using common messaging, facilitating youth involvement and participation

Key achievements of She Conquers

All three levels of government (national, provincial, and district) have engaged with the campaign, and She Conquers has managed to motivate government departments as well as a diverse mix of stakeholders from civil society, development organisations, private sector, and academic institutions to align. The campaign is being rolled out across all nine provinces in South Africa in three phases. It is currently in phase one, which includes the 22 subdistricts with the highest HIV burdens, with phase two due to expand to 31 additional prioritised subdistricts, and phase three to include remaining subdistricts in order of priority. Box 1 lists what has been achieved so far.

How multisectoral collaboration was achieved

We identified six factors that may have been important in ensuring successful alignment: strong strategic planning; committed high level leadership; alignment to existing coordinating structures; leveraged resources; mobilisation of partners for integration; and engagement with adolescent girls and young women to ensure a relevant and responsive campaign.

Strong strategic planning

Given the number of stakeholders, resources involved, wide geographical coverage, and that programmes were not structured to promote collaboration, strong strategic planning was essential from the outset to promote alignment and foster partnerships. High HIV rates among adolescent girls and young women are principally linked to social determinants, including poverty, unemployment, gender inequality, and alcohol and substance misuse (suppl 3 on bmj.com). A large scale phylogenetic study from South Africa revealed the cycle of HIV transmission among young women (box 2).[6] This evidence was presented at a

Table 1 | Aim, objectives, and targets of She Conquers campaign

Aim	Objectives	Targets to be achieved over three years (2016 to 2019)
To reduce HIV infections, improve overall health outcomes, and expand opportunities for adolescent girls and young women to decide their own futures	To reduce new HIV infections among adolescent girls and young women aged 15-24 years	To decrease HIV infections by at least 30%: from 90 000 a year to less than 60 000 a year
	To reduce the incidence of teenage pregnancy (under 18s)	To decrease births to under 18s by at least 30%: from 73 000 a year (2015) to 50 000 a year
	To increase retention of girls in school until completion of grade 12	To increase school retention by 20% (baseline of 4% dropout in 2010)
	To reduce sexual and gender based violence experienced by adolescent girls and young women	To decrease sexual and gender based violence by 10% (2012 baseline: 7.7% for age 15-19; 7.3% for age 20-24)
	To increase economic empowerment of adolescent girls and young women	To increase youth employment by 10% (baseline 36.9% in 2015)

meeting of senior leaders in the She Conquers campaign before formal peer review publication to inform the development of the campaign, including the campaign strategy, objectives, theory of change, and core package of interventions.

The issues to be tackled included teenage pregnancy, gender based violence, gender equality, keeping girls in school, and women's socioeconomic empowerment (fig 2). A stakeholder mapping exercise during the planning phase identified areas that overlapped or complemented, and the campaign was designed to build on existing programmes. The package of interventions (fig 1) identifies actions to be taken by stakeholders, while allowing for adaptation in targeting specific groups and geographical areas. The core package of interventions is complemented by additional materials, including a monitoring and evaluation framework, roadmaps to services, communications material, and website. All campaign programmes were aligned under a common name and logo, using consistent branding to achieve a unified message.

As part of the strategic planning process, the campaign was aligned with national strategies, including the National Youth Policy 2015-20.[9] The campaign objectives were embedded within the national strategic plan, which articulates South Africa's strategy for encouraging all levels and sectors of society to tackle the HIV epidemic. The plan connects She Conquers to broader national policies that drive the overall vision for fostering collective actions to transform society, including the mid-term strategic framework and the national development plan.

To maximise promotion of the issues relevant to She Conquers, many of its campaign activities are aligned with existing campaigns, such as Youth Day in June, National Women's Day in August, and World AIDS Day in December. Phased roll-out also provides an opportunity for others to learn from the best practices of phase one districts.

Committed high level leadership

President Cyril Ramaphosa, who was South Africa's deputy president when She Conquers started, has been a key spokesperson and figurehead for the campaign, bringing political commitment from the highest level. This proved vital for collaboration as leadership was not assigned to just one sector. When he was inaugurated as president in 2018 he stressed the importance of the She Conquers campaign in his State of the Nation speech,[10] further raising its profile. High level publicity resulted in widespread commitment to She Conquers from the outset, with strong representation by development partners, donor agencies, government ministers, and departments at the launch.

The high level leadership stimulated a sense of responsibility, political buy-in, and collective commitment from diverse stakeholders working on programmes for adolescent girls and young women. Given the competing priorities for HIV funding, it maintained the focus on young women. In 2016, President Zuma instructed every

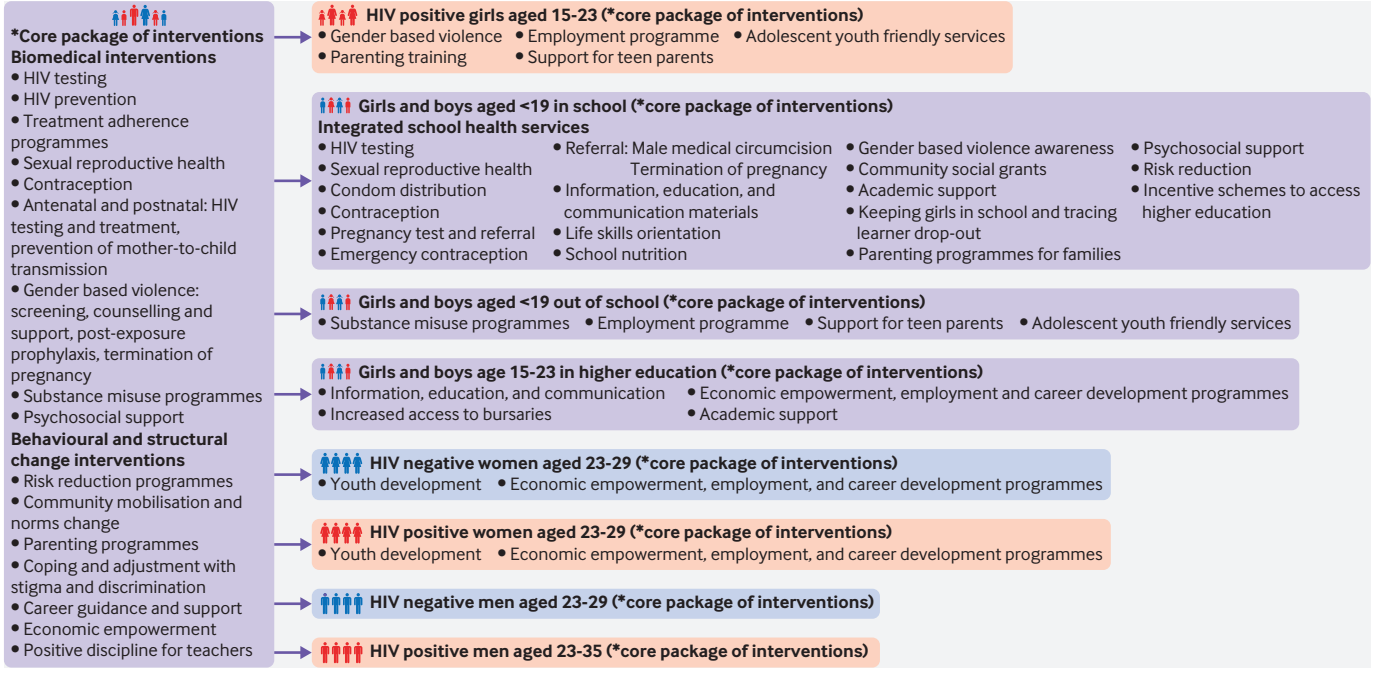

Fig 1 | She Conquers core package of interventions

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Box 1: Progress under She Conquers

- Over 20 government departments and 100 partner organisations have agreed to align under She Conquers
- Programmes for adolescent girls and young women account for over three billion South African rand ($200m; £160bn; €180bn)
- She Conquers covers a total of three million young women, within 22 priority subdistricts, across all nine provinces

Progress on She Conquers interventions (1 July 2016-31 December 2017) [8]

- More than 700 000 adolescent girls and young women have had an HIV test
- 26 000 adolescent girls and young women who tested HIV positive were linked to care
- Over 560 000 adolescent girls received life skills and sexual education
- More than 90 000 adolescent girls and young women received post-violence care
- Nearly 19 000 young boys and girls participated in violence prevention programmes
- More than 72 000 adolescent girls received support to remain in school
- More than 19 000 adolescent girls and young women attended economic strengthening programmes
- Over 6000 completed a parenting programme (including teen parents)

government department to ensure their programmes target young people, and consensus is growing among leaders at all levels and across the political spectrum about the importance of addressing the challenges faced by young people.[11]

Aligned to existing coordinating structures

The campaign is built on existing coordinating structures and mechanisms that drive the country's efforts to tackle HIV (fig 3). These structures already bring together government, civil society, and the private sector, and cascade from national to subdistrict level. At operational level, the South African National AIDS Council (SANAC) coordinates both the national HIV response and She Conquers. The SANAC inter-ministerial committee, chaired by the country's deputy president, provides political oversight for tackling HIV and She Conquers, leading discussions to review progress, identifying and overcoming challenges, and encouraging government departments to align with She Conquers to facilitate engagement.

At subnational levels, the provincial and district AIDS councils have a lead role in coordinating programmes working with young people to foster a targeted response, and within each province the campaign is led by the premier's office. At the start of the campaign, provincial councils consulted potential partners, including representatives of civil society, youth organisations, government departments, and implementing partners. Discussions focused on identifying priority subdistricts and existing coordinating structures that could be drawn on for the campaign.

New coordination structures have been established to support better alignment and to delineate roles and responsibilities. These include a national steering committee, a national decision making committee, provincial steering committees, and subdistrict implementation teams. Additional subcommittees on monitoring and evaluation, communications, and innovation existed during the planning phase to devise strategies and develop materials. The committees bring together stakeholders and allow them to develop strategy collectively. They provide an in-depth understanding of what other stakeholders and partners are doing, enabling the forging of new relationships and thus expanding collaborations around adolescent health issues.

Leveraged resources

Substantial investment in programmes for adolescent girls and young women existed before the campaign: in 2015, a one-off resource mapping exercise revealed over three billion rand was invested across various sectors. This derived largely from three major donors (the Global Fund, the US President's Emergency Plan for AIDS Relief (PEPFAR), and KfW Development Bank. No dedicated campaign funding existed, however, so strategic planning was necessary to ensure that existing investment would help the campaign reach its objectives.

Partners agreed that coming together under the campaign to coordinate and leverage existing financial and human resources would reduce duplication of efforts and produce better value for money. Partners would take responsibility for specific aspects of the campaign's launch and implementation to enable the development of materials that aid collaboration and raise the campaign's profile (such as logos, website, branding guide, promotional materials, stakeholder mapping, roadmap, communications strategy, and monitoring and evaluation frameworks).

Aligning partners

Partners acknowledged that before the campaign they were working in silos, competing for resources, and failing to appreciate the benefits of collaboration. The campaign's ability to mobilise over 120 government departments and partners to act together is a crucial achievement. The integration of large scale programmes, such as Global Fund and PEPFAR, was essential since they were already operating in priority subdistricts. This was partly achieved through strong advocacy: the need to focus on adolescent girls and young women, and to do so collaboratively, was repeatedly emphasised by the deputy president and the inter-ministerial committee. The campaign is further expanding its reach because of encouragement by donors.

Headlines from a 2013 survey showing that every week 2363 women aged 15-24

Box 2: Key findings from a community phylogenetic study of HIV transmission

A phylogenetic mapping of the HIV transmissions pathway conducted in Hlabisa, KwaZulu-Natal in 2014-15 provided an explanation for the high incidence and prevalence among adolescent girls and young women aged 15 to 24.[6] This age group tend to engage in sexual relationships with men roughly eight years older than themselves; the men have higher prevalence levels and are therefore more likely to transmit HIV to their younger partners. In their 20s, young women who have already been exposed to HIV from previous older partners then often have sexual relationships with men in their same age group, thereby continuing the cycle of infection.

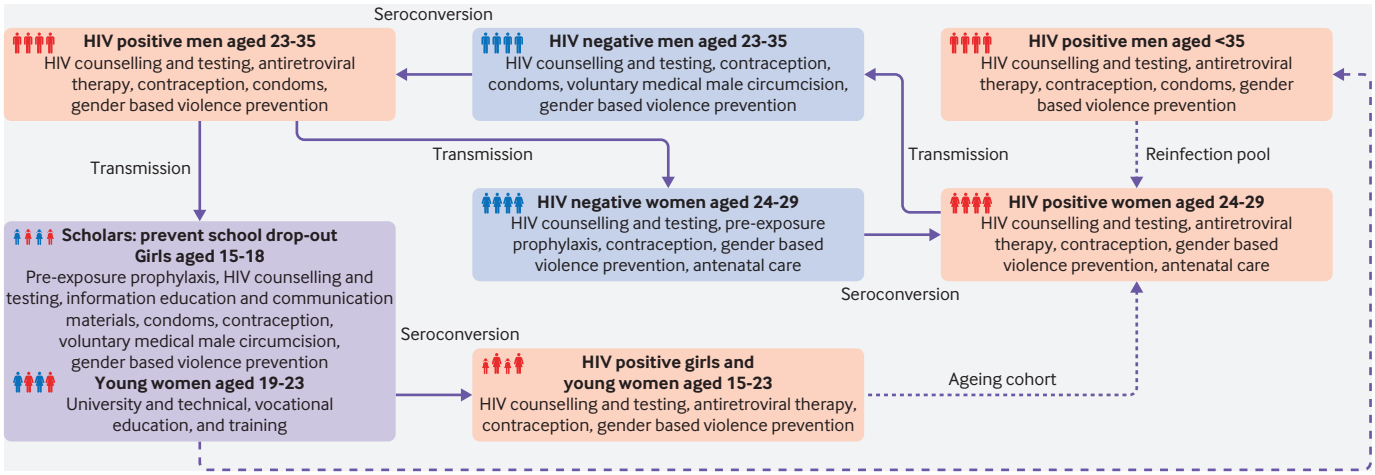

Fig 2 | Action to break the cycle of HIV transmission among young women

become infected with HIV in South Africa,[12] which compared very unfavourably with other African countries, increased the willingness of development partners to collaborate. Further evidence raised awareness of the effects of new infections beyond health: on the economy, the job market, and the wellbeing of society.[3] Partners recognised that joint benefits could accrue by aligning their programmes and broadening the reach and depth of interventions to tackle issues affecting adolescent girls and young women across multiple sectors.

The fact that government departments are becoming more sensitised to issues facing adolescent girls and young women and the need to work collaboratively is encouraging since working through existing structures improves sustainability. Additional key motivators for partners to align include increased public profile, opportunities for networking and joint collaboration, and access to donor resources being restricted to groups aligning with national strategies. However, the level of collective engagement varies, often because of geographical and political dynamics. Engagement can be encouraged by the appointment of a focal person to facilitate coordination and collaboration among partners within the district or province.

Engaged adolescent girls and young women

Young people have been engaged in She Conquers from the outset. They were involved in branding for the campaign, ensuring the name and logo were youth friendly (box 3). In the campaign's first year, youth consultations were held across all nine provinces through the offices of the premier, enabling the specific concerns of young people to be identified in each province. Context affects how women and girls experience the campaign (supplement 3), and it is important that the campaign is flexible enough to allow local adaptations. Regular youth engagement occurs at the local level, where She Conquers partners assume responsibility.

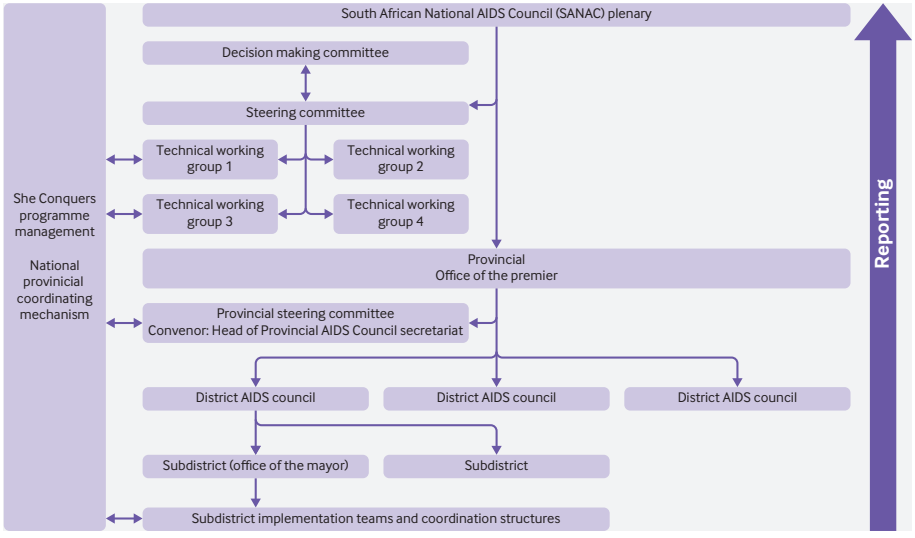

Fig 3 | She Conquers coordinating structure, aligned to the South African National AIDS Council (SANAC) coordinating structure

Limitations and challenges

Several challenges have been experienced during the first 18 months of the campaign. Political and funding problems meant that some implementing partners were unable to offer the full package of sexual and reproductive health services in all districts. Although a systematic approach to tracking progress around campaign objectives was planned to strengthen stakeholder alignment, this has been challenging because each partner and government department has its own reporting requirements and timelines, and the lack of dedicated core funds has hampered the development of an integrated national reporting mechanism. Not all government departments have fully engaged, resulting in a lack of coordinated action on some key issues, such as gender based violence.

Furthermore, even though the programme had high level buy-in from government departments, strong leadership at provincial and district levels was less consistent. Some provinces have key staff who are motivated to systematically push the She Conquers agenda as part of their work, but commitment varies and it is not always possible to engage reliable local staff or to integrate the campaign into existing coordinating structures. The priority given to the campaign, and the speed of roll-out,

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Box 3: Examples of youth engagement within She Conquers

Campaign logo—Young people participated in a two day workshop to develop a logo that resonated with them. Four participants were nominated to work with the graphic designer, and a final version was shared with everyone who attended the workshop for approval

Campaign name—The campaign was launched with the logo, but without a name. At the launch, a competition for the name was announced by the deputy president and flyers were distributed with the details. A group of young people identified shortlisting criteria and shortlisted the final four campaign names

Campaign launch—Thousands of young people attended the launch from all over the country

Communications—During the first year of the campaign the lack of unified messages around the five objectives was identified as a gap. Flow Communications, in collaboration with the United Nations Population Fund (UNFPA), established a brand council to develop messages. The council includes people in the target groups who have not had previous exposure to health and behaviour change communication work

Social media—A youth led process on social media developed campaign messaging to engage other young people. During July 2018, the campaign was trending second only to the World Cup

Peer to peer—Johnson & Johnson, in collaboration with UNFPA, launched the DREAMS Thina Abantu Abasha programme (Zulu for "we the youth"), a youth led, peer-to-peer initiative aimed at empowering young people to reduce the rate of new HIV infections in KwaZulu-Natal and Gauteng through various interventions. It is based on the premise that no action of empowering young people should take place without their direct involvement

has therefore varied between provinces and districts.

One of the biggest challenges facing the campaign is the lack of dedicated resources for sustained youth engagement at all levels. Engagement is hampered by the shortage of strong youth networks and the lack of a common platform for young people. Although the AIDS councils offer platforms at the provincial and district level, some do not function or do not engage young people. Concerns have been raised that the campaign primarily engages with youth from cities and fails to represent diversity, including those with lower levels of education and vulnerable groups. In April 2018, the adolescent and youth HIV prevention summit acknowledged the need to strengthen youth participation in the campaign, including drawing more on existing youth engagement programmes run by civil society or development partners. Although some civil society organisations convene youth discussions, stronger coordination of youth led action under She Conquers is required.

Lastly, although the campaign's primary target is girls and young women aged 15-24 years, phylogenetic work confirmed that older men and women also need to be included.[6] The core package of interventions also targets males, but concerns have been raised that the focus on adolescent girls and young women is excessive and that male behaviour needs more attention—for example, in relation to gender based violence and condom use, and their connection to patriarchy. This has led some to question the appropriateness of including the feminine pronoun "She" in the campaign's name.

Lessons learnt

Leadership—Ongoing leadership from the deputy president and engagement by senior department leaders promoted widespread engagement in the campaign at all levels. This was essential for multisectoral collaboration within government. In addition, champions were needed at all levels of government to convince all participants of their ability to take action and to promote a collaborative attitude and a shared vision.

Strategic planning—Strong national strategic planning was required from the outset to manage the large number of programmes targeting adolescent girls and young women, especially as they had not been designed to align to one another and have different timeframes and reporting systems. Effective implementation of the strategy required clear demarcation of roles and responsibilities, as well as accountability and coordination structures at the national, provincial, district, and community levels.

Pooled resources—With a lack of dedicated campaign resources, the campaign needed to effectively use the extensive resources already allocated to young women and assessed how their use could be optimised by identifying key stakeholders, their activities, and their contributions at national, provincial, and district levels.

Learning from positive examples—The effectiveness and reach of the campaign have differed among provinces and districts. The campaign tries to draw on the experiences and achievements of stronger districts to support less successful areas. This includes sharing materials and information, reporting best practices and lessons at meetings, and identifying people to drive particular elements of the campaign.

Youth engagement—Although the scale of the campaign prevents it from being youth led, the importance of youth participation has always been acknowledged. It is difficult to develop messaging that appeals to all young people, but the campaign takes into account their heterogeneous nature and finds innovative ways to hear the voices of marginalised groups, to ensure that the campaign can achieve the widest possible effect.

Future directions

There is a strong expectation that existing partners will continue to invest money and human resources, and that new partners will agree to align under the campaign, ensuring its sustainability. Discussions are under way about establishing a formal national coordination structure for the campaign to ensure that goals and objectives are achieved. The lack of an integrated reporting system has hampered tracking progress towards objectives, and the campaign intends to leverage resources for this, as well as for stronger youth engagement. The campaign plans to build on existing youth partnerships through civil society and to provide more support to enable youth to advocate as a collective. Although the term "campaign" suggests a limited and time bound effort, the project goals require and deserve a longer term footing and even wider application.

See www.bmj.com/multisectoral-collaboration for other articles in the series.

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Supplement 1: Illustration of theory of change for the campaign
Supplement 2: Methods for the case study
Supplement 3: Key challenges facing young women and adolescent girls

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Redesigning an education project for child friendly radio: a multisectoral collaboration to promote children's health, education, and human rights after a humanitarian crisis in Sierra Leone

Sarah Barnett and colleagues describe how an educational project was rapidly adapted into a radio education programme after the 2014 Ebola epidemic in Sierra Leone

In May 2014, Sierra Leone reported its first case of Ebola in Kailahun, a remote, marginalised, and impoverished district bordering Liberia.[1] The district had one of the highest concentrations of Ebola infections during this outbreak.[2] After this, over 1600 children were orphaned[3] and gender inequalities were exacerbated (box 1). Public health control measures put in place by the government of Sierra Leone included closing all schools and prohibiting public congregation.

The educational programme "Getting Ready for School", funded by the UK charity Comic Relief, had been operating since its launch in 2011 within 21 schools in Kailahun. While many other educational services stopped entirely in Kailahun, the Getting Ready for School programme was redesigned as a radio education programme called Pikin to Pikin Tok (PtPT), meaning Child to Child Talk, in Krio. The lead consortium partner was Child to Child, a UK based international child rights non-governmental organisation (NGO) (www.childtochild.org.uk), and the lead implementing partner was Pikin-To-Pikin (www.pikintopikin.org), a local NGO. The goals and objectives of the project changed in response to the circumstances in Sierra Leone (table 1); this required a substantially different approach by the redesigned scheme (box 2) than in the original project[8] (see suppl 1 on bmj.com). The entire effort, from starting the school project to the end of the radio project, ran from 2011 to 2016 (see suppl 2 on bmj.com).

To implement Getting Ready for Schools, Pikin-To-Pikin collaborated with the government Ministries of Education and Social Welfare, Gender and Children's Affairs, and with community representatives, including women's leaders, religious leaders, Kailahun's paramount or district chief, parents, and children. To enable PtPT to be designed and introduced, the collaboration was subsequently expanded to include the Ministry of Health and Sanitation, and the private sector. Additionally, it commissioned a local community radio station and international radio producers, and international child development experts (fig 1).

To evaluate the success of PtPT, and to understand the factors influencing successful collaboration, we used a general case study methods guide developed by the Partnership for Maternal, Newborn, and Child Health.[9 10] Specific methods were used for this case study. They included a review of project documentation, multistakeholder working group meetings in the country, consultations with key informants, a higher level multistakeholder dialogue meeting in Freetown, Sierra Leone, and a technical expert meeting in London with the Child to Child international advisers (methods described in suppl 3 on bmj.com).

Key achievements and impact of PtPT

Despite the Ebola outbreak, access to education was maintained through child led radio broadcasts. PtPT is known to have reached an audience of 136 678 people (including children, parents, and teachers), more than originally targeted. The actual number reached may have been higher. Radio Moa broadcasts to a population of over 500 000 in Kailahun, with listeners from other regions known to tune in. The circumstances surrounding

KEY MESSAGES

- A school based educational intervention in a remote district of Sierra Leone was reconfigured into a radio education programme, Pikin to Pikin Tok, during the Ebola outbreak in Sierra Leone
- Project success built on existing relationships with communities and government
- Continuous and open consultation with stakeholders, and adapting and evolving in response to feedback, contributed to achieving project goals
- Community ownership and participation were central to the collaboration, keeping children at its heart

Box 1: Challenges facing children in Kailahun district, before and after the Ebola outbreak

- After Sierra Leone's civil war (1991-2002), Kailahun had the highest crime rate in the country. Early marriage, teenage pregnancy, sexual abuse, and other forms of violence became accepted as the norm; there was a lack of understanding of fundamental human rights
- Children, especially girls, faced many challenges that violated their rights and impeded their development
- The Ebola outbreak further eroded the fabric of society, and caused the collapse of government services.[4] Women and girls were among the most vulnerable, with the outbreak exacerbating entrenched gender inequalities. For example, older girls often took on parental roles owing to the death of caregivers, which resulted in them dropping out of school[5]
- Physical and sexual violence against girls increased and there was a substantial rise in teenage pregnancy rates,[6 7] often linked to transactional sex to secure basic goods and services[7]

Table 1 | Goal and objectives of Getting Ready for School and Pikin to Pikin Tok

	Getting Ready for School (before Ebola)	Pikin to Pikin Tok (after Ebola)
Goal	Increase punctual school enrolment, academic performance, and retention among children aged 4-12 years	Enable young people aged 4-8 years to continue education, develop core academic competencies, and play a role in transforming their communities in the aftermath of the Ebola outbreak
Objectives	Improve school readiness among children aged 4-8 years	Equip 4-6 year olds with numeracy and literacy skills in preparation for starting school, and improve hygiene practices
	Support children aged 10-12 years to improve academic performance by building confidence and self esteem	Support 7-12 year olds to improve literacy skills, hygiene practices, and to develop life skills
	Increase knowledge of life skills and teenage awareness of concerns such as child protection, pregnancy, and HIV/AIDS among children aged 10-12 years	Increase awareness among 12-18 year olds of teenage pregnancy, HIV, and child protection, develop life skills, literacy skills, and hygiene practices
	Improve families' readiness to support education; promote positive attitudes towards education and willingness to participate in children's early learning and development	Raise awareness among parents of the importance of positive parenting, parent-child interactions, early childhood development, and continuing education for older children
	Ensure schools are ready to receive and engage children and provide child friendly environments that advance and promote learning	Raise awareness among teachers of the problems that children in the community are facing and the importance of child friendly teaching methods

the project meant that it was not prospectively evaluated. Much of the evidence for its influence comes from an endline evaluation by the Institute of Development, which was commissioned in 2016,[11] and from a United Nations Girls' Education Initiative case study.[5] Qualitative key informant interviews with programme beneficiaries were carried out at the endline evaluation.[11] Box 3 illustrates the key findings from this evaluation. After the project ended in 2016, 88% of community sensitisation committees remained active, and continued to convince parents of the importance of education.[11]

Gender was taken into account in the design, content, and broadcasting of the radio programmes (box 4). Clearly, no single programme, let alone one that focuses only on the demand side, is ever going to solve intractable challenges, such as ensuring girls' safety and upholding their rights to sexual and reproductive services. However, projects such as PtPT can work towards change. They can target harmful societal norms and enable citizens to hold policy makers accountable for improving access to high quality services in health, education, child protection, and sanitation.

The work done by PtPT in maintaining children's access to education during the Ebola outbreak, and tackling Sierra Leone's gender and child protection challenges, has received global recognition (box 5).

PtPT was an important catalyst for new programmes and relationships. The collaboration that delivered PtPT led to longer term relationships between Pikin-To-Pikin and stakeholders in several sectors. For example, Pikin-To-Pikin now has representatives on national committees, participates in the Ministry of Education's new education strategy, and is implementing various projects for the Ministry of Health.

Although PtPT ended in 2016, its participatory and child friendly approach can be replicated and scaled up for use in other settings. For example, Radio Moa, encouraged by PtPT's success, continues to encourage child participation in radio broadcasts and invite children to voice their views. Similarly, the Roméo Dallaire Child Soldiers Initiative (https://www.childsoldiers.org) commissioned Child to Child, in partnership with Pikin-To-Pikin and former child soldiers, to develop a range of teaching resources to educate children about the risks of becoming a child soldier. Complementary materials to alert parents and teachers to their safeguarding responsibilities were also developed. Pikin-To-Pikin works with the initiative to disseminate these materials in schools, through the establishment of peace clubs. The project is being expanded by Pikin-To-Pikin to incorporate a radio component, with audio recordings collected from communities, and child listening groups supplied with solar powered radios. The new project, not involving international partners, costs less than PtPT, and is more sustainable and scalable.

Building on the success of PtPT, Child to Child was commissioned by Unicef Sierra Leone to develop a new radio series, Fambul Tok (Family Talk) in Krio, with funding from the Open Society Foundation's early learning programme. Fambul Tok promotes awareness of early childhood development through radio programmes. These are designed to interest parents and caregivers in subjects relating to the optimal development of infants and young children (eg, breastfeeding, talking to, and playing with, babies). To increase their accessibility, the programmes feature people in communities across Sierra Leone, and a humorous soap opera portrays a husband and wife exploring how best to raise their infant.

Key contributing factors to a successful collaboration

Sustained commitment and flexibility from all partners, during and after the crisis

"Pikin-To-Pikin wanted to react, while others were paralysed by fear. No one knew what to do, it needed cour-

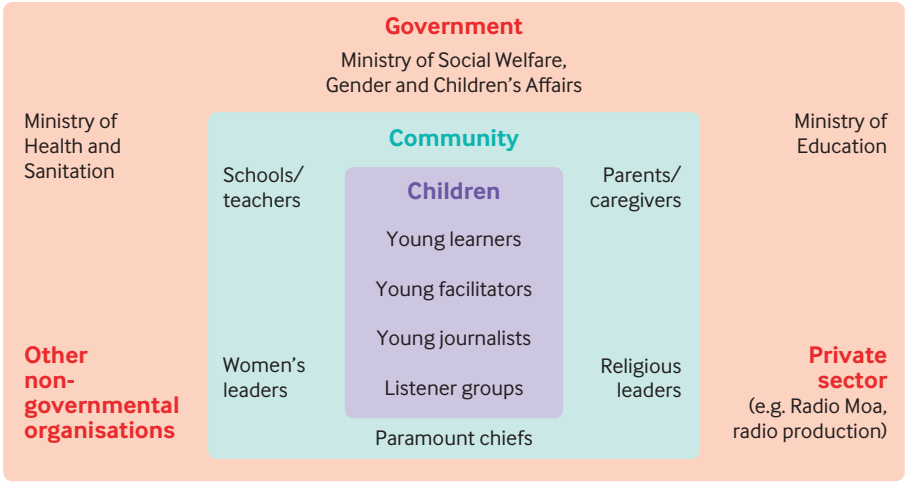

Fig 1 | Key stakeholders who worked with PtPT

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age to respond, and a consultative process to ensure the response was appropriate."*Former international grants programme manager: Education, Comic Relief, June 2018*

The Getting Ready for School project was funded by a £1.2 million (€1.3m, $1.6m) grant spread over 5 years. When the scale of the Ebola outbreak became apparent, Comic Relief recognised the need for flexibility in order to continue supporting those affected. They stated that among their education grantees operating within Sierra Leone, Pikin-To-Pikin was the only organisation that remained operational, adapting their activities in response to the crisis.

Throughout the Ebola outbreak, Pikin-To-Pikin supported vulnerable communities, and participated in emergency relief work. Resources were made available to enable the NGO to procure emergency response materials (eg, chlorine for disinfection, buckets for hand washing, surgical gloves, megaphones, and rain boots), which were donated to the Ministry of Health, through the district health management team in Kailahun. Pikin-To-Pikin supported the distribution of the materials and training on the use of protective equipment. This strengthened their existing relationship with the Ministry of Health from initiatives before Getting Ready for School. The donor's willingness to adapt its funding requirements enabled Pikin-To-Pikin to consult communities and government to identify local priorities, reinforcing its existing relationships with community and religious leaders, and fostering trust and community support when PtPT was launched.

Comic Relief appreciated the frequency and transparency with which Child to Child involved them in discussions about how to continue supporting the affected communities. Child to Child kept the donor informed of the rapidly changing needs of the community. The donor allowed frequent budget changes to respond to these needs. It adapted its monitoring, evaluation, and due diligence requirements while ensuring that the NGO continued to provide accountability for the grant funding.

Adaptability in response to changing contexts

The NGOs collaborated with a UK production team to develop the radio programmes featuring a Sierra Leonean story teller, Usifu Jalloh. Traditional stories were adapted to incorporate messages about behavioural change, with local music used to increase appeal. PtPT, which first broadcast immediately after the epidemic, instantly became popular with a cross generational audience. The stories encouraged children to reflect on their own concerns and to share their stories. As schools were closed for the year 2014-15, PtPT programmes included literacy and numeracy.

The government also broadcast a national education programme in this period, with a key difference being that PtPT focused on co-creating local content with children affected by Ebola. These children, undoubtedly among the most vulnerable

Box 2: Main components of Pikin to Pikin Tok (after Ebola)

Young journalists

Thirty six children affected by the Ebola crisis (21 girls, 15 boys) had been young facilitators in the original programme. They worked alongside Pikin-To-Pikin's field staff to develop the radio programmes, by conducting interviews, making recordings for the programmes, and ensuring the project remained child centred

Radio programmes broadcast by Radio Moa

The children's programmes were trilingual—narrated in English, Krio (the common language in Sierra Leone) and Kissi (the predominant language in the project area). Distinct strands were presented, tailored to the needs and capabilities of each of the three age groups, using different methods of relaying information:

- Story time (targeting 4-6 year olds), to increase self esteem and numeracy and literacy skills through the power of storytelling
- Messages through music (targeting 7-12 year olds), to share lifesaving health and hygiene messages—for example, the importance of hand washing to prevent contagion
- Under the Mango Tree programme (targeting 12-18 year olds), which dealt directly with developing problems related to Ebola, such as stigma, social exclusion, disability, and sexual violence. The programmes promoted skills for coping with difficult circumstances requiring care and support, including bereavement. They also targeted parents with messages about positive parenting, parent-child interactions, and the importance of education

Radio distribution

Wind up, solar powered radios were distributed to each of 252 listening group facilitators, and 21 large MP3 radios were distributed to teachers in the 21 original project schools. Child to Child trained the facilitators (mostly school teachers involved in the original project) to use the radios, for which each of them was responsible

Listening groups

Listening groups were established, in which children listened to the radio programmes and discussed topics raised, supported by a trained facilitator. Facilitators were also trained to encourage young listeners to assemble during broadcasts, in how to assist discussion among young listeners, and in basic child protection. Forty two facilitators of formal listening groups were paid and were responsible for meeting a group of 10-25 children four times a week during the broadcasts (after prohibitions against group meetings had been lifted). Nearly 630 children, with similar numbers of boys and girls, most aged 7-12, took part in formal listening groups. The 210 facilitators of informal listening groups were not paid, and formation of these groups depended on the interest of the facilitator and children in the community. Once schools were opened some teachers used the radio programmes in their lessons

Phone in and panel discussions after the broadcast

A phone in and panel discussion followed each broadcast. Multilingual (Kissi, Mende, Krio, and English) call in sessions allowed personal interaction between expert panellists (eg, government representatives, a psychiatric nurse, a member of a local women's empowerment organisation), project implementers, children, and parents. The panellists answered questions, provided advice, and gave encouragement for coping with the crisis

Box 3: Key findings from endline evaluation and United Nations Girls' Education Initiative case study: how Pikin to Pikin Tok made a difference[5 11]

Children

- Teachers who participated in the project reported that the older children showed improved confidence and peer communications skills. Two thirds of young facilitators reported they enjoyed leading classroom activities (69%) and most liked expressing their opinions in class (90%)
- Children attending formal listening groups and informal radio listeners felt encouraged to continue their education after Ebola and developed strong foundations in basic literacy and numeracy

"A schoolboy was academically underperforming, but as he took part in the radio programme listening group, his academic performance improved to the point where he was able to pass the NPSE exam and went on to attend a good secondary school in Kenema district." Teacher, endline evaluation

- During the final evaluation, children showed good recall of the key messages from the radio programmes, such as how to prevent the spread of Ebola or the risks associated with teenage pregnancy. Children were able to link what they had learnt from the broadcasts and apply it to their own lives, such as hand washing to stop the spread of disease, walking in groups to stay safe, or telling friends not to drop out of school
- Most children showed an improved understanding of the risks related to abuse. Children gained knowledge of their rights and built confidence to speak to their parents or other community members about subjects that concerned them

"Children before this time were shy even to talk to their teachers, to talk to their parents, bring up issues or challenges in their communities, but since the intervention of this project, children no longer have fears, neither[are they] timid in that respect. Whatever the issues they have they make sure [they] voice it out to their teachers, to their parents or guardians" Key informant, endline evaluation

- After the radio programmes, children would talk to their peers who had not listened to them about what they had learnt. This aided the spread of knowledge throughout communities

Parents/guardians

- Interviews during the endline evaluation showed that the project influenced changes in attitude towards early childhood education, especially increasing prioritisation of girls' education
- Adult involvement in audio collection helped to develop understanding of the importance of positive parent-child relationships and the harms facing their children
- Almost two thirds of parents interviewed in the endline evaluation agreed that parents listened to the radio programme (64%), and most liked it (59%). Parents overwhelmingly felt the radio programme helped their child to learn (77%), and over half (55%) discussed the broadcasts with their children. Parents also reported being more aware of their responsibility to keep their children safe

"Most parent (sic) can now admit to us that initially we never knew about the importance of education or early childhood development or how can we even prioritise girl child education." Key informant, endline evaluation

Teachers

- Through listening to the radio programmes with their classes, teachers and head teachers gained increased knowledge of sensitive topics, such as child protection and teenage pregnancy, and confidently talked to children about these problems. After the radio programme, some teachers supported children in creating short dramatisations exploring concerns affecting them
- Teachers increased their use of child friendly teaching methods, learning creative methods for teaching literacy and numeracy

in the world, were not simply beneficiaries of the project but actively participated in creating the programmes. Young journalists identified and captured audio content on important subjects affecting them, their siblings, peers, and neighbours in the wake of the crisis, including the desperation, isolation, and stigma felt by children directly affected by Ebola. No other radio programme in Sierra Leone at that time had children as active participants.

PtPT was continually adapted in response to community feedback. The Ministries of Health, Education, and Social Welfare played a part in the project—for example, by participating in the live panel discussions after each PtPT broadcast. Children were encouraged by trained adult facilitators to phone in and challenge government officials about their concerns, such as lack of enforcement of bylaws on gender based violence.

Expanding the multistakeholder network effectively

"As an institution we could not do this all by ourselves … all these sectors helped this project to succeed. … we told them, based on our assessment, that this is a tasking problem that requires us all to come on board to complement the government's effort in moving these sectors forward. We were welcomed and appreciated for this initiative." *Former staff member at Pikin-To-Pikin, May 2018*

As previously noted, the multistakeholder network that resulted from the Getting Ready for School project needed to expand to introduce the new project effectively (fig 1). Pikin-To-Pikin's collaboration with the Ministry of Health in its Ebola relief efforts continued for the PtPT project, which included health promotion messages. Private sector agencies also became involved through commissioning local Radio Moa and a UK radio production team. That team worked closely with Child to Child and Pikin-To-Pikin to provide key messages and decide the best way to communicate them in order to educate and change perceptions—for example, of the role of girls in the family and community, and how to mitigate the risks of violence and early pregnancy. Child to Child's network of international experts, experienced in working in diverse settings, also contributed to the redesign.

"This project didn't stop at Pikin-To-Pikin, the whole community was involved" *Working group participant, May 2018*

Stakeholders consistently reported the strong influence of religious leaders in encouraging the acceptance of new social norms during the Ebola crisis. Pikin-To-Pikin collaborated with these religious leaders throughout the course of the project and with community leaders, teachers, children,

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and community members. Together they identified the challenges they were facing and decided how Pikin-To-Pikin might support them, including through the radio programmes. Community sensitisation committees (box 6), established during Getting Ready for School, had an important voice in the project and many problems they raised were aired in the radio programmes. Their feedback helped Pikin-To-Pikin constantly to adapt to changing circumstances.

Although Pikin-To-Pikin's work was initially authorised nationally, the strongest and most effective relationships with government were achieved by decentralised multisectoral coordination. PtPT was jointly monitored by Pikin-To-Pikin staff and district ministry representatives. The information collected from their quarterly monitoring visits was used to help adapt the project. Frequent and open conversations enabled Pikin-To-Pikin to respond rapidly, appropriately, and effectively during the crisis. These discussions were supported through various district forums and networks, which were open to all relevant stakeholders. Drawing on existing structures and mechanisms to coordinate and implement the collaborative effort was crucial.

Challenges, limitations, and lessons learnt

Adaptation and innovation—Humanitarian crises require innovative responses to tackle new and rapidly emerging challenges. In responding, donors, governments, and implementing partners must remain adaptable to new ways of working. The Ebola crisis in Sierra Leone clearly called for a collaborative response. Child to Child and Pikin-To-Pikin provided this by building on existing successful multisectoral relationships, and establishing new partnerships. Continuity and transparency of communication ensured that partners could see the value of their contributions. Willingness to innovate and adapt helped to realise the joint vision of partners and enabled them to redesign the project to respond to the changing needs of children.

Monitoring impact—The outcomes, indicators, and targets agreed with the donor for the initial project could no longer remain once the project was redesigned. The uncertainty of the crisis meant it was difficult to agree a revised set for which the grantees could be held accountable. These factors, and the challenges of collecting data during the crisis in a short time, hampered the ability to measure robustly the full impact of PtPT and the extent to which the original goals and objectives had been met. In the absence of a humanitarian crisis, monitoring and evaluation of similar interventions is vital to gain a better understanding of the likely effect. Strong evidence on the influence of mass media on knowledge, attitudes, and behaviour is limited. Any effect is likely to depend on the behaviour change being targeted, the context, the quality of the mass media intervention, and the exposure to the intervention. Evidence from a randomised controlled trial in Burkina Faso showed that mass media alone can change health seeking behaviour, with substantial increases in consultations for children under 5 years old at primary health centres for the leading causes of postneonatal child mortality (malaria, pneumonia, and diarrhoea).[16] However, substantial decreases in child mortality in both intervention and control groups meant no significant difference in the intervention clusters was seen. Further modelling of these data estimated that deaths in children under 5 had been reduced by an average of 7.1% a year.[17] In PtPT, additional activities, such as listening groups, were designed to help reinforce the information broadcast through radio.

Donor involvement—The global community took several months to respond to the Ebola outbreak, which meant that in the early phase, agencies already on the ground had limited resources. Some donors suspended grants, a common practice during a humanitarian crisis, which can lead to serious consequences, especially for local staff reliant on these salaries. Many donors do not understand the need for flexibility and establishing a relationship of trust with agencies that are willing to continue operating despite the risks, and which have established relationships with the authorities and the community. In this case, salaries of all Pikin-To-Pikin's employees

Box 4: Gender considerations within Pikin to Pikin Tok (PtPT)

PtPT's gender responsiveness drew on contextual evidence of the increased vulnerabilities of girls:

- Listening groups and phone ins had a good balance of boys and girls
- Two young journalist groups were made up solely of girls, to ensure attention focused on problems facing girls in these communities
- One of two radio presenters was female
- Female role models discussed their achievements and overcoming challenges in positive sound bites, interviews, and discussion groups
- Female fictional characters were created in radio dramas to further involve girl listeners
- Gender equality messages were integrated throughout the radio programmes. The endline evaluation highlighted that children engaged with the project had positive views about gender and gender equality. Girls noticeably took leading roles in discussions, and this was comfortably accepted by the boys
- Life skills focused on developing girls' self confidence and giving them the authority to make "safe choices." Information was disseminated to girls, their families, and the community about risks, such as gender based violence, early marriage, and teenage pregnancy, and how to overcome them, highlighting the importance of girls' education
- Positive gender ideas were promoted and value placed on girls' safety
- Boys were taught about responsible behaviour to encourage non-violent male identity without sexual risk taking
- The Child Right Act 2007[12] sets out the legislative framework to protect girls below the age of 18 years from female genital mutilation (FGM) in Sierra Leone. Pikin-To-Pikin carried out advocacy work with parents/guardians to aid the enforcement of community bylaws protecting children from FGM. All soweis (initiators) were invited to a meeting in Kailahun town hall to discuss ending FGM in children. It was also discussed during the PtPT Under the Mango Tree programme with adolescent girls
- Qualitative data collected at the endline evaluation showed positive changes in attitude towards early childhood education, and increased prioritisation of girls' education[11]

"Parents ... in the community [were] just looking at education only meant for boys and not girls. But through this intervention, it has really motivated the parents to send in their children, most especially the girl to school." Key informant, endline evaluation

Box 5: Recognition for Pikin to Pikin Tok (PtPT)

- Child to Child and Pikin-To-Pikin received a grant of £20 000 in 2016 from The Circle (philanthropic female focused non-government organisation) to enable production of additional radio programmes focusing on adolescent girls as part of the Under the Mango Tree strand
- PtPT was selected by the UN Girls' Education Initiative in 2016 as an example of good practice in girls' education[5]
- In 2016, one of PtPT's contributors was recognised in the University of Oxford's vice chancellor's awards for translation of complex medical information into accessible public health messages. The programme featured questions from a 12 year old girl from Kailahun about vaccinations for Ebola, with the aim of supporting any future immunisation campaigns[13]
- A BBC World Service documentary in 2016 focused on PtPT[14]
- Shortlisted for the Bond Innovation Award in 2017[15]
- Child to Child won the Social Impact Award at the UK's Asian Voice Charity Awards in 2018, in recognition of their achievements with PtPT

were maintained, and raised to cover the increased cost of basic goods. The donor chose to continue to fund organisations without direct humanitarian experience, but which understood the local context and had strong multisectoral relationships.

Stakeholder readiness and coordination mechanisms subnationally—The original project required significant investment to develop the capability of a range of stakeholders, including children, community sensitisation committees, teachers, and master trainers from the Ministries of Education and Social Welfare. That investment resulted in a strong cadre of committed people ready to respond, and adapt their roles, to the challenges of the redesigned project. Working with district stakeholders, forums, and networks strengthened the multisectoral collaboration and the ability to respond rapidly and appropriately to the changing situation. Frequent communication within and across these networks cemented the effectiveness of both pre-existing and newly established structures. However, working within existing structures was challenging. For example, funds were lacking for monitoring and evaluation by government, which therefore needed to be covered by donors. Money was significantly limited owing to the Ebola crisis and stakeholders already overwhelmed by events were less willing to undertake extra activities without targeted financial incentives. Sufficient financial investment is required for this level of coordination, whether as part of the immediate humanitarian response or for longer term development.

Evolution based on continuous feedback, with children at the heart—The PtPT initiative built on and adapted an existing programme while ensuring relevance to the immediate situation. Dealing with practical problems ensured relevance. This approach was facilitated by regular monitoring and stakeholder feedback, especially from communities and children. Participatory approaches were essential. The Child to Child and Pikin-To-Pikin teams kept children at the heart of the process when redesigning the programme to best respond to the problems facing children. Children involved in the programme gained authority, obtaining experience as journalists and facilitators, and were encouraged by listener groups to challenge adults, including parents and government representatives. They critically assessed their circumstances and how to support and protect each other, and openly discussed subjects normally regarded as taboo or difficult, such as sexual abuse. However, Pikin-To-Pikin reported that one major challenge was the hesitancy of children to participate in listening groups. These groups were unfamiliar, and some of the subjects discussed were difficult, such as gender based violence, stigma, and isolation. Some parents did not allow their children to attend the listening groups, and initially, there was higher attendance from boys. Girls were more commonly prohibited from attending, owing to their increased responsibility for household chores, or because their safety could not be guaranteed on the way to and from the meeting place. The listenership for the programmes was much wider than the listening groups, and another major challenge was providing more children with structured opportunities to deal with the concerns raised. The live panel discussions after each broadcast were one solution. In addition, community sensitisation activities, and children hearing their contemporaries discuss problems, helped to raise awareness about the key messages, change perceptions, and increase girls' participation in the listening groups.

Conclusion

This case study illustrates how investment in smaller organisations, already operating successfully and which have built relationships of trust with their communities and authorities, can produce results during and after a humanitarian crisis. The PtPT project enabled education to continue when schools were closed, and reached a far larger number of beneficiaries than the original project. The sustained commitment and flexibility of Pikin-To-Pikin, Child to Child, and Comic Relief was beneficial across sectors. This project gave children a voice through the powerful and relatively low cost medium of radio. It ensured that, despite the crisis,

Box 6: Establishment of community sensitisation committees

Community sensitisation committees comprised 12 members selected for their ability to act as gatekeepers and/or to engage key constituencies within the community. Members included chiefs, women leaders, religious leaders, young people, and teachers. Committees nominated a chairman, a vice chairman, and a secretary, and met monthly, sharing ideas and moving from community to community sensitising parents about the importance of education. Three months after establishment of the committees, punctual enrolment of pupils increased greatly. Parents who had concerns about their children teaching others were reassured by committee members that this advanced the children's public speaking skills and improved their knowledge. Committees identified schools that were not child friendly, and pushed for single sex toilets. They also raised concerns of child protection, teenage pregnancy, and school dropout. The problems thus identified enabled Pikin-To-Pikin to determine where to mobilise support

"Pikin-To-Pikin, while working with social welfare, there was cordiality and collaboration. Everything was discussed. If they went to any community and they became aware of child involvement in bad things they would come and discuss it. Social welfare would take the information seriously and inform other partners what Pikin-To-Pikin had found out in the community. … Everybody had a responsibility to work with Pikin-To-Pikin in the case of any problem, especially in the area that was earmarked for their operation." Department of Social Welfare representative, June 2018

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children remained at the heart of the PtPT project and several later initiatives.

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Supplement 1: Main components of Getting Ready for School programme
Supplement 2: Timeline of programmes
Supplement 3: Methods for developing the case study

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Scaling up primary health services for improving reproductive, maternal, and child health: a multisectoral collaboration in the conflict setting of Afghanistan

Jai Das and colleagues present an innovative and evolutionary model of multistakeholder and multisectoral collaboration in scaling up coverage of health services in Afghanistan

Owing to the longstanding civil war after the Soviet invasion of 1979, neglect of the social sector, and subsequent political instability, Afghanistan faced economic collapse in 2001, with compromised infrastructure and extremely limited capacity for delivering health services.[1] Compounded by complex geography and widespread poverty, Afghanistan's health and survival indicators were among the worst globally. The average life expectancy was only 44.5 years, and the estimated maternal mortality ratio (1600 per 100 000 live births) and infant mortality rate (165 per 1000 live births) were alarmingly high.[2] Recurrent illness and suboptimal infant and young child feeding and hygiene practices led to high rates of childhood undernutrition.[3]

KEY MESSAGES

- Afghanistan's BPHS programme has successfully scaled up health services in a poor, low capacity setting, using effective multisectoral collaboration among stakeholders and sectors
- Key factors in its success include the interest and commitment of donors, coupled with coordination and stewardship from the Ministry of Public Health and implementation contracted out to non-government organisations
- Community based outreach programmes have been critical and will be the platform for achieving universal health coverage, particularly for remote and isolated populations
- Multisectoral planning, exploiting the interconnectedness of the sustainable development goals and deliberate engagement of multiple sectors will be critical to achieving Afghanistan's development goals

Coverage of essential reproductive, maternal, newborn, and child health interventions was abysmal, with skilled birth assistants at only 14% of births and safe drinking water being available to <40% of the population.[4] Access to health services was also poor, with only 10% of the population living within one hour's walking distance of a health facility.[5] Economic and social indicators had waned after three decades of war—only 30% of Afghans were literate (only 5.7% of females) and annual gross domestic product (GDP) per capita was about $199 (£156; €176) (see section 1 of supplementary file).[4 6]

Afghanistan's priorities in 2001 were to rapidly increase access to primary healthcare and to prioritise key interventions, such as basic civic services, education, food security, and childhood immunisations, particularly for rural and underserved populations. Meanwhile the government embarked on longer term, multisectoral planning. Afghanistan introduced the Basic Package of Health Services (BPHS) in 2003 through a process of innovative multisectoral collaboration that encompassed devising, implementing, scaling, and iteratively refining health service delivery in a poor, postwar crisis setting. This package is one of the first and longest running primary healthcare models of its kind, and has been cited as a success, despite reported limitations and ongoing challenges.[7-9]

In response to the World Health Organization's Partnership for Maternal, Newborn, and Child Health's call for proposals on success factors for multisectoral collaboration, we report our case study of BPHS.[10] We define multisectoral initiatives as deliberate collaboration between stakeholders (such as government, donors, non-governmental organisations, and academia) and key sectors (such as health, economy, and environment) to ensure rapid gains in health service coverage and outcomes.[11 12] Limited documentation exists on the process of developing BPHS, and there was no formal evaluation; not surprising in a country rebuilding after decades of conflict.[13-15] We evaluate and report the successes, challenges, and lessons from the multisectoral development of BPHS; our methods are described in box 1.

Context, challenge, and stakeholders

Afghanistan's social, political, economic, environmental, and health context in 2001 required immediate and innovative actions. Faced with poorly distributed and dysfunctional health facilities, insufficient funding, and extreme shortage of healthcare professionals, the conception and implementation of BPHS was the first step in tackling Afghanistan's complex health challenges (see section 1 of supplementary file).[8] In 2002, a diverse group of stakeholders from government (line ministries), UN agencies, international and national non-governmental organisations, academia, and donors (including the World Bank, European Union (EU), and United States Agency for International Development (USAID)), agreed on a collaborative model to deliver essential health services through BPHS (fig 1).[19]

Programme description: what did BPHS encompass?

BPHS was designed to provide a standardised package of basic health services to the population (prioritising women's and children's health) and equitable access through targeted services to underserved areas.[2 4 6 19] It comprises seven primary elements: maternal and newborn health; child health and immunisation; nutrition; communicable disease treatment and control; mental health; disability and physical rehabilitation services; and regular supply of essential drugs (see section 3 of supplementary file).[19] After launching in 2003, it was revised in 2005 and 2010, expanding the package to respond to

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Box 1: Methodology

We formed a country working group of stakeholders including representatives from government, donors, United Nations agencies, major non-governmental organisations and academia (see section 2 of supplementary file). Then we conducted a systematic review to identify existing literature; two reviewers searched EMBASE, Medline, Scopus, CINAHL, PubMed, and Google Scholar with relevant key words. Grey literature was also searched using Google and other indexes. Data from identified studies were abstracted on an extraction sheet, and conflicts were resolved by consensus or contacting a third reviewer. We reviewed the genesis and implementation of BPHS using the seven component conceptual framework, developed for the WHO Partnership for Maternal, Newborn, and Child Health.[16] The components are context, challenge, and stakeholders; programme description; framing and planning; implementation architecture and mechanisms; monitoring, accountability, and learning; results; and evolution, scale, and sustainability. We also conducted a search to identify large, national, household surveys (including Demographic Health Surveys, Multiple Indicator Cluster Surveys, National Risk and Vulnerability Assessments, Afghanistan Living Conditions Surveys, National Nutritional Surveys, and Afghanistan Health Surveys), and extracted data on relevant indicators including for poverty, GDP, WASH (water, sanitation, and hygiene), and reproductive, maternal, newborn, and child health. We performed a trend analysis over the years for which data was available. We prepared a preliminary report and shared it with key stakeholders and the country working group; a multistakeholder review meeting was held in July 2018 in Kabul to appraise and refine the report's content, suggest additional sources of data, and provide feedback on the process of developing this case study. The multistakeholder review process drew on both the methods used in the first success factors study series[17] and the Partnership for Maternal, Newborn, and Child Health's guide for multistakeholder dialogues.[18]

newly identified health priorities (table 1).[4 19] A third revision is underway, with a focus on non-communicable diseases. In 2005, the essential package of hospital services was modelled to complement BPHS and to define the hospital referral system.

Planning, implementation architecture, and mechanisms

The developers of BPHS relied on data from household surveys, global experience from comparable circumstances, and the resources and capacity of the government to devise a strategy. Non-governmental organisations working in Afghanistan were given the responsibility of implementing BPHS based on their experience and capacity.

Non-governmental organisations delivered BPHS services in 31 of Afghanistan's 34 provinces through a contracting-out mechanism. In three provinces (Panjshir, Kapisa, and Parwan), the Ministry of Public Health delivered BPHS through a contracting-in approach called the strengthening mechanism.[22] The ministry provided overall stewardship and responsibility for the delivery of quality services throughout the country. A grants and services contract management unit was set up at the ministry to manage the wide range of implementers, to monitor grants compliance and service delivery, and to coordinate with other departments (including the Expanded Programme of Immunisation, nutrition, reproductive health, and others). A public health directorate was set up for each province to coordinate and monitor the non-governmental organisations. Consultative mechanisms were established at national, ministerial, provincial, and community levels to keep stakeholders engaged and informed (detailed in section 4 of the supplementary file).

The findings of our systematic review and multistakeholder consultations indicated

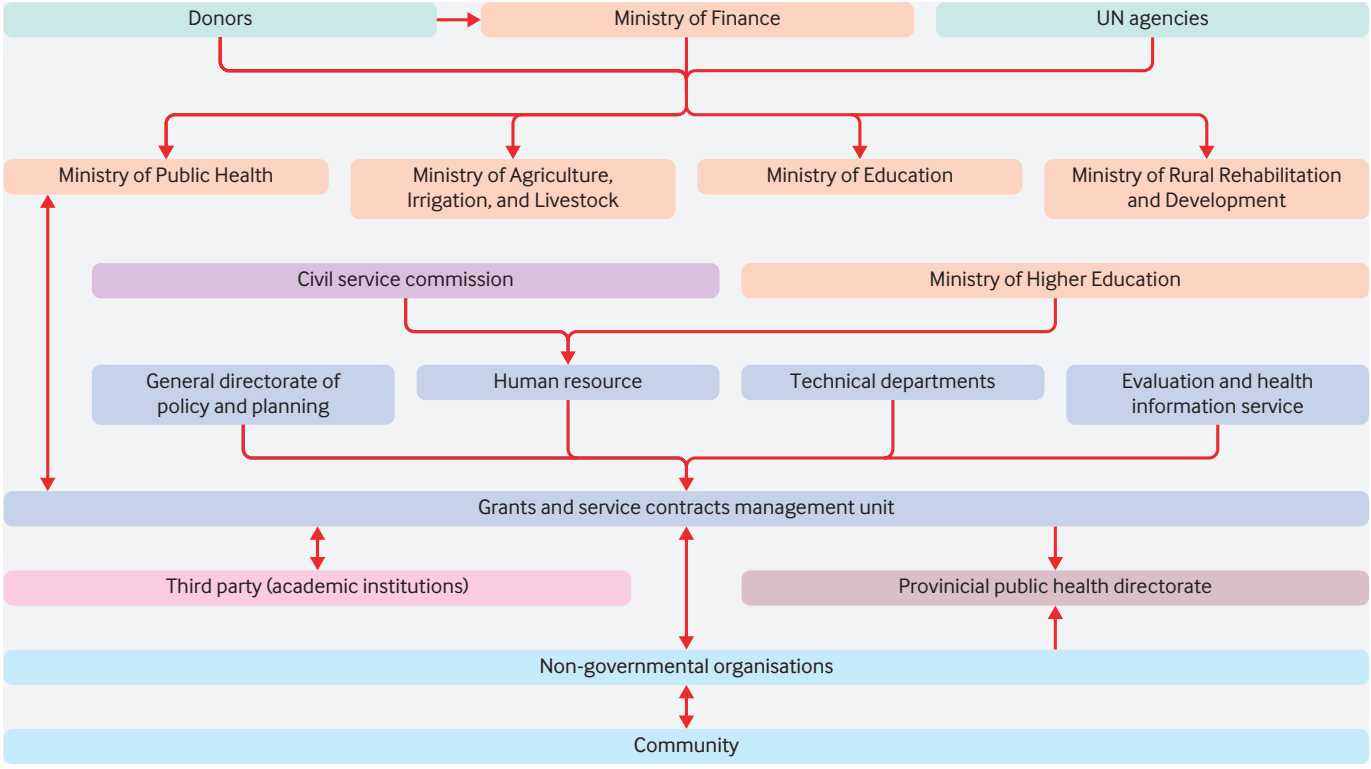

Fig 1 | Multisectoral model of engagement for Afghanistan's BPHS

Table 1 | Major elements and revisions of BPHS[19-21]

Healthcare services	2003	2005	2010
Maternal and newborn health	Antenatal care Delivery care Postpartum care Family planning Care of the newborn	Same as 2003	Same as 2003
Child health and immunisation	Expanded Programme on Immunisation services (routine and outreach) Integrated Management of Childhood Illness	Same as 2003	Same as 2003
Public nutrition	Micronutrient supplementation Treatment of clinical malnutrition	Prevention of malnutrition Assessment of malnutrition Treatment of malnutrition	Prevention of malnutrition Assessment of malnutrition
Communicable disease treatment and control	Control of tuberculosis Control of malaria	Control of HIV Control of tuberculosis Control of malaria	Prevention of HIV and AIDS Control of tuberculosis Control of malaria
Mental health*	Community management of mental health problems Health facility based treatment of outpatients and inpatients	Mental health education and awareness Case detection Identification and treatment of mental illness	Mental health education and awareness Case identification, diagnosis, and treatment
Disability and physical rehabilitation services*	Physiotherapy integrated into primary healthcare services Orthopaedic services expanded to hospital level	Disability awareness, prevention, and education Assessment Referrals	Disability awareness, prevention, and education Provision of physical rehabilitation services Case identification, referral and follow-up
Regular supply of essential drugs	All essential drugs required for basic services	Listing of all essential drugs needed	Same as 2005

*Though included in 2003, these were deprioritised from 2005 onwards

that the Ministry of Publish Health and non-governmental organisations were the major drivers of BPHS, with important influence from donors (table 2). The Ministry of Finance and the Provincial Public Health Directorates also had notable involvement and influence. Other sectors (education, development, agriculture) had complementary roles in human resource and structural capacity. Local communities were the primary beneficiaries and were also involved in development.

The Ministry of Finance set up multidonor trust funds to mobilise human and capital resources for the rebuilding of socioeconomic institutions. The Afghanistan Reconstruction Trust Fund (ARTF), the largest and longest running such trust in the world, was established in 2002.[23] Donors averse to funding the Afghan government directly preferred ARTF owing to its relatively high accountability and transparency (box 2).[24]

Staff training, recruitment, and deployment strategies were central to the success of BPHS. The Ministry of Higher Education provided training to doctors, and the Ministry of Public Health provided pre-service training to midwives and paramedics. A national standard salary policy was announced in 2006, which encouraged incentives for employment in underprivileged locations.[26]

BPHS's vision was to get services to the poorest, most underserved and isolated regions, so community based outreach modalities were critical. Voluntary community health workers and community groups provided the major health workforce, attending to about two thirds of all family planning clients and managing nearly half of all sick children.[27] The various tiers of community engagement and demand creation strategies are detailed in section 5 of the supplementary file.

Multisectoral planning and actions

Although direct multisectoral planning to support investments in education, promotion of food security, the built environment, and WASH services were uncoordinated, several parallel cross-sectoral initiatives in these sectors led to or enabled gains in health.

In 2003, the Ministry of Agriculture, Irrigation, and Livestock—working closely with Public Nutrition Department in the Ministry of Public Health—developed the country's first Public Nutrition Policy and Strategy to coordinate BPHS nutrition services. The Health and Nutrition Policy and Strategy 2012-20 and Food Security and Nutrition Strategy 2015-19 showed further commitment to the right to nutrition.

Table 2 | BPHS stakeholder roles

Organisation or group	Role	Phases in which engaged	Involvement, (in terms of time, resources)	Influence	Notes
Ministry of Public Health	Stewardship/ oversight	All phases	High	High	Stewardship/ oversight
Ministry of Finance	Fund holder	Finance Report	Medium	Medium	
Ministry of Higher Education	Training doctors	Implementation	Low	Medium	Trainings
Ministry of Agriculture, Irrigation, and Livestock	Lead development in agriculture and livestock	Implementation	Low	Medium	Support food security and nutrition related activities
Ministry of Rural Rehabilitation and Development	Lead infrastructure and road development	Implementation	Low	Medium	Develop Infrastructure
Provincial Public Health Directorates	Coordinator	Implementation	Medium	Medium	Provincial level monitoring
Donors	Provide funds	Design and reporting	Medium	Medium	Influencing Policy
Non-governmental organisations	Implementation	Planning/reporting	High	High	Technical Support
UN	Support/technical assistance	All phases	Low	Low	Oversight
Political groups	Lobby	Implementation	Low	Low	Lobby
Community	Support services	Implementation, planning	Low	Medium	Voluntary work

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Box 2: Funding mechanisms

Among the 34 donors that have contributed to the ARTF since its inception, 17 continue to contribute regularly (fig 2).[24] ARTF channels funding to all sectors, the mechanisms of which have changed over time, including improved monitoring and evaluation and various performance based approaches. BPHS's three major donors are the EU, USAID, and the World Bank. USAID provided support in 13 provinces, the World Bank in 11, and the EU in 10.[25] These donors, together with Ministry of Public Health, have also funded non-governmental organisations to deliver BPHS through various mechanisms. The majority of BPHS's major donor funding has been disbursed through the Ministry of Finance for general BPHS budget spending, while other donors have pledged money for specific activities (vertical programs and innovations), generally made directly to service providers (Ministry of Public Health or non-governmental organisations). By the end of 2008, donors were fully funding BPHS service delivery through non-governmental organisations.

Various approaches were used to expand access to education in remote and rural communities, including community based education and accelerated learning centres.[28] The 2004 Education Quality Improvement Programme aims to increase access to quality basic education, especially for girls, through school grants, teacher training, and strengthened institutional capacity, with the support of communities and private providers.

The National Solidarity Programme, established in mid-2003 by the ministers of finance and rural rehabilitation and development, is a flagship programme to reduce poverty through establishing and strengthening a national network of self governing community institutions and empowering rural communities to make decisions on their own lives. Its projects included construction of irrigation facilities, health facilities, roads, bridges, schools, water supply facilities, and clinics, income generation, and vocational training projects.[29]

Monitoring, accountability, and learning

Despite data gaps, particularly in severe conflict areas, BPHS's unique, comprehensive, and rigorous evaluation mechanisms have been fundamental to evidence based decision making and policy formulation.[25] The roles of stakeholders in the monitoring and evaluation of BPHS are shown in table 3.

The Ministry of Public Health established the Evaluation and Health Information System department to manage, monitor, and provide timely progress data to all stakeholders,[30] specifically on national health priority indicators, and to coordinate across ministry departments (see section 6 of supplementary file).[30] Tools were developed to collect, monitor, and evaluate the performance of BPHS, such as the routine facility based health management information system, balanced score card, household and facility surveys, field supervision, monitoring checklists, periodic reports submitted by non-government organisations, and surveillance data. Finally, third party academic institutes, including Johns Hopkins University, the Indian Institute of Health Management Research, and KIT Royal Tropical Institute, conducted annual independent evaluations from 2004 onwards.[31 32]

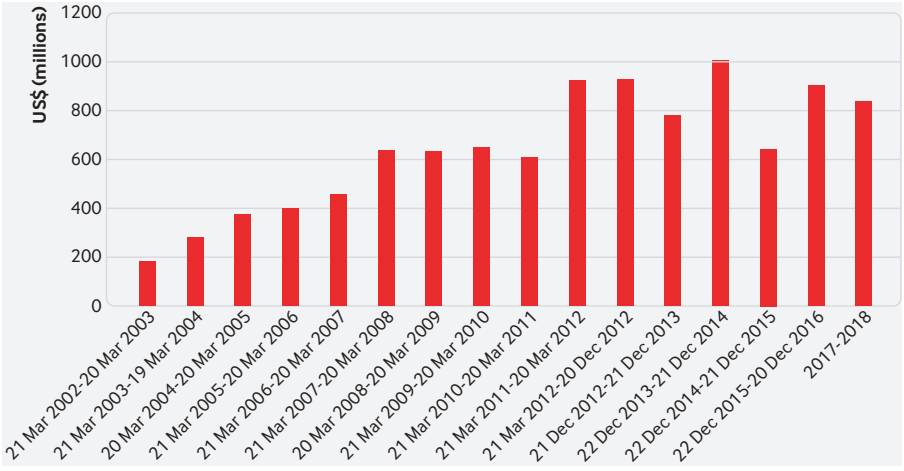

Fig 2 | Donor contribution to the Afghanistan Reconstruction Trust Fund since 2002

Outcomes: trends across collaborating sectors

The multisectoral collaboration of BPHS implementation in Afghanistan has generally been positively received.[7 8 33] Inequities are described in box 3.

Trends in health status and outcomes

The UN's best modelled estimates show that under 5 child mortality fell from 130 to 70 deaths per 1000 live births from 2000 to 2016.[34] WHO estimates indicate that maternal deaths per 100 000 live births fell from 1100 in 2000 to 396 (uncertainty interval, 253 to 620) in 2015.[35] But these estimates may not be reliable, as other data sources indicate that maternal deaths rose from 716 (441 to 1123) in 2003 to 885 (508 to 1445) in 2013.[36] These uncertainty intervals are very wide and overlap, but they indicate continuing doubt and the need for better data sources and analytical methods. Nonetheless, progress and trends in many maternal and child health interventions corroborate that maternal mortality has improved in Afghanistan over the past decade and a half[37]; further analyses are needed to better understand these estimates.[38] Since 2003, coverage of many essential maternal interventions (including antenatal care, skilled birth attendants, and facility births for pregnant women) has improved gradually, from around 15% to over 55% in 2015. Coverage of tetanus vaccination among pregnant women, however, has remained stagnant since 2003, and contraceptive use among women has been stagnant since 2012 (fig 4). Full immunisation coverage of children under 2 improved from 30% in 2010 to around 59% in 2015, whereas coverage of oral rehydration therapy for childhood diarrhoea and of care seeking for childhood acute respiratory tract infection has plateaued since 2012, after some initial gains (fig 4).[39]

Healthcare infrastructure and workforce have also improved. The total number of active healthcare facilities has risen from 1075 in 2004 to 2493 in 2017, and the absolute number of visits for healthcare rose from 2 million to 84 million over the same period.[40] The number of health workers of all cadres has also improved[41]; the number of female community health workers rose from 729 to 14 016. Two midwifery schools were established in 2002; by 2014, there were 34 institutions, one in each province, which collectively trained several thousand midwives[7]

Trends across non-health sectors

In 2001, only one million children were in school, and almost all of those were boys; by 2015, 8.8 million children were enrolled

Table 3 | Stakeholders' roles in monitoring and evaluation

Partners	Expected input
Evaluation and health information system	Lead and coordinate all activities
Grants and services contract management unit	Coordinate to apply national monitoring and evaluation tools Demand data on performance required for contract and grant management
Ministry of Public Health technical departments	Assist in prioritisation, development, and revision of performance indicator Provide technical input to design assessment tools and for verification of values of performance indicators Coordinate to apply national monitoring and evaluation tools
EU, World Bank, USAID	Provide financial support for monitoring and evaluation process Promote integrated monitoring and evaluation system
Other partners (eg, UNICEF, WHO, and Global Fund)	Promote integrated monitoring and evaluation system Provide technical input in designing of monitoring and evaluation tools Provide logistic and financial support for monitoring and evaluation process
Academic partners (Johns Hopkins University, the Indian Institute of Health Management Research, and KIT Royal Tropical Institute)	Perform third party evaluations of health service activities and reach

in schools, nearly 38% of which were girls.[28] There was a concurrent increase in school educators, growing from 21 000 to 187 000.[28] Adult literacy rates improved overall, but the proportion of primary school age children attending school is still low at 57% (64% for boys and 48% for girls); the gender parity index (ratio of girls to boys in primary education) also improved from 0.69 to 0.74 between 2007 and 2012.[28]

Rural water supply activities have accelerated and reached about 365 000 people, and community led total sanitation has also been scaled up. Between 2000 and 2017 population access to improved drinking water sources and to sanitation facilities rose from 42% to 64% and from 5% to 41%, respectively, but progress has plateaued since 2013. Handwashing with soap and water has improved from 5% in 2011 to 36% in 2015, whereas data on open defecation rates do not show any overall change since 2003; there are no data after 2011 (fig 5).[42]

There have been concurrent gains in economic development (fig 6) and in promising regional trade partnerships, as well as substantial efforts by the government to increase domestic revenue.[43] GDP per capita increased from $199 in 2002 to $669 in 2012, but thereafter declined to $586 in 2017. Poverty rates have risen from 36% in 2007 to 55% in 2017, and prevalence of food insecurity has increased from 28% in 2008 to 45% in 2017. Despite fluctuations in data, stunting prevalence has fallen from about 61% in 2004 to 41% in 2013, prevalence of underweight children has declined from 41% in 2003 to 25% in 2013, and wasting prevalence has remained constant since 2003 (fig 6).

Evolution, scale, and sustainability

The funding mechanism of BPHS was modified after 2010 to reflect donor transitions and streamlining of funds (see section 7 of the supplementary file). The contracts awarded to non-government organisations for implementation became performance based, with 20% of total payment linked to proportional achievement of key indicators stipulated in the contract. The Community Midwifery Education programme was added to BPHS to tackle the shortage of midwives in rural and hard-to-reach areas.[44] This programme engaged the community at all stages, including designing, priority setting, planning, and implementation. The Community Health Nursing Education programme builds on the successful experiences and lessons learnt from the midwifery programme. Various innovations have been pilot tested and implemented to improve the coverage of essential interventions (box 4).

Afghanistan's BPHS continues to evolve, and many have questioned its sustainability.[8 33] The Ministry of Public Health provides stewardship and oversight of funds, but prospective planning and coordination with diverse sectors, particularly education, agricultural, and rural development is needed for sustainability. The recent Citizens Charter (2016), for example, is a joint effort between the Ministry of Rural Rehabilitation and Development, the Ministry of Public Health, and other ministries that entrusts accountability of the health system to communities themselves. Such prospectively planned cross sectoral initiatives are the next steps for healthcare sustainability in Afghanistan.

Discussion

Afghanistan's BPHS is an example of how stakeholders and sectors collaborated to implement a basic health structure, achieving gains in a region affected by conflict. These gains were largely realised owing to the well defined roles of stakeholders, structured programme governance and implementation, monitoring and evaluation systems, committed external funding, and political will. After the initial response phase, with its focus on national immunisation campaigns, the subsequent development of BPHS reflected the government's desire to expand provision of basic primary care services. Notwithstanding the multisectoral consultations in design, execution, and oversight, the programme was mainly stewarded and implemented by the Ministry of Public Health with contributions from other ministries. Multistakeholder planning was a formal process, but mul-

Box 3: Inequities in health

Coverage of interventions for all indicators (health and non-health) varies regionally, with stark inequities between underprivileged, rural, and conflict areas and regions that have more money or are unaffected by conflict.[39 41] These regional and socioeconomic inequities jeopardise Afghanistan's likelihood of meeting its goals of universal coverage of health services and interventions.[41] Data from Multiple Indicator Cluster Surveys 2010-11 show vast disparities in coverage of essential reproductive, maternal, newborn, and child health interventions (fig 3). The interventions most inequitably distributed are antenatal care by skilled birth attendants and receipt of four or more antenatal care visits, whereby richer areas had between three and 5.6 times more coverage than poor areas. Breastfeeding interventions and treatment of sick children, however, were more equitably distributed.[41] Inequities also existed across regions, with the highest coverage in urban east, west, and central regions of Afghanistan and lowest in south and southeast regions of the country.[41]

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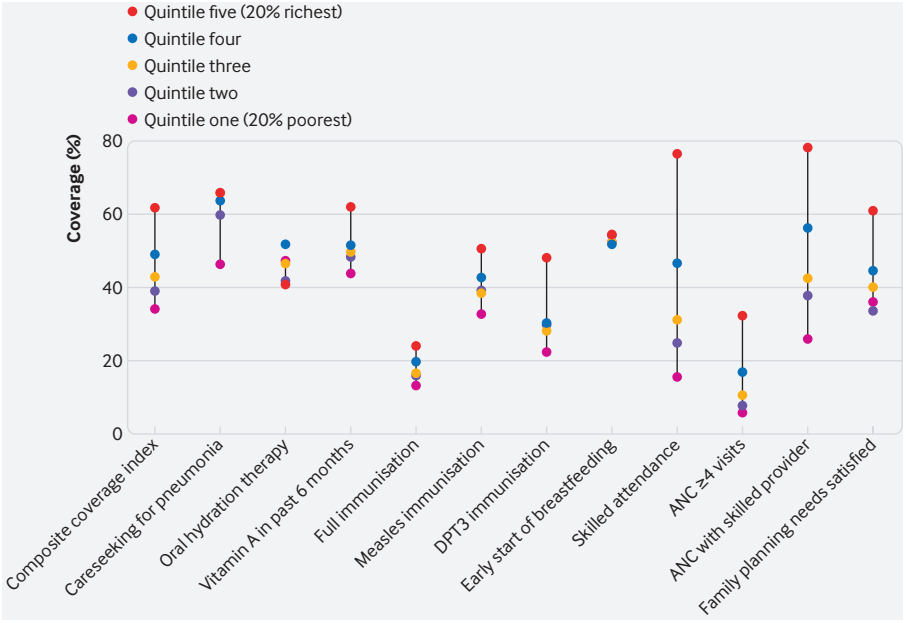

Fig 3 | Inequities in coverage of key interventions from MICS Multiple Indicator Cluster Surveys 2010-11.[41] ANC=antenatal care.

tisectoral implementation had few formal processes, one was Afghanistan's nutrition policy and strategy, which was a formal collaboration between the Ministry of agriculture, irrigation and livestock and the Ministry of Public Health.

Evidence on the effect of BPHS on the coverage of essential reproductive, maternal, and child health interventions and on health outcomes is mixed. Antenatal care, skilled birth attendants, and facility based births have improved, but use of contraceptives has been stagnant, which has been linked to low education among women, insecurity, lack of access, and low socioeconomic status of the population.[45] Among child interventions, there have been improvements in vaccination, care seeking behaviour, and management of childhood illnesses. Prevention of malnutrition has been challenging, because improvements in nutritional status require efforts and collaboration across sectors other than health, encompassing poverty alleviation, food security, agricultural and economic growth, education, and social safety nets[46]; progress on these has been suboptimal in Afghanistan, especially in populations with low access to healthcare in rural and conflict areas.

BPHS is adaptive, as evident in its changing modalities of funding, contracting process, interventions provided, and mechanisms for monitoring and evaluation. Community based approaches have also helped increase access to healthcare, generate demand, and improve equity. The Community Midwifery Education programme has been a major success in delivery of services, also providing marginalised women with work opportunities, which aided the economic uplift, but the high attrition rate of female health professionals is an ongoing obstacle.[38] Mobile health teams and community groups have helped in increasing demand for healthcare.

There are several limitations and unaddressed challenges, including limitations in data collection linked with the inherent difficulties in obtaining robust information in a chronically fragile state, with limited access in areas affected by severe conflict. There are cultural barriers to women seeking care, and the female health workforce is below the required numbers, especially in rural and severe conflict areas. This, together with low education levels among women, further complicates existing challenges and hinders simple solutions. There are still a high percentage of out-of-pocket expenditures and these are largely due to lack of access to health facilities, inconsistent quality of BPHS, and an unregulated private sector.[44 47]

Although Afghanistan has improved some health indicators and service delivery and has vastly increased the number of health facilities and workers, the health system remains far weaker than needed to ensure universal coverage, equitable access, and uniform benefit. The proportion of the population living within an hour's walking distance of a health facility has increased from 10% in 2002 to 57% in 2014.[47] Much of the gain achieved through the contracting-out model needs to be supplemented with robust public sector programmes focusing on reducing inequities and reaching marginalised populations, as a majority of the population lives in rural areas (75.5%).[41 48 49] There must be an enhanced focus on reducing gender disparities, promoting education and reducing school dropout rates among girls in rural populations. This requires strategies and progress in multiple other sectors, including economic growth,

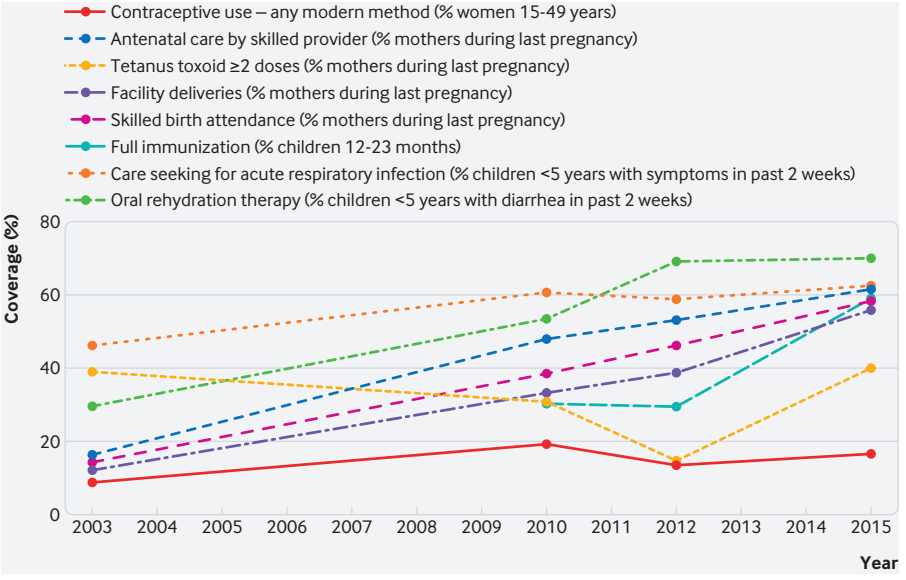

Fig 4 | National trends in maternal, newborn, and child health interventions from 2003 to 2015. Sources: Multiple Indicator Cluster Survey (2003 and 2010); Afghanistan Health Survey (2012 and 2015).

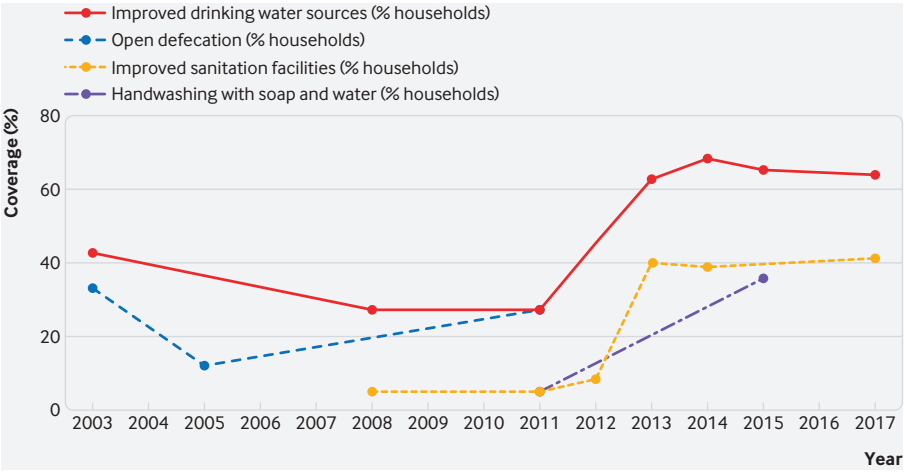

Fig 5 | National trends in water and sanitation from 2003 to 2017. Sources: Multiple Indicator Cluster Survey (2003); National Risk and Vulnerability Assessment (2005, 2007-8, 2011-12, 2013-14, and 2016-17); Afghanistan Living Conditions Survey (2007-08, 2011-12, and 2016-17); National Nutritional Survey-Afghanistan (2013); Afghanistan Health Survey (2015)

poverty reduction strategies, investments in education, and emphasis on improved transport and communication networks (see section 9 of supplementary file).

Afghanistan has experienced a debilitating conflict and civic unrest for almost four decades. An entire generation has experienced conflict and adversity, with consequences that may run across generations.[37 50] With escalating conflict since 2010, limited capacity of the health system and the heavy dependence on donors, much of the development support has come from the coalition countries and is likely to diminish in future. There is now a need for sustainable plans with greater emphasis on multisectoral implementation and an earlier move towards multisectoral and intersectoral planning; this was not a key element during the era of the millennium development goals. This has changed in the context of the sustainable development goals,[51] and investments could be accelerated.

As a signatory to the sustainable development goals, Afghanistan should explore a national dialogue on developing an integrated strategy for health and related determinants. Creation of a national think tank to oversee this process and to develop formal multisectoral plans for action is an important next step. The Ministry of Economy was designated as the lead ministry and focal point in this effort in 2015 under the guidance of the UN Development Programme,[52] and, moving forward, additional ministries (notably those involved in public health and nutrition) must be closely engaged in this effort. Afghanistan has shown progress in an ongoing conflict, and there is no reason why the next decade should not see accelerated progress in human development.

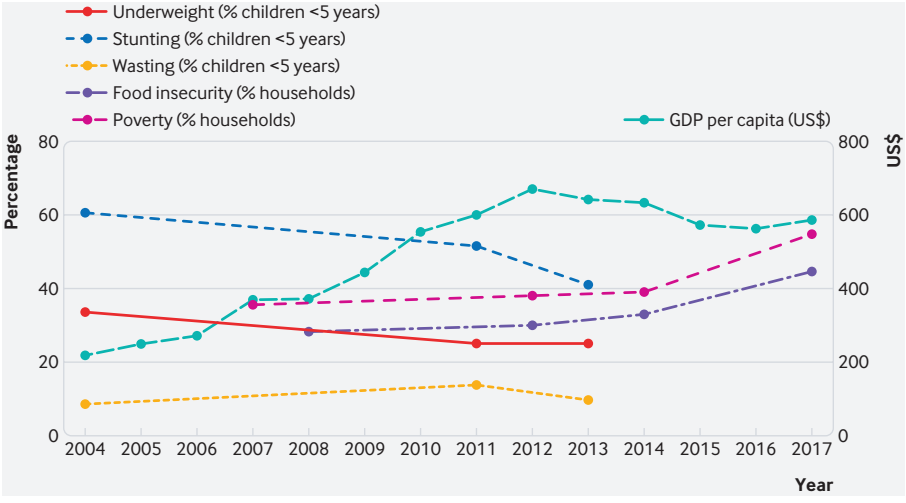

Fig 6 | National trends in poverty, nutrition and food security from 2003 to 2017. Sources: National Nutritional Survey (2004 and 2013); Multiple Indicator Cluster Survey (2010); Afghanistan Health Survey (2012 and 2015); Afghanistan Living Conditions Survey (2007-08, 2011-12 and 2016/17; Data of Gross Domestic Product (GDP): World Bank 1.

Box 4: Innovations in health

Core elements and delivery of BPHS have been modified over time, based on the evidence it generated. Innovations that have been tested as part of BPHS include those targeted to improving the reach of health services (mobile health teams), increasing access (family health houses and maternity waiting homes), improving quality of services (results based financing and conditional cash transfers), and increasing the use of technology (ehealth innovations) (see section 8 of the supplementary file). The current contracts of non-government organisations have a separate budget for innovations, which is equivalent to around 10% of the total budget.

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Supplementary file

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IDPoor: a poverty identification programme that enables collaboration across sectors for maternal and child health in Cambodia

Mary White Kaba and colleagues describe how Cambodia's national poverty identification system, IDPoor, has provided a nexus for different sectors' contributions to maternal and child health among the poor

Cambodia has made impressive progress in reducing poverty and improving maternal and child health (MCH), being one of the few countries to have achieved its Millennium Development Goal 4 and 5 targets.[1] National health indicators show improvements in access to reproductive, maternal, and child health services, but also decreasing equity gaps between different wealth quintiles, as demonstrated by national demographic and health surveys between 2000 and 2014.[2] Underlying this progress has been the commitment by both the Royal Government of Cambodia (RGC) and development partners to focus attention on the poorest to improve equity (supplement 1).

KEY MESSAGES

- IDPoor, Cambodia's nationwide, community based poverty identification system, is a social registry that is evolving to become an important building block in Cambodia's comprehensive National Social Protection Policy Framework and efforts towards universal health coverage
- IDPoor reduces fragmentation of development efforts through shared data that enable different sectors to channel complementary support to the same poor households, which are given equity cards
- All development programmes are obliged by law to identify their target group using IDPoor data, many of them directly or indirectly supporting improved MCH, while partners can input to the IDPoor mechanism, which is adaptive to sectors' needs and demands
- IDPoor's contribution to improving equity in MCH is mediated through social assistance programmes, including the nationwide Health Equity Fund.

A variety of governmental and non-governmental programmes aim to support the poorest to access social assistance interventions in health and other sectors—with a frequent focus on women and children. Such beneficiaries are identified by a nationwide programme, implemented by the Ministry of Planning (MoP): the Identification of Poor Households Programme (IDPoor). IDPoor serves as a social registry of poor and vulnerable households, a component towards a comprehensive social protection system.

As an increasing number of low and middle income countries (LMICs) institute information systems for social protection, we analyse Cambodia's IDPoor system as a case study to identify the opportunities and challenges it presents for cross sectoral action in support of MCH. We examine how IDPoor has contributed to collaboration across sectors benefiting women and children, before assessing how the use of IDPoor data may have supported improved equity in MCH in Cambodia.

This case study was developed in response to a global call for proposals by the Partnership for Maternal, Newborn, and Child Health, with the objective of identifying success factors of multisectoral collaboration for women's, children's, and adolescent health. Methods used in this case study included a review of literature and of available data, interviews with key informants to inform a working report, and a multi-stakeholder workshop to review the findings of the working report (supplement 2).

Poverty identification in IDPoor

Poverty levels in Cambodia have decreased substantially—from 47.8% of the population in 2007 to 13.5% in 2015.[3] Nevertheless, a large proportion of non-poor households sit just above the national poverty threshold and are vulnerable to falling back into poverty.[4]

The relation between poverty and poor health is well established. In poverty reduction, the targeting of services to those most in need is a common approach, including as a strategy within universal policies.[5] Even though targeting is generally exposed to trade-off compromises between accuracy and workability, many countries have opted to prioritise access to health and social services for the poorest on the grounds of both efficiency and equity. To guide targeted delivery of services, at least 30 LMICs have developed some type of social protection information system, mostly social registries. In principle these also create the potential to align different social assistance programmes.[6] Given the proliferation of such schemes and the importance of promoting MCH through sectors such as health and education,[7] we seek to document what integration across sectors can be achieved through an example of a social registry in a LMIC.

IDPoor is central to the RGC's efforts to promote equity, with a mandate to identify the poor for targeting by health and social programmes across multiple sectors.[8] Since 2011, Cambodia's Sub-Decree 291 has made it mandatory for all programmes targeting the poor to use IDPoor data for analysis, planning, and implementation.

IDPoor's origin is linked to the introduction of the national Health Equity Fund (HEF). After government health facilities introduced user fees in 1996, HEF grew out of the need to reduce financial access barriers for poor people in a standardised way. Health facilities faced the challenge of assessing poor patients' claims for fee exemptions without a systematic process, making it vulnerable to inconsistencies and with limited effectiveness in protecting poor Cambodians.[9] At the same time, the social assistance landscape in

Cambodia was fragmented, with different programmes operating across sectors, each implementing its own poverty targeting mechanism.[10] In response, in 2005 the MoP, together with development partners, began formulating a national, cross sectoral poverty identification mechanism, which could serve multiple social assistance programmes. Active involvement of relevant ministries at national and sub-national level, communal structures, non-governmental organisations, and development partners helped to build a consensus on the national guidelines and contributed to wide acceptance of IDPoor.

To identify households affected by multidimensional poverty, IDPoor combines proxy means testing, whereby poverty identification is done on the basis of observable household characteristics and assets (supplement 3), and community based targeting, applying an iterative, participatory consultation process to ensure community consensus on who is poor (fig 1). Safeguards are in place to ensure an open process acceptable to both communities and development programmes (box 1). Households confirmed as poor are given an equity card, which gives access to support from a variety of sectors, including healthcare in public facilities, covered by HEF.

Launched in 2007, poverty identification is carried out in a third of Cambodia's provinces each year, thereby covering each village once every three years. IDPoor initially focused on rural areas, where 80% of Cambodia's population—and 90% of those below the poverty line —live, but since 2016 the programme has broadened to include urban areas. The community based process makes systematic, nationwide poverty identification affordable and sustainable for the RGC. Though initially funded by donors, the IDPoor programme in rural areas has transitioned to entirely domestic funding and management by the RGC.

The IDPoor database provides poverty data for the entire country through the IDPoor Information System, allowing registered users—governmental and non-governmental organisations and programmes providing social services for the poor—to access a set of standard reports online or, upon request, in the form of books or DVDs. Different levels of data access exist, and sensitive data are only available to those programmes that have undergone a special registration process.

IDPoor's contribution to collaboration between sectors

The number of organisations using IDPoor data to channel their support to poor families tripled between 2012 and 2015, from 42 to 136. This represents 62% of all development programmes assessed in a 2015 study.[13] These programmes had on average 800 000 beneficiaries, although the degree of geographical and beneficiary coverage varied substantially. Among those using IDPoor data, 94% considered it an important tool. Most used these data for targeting individual households (84%) or for geographical targeting based on poverty levels (64%). Some 37 programmes explicitly sought to reach women and children. These came from a range of sectors—including education (35%), agriculture and rural development (24%), human rights (19%), and health (14%)—and provided different services to beneficiaries such as training (78%), livelihood development (30%), and food assistance (19%).[13]

Programmes that use IDPoor data and specifically tackle the health and wellbeing of women and children include both those that implement sector specific interventions and others that apply a multi-sectoral approach, bringing together interventions from different sectors. These programmes encompass a range of activities, including cash transfers, scholarships, food, or capacity building (table 1 and supplement 4).

By using IDPoor data, programmes from different sectors reach the same

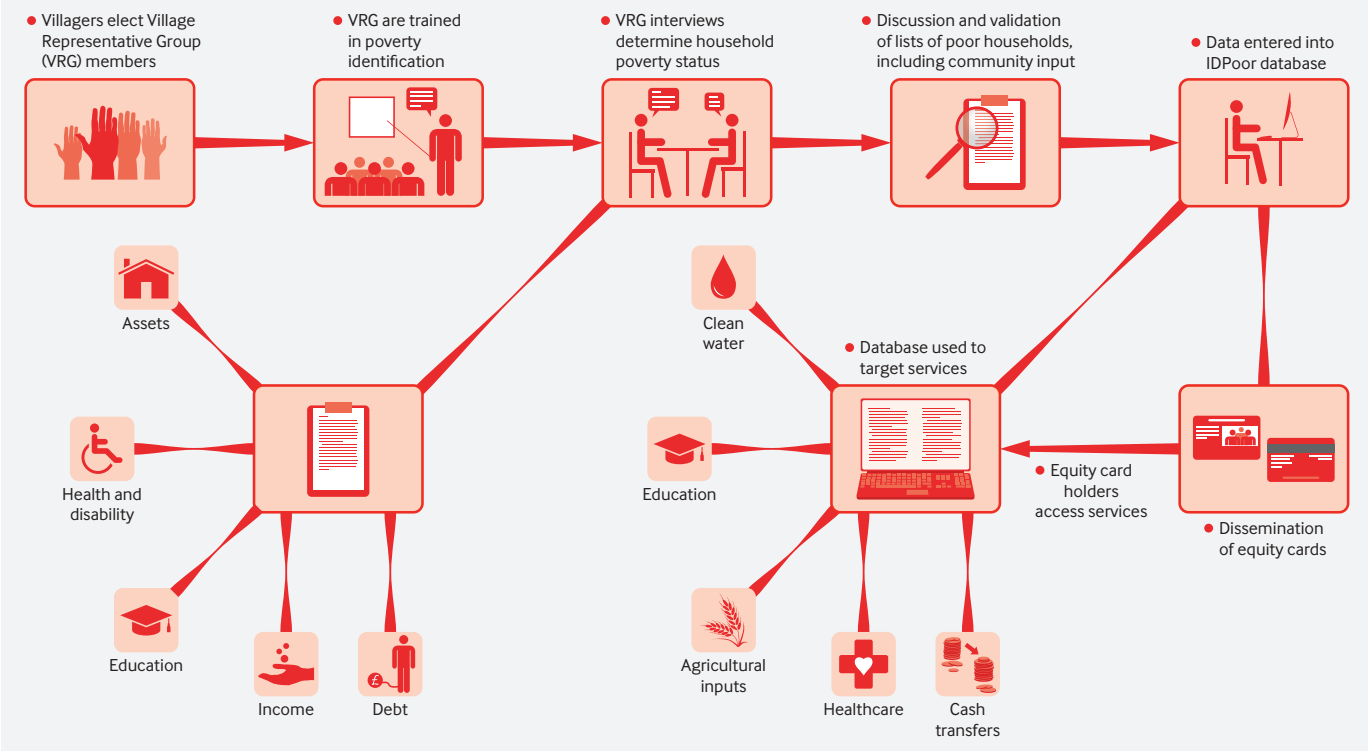

Fig 1 | The IDPoor process[10]

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Box 1: Functioning and safeguards of the IDPoor process

In each round of IDPoor, an estimated 35 000 people are actively involved.

Villagers select representative groups who conduct household interviews using a standardised questionnaire, and present draft lists of poor households to the community for feedback and validation. To ensure an open process, the draft and final lists of poor households must be publicly displayed, allowing for community validation of identified beneficiaries.

Local non-governmental organisations are invited to participate in the process to ensure inclusion of specific vulnerable groups. Throughout the process, the MoP provides training, monitors implementation, and gives ongoing technical support. Once a community has ratified a household's poverty status, IDPoor gives an equity card to the household indicating its status ("1" for extremely poor and "2" for moderately poor).

Any poverty targeting methodology is a compromise, weighing level of accuracy against available resources and other considerations.[11] IDPoor's hybrid poverty identification methodology aims to combine the advantages of both proxy means testing and community based targeting, helping to ensure acceptance through the involvement of the community, together with use of consistent criteria in order to reduce the risk of bias.[10]

Poverty identification is commonly affected, to a certain degree, by exclusion (non-included poor households) or inclusion errors (included non-poor households). Although it is difficult to quantify such errors, a World Bank assessment determined that, on average, surveyed households rated the accuracy and implementation of the IDPoor process as high.[12] A systematic assessment by IDPoor of its own procedures and whether their implementation may introduce errors is under way from September 2018.

Although it cannot be ruled out that the possession of an equity card can lead to stigmatisation of poor households, no evidence could be found to support this assumption in Cambodia. Rather, it appears that villagers are usually aware of the socioeconomic situation of their community, which is a central premise of the IDPoor process and its reliance on villagers to identify those who are living in poverty.

identified set of beneficiaries. This allows for complementarity and greater alignment of efforts, even without active coordination among actors. Most programmes use IDPoor data because they fit their needs (69%), are legally required (21%), or are free (16%).[13]

These points were corroborated at a multi-stakeholder review meeting (supplement 2), where participants described IDPoor as an important basis for the interventions of both governmental and non-governmental organisations. There was particular appreciation that IDPoor removes the burden on programmes to set up their own targeting systems. A problem raised was the limited feedback from programmes to IDPoor on how they use the data, as well as limited exchange between data user programmes targeting the poor. This presents a challenge for more effective collaboration as well as for monitoring the use of IDPoor data, and raised the question of the extent to which IDPoor should assume a stronger coordination function to guide productive synergies between programmes across sectors.

Additional multisectoral interaction relates to the development and refinement of the IDPoor tools and methodologies. A mechanism of regular consultation between MoP and the Ministries of Health, Education, Interior, and Social Affairs as well as development partners has been integral to IDPoor processes since the start.[10] Urban IDPoor, for instance, originated from the desire of development programmes to expand IDPoor to urban areas, and also to include further indicators tackling vulnerabilities such as disability, chronic illness, debt, and low levels of education. In 2018, responding to partners' concerns that IDPoor's three year poverty identification cycle missed important demographic or socioeconomic changes occurring in the interval, the MoP started a new community based pilot, "On-Demand IDPoor," as a standardised option to register new households and household members in between the regular three year poverty identification rounds. This demand for more up-to-date poverty and demographic data—such as new household members, households that slip below the poverty line, or work related migration—was particularly strong on the part of MCH programmes, whose priority groups of pregnant women and children under 2 years old change from month to month. Both the Urban and the On-Demand IDPoor processes are examples of how IDPoor has adjusted its mechanisms over the past few years to make poverty data more responsive to the needs of different sectoral programmes. A permanent IDPoor Improvement Working Group was instituted in 2018 to advise IDPoor on enhancing its processes and contributing to the implementation of the national social protection framework, and is expected to intensify cooperation among social assistance programmes.

IDPoor's contribution to equity in MCH

IDPoor data from the 2015-17 cycle show that more than one quarter of the 2.2 million people in its database are women of reproductive age (15 to 49 years) and another 30% are children under 15. Thus, over 50% of IDPoor household members are potential users of MCH programmes.[18] IDPoor itself creates opportunities for access, mostly through distributing equity cards, but also by partners' use of IDPoor data for planning service delivery. The actual contribution of IDPoor to equity in MCH will depend on the effectiveness of the programmes that are implemented by organisations using its data.

While we have documented the utilisation of IDPoor data for the targeting and implementation of programmes across multiple sectors, the programme has not yet advanced to a stage where it systematically captures data on the supply and uptake of such services. For this reason, it is not possible to analyse data on actual, concurrent, or subsequent uptake of such services by equity card holders. We can, however, examine the success of single programmes backed by IDPoor data in achieving greater use of services supporting MCH. For example, access to antenatal care, delivery, and family planning services is provided without charge at point of delivery to equity card holders through HEF, the single largest programme backed by IDPoor data (box 2). The contribution of HEF to reducing out-of-pocket expenditures for health services has also been documented.[19 20]

HEF (and indirectly IDPoor) may enable access to MCH services for poor women and children that they would otherwise be unable to afford. Overall, existing published evidence on whether HEF increases general uptake of public health services among entitled poor people remains mixed.[19 24 25]

Table 1 | Selected social assistance programmes using IDPoor[14-17]

Programme	Sector	Type of intervention	Eligibility	Coverage	Agency
Health Equity Fund (ongoing)	Health	Provides health services free at point of delivery, transportation to health facilities, food during treatment at hospital	IDPoor 1 and 2 households	Nationwide (all provinces)	Ministry of Health, multiple international donors
Vouchers for reproductive healthcare services (2011-17)	Health	Provided vouchers for essential healthcare related to pregnancy, birth, and family planning	Vouchers were distributed to IDPoor cardholders (IDPoor 1 and 2 households)	Three provinces	Ministry of Health, KfW Development Bank
Cash transfer for poor families with pregnant mothers or children under five years (2015 –16)	Health, nutrition	Unconditional and conditional cash transfers to increase the use of essential health and ANC or PNC services	Pregnant women and children under 5 (IDPoor 1 and 2 households)	1500 households in two provinces	World Bank, National Committee for Sub National Democratic Development Secretariat
NOURISH mother and child nutrition cash transfer incentive for health service utilisation (2014-19)	Health, nutrition, water and sanitation, agriculture	Provides conditional cash transfers to stimulate use of specific nutrition and reproductive health services; and vouchers for WASH and nutrition products	Pregnant women and children under 2 (IDPoor 1 and 2 households and an additional process to consider further poor households not included in IDPoor)	565 villages of the 20 poorest districts in three provinces (selection based on a poverty rate of 30% or higher using IDPoor data)	Save the Children; district, municipality, and commune authorities
Cash transfer pilot project for pregnant women and children in Cambodia (2015-17)	Health, nutrition	Unconditional and conditional cash transfers to increase the use of essential health and ANC/PNC services	Pregnant women and children under 5 (IDPoor 1 and 2 households)	57 villages in eight communes in one province	UNICEF; Council for Agricultural and Rural Development
Multi-sectoral Food Security and Nutrition (MUSEFO) (2015-20)	Health, nutrition, agriculture	Provides training sessions to farmers and families to grow a more diverse range of crops and improve their access to healthy foods	People vulnerable to food insecurity (including IDPoor 2 cardholders)	180 villages in two provinces (with families engaged in agricultural activities with more than 10% IDPoor 2 households)	GIZ; Council for Agricultural and Rural Development; provincial authorities
Primary school scholarships (2011-18)	Nutrition, education	Provides take home rations and cash transfer scholarships ($60 per year) to primary school children and their families	IDPoor 1 and 2 (students in grades 4-6 in schools in rural or remote areas)	Six provinces	Ministry of Education, Youth, and Sport; World Food Programme
Nutrition for Under-2s and Mothers Project (2015-19)	Health, nutrition	Awareness and nutrition rehabilitation sessions	Families with children under 2 (IDPoor 1 and 2 households and an additional process to consider further poor households not included in IDPoor)	3800 households in one province	Adventist Development and Relief Agency Cambodia

ANC/PNC: antenatal care, postnatal care.
WASH: water, sanitation, and hygiene.

We analysed data from Cambodia's Health Management Information System between 2014 and 2017 to assess how well potential access to MCH services has translated into actual use by equity card holders.

A simple analysis revealed that use of MCH services among HEF supported patients has steadily risen between 2014 and 2017, at both health centre and referral hospital level (figs 2 and 3). The number of HEF covered deliveries, for example, doubled in this period, from 4013 to 7401 at referral hospital level, and from 7893 to 16 237 in health centres. Uptake of antenatal services among HEF supported patients in health centres has also grown substantially during this period, from 22 699 to 94 653 consultations. Similarly, HEF patients' use of birth spacing services in health centres almost quadrupled to over 80 000 consultations. At referral hospital level in 2017, 34% of all paediatric consultations were covered by HEF. These increases in MCH service utilisation among equity card holders occurred in a context of decreasing poverty (supplement 1) and increasing healthcare use in the general population, which is reflected in a sharp increase in self paying clients and a relatively smaller share of HEF users among all patients.

Overall, these trends suggest that decreased out-of-pocket expenditures for equity card holders may have contributed to improved socioeconomic equity for these poor mothers and children. This is likely related to the combined effects of policies, programmes, and interventions that have made possible Cambodia's progress towards equitable access for poor women and children to MCH services (supplement 1). The effects of HEF as enabled by IDPoor may have worked in concert with factors such as the extension of HEF to health centres, quality improvement measures, and growing awareness of equity card entitlements.

HEF provides an example of how the link between IDPoor and a specific development programme may contribute to actual uptake beyond the theoretical access created through equity cards. However, the alleviation of financial barriers alone does not translate into uptake. While the public sector provides the vast majority of MCH services, there is evidence that the private sector is often consulted for primary care, including by equity card holders.[26] Non-financial factors affecting uptake include distance to a public facility, perceived problems with quality of government health services, socio-cultural preferences such as first recourse to self medication, private or traditional providers, and limited awareness of HEF entitlements and benefits.[27] These factors have implications for what poverty identification can deliver, alongside service expansion, raising awareness about entitlements, or other measures to improve acceptance, such as the improvement of service quality.

Other IDPoor data users can build on these findings. In some instances, IDPoor data may provide further opportunities to tackle these problems, such as by informing geographical targeting. With regard to other programmes, IDPoor could provide a nexus for intensified collaboration among programmes targeting the poor (to further improve cross-referrals of identified poor

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Box 2: Health Equity Fund

Cambodia's national health and social protection strategies explicitly aim for universal health coverage, and the consolidation of the Health Equity Fund (HEF) is a key element of improving financial access to healthcare for the poorest part of the population.[21]

HEF depends directly on IDPoor to identify its beneficiaries: all equity card holders are entitled to healthcare services without charge at point of delivery in public facilities. The Ministry of Health (MoH) regularly obtains IDPoor data and updates its HEF patient registry, which allows health facilities to verify eligible patients. To handle non-cardholding patients claiming poverty, a "post-identification" process can be carried out at health facilities, resulting in a temporary healthcare access card valid for one year. This temporary card accounts for about 5% of all HEF beneficiaries. MoH can recommend such families to MoP for inclusion in the IDPoor identification process. Initially limited to referral hospitals, HEF coverage has been extended to health centres and, since 2015, includes all government health facilities in Cambodia.

HEF is a demand side financing mechanism to cover user fee exemptions for the identified poor at government health facilities, and directly reimburses these facilities for the services provided. HEF covers user fees of poor patients for all services at all levels of health facilities, including a minimum service package at health centre level, comprising basic treatment and preventive care, maternal healthcare, and newborn delivery; and a complementary package at referral hospital level to tackle more complex health problems, including surgical care. Poor patients are also entitled to non-medical benefits such as reimbursement of transportation costs to and from the referral hospital, food allowances for caretakers of patients, and funeral support.[22]

Based on a patient's equity card number, in 2011 HEF introduced a Patient Management and Registration System in referral hospitals, which enables patient data management and reimbursements to cardholders for costs related to transport and food. HEF pays a standard amount (depending on the service provided) to the respective health facility, which then reinvests this amount in service delivery and staff bonuses. In 2017, over two million health facility visits were covered by HEF at both health centre and referral hospital level.[23]

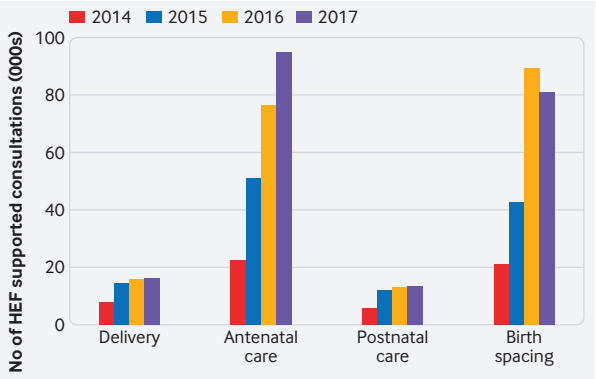
As of 2018, the financing of HEF is shared between the Cambodian government and international donors, with a gradual transition towards exclusive government funding proposed by 2021.

people between services, or joint awareness raising on new benefits for identified beneficiaries, for example).

Lessons learnt

Many factors have contributed to IDPoor's role in supporting collaboration of both governmental and non-governmental programmes across sectors in ways that benefit poor women and children. A number of lessons can be drawn.

Firstly, contributions to improved MCH can be achieved without needing to be explicitly coordinated at the start of a programme. IDPoor has no MCH targets of its own, but nonetheless can contribute to improved outcomes by allowing other sectors, which do support mothers and children, to use its shared poverty data. Key factors enabling this process include the quality and credibility of data, as well as decisive government leadership. As Cambodia moves towards integration of all social assistance programmes under its national social protection strategy, IDPoor's role could be further strengthened by setting up a common monitoring framework for data users, as suggested at the multi-stakeholder review meeting. Incorporating regular reporting on standard indicators to clarify the impact and contribution of each sector, including health, would reinforce IDPoor as an active facilitator of interventions across sectors targeting poor women and children, among other vulnerable groups.



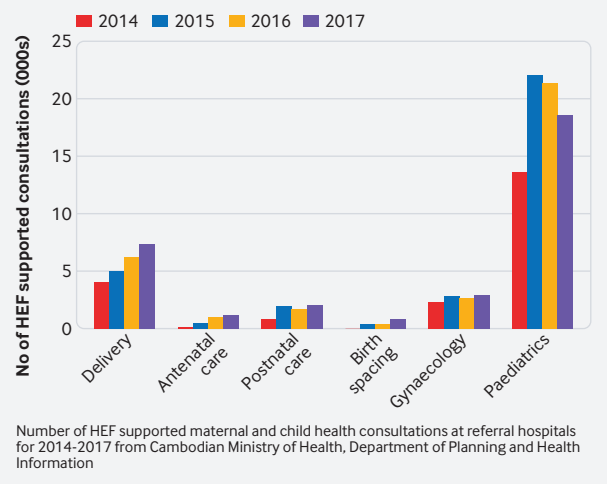
Number of HEF supported maternal and child health consultations at health centres for 2014-2017 from Cambodian Ministry of Health, Department of Planning and Health Information

Fig 2 | Evolution of number of HEF patients using MCH services on health centre level

Secondly, our analysis supports the notion that cross cutting institutions are well placed to promote collaboration across sectors.[13] The central and "sector neutral" role of MoP in Cambodia for IDPoor is linked to its mandate to provide demographic and other statistical data to development programmes. From this point of view, it can be argued that ministries of planning assume essential coordinating and administrative functions, which are qualitatively different from the functions of technical line ministries that oversee service delivery, and are thus often better able to engage with a variety of sectors and stakeholders.

Thirdly, we suggest that a shared target group and shared data can catalyse collaboration across sectors. IDPoor focuses the action of partners from different sectors on a common target group, the poor, including the goal of increasing access to MCH services to reduce disparities. For MCH actors in particular, the evolution of IDPoor towards a social protection system is an opportunity to harness the potential of data to reduce fragmentation and improve collaboration, such as in joint efforts of awareness raising about the services to which the equity card gives access.

Fourthly, the impact of interventions that require the input of multiple sectors needs to be assessed using a systems lens. The success of IDPoor in facilitating access of the poor to health and social services cannot be evaluated in isolation from the



Number of HEF supported maternal and child health consultations at referral hospitals for 2014-2017 from Cambodian Ministry of Health, Department of Planning and Health Information

Fig 3 | Evolution of number of HEF patients using referral hospital services for delivery, ANC, PNC, birth spacing, gynaecology, and paediatrics, 2014-17

realities of the systems providing those services. While IDPoor facilitates increased formal access to services for the poor in programmes such as HEF, there is a need to tackle systems factors—both demand side and supply side—that influence service use that are independent of IDPoor, to maximise its impact on health and social outcomes.

Fifthly, there are a number of limitations and challenges that merit consideration and resolution in the development of IDPoor. Its three year data collection cycle—a compromise between cost effectiveness and real time accuracy—has been recognised as a crucial source of poverty data, but at present does not reflect sudden changes in household composition or poverty status. These can potentially be tackled through the On-Demand IDPoor mechanism currently being piloted.

Another limitation is the low availability of utilisation data across different sectors, which constrains IDPoor's potential for harmonisation, collaboration, and alignment among sectors and programmes. IDPoor's data are intentionally easy to access by registering on its website or through a direct request to MoP, but with the drawback that IDPoor does not retain full information about who is using its data, and for providing which services where.

These lessons and limitations should inform future development of IDPoor on its way to becoming the core of an integrated information system for social assistance. Capitalising on data user forums and consultation mechanisms and strengthening data analysis and reporting will be first steps. As the IDPoor database evolves, interoperability with other providers' databases will have to tackle these shortcomings, while ensuring confidentiality of the registered households.

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Supplement 1: Maternal and child health and poverty in Cambodia
Supplement 2: Methods for IDPoor case study
Supplement 3: Criteria used in identification of poor households by IDPoor
Supplement 4: Partner programmes through which IDPoor contributes to maternal and child health

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Improving vaccination coverage in India: lessons from Intensified Mission Indradhanush, a cross-sectoral systems strengthening strategy

Vandana Gurnani and colleagues report an analysis from the Intensified Mission Indradhanush strategy in India, showing that cross-sectoral participation can contribute to improved vaccination coverage of children at high risk

India's immunisation programme is the largest in the world, with annual cohorts of around 26.7 million infants and 30 million pregnant women.[1] Despite steady progress, routine childhood vaccination coverage has been slow to rise. An estimated 38% of children failed to receive all basic vaccines in the first year of life in 2016.[2-4] The factors limiting vaccination coverage include large mobile and isolated populations that are difficult to reach, and low demand from underinformed and misinformed populations who fear side effects and are influenced by anti-vaccination messages.[5-7]

Owing to low childhood vaccination coverage, India's Ministry of Health and Family Welfare launched Mission Indradhanush (MI) in 2014, to target underserved, vulnerable, resistant, and inaccessible populations.[8] The programme ran between April 2015 and July 2017, vaccinating around 25.5 million children and 6.9 million pregnant women. This contributed to an increase of 6.7% in full immunisation coverage (7.9% in rural areas and 3.1% in urban areas) after the first two phases.[9] In October 2017, the prime minister of India launched Intensified Mission Indradhanush (IMI)—an ambitious plan to accelerate progress. It aimed to reach 90% full immunisation coverage in districts and urban areas with persistently low levels.[10] IMI was built on MI, using additional strategies to reach populations at high risk, by involving sectors other than health (table 1).

This case study was led and coordinated by the Ministry of Health and Family Welfare. The primary objective was to record the lessons learnt from IMI. Emphasis was put on understanding how cross-sectoral and multistakeholder engagement work to strengthen access to vaccine services and improve their quality. A modified multistakeholder review process was used, which included in-depth interviews of stakeholders at all levels and a synthesis meeting (see suppl 1 on bmj.com).

KEY MESSAGES

- The Intensified Mission Indradhanush strategy showed that cross-sectoral participation can increase vaccination rates in children at high risk
- Strengthening of the system and practice changes could make it more effective
- Sustained high level political support, advocacy, and supervision across sectors, together with flexibility to reallocate financial resources and staff were essential for success
- Districts must strengthen staff capacity to list household beneficiaries, add additional vaccination sites, and invest in the transportation required for both
- Better communication and counselling skills tailored to local beliefs are needed to deal with barriers to seeking vaccinations
- Districts and primary care facilities work must more effectively with non-health stakeholders by involving them early in logistics planning, communication, and messaging strategies

Intensified Mission Indradhanush: programme description

Programme focus

IMI targeted areas with higher rates of unimmunised children and immunisation dropouts. Updated data were used to select districts and urban areas in which at least 13 000 children were estimated to have missed diphtheria, tetanus, pertussis 3 (DPT3)/pentavalent 3 in the previous year, or DPT3/pentavalent 3 coverage was estimated to be <70%.[11] These criteria were used to select the weakest 121 districts, 17 urban areas, and an additional 52 districts in the northeastern states (fig 1). All children aged up to 5 years and pregnant women were targeted, with a focus on ensuring full vaccination for children under 2 years. Vaccines included in the routine immunisation schedule were given—namely, tetanus toxoid for pregnant women based on their vaccination status; and for infants, Bacillus Calmette–Guerin, oral polio vaccine and hepatitis B at birth or first contact after birth, three doses of pentavalent, oral polio vaccine and injectable polio vaccine between 6 and 14 weeks, measles or combined measles and rubella vaccine at 9 and 18 months, and DPT and oral polio vaccine boosters at 18 months. Three doses of rotavirus, pneumococcal conjugate, and Japanese encephalitis vaccines were also given between 6 and 14 weeks in areas where these had been added to the routine schedule. A chain of support was established from the national level through states to districts. Senior staff provided regular reviews of progress and received updates on progress.[10]

Implementation

A seven step process was developed to support district and subdistrict planning and implementation of IMI, with staff at all levels receiving training (fig 2).[10] Door-to-door headcount surveys and due listing of beneficiaries were conducted by facility staff (auxiliary nurse midwives), community based workers (accredited social health activists), and non-health workers (Anganwadi workers), and validated by supervisors for completeness and quality. Session micro-planning identified new sites for conducting vaccination sessions if needed, organised mobile teams for remote areas, and ensured that supplies were available. If too few staff were available at health subcentres, additional staff were hired or brought in from other areas. Vaccine supplies were tracked using the

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Table 1 | Comparison of the programme used by Mission Indradhanush (MI) and Intensified Mission Indradhanush (IMI)

	Mission Indradhanush (MI): April 2015 to July 2017	Intensified Mission Indradhanush (IMI): October 2017 to January 2018
Objective	Fully immunise 90% of infants by 2020	Fully immunise 90% of infants by 2018
Leadership	Central health minister and secretary of Health and Family Welfare, monitored under the proactive governance and timely implementation system	Prime minister, central health minister and cabinet secretary, monitored under the proactive governance and timely implementation system
Implementation	Ministry of Health and Ministry of Women and Child Development	Ministry of Health with support from 12 non-health ministries, including Ministry of Women and Child Development
Selection criteria	Districts with lowest coverage and state priority: lowest coverage (n=201), intermediate coverage (n=296), and other districts (n=31)	Districts and areas which continued to underperform after the first mission (<70% coverage) and >13 000 missed/partially immunised children
Target areas	528 districts across 35 states	173 districts (including 52 districts from northeastern states) and 17 urban areas across 24 states
Period	Four phases, each consisting of four monthly rounds, with each round lasting for 1 week	One phase with four monthly rounds, each round lasting for 1 week
Programme approach	• Improved microplanning, monitoring, social mobilisation and strengthened vaccination systems (especially in areas with inadequate staff numbers) • All vaccines under routine immunisation offered for children aged ≤2 years and pregnant women	MI approach plus: • Rigorous head counts (validated by supervisors) for tracking and updating due lists to identify children aged ≤2 years and pregnant women for vaccination • More intensive planning and monitoring in hard to reach urban areas • Involving non-health sectors to deal with social barriers and gaps in knowledge in communities—and to create a vaccination "movement" • Additional financial support based on need, and flexibility in use of the fund

Electronic Vaccine Intelligence Network and cold chain tracking programme, and distributed using the alternate vaccine delivery mechanism.[12] To facilitate local implementation, flexible vaccination funds were used for personnel costs, incentives for staff, transportation, social mobilisation, and production of communication materials. Guidelines for requesting additional resources and their allocation for specific activities were developed; additional funds were provided on demand to states.[13] District task forces bought 12 non-health sectors together to devise and apply specific communication plans and materials. Cycles of immunisation were conducted each month between October 2017 and January 2018, each lasting 7 working days.

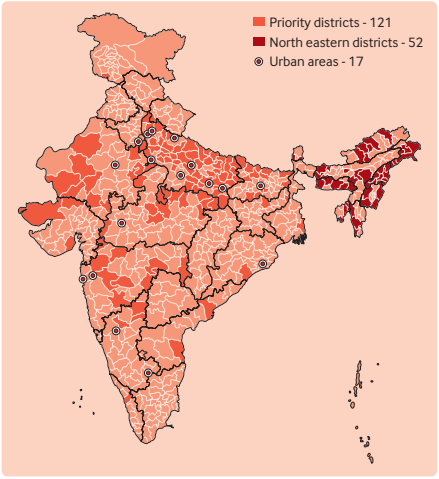

Fig 1 | Map of the 121 districts, 52 northeastern districts, and 17 urban areas identified for Intensified Mission Indradhanush *Ministry of Health and Family Welfare, India*[10]

Involvement of stakeholders in non-health sectors

IMI was an effort to shift routine immunisation into a *Jan Andolan*, meaning "peoples' movement" in Hindi. It aimed to mobilise communities and simultaneously deal with barriers to seeking vaccines.

Nationally, coordination between health and 12 non-health ministries was facilitated by the prime minister's office and cabinet secretariat. Non-health sectors included the Ministries of Women and Child Development; Panchayati Raj (a system of governance based at rural community level); Minority Affairs; Human Resource Development; and Information and Broadcasting. The Ministries of Urban Development, Housing and Urban Poverty Alleviation were collaborators in urban areas. The Ministries of Defence, Home Affairs, Sports and Youth Affairs, Railways, and Labour and Employment supported specific activities, such as expanding service delivery points and transportation of supplies to the last mile. Youth organisations such as the National Cadet Corps and National Service Scheme were asked to provide support for social mobilisation by national and state administrators. Standard operating procedures for their involvement were developed for these organisations.[14] In the districts, participation was coordinated by the district magistrate through a district task force team. In subdistricts, direct interaction between field workers from health and other departments was the rule.

Stakeholder mapping was conducted to identify available resources, which varied between districts and communities. In most communities, facility based staff, such as auxiliary nurse midwives, and community based staff, such as accredited social health activists and Anganwadi workers, were available for health education and coordination with other local participants. These included non-health government departments, non-governmental organisations, religious leaders, mothers' groups, community and political leaders, private medical providers, and others. The support provided depended on local needs and the area covered by the stakeholders. It usually focused on education of women and families and mobilisation for vaccination sessions, and dispelling concerns about the adverse effects of vaccines.

Monitoring and evaluating progress

Vaccination sessions were monitored. Administrative data collected by auxiliary nurse midwives were transmitted through the routine health management information system. External monitoring was carried out by supervisors, and assessments of small samples of households were made to validate childhood vaccination coverage. E-dashboards on mobile phones were used to collect monitoring data, which allowed real time aggregation of vaccination data. Local monitoring was carried out by auxiliary nurse midwife supervisors, district supervisors, and medical officers, with support from WHO and Unicef monitors. During vaccination rounds, daily supervisor meetings reviewed the available data and discussed problems and solutions. External supervision was provided by national, state, and partner monitors, who met to review progress and provide feedback to all. Population based evaluation surveys of household coverage were conducted in April and June 2018 in IMI areas by WHO and the United Nations Development Programme.

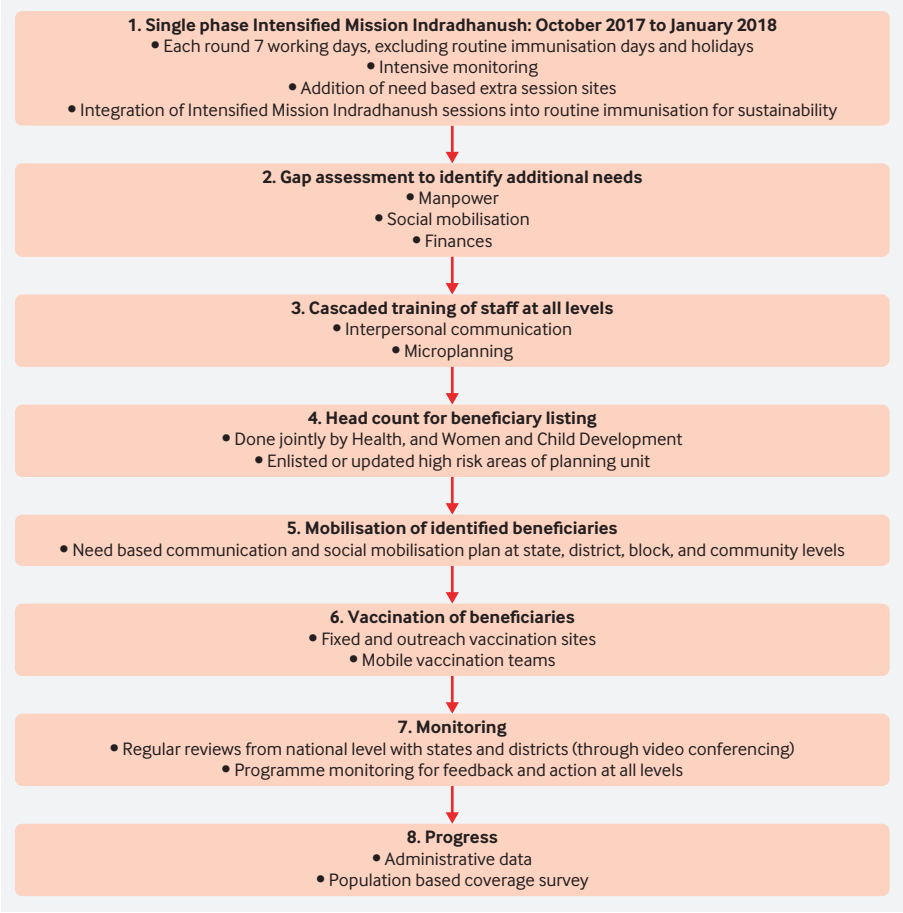

Fig 2 | Strategy for Intensified Mission Indradhanush *Ministry of Health and Family Welfare, India*[10]

Summary of progress

Administrative data on IMI remain provisional. We report here internal analyses that have not yet been published. Administrative data estimate that between October 2017 and January 2018, 97 628 vaccination sessions were conducted in IMI areas, delivering over 15 million antigens. During this period, an estimated 5.95 million children were vaccinated, with around 850 000 children being vaccinated for the first time and 1.4 million children aged ≥12 months being fully vaccinated. An estimated 1.18 million pregnant women were also vaccinated, with over 660 000 thought to have been fully vaccinated (internal communication, deputy commissioner (immunisation), Ministry of Health and Family Welfare, Government of India). Vaccine monitoring internal data, show that vaccine and lack of stock were uncommon during the IMI period, with 98% of monitored sites having adequate supplies.[15] Eleven states distributed additional funding for IMI rounds, estimated to be a total of $7.8 million (internal communication, deputy commissioner (immunisation), Ministry of Health and Family Welfare, Government of India). All funds were provided by the National Health Mission of the government of India.

Population based coverage surveys were conducted in 190 IMI districts, 3–5 months after the last IMI cycle. The unit of analysis was the district. A total of 84 497 households were selected from 190 districts using probability proportionate to size cluster sampling. Estimates of coverage before IMI came from a national population based randomised cluster survey conducted in MI districts after the first two rounds in 2015-16, which included all IMI districts[4] (see suppl 2 on bmj.com). The 2015-16 survey estimated full immunisation coverage for children aged 12-23 months to be 50.5% in IMI districts and 62% for India as a whole.

After IMI, the proportion of children with full immunisation coverage in IMI districts was estimated to be 69%, representing an increase of 18.5% from pre-IMI estimates (fig 3).[4 16] Improvement in full immunisation coverage within IMI districts ranged from 12% in Rajasthan to 31% in Assam. Full coverage increased by >30% in 56 districts of the 190 districts surveyed (29.5%), by 10-30% in 83 districts (43.7%), and by <10% in 51 districts (26.8%)[4 16] (see suppl 2 on bmj.comfor data and confidence intervals by state and district). Since baseline survey data were collected in late 2015 and early 2016, new coverage estimates will be influenced by the last two phases of MI, which ended in July 2017. Changes in coverage cannot therefore be attributed solely to IMI. In addition, since there is no comparison population, the relative effect of IMI on immunisation coverage compared with the non-intervention population is unknown.

Routine monitoring was conducted for 98% of sessions, with headcount lists available in 92%, and updated due lists in 82% (internal communication, deputy commissioner (immunisation), Ministry of Health and Family Welfare, Government of India; see suppl 2 on bmj.com for process monitoring data by state). Due lists of eligible beneficiaries, comprising unimmunised and partially immunised

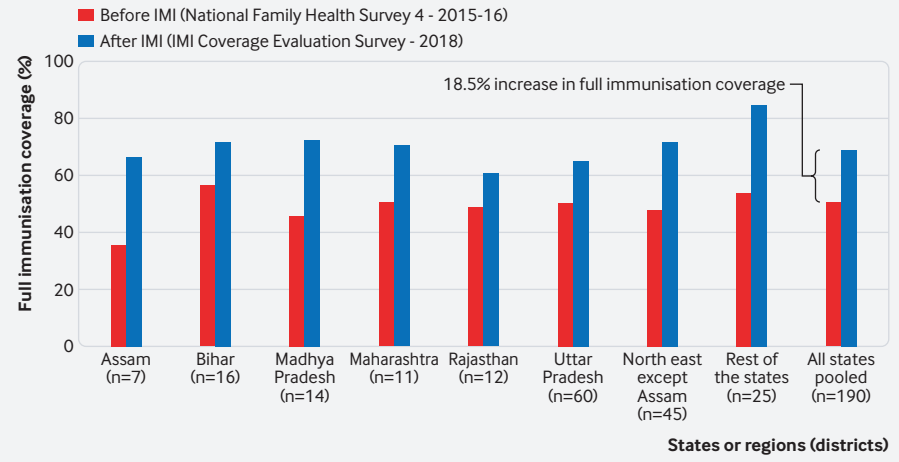

Fig 3 | Proportion of children aged 12-23 months fully immunised in 190 Intensified Mission Indradhanush (IMI) districts, by state or region before and after IMI

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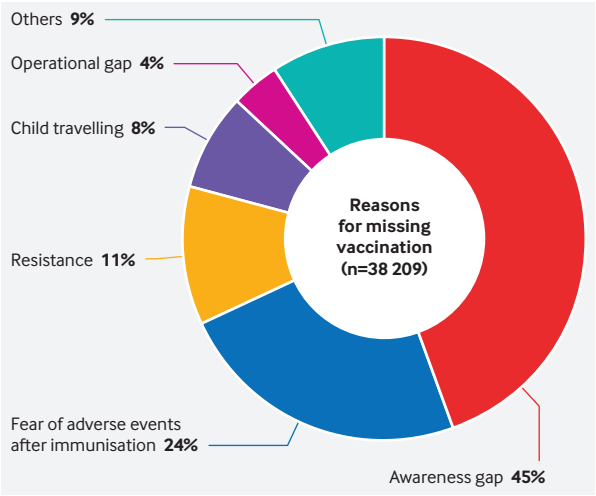

Fig 4 | Reasons for missing vaccination sessions obtained by routine monitoring interviews with care givers of undervaccinated children between October 2017 and February 2018

children under 2 years and pregnant women, were created using door-to-door head counts in each targeted area—usually a village or urban unit. Of those on the due lists, an average of 57% (range 13-95%) received the needed vaccinations during sessions.

External monitors conducted household interviews of a sample of undervaccinated children in IMI districts as part of routine programme monitoring. Reasons for non-vaccination included lack of awareness (45%), apprehension about adverse events (24%), vaccine resistance (reluctance to receive the vaccine for reasons other than fear of adverse events) (11%), child travelling (8%), and programme related gaps (4%) (fig 4) (internal communication, deputy commissioner (immunisation), Ministry of Health and Family Welfare, Government of India). Apprehension about adverse events and programme related gaps fell, from 31% and 12%, respectively, compared with routine monitoring data from the same districts before IMI.

These data show that more needs to be done to educate beneficiaries, dispel misinformation, and mobilise some households.

Systems factors associated with effective cross-sectoral involvement

Political support and data based targeting

Close involvement and supervision by the prime minister of India was important for generating and sustaining political will for IMI. It ensured the commitment of non-health government and non-government staff at all levels and promoted cross-sectoral involvement. Ministries of 12 other sectors were invited to participate and informed of IMI objectives and their roles. The prime minister sent letters to chief ministers stating the goal of 90% full immunisation coverage in their states, advised on engagement of non-health ministries, and participated in IMI review meetings. The use of data based criteria meant that all stakeholders understood the rationale for selection of focus areas. Intensive microplanning, using the "Reaching Every District" strategy helped to emphasise the need to reach all sections of communities and promoted participation of other sectors.[17] No new structures or governance models were established; building on routine systems and mechanisms already in place allowed rapid uptake.

Decentralisation of management to district levels

To encourage the participation of non-health sectors and development partners, a lead partner was identified in every district. The responsibility for managing IMI was passed on to the districts and subdistricts, which developed plans tailored to local circumstances. District magistrates and immunisation officers took responsibility for mobilising health and non-health sector resources to fill staffing gaps, improve communication, and increase community mobilisation for vaccinations. This approach was effective when staff were motivated, and when additional funds or incentive payments were available. It was less effective in areas that were short staffed and when incentive payments were delayed. Key informants in two areas reported delays in staff payments due to district administrative and procedural weaknesses. This may also have slowed deployment of staff and other activities. In addition, the staff time commitment sometimes required temporary transfer to underserved areas, taking staff away from routine duties:

> "There is no need of IMI if all ANM [auxiliary nurse midwife] posts are filled. Politics is spoiling routine immunisation because a few blocks have surplus ANMs whereas some do not have a single ANM. This is for political reasons" *District stakeholder, Bihar; July 2018*

Both states and districts were concerned about the long term sustainability of this approach.

> "There will be no sustainability of these processes, because it is so intense. The focus should be on strengthening the routine immunisation including micro-planning, monitoring and supervision" *State stakeholder, Madhya Pradesh; July 2018*

Household listing to improve reach

Detailed microplanning and listing of beneficiaries (creating due lists) was at the heart of the IMI approach, essential for reaching high-risk populations, and carried out for most sessions (see table 3 in suppl 2 on bmj.com). Achieving household listing was central to the roles of auxiliary nurse midwives, accredited social health activists, and Anganwadi workers and where all were available and motivated this was feasible. However, household listing was difficult, particularly in districts with staff shortages and in urban areas. In these cases, staff from outside the district and locally available nursing students were used to support door-to-door household listing and other IMI activities using IMI funds. In addition to additional staffing needs, household listing in more remote areas required substantial time, innovation, and transportation. Field staff found that household beneficiary lists needed monthly updating because of frequent population shifts. In some areas, therefore, the household listing was probably incomplete, thus reducing coverage. To improve reach, all districts will need to provide adequate staffing to enable household listing and targeting to work.

Social mobilisation to improve access and equity

In subdistricts, local stakeholders were central to mobilising families and communities for vaccination sessions (table 2). They used a range of measures to provide information, mobilise communities for vaccination, and to discredit myths or rumours about vaccinations. In many areas, a wide range of partners were mobilised to contribute. Several mechanisms were used to involve families; social media platforms provided

information about vaccination days, about the benefits of immunisation, and dispelled fears. Ration dealers, who provide government subsidised food and other supplies, were a source of information. Elected community leaders and religious leaders gave information during routine meetings or weekly religious gatherings.

However, process monitoring data showed that many eligible children on due lists were not brought to vaccination sessions. For those not attending, the key reason for almost half was lack of awareness, and for another quarter, concerns about the adverse effects of vaccines. This suggests that mobilisation activities were inadequate in changing the attitudes of some care givers. Gaps fall into four main areas. Firstly, inadequate communication plans, messages, and materials. False beliefs, such as rumours about adverse events or vaccines causing sterilisation, were often not targeted:

> "There were rumours circulated on social media, especially on WhatsApp about immunisation and the Naturopaths played a big role in creating hurdles in implementation of IMI." *District stakeholder, Kerala; July 2018*

Vaccine hesitancy was an important challenge during the previous measles rubella campaign and the polio eradication programme.[18-20] Resistance to vaccination tends to occur in pockets of the population, reinforced by local social and community connections.[21] Better understanding of the roots of false beliefs and how they are reinforced in communities will be essential to combating them:

> "There are two types of refusal here: one group believes that vaccines are not important. They listen to us and then say that we understand what you say, but we don't want [it]. The other group are in the anti-medication faith group: they believe disease is a result of sin and that vaccines are not needed by the faithful." *State stakeholder, Meghalaya; July 2018*

Secondly, influential community personnel and partners did not always play an active part in community mobilisation. This was more likely in areas where they were not involved in early planning, not clear about their roles, or not provided with the means of communication. In some cases, this was reported to be due to a lack of recognition and financial incentives. Thirdly, community health workers in several areas reported that inadequate time and skills limited their ability to provide effective counselling. Fourthly, in some cases, sites chosen for additional IMI vaccination sessions (including private homes, businesses, and schools) had inadequate toilets, and other facilities, which might have discouraged attendance.

Building a sustainable system using experience from IMI

IMI has contributed to significant increases in fully immunised children (from 50.5% to 69.0%) in 190 of the lowest performing districts in India, a 37% increase in coverage over baseline. It was financed solely by the government, using existing staff and governance systems. IMI showed that cross-sectoral participation can be effective in vaccinating those children at highest risk. However, a number of system and practice changes, particularly in communication, are needed for this approach to be even more effective.

Four areas need strengthening. Firstly, sustained high level political support, advocacy, and supervision across sectors, and the flexibility to allocate finance and people where needed, is essential. Secondly, all districts must strengthen staff capacity to list household beneficiaries, add additional vaccination sites to improve access, and invest in the transportation required for both. Thirdly, better communication and counselling skills, tailored to local beliefs, are needed by community providers in health and partner sectors. Fourthly, districts and primary care facilities must work more effectively with non-health stakeholders across sectors by involving them early in planning and communication strategies. All sectors are willing to support immunisation

Table 2 | Summary of effective strategies and the challenges of multisectoral collaboration for Intensified Mission Indradhanush (IMI)

	Strategies identified as important	Challenges
Improved links between health and non-health sectors	• Joint meetings between field staff from various sectors to plan strategies, roles, and responsibilities • Household reminder slips about IMI sessions • Mobile immunisation teams; sessions held at convenient times and places • Providing prompt medical care for adverse events • Team home visits – auxiliary nurse midwives, workers from non-health sectors and community stakeholders to improve acceptance and reduce hostility	• Inadequate infrastructure for new session sites • Inadequate manpower and lack of engagement of the community stakeholders to do household listing in their own areas • Suboptimal partner participation and cooperation when not involved in planning, consulted on their roles and availability • Limited recognition for non-health collaborators
Engagement of influencers	• Involvement of religious leaders to dispel fears and instil confidence in vaccination • Youth groups: awareness generation and mobilisation • Community political leaders: public endorsement • *Prabhat pheri* (morning rallies): school children and youth cadets • School promotion: teachers and students to mothers and families	• Continued concerns about circulation of misinformation about vaccines and rumours about adverse events; conspiracy theories including vaccines causing sterilisation
Better use of local communities and institutions	• Peer counselling: mothers of fully immunised children counsel care givers of non-immunised children • *Vikas Mitras* and *Tola Mitras*–community level link workers—mobilised marginalised communities and helped to set up additional IMI sessions for *Mahadalit* (marginalised and extremely vulnerable caste groups) • Ration dealers used for mobilisation and to provide information	• Requests by some community workers and groups for incentives/payments • Financial shortfalls for social mobilisation and information, education, and communication activities in some areas • Youth groups and Rotary participation limited to urban areas • Grievances about the food ration system led some families with distrust of government to resist vaccinations
Improved messaging	• Distribution of brochures, stickers, buttons, umbrellas, public announcements • Use of print and electronic media: joint media briefings by government and partners • Use of social media • Productions by the song and drama division (Ministry of Information and Broadcasting) • Street plays • Baby shows with prizes for healthy, fully immunised children	• Limited competency of community health workers in communication and mobilisation (soft skills) so that concerns were nor always identified and dealt with • Accurate information not always provided about adverse events after immunisation; further work needed to dispel false perceptions about immunisation and improve vaccine seeking through social mobilisation campaigns

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programming, provided that their roles are clearly defined, predictable, and feasible with partner resources.

To meet sustainable development goals, there is strong political commitment to health in India, including the vaccination system. Investments in new vaccines and universal healthcare are imminent. IMI will play a role in reaching vulnerable populations in the short to medium term. Repeat IMI rounds in 75 lagging districts are planned from October 2018 onwards, incorporating experience from the early rounds. A campaign focused on village empowerment and development (Gram Swaraj Abhiyan and Extended Gram Swaraj Abhiyan), led by the Ministry of Rural Development, will also introduce IMI as one component of a multisectoral development effort.[21 22]

In the longer term, it is hoped that the lessons learnt from IMI will be incorporated into routine programming and overall development, with cross-sectoral participation leading to a people's movement (Jan Andolan), for reducing vaccination inequities through social change.

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Supplement 1: Summary of the approach to conducting the Intensified Mission Indradhanush (IMI) case-study
Supplement 2: Summary of methods and findings from population-based household surveys

See www.bmj.com/multisectoral-collaboration for other articles in the series.

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Human papillomavirus immunisation of adolescent girls: improving coverage through multisectoral collaboration in Malaysia

Saidatul Buang and colleagues report on collaborative efforts to introduce HPV vaccination in Malaysia and increase coverage

Cervical cancer is the fourth most common cancer in women globally.[1] Human papillomavirus (HPV) types 16 and 18 collectively cause 70% of cervical cancers and precancerous cervical lesions.[1] The UN joint global programme on cervical cancer prevention and control includes HPV immunisation for girls as one of its three priorities at country level, together with screening and treatment for cervical pre-cancer, and diagnosis and treatment of invasive cervical cancer.[2] In Malaysia, the age standardised cervical cancer rate is 7.8 per 100 000 females, making it the third most common cancer in women, with 4352 new cases reported for 2007-11.[3] Malaysia's HPV immunisation programme was introduced in 2010, within a healthcare system that has a credible track record (box 1, table 1). We present a case study of this programme and explore the role of multisectoral collaboration in achieving near universal immunisation of an estimated annual cohort of 250 000 13 year old girls.

Malaysia's HPV immunisation programme was selected from responses to a global call for proposals on multisectoral collaboration issued by the Partnership for Maternal, Newborn and Child Health (PMNCH).[11] We aim to identify key factors in the successful collaboration, particularly during policy formulation, planning, and initial implementation, and report lessons learnt. A methods guide developed by PMNCH[12] and methods specific to the case study were used to develop and evaluate this case (see supplementary material on bmj.com); these included reviewing available data, interviewing key informants, producing a working paper, and holding a stakeholder workshop to review the working paper and gather additional data and input.

KEY MESSAGES

- Malaysia launched a national programme on HPV immunisation in 2010 and within two years achieved its target of vaccinating about 250 000 13 year old school girls each year
- The Ministry of Health collaborated with a range of stakeholders and built strong partnerships based on mutual trust, supported by policies and institutional structures, as well as ad hoc collaborations based on circumstances and personal relationships
- Collaboration within the programme brought benefits, such as mobilisation and best use of resources, and opportunities for innovative problem solving
- Collaboration contributed to detailed implementation planning of the programme to anticipate needs and problems, and was underpinned by strong leadership that supported listening to all and accountability

Development of the national programme on HPV immunisation

Before the development of an effective HPV vaccine, cervical cancer prevention relied on early detection through cervical smear testing. Malaysia's cervical cancer screening programme had consistently failed to achieve its target of three yearly screening of 40% of women aged 20-65. Poor performance of the screening programme caused considerable frustration within the Ministry of Health.[13] The problems with the programme included its opportunistic rather than targeted nature, inadequate cytology services, insufficient funds, and negative perceptions and attitudes.[14 15]

After the HPV vaccine was recognised as effective in preventing oncogenic genotypes of HPV,[16] it was approved for use in Malaysia in 2007. The Ministry of Health recognised that the vaccine would be a useful addition to its cervical cancer prevention approach. High vaccine prices,

Box 1: Key facts about Malaysia

Demographics[4]

- Population: 32 million, consisting of 7.7 million people 0-14 years, 22.3 million 15-64 years, and 2 million 65 years and above
- Life expectancy: males 72.7 years; females 77.6 years
- Infant mortality: 6.2 deaths under 1 year per 1000 live births
- Urban population: Estimated as 75% in 2017[5]
- Poverty: 1.7% of population below the poverty line (2012)[6]

Health[7]

- Malaysia's nationwide healthcare system has a government led and heavily subsidised comprehensive public sector the cost of which is almost entirely borne by budget allocations, and a fee for service private sector that has grown considerably in the last 25 years
- Primary healthcare coverage is provided through the large rural and semiurban health service that is connected to public sector hospitals in each state and the capital city through a referral system. In parallel, a large network of mainly urban private sector clinics provides mainly curative primary level care, and a rapidly increasing number of private hospitals provide secondary and tertiary care

Education[8]

- Malaysia's education system consists of pre-primary (4-5 years), primary (6-11), secondary (12-17), and tertiary (18-22) levels. Primary education is compulsory and largely universal for girls and boys (98.6% net enrolment rate); net enrolment rate for secondary education for females and males is 77.96% and 72.11%, respectively
- The literacy rate for 15-24 year olds (2001) is about 98%

Table1 | Public expenditure on health and education in Malaysia and other countries (% of gross domestic product)

	Health[9]		Education[10]	
Country	2000	2015	2000	2012
Malaysia	2.43	4.00	6.00	5.10
Australia	7.60	9.45	4.90	5.10
Thailand	3.19	3.77	5.40	5.80
Indonesia	2.01	3.35	2.90	2.80
Cambodia	6.40	5.98	1.70	2.60

Case study: aims and methods

however, initially prevented its inclusion in the national childhood immunisation programme, which is provided free of charge and had high coverage. Several initiatives that engaged the problem, policy, and political streams (table 2), as described in the model by Kingdon (2001),[21] resulted in the government approving limited funding for a proposed HPV immunisation programme in 2009.[22] As the HPV vaccines available at the time were expected to provide protection against only 70% of cervical cancer, cervical smear testing for women aged 20-65 was also continued and enhanced.

The objectives and design of the HPV immunisation programme reflected local strengths and constraints. The objective was the eventual reduction in the burden of cancer, and this was to be achieved by vaccinating girls through the existing school health programme. Girls were chosen as the target group because the programme aimed to reduce cervical cancer. This avoided the additional cost and human resources that would have arisen if boys had been included for the prevention of genital warts, as was the practice in some countries. A school based approach was chosen because the ongoing nationwide school health programme managed by the Ministry of Health was already providing measles/rubella and diphtheria/tetanus toxoid vaccination in 99% of schools in the country and achieving high coverage rates.[23] The target age group for HPV immunisation was 13 year old girls. This group was chosen because more than 80% of this age group are enrolled in school and do not receive other vaccinations.[24] The national HPV immunisation programme aimed to progressively build herd immunity in young adults. Successive cohorts of immunised seroconverted 13 year old girls would be protected when they became sexually active. Fig 1 outlines the programme timeline.

Initial government funds were only enough to purchase the vaccine and run promotional activities (table 3). The Ministry of Health faced the challenge of designing an effective programme to vaccinate about 250 000 girls annually, with no funding for additional staff, cold chains, or additional consumables.

Programme outcomes

Parental consent for daughters to receive the HPV vaccination has been more than 95% from year one of the programme.[25] Of those for whom parental consent was given, completion of three doses has been more than 98%. Population coverage has been more than 80% throughout (fig 2) despite a decline of four percentage points after a policy change in 2013 that restricted free immunisation to public sector schools. Vaccine wastage has remained low (eg, 80 of 70 000 doses in 2010), as have adverse events following immunisation, which have ranged from 0.06% to 0.45%.[26]

Sustainability of HPV immunisation

From 2012, free HPV immunisation was fully integrated into the school health programme and is a key component of the national childhood immunisation programme. Financing for vaccine purchase is provided through the regular budgetary allocation, and staff schedules, logistics and cold chain maintenance, and performance monitoring have been integrated into respective programmes at district and state levels. For the older female population, screening continues with smear tests. In 2017, the initial cohort of immunised 13 year old girls reached age 20, and therefore the age for smear test screening was raised to 30-65 years (previously 20-65 years). The annual target of 40% of the eligible female population continues based on existing available financial and human resources. At the same time, different diagnostic methods are being explored (for example, conventional smear cytology, liquid base preparation, and testing

Table 2 | Collaborative activities that led to the national policy on HPV immunisation

Key stakeholders	Collaborative activities	Outputs
Academics in universities and institutions (problem stream)	Generated evidence	• Cost of vaccine was estimated at about £260 (MYR1300; $378) per person* • 61% of cervical cancer and high grade lesions were associated with oncogenic HPV 16 and 18[15 17] • Only 12.8% of eligible women had had a smear test in the previous 12 months[18] • HPV immunisation could save about £8.6 million ($13.3m) annually[19] • HPV immunisation could reduce the incidence of cervical cancer to 3.5 per 100 000 population[20]
Pharmaceutical companies (problem stream)	Supported academics to produce evidence	Local cost effectiveness studies of bivalent and quadrivalent vaccines and scaling up the smear test programme
	Supported medical associations to conduct seminars	Presumed to have increased awareness and appreciation of the benefits of HPV immunisation
	Participated in meetings with key decision makers in the Ministry of Health	
Ministry of health (policy stream)	Convened a multidisciplinary group of public and private sector specialists to provide policy advice	Reviewed (a) HPV immunisation programmes in Australia, United Kingdom, and other countries, and (b) evidence on the disease burden of cervical cancer in Malaysia and cost effectiveness of immunisation
	Stakeholder consultations	Used this evidence to gather support from ministries of finance, education, women, and family development, and professional medical associations
Public (civil society, mass media) and politicians (political stream)	Advocacy activities on cancer in women, and human interest stories on the illness and death from cancer of the prime minister's wife	Heightened public and political visibility of and support for cancer prevention
Malaysian cabinet chaired by the recently bereaved prime minister (window of opportunity where the three streams converged)	Consideration of a cabinet paper from the Ministry of Health to include HPV vaccination in the national childhood immunisation programme	Approval of the policy and budget

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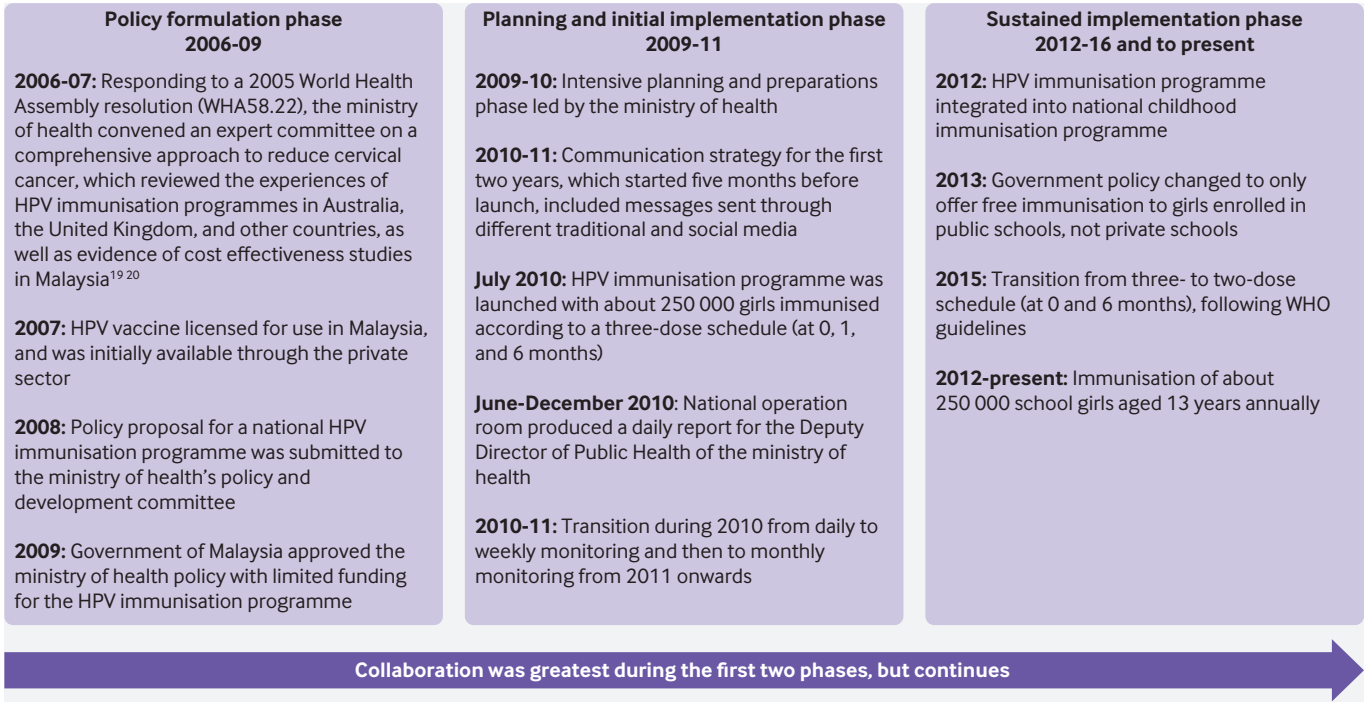

Fig 1 | Timeline of the programme on HPV immunisation in Malaysia

HPV DNA), and cost effectiveness studies are being conducted by a local university.

Collaboration for programme implementation

We identified two themes that underpinned the success of the collaboration.

Collaborative work in planning and monitoring

Collaborative interagency work in planning and monitoring enabled the best use of resources. National roll out of the HPV immunisation programme required detailed, evidence based planning. Planning was both informed and supported by collaboration so that the two processes became mutually reinforcing. For example, almost 650 school health teams worked across about 2960 schools to vaccinate about 250 000 13 year old girls each year. Each girl had to be vaccinated with two or three doses at intervals of one and six months, without interrupting important curricular activities. The three dose schedule had to be completed within the school calendar year in order to minimise drop outs. HPV immunisation was an added task for the school health teams, who already carried out regular developmental assessments and screening, booster vaccinations, and health education. Additional nurses from other outreach programmes were used from time to time. Prior informed parental consent was needed for each girl, and logistical planning based on local data from schools and health teams was needed.

The long established interagency collaborative network of joint school health committees was activated. These committees (fig 3) provided the platform for collaboration between health and education sectors through overlapping subgroups.[27] The introduction of the HPV immunisation programme energised the network of committees. Vertical collaborations between national, state, district, and local levels of the ministries of health and education supported information flow and accountability. At the same time horizontal linkages between the two sectors at each level supported information exchange and strengthened trust. Collaboration efforts contributed to overcoming some of the challenges of implementing the immunisation programme, including ensuring the best use of nurses in school health teams (table 4).

Senior managers in the health and education ministries established accountability by calling for regular progress reports. The collaborative mechanism was strengthened when the education sector was appointed to chair the joint school health committees to ensure appropriate participation and follow up in

Table 3 | Funds allocated for and expenditure of the programme on HPV immunisation*[25]

	Initial implementation (£)			Sustained implementation (£)	
	Government allocation for HPV	Expenditure for HPV 2010-11		Expenditure by procurement cycle†	
	2010-11	Ministry of health	Pharmaceutical company	2012-13	2014-16‡
Vaccine	30m	10.4m	200 000	12.6m	12.6m
Communications		2m			
Training		400 000			
Estimated cost per student		28.27		18.73	13.94

*Currency calculations are approximate figures based on the average exchange rate for 2010. MYR 5=£1.
†Government allocation was merged with the national budget for the expanded programme on immunisation.
‡Malaysia changed from three dose to two dose schedule for 2015-16.

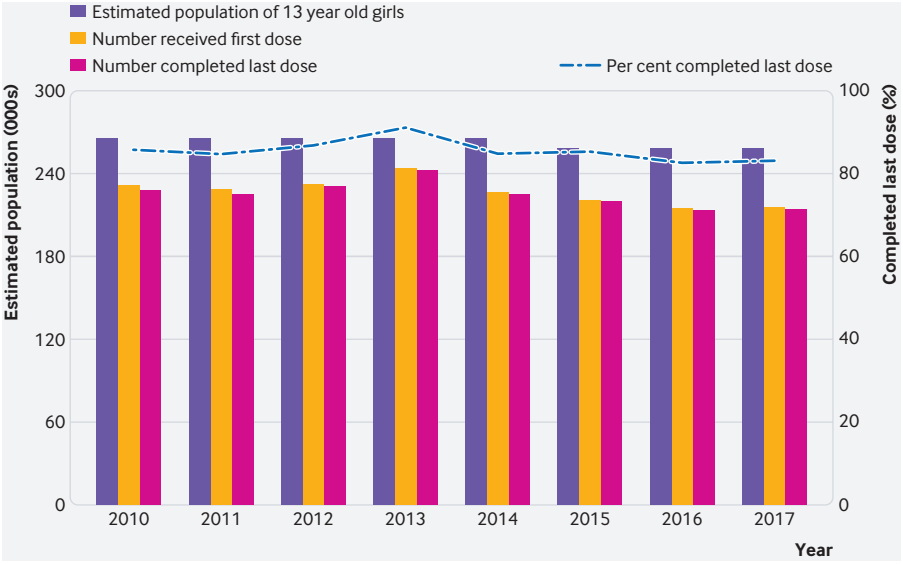

Fig 2 | Number and percentage of 13 year old girls vaccinated through the programme on HPV immunisation, 2010-16

a programme that otherwise risked being viewed as "belonging" to the health sector.

Monitoring of HPV immunisation was integrated into the monitoring system of the ongoing school health programme, which was enhanced during the introductory two year period (2010-11). Operation rooms at national, state, and district level—previously only used for communicable diseases and emergencies—became the centre for the HPV immunisation programme. Detailed planning and monitoring strengthened collaboration, and integrated reporting and validation of data contributed to the programme's accountability (table 4).

For example, additional refrigerators for vaccines closer to schools were needed, to store the large number of single dose vials and reduce travel time for school health teams. Sufficient vaccine for each school team had to be distributed from the national stock according to local schedules and stored at 640 delivery points across the country. To respond to this challenge, a parallel collaborative partnership developed between the Ministry of Health and the pharmaceutical company. When the Ministry of Health explained its difficulties in transporting and storing vaccines, the pharmaceutical company provided, at its own cost (about £200 000; $310 500), additional refrigerators and materials needed for injections because these could not be covered by the Ministry of Health budget (table 3). In addition, to ensure timely vaccine availability during the initial two year period, the pharmaceutical company provided delivery logistics and computer software to monitor cold chain integrity. Thus, the relations between the Ministry of Health and the pharmaceutical company evolved from a contractual agreement governed by procurement rules to an active collaborative partnership (box 2).

Malaysia has a large and diverse mass media, which includes traditional media such as television, radio, and print, and also social media.[29] The Ministry of Health worked with the media to mobilise public opinion in favour of immunisation, empower parents to consent to immunisation for their daughters, and provide appropriate and timely information to address individual concerns. The collaboration was based on a contractual agreement and strong interpersonal relationships. Using its positive image as an agency devoted to public welfare, the Ministry of Health obtained prime time radio and television slots at reduced rates. Together with a larger than usual health promotion budget this enabled wide media exposure, which helped gain support for and acceptance of HPV immunisation. At the same time, the Ministry of Health used Facebook, Twitter, and a dedicated telephone hotline to provide a direct channel for parents and the general public to raise concerns and receive immediate responses from informed and credible professionals.

The Ministry of Health also provided evidence to the national Islamic religious authority (JAKIM) that the vaccine met Islamic requirements. As a result, this authority issued a fatwa that the vaccine was permitted for use in the interest of protecting women against cervical cancer.[30] The fatwa was used widely in briefings for teachers, parents, and schoolchildren and in road shows—information briefings and meetings for members of the public. Other activities included monitoring rumours about HPV vaccination and responding promptly to them, and monitoring adverse effects following immunisation (table 5).

Collaborative work in communication

Collaboration supported effective communication strategies. Introducing a new vaccine for adolescent girls, particularly for a sexually transmitted infection in a socially conservative society, presented challenges. However, the multisectoral collaboration devised communication and surveillance strategies to overcome these problems.

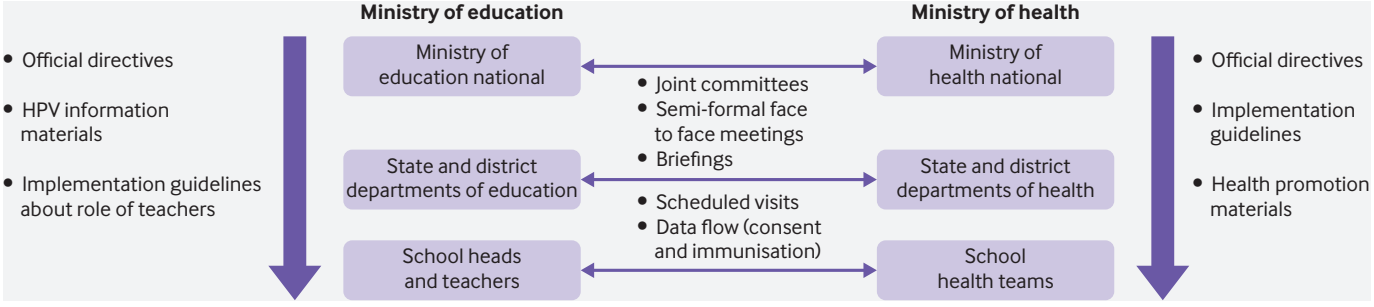

Fig 3 | Mechanisms for collaboration between the ministries of health and education for implementation of the programme on HPV immunisation in Malaysia

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Table 4 | Collaborations in planning and monitoring that helped overcome challenges in implementing the programme on HPV immunisation

Implementation challenge	Collaborating stakeholders	Contribution of collaboration to overcoming implementation challenges
Ensure right amount of vaccine is available in the right places at the right time	District education departments	Provided data to 650 school health teams on school locations and enrolments to accurately calculate vaccine requirements
	School health teams	Validated and supplemented enrolment data through visits to schools not on the register of district education offices
	District health officers	Informed national Ministry of Health of suitable locations for additional refrigerators for vaccine storage to be supplied by the pharmaceutical company
	National Ministry of Health (school health unit)	Calculated and informed the pharmaceutical company of the sites to supply new r efrigerators, the vaccine amounts needed for each of the 640 storage locations nationwide, and the schedule of vaccine requirements based on the vaccination schedule of 0, 1 and 6 month intervals
	Pharmaceutical company	Based on data from the Ministry of Health, planned schedule for contractors to deliver the refrigerators to correct sites and the vaccine to the 640 locations according to the schedule for each location
Ensure that immunisation days do not interfere with the school curriculum	District education officers and school heads	Informed school health teams of key dates (eg, examinations, sports days, holidays) in each school's calendar for form 1 (13 year olds)
	School health teams and school heads	Planned school visit schedule and informed school heads
Ensure timely informed consent from parents	National Ministry of Health (school health unit) and state and district health teams	Provided educational briefings on HPV immunisation and its benefits to school heads and teachers
	School health teams and school heads	Agreed on schedules for obtaining signed consent forms and immunisation dates
	School heads and teachers	Provided briefings to schoolchildren and parents, and distributed and collected consent forms
Reduce risk of drop outs between first and last dose in the immunisation schedule	School health teams and district health teams	Ensured first dose was planned so that the schedule could be completed in the same academic year, and included this criterion for estimating vaccine supply schedules
Ensure integrity of the cold chain	Pharmaceutical company and its out-sourced contractors, and health staff at the district level	• Developed web based software • Tracked vaccine delivery to ensure compliance with schedule, amounts of vaccine delivered, and cold chain integrity • Identified points where problems occurred, and triggered timely feedback and corrective education or action
Prompt detection of implementation problems	Health care managers (Ministry of Health) at national, state, and district levels and school health teams	• Electronic communication provided data on implementation coverage and adverse events following immunisation daily and then weekly to operations rooms at district, state, and national levels • District and state level officials were expected to resolve problems promptly and inform the national level of progress • After one year, this transitioned to monthly reporting

Rare but serious adverse reactions, occurring locally or in other countries, could have attracted negative publicity and resulted in a drastic decrease in immunisation coverage in Malaysia, potentially putting the success of the childhood immunisation programme at risk. A small local school survey by the Ministry of Health communications team used focus group discussions to assess student perceptions. This indicated widespread confusion between HIV and HPV, as well as concerns that the vaccine would promote sexual promiscuity, have serious unanticipated side effects, and contravene Islamic law.

In response, the Ministry of Health designed a two pronged, partnership oriented communication strategy that enhanced collaboration with both the education sector and the mass media. Training and support packages were implemented for frontline staff, such as teachers and school health teams, who were known to be key influencers of the perspectives and behaviour of students and parents.[28] Mass media in four languages (Bahasa Malaysia, English, Chinese and Tamil) were used to inform and motivate the general public, especially parents (figs 4 and 5). The key message was "HPV immunisation given when your daughters are young will protect them when they eventually get married". This message avoided association between vaccine protection and early sexual activity.

Characteristics of collaborations that contributed to success

Malaysia's health sector has long benefited from a culture and environment that support intra-agency, interagency, and multisectoral collaboration (box 3). Building on this tradition, Malaysia's Ministry of Health supported and improved a number of relationships between stakeholders to develop and implement solutions to overcome a lack of resources and operational capacity to implement the HPV immunisation programme.

Box 2: Perceptions of key stakeholders

"*The relationship between the Ministries of Health and Education was symbiotic. We have collaborated previously and appreciated that MoH programmes brought great benefit to our girls. The HPV programme was unique in the number of schools and children involved and the intensity of the programme. It was a challenge but we are proud to have helped to deliver it successfully.*"

former director general of education, Malaysia

"*My experience working with the MoH on the HPV programme was rewarding. The MoH openly shared information on the constraints they faced and we were able to share our strengths to address these constraints. We were true partners in this meaningful venture and not mere suppliers of a commodity.*"

former manager, vaccines division, multinational pharmaceutical company

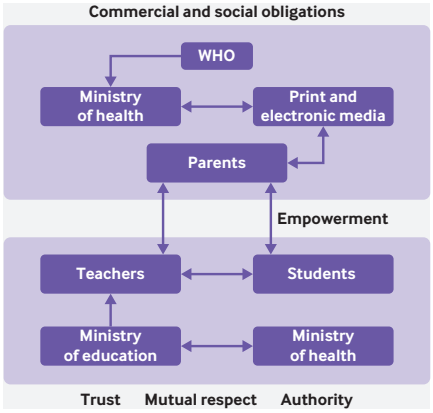

Fig 4 | Interlinked collaboration in the communication strategy for implementation of the programme on HPV immunisation

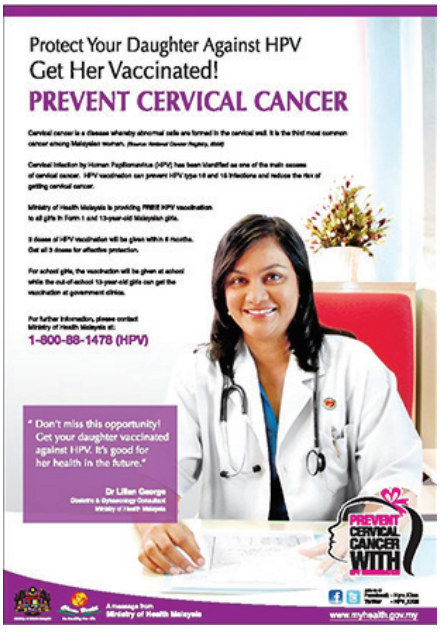

Fig 5 | Example of HPV vaccination campaign used in newspapers and magazines

Programme stakeholders fall into three categories: key players, close supporters, and influencers (fig 6). The relationships between these stakeholders were of different degrees of integration,[32]: cooperation (sharing of information and mutual support), coordination (having compatible goals and common tasks), and collaboration (having integrated strategies and a collective purpose, table 6).

Lessons learnt

Long standing public sector collaboration, even when governed by well established policies and operational mechanisms, needed to be supported and kept effective and dynamic. Stakeholders also needed to be mobilised specifically for the HPV vaccination programme (tables 4 and 6). A key success factor in the collaborations was the reshaping of relationships, away from supervisor-subordinate, manager-helper, or manager-client to true partnership (box 4). An important condition for this was the three layers of strong leadership within the Ministry of Health. Top management provided political commitment and direction and demanded accountability, middle management, which had political, policy, and programmatic skills, guided the detailed planning and ensured all stakeholders were listened to and heard, and technical management was innovative and responsive. Communication and listening were essential to foster trust. An example of this is the joint school health committees, which were energised by a new programme in which roles were clearly defined and acceptable to each stakeholder, and which respected the primary mandates of the stakeholders.

These relationships developed within a supportive organisational culture that had built up and grown over time. The Ministry of Health has a strong partnership culture within the ministry and between it and other related government agencies such as those for education, rural development, women, and family development. The value systems and priorities that have governed health system development in the country include "prevention is better than cure", community participation, safety and quality, creative innovations (including to reduce costs), accountability, and sustainability. The HPV immunisation programme illustrates values more recently adopted by Malaysia's Ministry of Health—namely, "patient before patent" and an engagement rather than an authority approach to partnership.

Importantly, collaboration is only one of several factors that contributed to the programme's success. The HPV immunisation programme is backed by substantial scientific evidence, has clear benefits for cancer prevention, and is relatively simple to administer at the point of delivery. In contrast, thalassaemia screening in Malaysia's schools, offered by the Ministry of Health through similar collaborative networks, has not achieved comparable coverage levels. This may be because thalassaemia screening is complex to execute and requires long term follow up of carriers, data demonstrating effectiveness are lacking, and its benefit is not clear to potential recipients.

Nevertheless, longer lasting benefits may have emerged from the collaborations established during the different phases of Malaysia's HPV programme. These have their roots in the specific underlying principles of the collaborations, including providing forums to facilitate formal communication and agreements, familiarity and trust, and strengthened stakeholder satisfaction and empowerment. For example, coordination with the pharmaceutical companies led to cost savings through reduced vaccine price, strengthening of the cold chain, and delivery to the point of use. The Ministry of Health has recognised the potential for future innovation through new or renewed partnerships between agencies (government as well as private, such as medical associations)—for example, to establish centralised pharmaceutical procurement in order to negotiate cost savings with suppliers. The Ministry of Health has presented its experience of the HPV programme in many regional and global conferences since 2010. Staff of the programme also provided inputs to a 2017 WHO publication on HPV vaccine communication,[33] and engaged in a study tour in 2011 with staff of the Ministry of Health of Brunei to share their experiences.

Table 5 | Interagency and intraagency collaboration to monitor and respond to rumours

Collaborating stakeholders	Structural features	Functional outputs
• Healthcare managers (Ministry of Health) at national and state levels • Pharmaceutical company • Mass media (newspapers, radio, television)	• Toll free hotline financed by the pharmaceutical company was installed at Ministry of Health headquarters • A unit to monitor rumours was established at Ministry of Health headquarters to track negative news locally and internationally and assess the need for a Ministry of Health response • Links were established between the Ministry of Health unit and social and traditional media	• Real time monitoring of rumours and public/consumer concerns • Referral of personal and programmatic inquiries to appropriate public health or clinical professionals • Prompt response to questions or rumours through electronic media or official statements in the traditional media (eg, during 2010-14, the Ministry of Health issued four press statements) • Information from the telephone hotline, social media, and emails provided useful feedback on concerns about and acceptance of the HPV immunisation programme

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Box 3: Context of multisectoral collaboration for health in Malaysia

"Our recipe for success? Create an ecosystem that facilitates the engagement of partners and the community. …. We have an organizational culture that promotes solutions through innovative technology and partnerships."

Director General of Health, Dato Seri Noor Hisham Abdullah

- The ministries of health and education have a long history of close collaboration including joint and consultative policy development and implementation of programmes (eg, for school health and dental care, and for the national school curriculum's coverage of health topics). Collaboration mechanisms (eg, standing committees) and strong institutional memory exist at national, state, and local levels
- Examples of well established collaboration between the Ministry of Health and other sectors include the village development committee partnership between health staff and rural village heads (Ketua Kampung) working for sanitation and disease control, advisory panels for the network of public sector primary care clinics and hospitals providing an official communication channel between the healthcare sector and the community, and the Ministry of Health's ongoing relationships with the media and religious authorities
- More recently the national government has adopted the national blue ocean strategy which aims to foster collaboration between ministries, agencies, levels of government, and the private sector to break down silos in order to achieve faster implementation and better outcomes at a lower cost[31]

Limitations

Although the HPV programme aimed to vaccinate all 13 year old girls in the country, an estimated 15% were not vaccinated. Of these, most were not enrolled in school, while 1-2% were attending school but their parents did not give consent for immunisation. We have few data about the girls not attending school. Studies suggest they are probably from lower socioeconomic groups, particularly those living in remote areas where healthcare access is difficult and provided through periodic visits by mobile health teams.[34] Furthermore, the value of providing HPV immunisation in boys is increasingly recognised—for example, for benign and malignant anogenital disease, as well as head and neck lesions.[35] Closing this gap in coverage is a challenge, and collaboration between sectors may again prove valuable in efforts to reach these groups.

Programme performance is monitored by coverage rates aggregated at the district level. Therefore, variation in uptake and coverage by geographical area, school type, or other relevant factors is not possible at this time. In addition, Malaysia cannot yet afford to monitor seroconversion rates; however, Australia's experience suggests that seroconversion rates in Malaysia could be high.[36]

In the first years of the programme, the Ministry of Health received through the hotline and Facebook questions about and demands for free immunisation for teenage girls at or over 13 years. Those aged 13 were offered free immunisation in health centres, while older girls were initially referred to the private sector In a parallel initiative in 2012, the ministry of women and child development offered free HPV immunisation to 18 year old girls, financed through a government budget allocation separate from that of the Ministry of Health. It was first available in clinics of the ministry of women and child development which were mainly in urban areas, and then offered for free to females enrolled in universities through collaboration with the ministry of higher education. However, the uptake was low. The collaboration between the Ministry of Health and the ministry of women and child development was mostly about provision of technical advice, information, and educational materials, rather than design, planning, implementation, or monitoring. The data on the programme achievements are not robust enough to be used for evaluation. This initiative ended when the first cohort of 13 year olds from school reached 18 years.

In 2013, government policy changed so that children enrolled in private schools were no longer entitled to free immunisation. The rationale was that these children belonged to higher income households and could afford vaccination in private, fee-for-service medical clinics. A slight decline in coverage followed (fig 2), but it is unclear whether this was due to the lack of a clear reporting mechanism from the private sector or to lower coverage.

Conclusion

In this case study, multisectoral collaboration was used to overcome a lack of resources by generating additional resources and making the best use of the resources available. It supported improvement and innovation in, for example, vaccine delivery and cold chain integrity, surveillance, and strategic communications. As a result of the collaboration, the implementation of the HPV programme

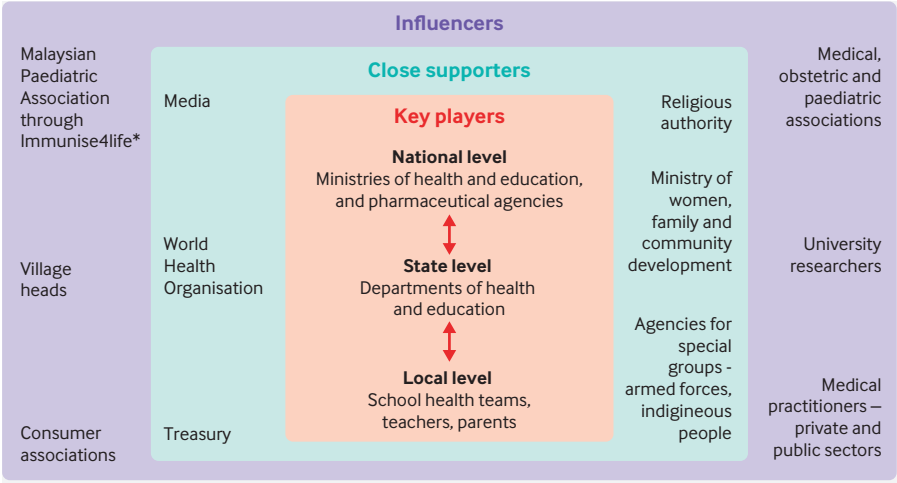

Fig 6 | Stakeholders in Malaysia's programme on HPV immunisation

Table 6 | Characteristics of key collaborations in the programme on HPV immunisation

Key stakeholders and type of collaboration	Structural features or processes	Functional outputs that supported planning, monitoring, and communication
Joint school health committees: Ministry of Health and Ministry of Education (fig 3) Collective purpose, integrated strategies throughout the programme	Vertical collaboration: overlapping national, state, district, and local groups within each sector	Transmission of authority through guidelines and credible materials for briefings and training
		Real time recognition of problems and identification of possible solutions
		Accountability through progress reporting
	Horizontal collaboration: between the health and education sectors at each level	Clarification and acceptance of roles and responsibilities (eg, that teachers must obtain signed consent forms from parents)
		Exchange of local information (eg, that teachers and students are generally aware of cancer but not of HPV; and data on school enrolments and academic calendars to enable planning and health team visit schedules)
		System for monitoring adverse events after immunisation, based on WHO classification
Pharmaceutical companies with Ministry of Health Coordination: compatible goals and common tasks; particularly strong during initial implementation phase	Funding for academic researchers	Local studies on cost effectiveness published in peer reviewed international journals
	Support for professional medical associations	Educational and promotional activities about the benefits of HPV immunisation
	Contractual relationship with the Ministry of Health	Vaccine price: senior Ministry of Health officials negotiated significant price reductions using arguments of economies of scale, long term future commitment to vaccine purchase as part of the regular budget, and the reputation of the Ministry of Health as a good client
	Professional and contractual relationship with the Ministry of Health	Complementary provision of additional cold chain equipment, injection consumables, and funding for promotional activities
Ministry of Health and National Islamic Religious Authority Cooperation: sharing of information and mutual support during initial implementation phase	Informal meetings between key people	Fatwa (formal ruling) by an Islamic authority that the use of the HPV vaccine is permitted (that is, it meets the requirements of Islamic law)
Ministry of Health and private health sector Coordination: compatible tasks and common goals throughout the programme	Semiformal meetings and interpersonal contacts	Review of evidence and development of consensus on priority for and benefits of HPV immunisation
		Reporting and management of adverse events after immunisation, including appropriate clinical care and accurate information to anticipate and prevent negative rumours
Ministry of Health and civil society Cooperation: sharing of information and mutual support during initial implementation phase	Road shows for non-governmental organisations and other concerned agencies and individuals	Platform to discuss concerns and provide convincing reassurance

was strengthened and was detailed, evidence based, and on time, which contributed to the success of Malaysia's HPV immunisation programme.

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Box 4: Factors contributing to successful collaboration in Malaysia's programme on HPV immunisation

Factors supporting effective multisectoral collaboration included the following.

Between the health and education sectors
- Mutual trust and respect were built through timely exchange of specific information, such as training packages, the key message, informed consent from parents, and monitoring adverse events following immunisation

Between the health sector and news media
- Transparent, credible, and timely communication was maintained on issues such as Islamic halal requirements and adverse events following immunisation

Between the health sector and parents and schoolchildren
- Engagement rather than advocacy was used; parents were treated as partners in the programme and had convenient and simple access to authorities to discuss and resolve concerns

Collaboration alone, however, was not sufficient. Other important and mutually reinforcing elements included:
- Evidence based planning and implementation
- Building trust and credibility
- Strategic communication and innovative use of mass media

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Supplement 1: Methods for developing the case study

See www.bmj.com/multisectoral-collaboration for other articles in the series.

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Scaling up a health and nutrition hotline in Malawi: the benefits of multisectoral collaboration

Carla Blauvelt and colleagues describe a multisectoral collaboration that enabled the scale up of a health advice telephone service and its transition to government in Malawi

The government of Malawi is working to improve timely access to accurate health information and services. Malawi's health worker vacancy rate is 45%, exacerbated by a poorly distributed health workforce and limited training.[1] Understaffing places strain on health workers and facilities, resulting in long waiting times and an average consultation time of two minutes.[2] Additionally, inadequate quality of care, lack of privacy, and unfriendly health workers can deter people, especially adolescents, from accessing services.[3]

Many mobile health (mHealth) projects can positively impact the quality and coverage of care by increasing access to information and promoting changes in health behaviours.[4] Despite mHealth being designated a priority by the World Health Organization, few such services have been implemented by governments in low income countries.[5] In Malawi, over half of the population (54%) owns a mobile phone (86% urban, 48% rural; 52% of men, 33% of women).[6] Additionally, phones are commonly shared within families and communities, making Malawi an ideal setting for an mHealth intervention.

KEY MESSAGES

- Chipatala Cha Pa Foni (CCPF) aims to improve health outcomes by increasing access to free, timely, high quality health information and referral to health services, extending the reach of the health system to underserved communities
- CCPF stems from cooperation of government, NGO, and private sector stakeholders, coupled with leadership and long term vision provided by government champions
- Collaboration mechanisms included strong alignment for stewardship by Malawi's Ministry of Health, and a priority on working meaningfully with government to ensure smooth integration and long term sustainability
- CCPF will be one of the first government run nationwide health hotlines in Africa when the handover to the Ministry of Health is completed in 2019

Programme design

Chipatala Cha Pa Foni (CCPF)—Chichewa for "health centre by phone"—is a free health and nutrition hotline. Launched in 2011 as a pilot project in a rural district of Malawi, it is now available nationwide to anyone with access to an Airtel phone. Airtel is one of two major communications providers in Malawi, it is available in all districts and has over four million subscribers.[7] A SIM card costs about $0.30 (£0.23; €0.26). CCPF originally focused on pregnancy, antenatal and postnatal advice, and advice for callers to seek facility care when appropriate. CCPF has since expanded to include all standard health topics—including water, sanitation, and hygiene; infectious diseases; and nutrition—in accordance with Malawi's Ministry of Health (MoH) guidelines. Youth services were introduced, increasing access to sexual and reproductive health information for young people. The service has the flexibility to handle emergent problems, such as cholera outbreaks.

CCPF was developed iteratively by public, private, government, community, donor, and non-governmental stakeholders (fig 1). The non-governmental organisation (NGO) VillageReach is transitioning CCPF operations to the MoH, and the service will be promoted in every district in the country by the end of 2018. CCPF will be one of the first government run nationwide health hotlines in Africa when the handover is completed in 2019.

The goal of CCPF is to improve health by increasing access to free, timely, quality health information and links to health facility services, thus extending the health system's reach within communities. CCPF was designed to connect rural communities with the health system, as it is free and can be use by anyone through an Airtel phone (box 1).

Service delivery and impact

Since 2011, almost 58 000 people in Malawi have used CCPF, comprising 0.3% of the population and 1.4% of Airtel's subscribers (table 1). Around 13 000 people have received tips and reminders, and 17 000 were referred to a health facility by hotline staff. The main purpose of calls diversified substantially between June 2016 and May 2018 (figs 2 and 3). CCPF is increasingly popular with adolescents (aged 15 to 19) and young adults (aged 20 to 24) as information targeted to their needs was added in August 2017 (supplementary file 1). These groups now represent 38% of all calls to the hotline. By mid 2017, the numbers of female and male clients had equalised; the age range of beneficiaries is now 0 to 80+years.

By May 2018, more than 2000 calls were answered monthly by hotline workers (supplementary file 1), with numbers increasing as the service continued to expand to new districts. Approximately 20% of calls were made by using another person's Airtel phone, showing that many people without an Airtel phone (or perhaps any phone) are accessing the service.

Users have been very satisfied with CCPF and appear to be recommending the service to friends and family in districts where no advertising has yet taken place (supplementary file 1). In 2016, a user satisfaction survey received feedback from 239 people (of 421 contacted; 57% response rate). Analysis revealed that there were extremely high levels of trust in the information given (98%), satisfaction with CCPF (99% "very satisfied"), and likelihood of recommending CCPF to someone else (95% "very likely"). Almost all users (93%) found the hotline easy to use, 75% learned something new by calling CCPF, 96% thought the hotline answered their questions completely, and 97% were "very comfortable" discussing sensitive health topics. A further evaluation of user satisfaction is under way in 2018.

An independent evaluation of the CCPF pilot phase found that CCPF was linked with improvements in knowledge about

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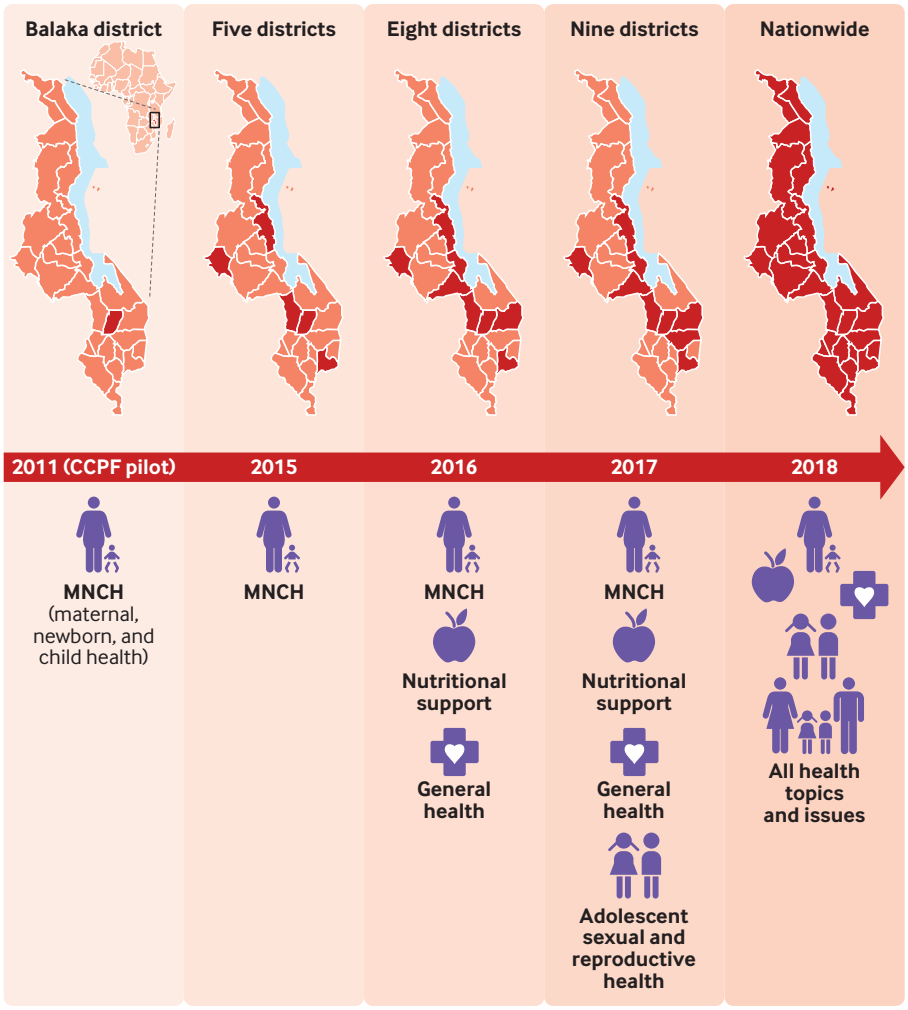

Fig 1 | Timeline map

maternal and child health, and certain health behaviours.[8] The evaluation found that CCPF was positively associated with:

Increased use of antenatal care within the first trimester

Increased use of a bed net during pregnancy and for children under five

Increased rates of early initiation of breastfeeding

Increased knowledge of healthy behaviours in pregnancy and postnatally.

CCPF connected nearly one fifth of the pilot phase population (women of childbearing age) to hotline workers. Those living further from health centres experienced a greater increase in knowledge of maternal, newborn, and child health practices, compared with those living close to health facilities.[8] Qualitative data from focus groups revealed that CCPF was an easy-to-use service that saves time and delivers respectful, helpful advice while also empowering patients with information if they do seek care at a facility.[8]

Improved knowledge is important for preventive and health seeking behaviours, and although attribution of CCPF's impact on health outcomes was not possible, the results of the pilot evaluation demonstrated CCPF's potential to tackle health behaviour on a larger scale.

We developed this case study in order to understand the drivers of success in the development and growth of CCPF, which was selected from a global call from the Partnership for Maternal, Newborn, and Child Health (PMNCH) for proposals on success factors for multisectoral collaboration.[9] A case study methods guide, developed by PMNCH, was used to ensure a standardised approach.[10]

Specific methods used for this case study included reviewing available data, interviewing key informants, producing a working paper, and holding a multistakeholder workshop to review the working paper and gather additional data and inputs (supplementary file 2).

Drivers of success in multisectoral collaboration to deliver CCPF

CCPF's evolution from a community innovation in 2011 to nationwide reach in 2018 stems from the cooperation of the government, NGO, and private sector stakeholders (box 2), and the leadership and long term vision provided by government champions with VillageReach support (supplementary file 3). We identified four drivers of success underlying how partners worked across sectors to deliver sexual and reproductive health services for Malawians.

A joint vision for government ownership

As one government stakeholder explained during our interviews, "The collaboration has worked smoothly and effectively because every stakeholder felt that the initiative is serving the same purpose." This joint vision of creating a government run hotline to deliver health information to some of Malawi's most remote communities unified the diverse group partners from inception, despite different institutional agendas (see supplementary file 3). While most agencies recognise the MoH as the primary provider of public health services, we found through the interviews that CCPF partners expressly prioritised the role of government from the beginning, identifying champions and building trust, and reflecting government priorities.

VillageReach collaborated with the technology organisation Baobab Health Trust to develop the free hotline and the tips and reminders message service, with MoH providing overall stewardship. VillageReach and Balaka's District Health Management Team implemented the pilot, ensuring optimum integration of CCPF into existing health services and generating local MoH leadership. The close relationship with the District Health Management Team facilitated meaningful engagement with local stakeholders, ensuring that CCPF was designed for, and by, its users at community level. This was acknowledged as essential by interviewees.

More recently, Johnson and Johnson, which supports activities related to the transition to the MoH, funded a branding exercise that served two purposes. Firstly, it positioned the MoH as the most prominent and visible partner in CCPF's external materials—crucial for expanding the service to new districts and communities. Secondly, it helped ensure that beneficiaries and stakeholders collaborated on a set of CCPF brand principles and design materials that reflect

Box 1: CCPF operations

CCPF is a free service accessible to anyone using a mobile phone with an Airtel SIM, by dialling the shortcode number 54747.

From August 2018, the service operates 24 hours a day. The hotline takes live voice calls and also provides a tips and reminders service through text or audio messages. Callers can speak to a qualified nurse adviser for health information on all health topics or can register for the text or audio tips and reminders, or both.

Calls to hotline staff

Clients receive personal attention from hotline workers who speak all major Malawian languages and are trained extensively on various health topics. They use their professional judgment to refer callers to a nearby facility, if appropriate. There is no time limit for calls; the average duration is 15 minutes. Two CCPF doctors are available for more complex questions, but such call transfers are rare because most complex cases are referred to a health facility. Hotline supervisors conduct quality assurance reviews of call recordings to ensure quality.

Tips and reminders service

Currently there are three types of tips and reminders:

- For pregnant women
- For carers of children under one
- For women of reproductive age (15 to 49 years)

A fourth is in development for adolescent boys and girls with a focus on sexual and reproductive health, including pregnancy, HIV, and prevention of sexually transmitted infections.

Tips and reminders messages can be received on both Airtel and non-Airtel phones, but users need to complete registration by speaking to hotline staff. It is a free, opt-in service and, once registered, a caller can choose to receive either text or voicemail messages, which are accessed through dialling the CCPF short code.

Pregnant women receive weekly tips and reminders that are gestation specific, whereas women of reproductive age get periodic reminders about sexual, reproductive, and maternal health. Carers of children under one year get reminders about general child health, such as vaccination schedules. All receive nutrition messages.

The messages are available in English, Chichewa (spoken by 70% of population), and Chiyao (spoken by 10%), and will be available in Chitumbuka (spoken by 10%) by December 2018.

the benefits and valued elements of CCPF. Stakeholders noted this was a common challenge in multi-stakeholder initiatives with competing agendas and demand for partner brand visibility. Johnson and Johnson explained they had experience of undertaking branding exercises and trusted its potential to generate cohesion among different interested groups. Importantly, the government's commitment to, and engagement with, CCPF has grown over time, and it is now primed to adopt operational responsibility in 2019.

Gradual expansion in scope and scale

During the multi-stakeholder workshop, partners agreed upon the importance of being able to deliver successfully on a smaller scale before expanding services and geographical scope from one to ultimately 28 districts (fig 1). The goals, resources, and expertise of a diverse group of partners helped extend CCPF from its initial maternal and child health focus to a broader range of health topics, making it relevant to a wider audience. The value of multiple partner organisations was reiterated in the stakeholder interviews; one CCPF funder said, for example, "Collaboration is absolutely critical—there is no one organisation that has the complete range of skills required to implement a programme like this on its own."

Evidence from the CCPF pilot was crucial for cementing the relationship with the MoH at national level and attracted other partners and donors. A funder confirmed that, "Evidence was a standout thing for CCPF; it was one of the reasons CCPF was on our radar. There was a sense that CCPF was supporting the field at large. The evaluation was widely used to make the case."

The German Society for International Cooperation (GIZ) motivated the addition of nutrition components to the hotline, and the US government saw the opportunity for CCPF to spread geographically and strengthen its adolescent sexual and reproductive health services. Support through the DREAMS initiative brought additional funding and expertise to add training, clinical modules, and community mobilisation for adolescent sexual and reproductive health and HIV/AIDS prevention. The adolescent sexual and reproductive health module was fully launched in August 2017 with corresponding district level community engagement activities (supplementary file 4). Although callers could already consult the hotline about sexual and reproductive health, substantial resources helped develop youth friendly health modules and extensively train hotline workers on these topics.

Collective resourcing and adaptability

Despite a number of partners throughout the life of CCPF, in the immediate post-pilot period VillageReach underwent several years (2011 to 2015) with few partners and invested its own resources to maintain the service. Since that period there has been considerable flexibility with roughly half of CCPF's funding (fig 4), allowing resources to be strategically aligned with programme priorities. We found that the support and flexibility of partner funding had let CCPF adapt to patient demand. Increasing call volume regarding skin infections stimulated the development of clinical reference materials and training of hotline workers on this topic. Similarly, a rise in calls about non-communicable diseases motivated an in depth clinical training module. Key informants confirmed that despite having many partners and funders—which can introduce complexity—CCPF was able to strengthen and expand its services. As one MoH interviewee explained, "The involvement of many stakeholders did not cause any difficulty in collaboration; instead this offered an opportunity for collective improvement of CCPF."

Since the memorandum of understanding between VillageReach and Airtel was signed in 2015, the telecoms provider has covered all incoming call and promotional text costs. VillageReach, through donor support, pays the cost of outgoing follow-up calls to track patient referrals, as well as the airtime cost of the tips and reminders service—around 13% of the total budget (fig 4). With Airtel support, the investment needed for nationwide coverage in 2018 is approximately

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Table 1 | CCPF calls and clients, 2011-18

CCPF calls and clients	Maternal, newborn, and child health hotline					General health hotline		Total
	July 2011 -May 2012	June 2012 -May 2013	June 2013 -May 2014	June 2014 -May 2015	June 2015 -May 2016	June 2016 -May 2017[a]	June 2017 -May 2018	
Total No of calls*	7100	6218	8599	11698	10831	5691	23903	74040
No of relevant calls†‡ (% of total calls)	7100	5811 (93)	7898 (92)	10153 (87)	8990 (83)	5473 (96)	20683 (87)	66108 (89)
Tips and reminders enrolments (% of relevant calls)	2927 (41)	2827 (45)	3135 (37)	5010 (43)	3147 (35)	1704 (31)	5360 (26)	12980 (20)
Referrals (% of relevant calls)	1092 (15)	928 (16)	1438 (18)	1509 (15)	1959 (22)	2582 (47)	7503 (36)	17011 (26)
Main purpose of call (% of relevant calls):								
Maternal, newborn, and child health (MNCH)	7100 (100)	5811 (100)	7898 (100)	10153 (100)	8990 (100)	2046 (37)	5490 (27)	47488 (72
General health	—	—	—	—	—	1149 (21)	6564 (32)	7713 (12)
Sexual and reproductive health§	—	—	—	—	—	464 (8)	4392 (21)	4856 (7)
Registration/tips and reminders	—	—	—	—	—	1508 (28)	2293 (11)	3801 (6)
HIV/AIDS	—	—	—	—	—	145 (3)	1019 (5)	1164 (2)
Nutrition	—	—	—	—	—	127 (2)	814 (4)	941 (1)
Tuberculosis	—	—	—	—	—	34 (1)	111 (1)	145 (0)
Estimated number of unique users¶:	5493	4834	6987	9328	8946	4857	17320	57765
% of total calls	77	78	81	80	83	85	72	78
% of Malawi population	—	—	—	—	—	—	—	0.3
% of Airtel's subscribers	—	—	—	—	—	—	—	1.4

*Call volumes immediately before and after June 2016 are not strictly comparable as hotline software updated and monitoring definitions changed, leading to a recorded reduction in call volume immediately after the software upgrade

†Relevant calls=total calls - (short dropped calls + irrelevant calls)

‡Before June 2016 this refers to non-dropped calls; since June 2016, this refers to calls that were not short dropped calls, irrelevant calls, or follow-up calls from clients who had been referred to a health facility.

§Sexual and reproductive health was a topic of discussion for callers included in the calls regarding MNCH between June 2011 and May 2016, as MNCH served as the entry point to a broader discussion about women's health. Non-MNCH calls were tracked by software and paper records from June 2016 and the new system allows MoH to track these topics separately.

¶Unique users recorded before June 2016 are not strictly cumulative to unique users recorded after June 2016 because of software upgrades and changes to the recording of unique clients.

$365 000; this covers 27 hotline staff; training; supervision; monitoring and evaluation; quality assurance (supplementary file 5); data management and equipment purchases; outreach; and programme management.

The partnership with Airtel enabled government ownership to become a realistic prospect, given the constraints of Malawi's national health budget. As one MoH interviewee said, "If the collaboration with private sector partners like Airtel did not exist, I doubt CCPF would still be there today." Importantly, donors, the MoH, and partners have cooperatively funded CCPF, filling in funding gaps as they arise to sustain the hotline and improve its function and scope, without claiming ownership of, or credit for, its success.

Robust collaboration focused on sustainability

We found that CCPF's partners had deliberately employed mechanisms to strengthen CCPF and build a sustainable programme (supplementary file 6). VillageReach leaders strove to foster strong MoH leadership and help place learning and adaptation at the centre of programme development and partner management. During CCPF's inception period, VillageReach held co-creation workshops with the Balaka District Health Management Team to develop the pilot hotline content. Nurses from the district hospital supervised the hotline workers. CCPF's developers created structures to share information, receive feedback, build trust, and generate informed ownership of the programme. The team consulted Malawi's medical and nursing councils before and after the pilot to ensure ongoing conformity with national legislation, and both bodies are represented on the steering committee established for the transition. The partners prioritised community engagement throughout the design and implementation phases.

The MoH is stewarding CCPF through the transition period with strong engagement by ministry leadership. The MoH organises collective agreement and progress reviews through the steering committee (active since 2016), which was acknowledged by most stakeholders as a vital function for collaboration. One government employee said, "The establishment of the steering committee has helped, as most people regard themselves as part of this new initiative rather than just be spectators." Several MoH departments and the Ministry of Finance have been involved in positioning CCPF as a national programme. A joint effort was needed to integrate CCPF into the Health Sector Strategic Plan II, for which negotiations are ongoing. Several stakeholders agreed that the CCPF technical adviser has been a key architect of these negotiations and the overall process of transition—which includes a thorough capacity checklist and the development of a transition toolkit to ensure that the correct skills and resources are in place before transfer of operations to the MoH.

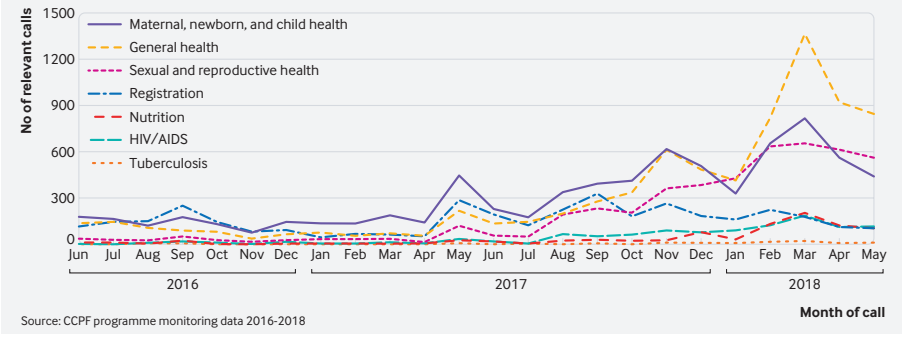

Fig 2 | Diversification of the main purpose of call: June 2016 to May 2018

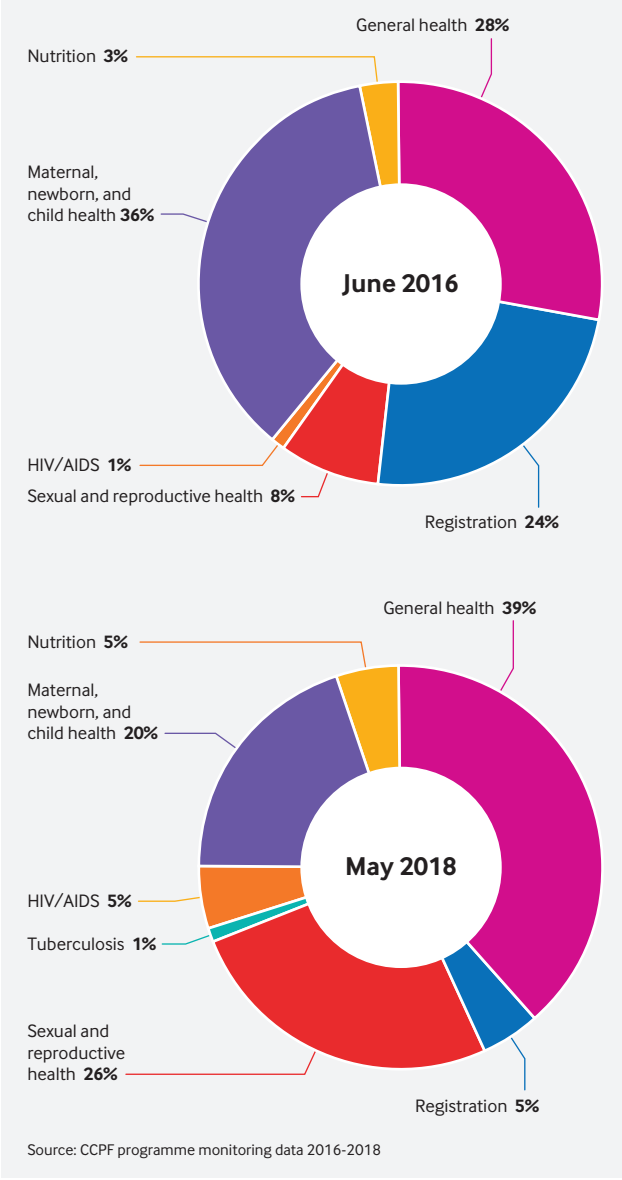

Fig 3 | Diversification of the main purpose of call: comparison of June 2016 and May 2018

The adviser negotiates many competing priorities and represents the government while recognising the needs of multisector partners.

Reflecting on the integration of new partners, stakeholders recognised that partnerships took time to build and that third party brokers were helpful, especially in chartering new territories, such as collaborating with the private sector.

Several key informants explicitly valued VillageReach's non-partisan role; one CCPF funder said, "VillageReach play as an honest broker between the government and private sector," and a CCPF funder said, "VillageReach have been instrumental in being the bridge between us and the government and other stakeholders, playing that pivotal role in making sure that all relevant stakeholders are on the same page and aligned on objectives."

Stakeholders expressly valued the fact that transparency was a key feature of the collaboration—for example, through an inclusive steering committee membership, monthly monitoring and evaluation reporting, regular stakeholder meetings, and open communication from VillageReach as the main implementers. A CCPF partner said, "Monthly stakeholder meetings have really helped, we've had the opportunity to recap, regroup, and be on same page." A MoH interviewee said, "One of the reasons the process has worked so well is because of regular updates in the form of reports."

Limitations and challenges

Several challenges face CCPF as it continues to grow and anticipates transition to the MoH.

Capacity *v* demand

CCPF has been operating a 24 hour service since August 2018; demand, however, is continuously increasing and callers now experience a long wait time. Neither the government nor VillageReach have funding to expand personnel at present. VillageReach and the MoH, with Johnson and Johnson's funding, are, however, exploring technology enhancements while a caller waits on hold, among other ways to improve the service. Enhancements being considered are disease outbreak updates from the MoH, or the option to select recorded messages on a range of health topics while waiting or to use WhatsApp to catalogue and automatically respond to frequently asked questions. Despite increasing demand, however, the scale of coverage remains small (1.4% of Airtel's subscribers) and increasing coverage will be a key priority for the MoH once CCPF transitions to government.

Measuring health outcomes

While hotline workers can provide health information about a range of topics and advise on prevention and treatment options, they cannot diagnose or treat over the phone. CCPF is primarily a health education and referral service and is not intended to replace health facility care. There are no current outcomes data to assess CCPF's population level impact on health, although the evaluation started in summer 2018 will provide greater insights into equity and access to the hotline, user satisfaction, knowledge and behavioural changes, facility referrals, and quality of services.

Political support

Although the MoH provide strong leadership, the expansion in scope from an mHealth maternal, newborn, and child health initiative—and current transition to government ownership—means that not all departments have been as heavily involved since the onset of the programme. As one MoH stakeholder explained, this has "caused some delays to the transition which could have been shortened if we had engaged all departments from the start." Further strengthening of collaboration is needed across sectors to ensure sustainability and funding once the MoH assumes ownership. Future partnerships

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Box 2: CCPF stakeholders and funders

- The range of funders and stakeholders are detailed in supplementary file 3, and in chronological order, they are;
- Ministry of Health (2011-present)
- Concern Worldwide (2011-2016)
- VillageReach (2011-present)
- Baobab Health Trust (2011-present)
- mHealth Alliance (2013-2015)
- GSMA (2013-2015)
- Clinton Health Access Initiative (2014-2015)
- German Society for International Cooperation (GIZ) (2015-present)
- Airtel (2015-present)
- Johnson and Johnson (2015-present)
- Vitol Foundation (2015-present)
- Seattle International Foundation (2015-2016)
- Project Concern International (2015-2017)
- United States President's Emergency Plan for AIDS Relief through the DREAMS Innovation Challenge (DREAMS) (2016-present)
- USAID's Organized Network of Services for Everyone's (ONSE) Health Activity (2016-present)

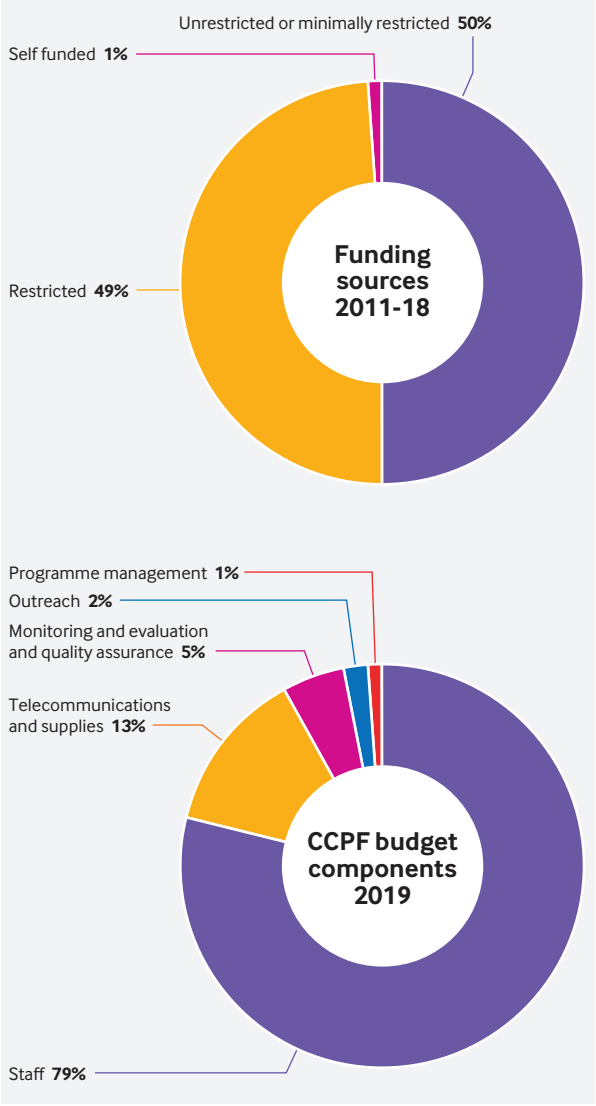

Fig 4 | CCPF budget and funding

and memorandums of understanding will be brokered directly by the MoH. Elections in Malawi and policy environment shifts may introduce changes within key government and civil service positions, risking the level of support for CCPF. To mitigate this, stakeholders are working to develop strong support for CCPF across political stakeholders, although some fear that CCPF's success may be jeopardised by government ownership.

Financial model

Airtel's partnership is essential for the sustainability of this free service, yet Airtel's current exclusivity clause may preclude universal coverage. Airtel's network currently spans 85% of Malawi's land mass, but not all districts have strong coverage, leaving some communities without access to the hotline.

Equity in access

Just one third of women own a mobile phone, compared with half of men, and phone ownership increases with educational attainment and wealth.[6] People in the Northern region are more likely to own a phone than their counterparts in the Southern and Central regions.[6] Equity of access should be a priority future consideration, although inequity may be mitigated by the fact that 20% of calls to CCPF are made on a borrowed phone.

Case study methods

CCPF's intersectoral collaboration was evaluated primarily by VillageReach staff, albeit in consultation with a wide range of stakeholders, and the multi-stakeholder review workshop was not well attended across all sectors (MoH, NGO, and donor stakeholders, as well as CCPF beneficiaries, contributed to the workshop). Thus, certain perspectives may be missing from this analysis.

Conclusion

After only seven years, an NGO operated district maternal, newborn, and child health programme is poised to become one of Africa's first nationwide, government run general health hotlines. New partnerships have been transparently coordinated while the programme adapted to include additional stakeholders. A common goal of sustainable government ownership helped build bridges across different programme agendas and beyond the health sector.

CCPF has advised almost 60 000 Malawians on nutrition, health promotion, illness prevention, health seeking

behaviours, and sensitive matters such as sexual and reproductive health, through a convenient and free to use system. Although substantial investment is required to strengthen the health system and increase the health workforce, CCPF supplements the health system and gives clients more information than could be imparted during the short consultations that are common in Malawi. CCPF's programme model is applicable to other countries and environments, as it could be adapted easily for another context outside Malawi. For example, the immediacy of access to health information and good quality health advice by phone has great potential for resilience building in fragile settings.

A recent WHO report[5] recognising the significant role of digital technologies in health system strengthening noted the need to tackle both the lack of multisectoral collaborations between government ministries, departments, and donor agencies; and the lack of a process for taking pilot projects to scale. The CCPF partners have tackled both of these challenges. We demonstrate how complementary and mutually reinforcing cooperation across sectors can increase equitable access to health information for people who are traditionally underserved because of geographical, social, or literacy barriers. Under government ownership, CCPF is primed to achieve lasting benefits.

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Supplement 1: file one
Supplement 2:Methods for developing the case study
Supplement 3: Stakeholders
Supplement 4: Community engagement
Supplement 5: Quality assurance
Supplement 6: Table of collaborative mechanisms and architecture

See www.bmj.com/multisectoral-collaboration for other articles in the series.

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Transformative change takes leadership, partnerships, and multisectoral collaboration

Investment in systems to promote collaboration is vital for health, say **Shri J P Nadda and Nikolai Astrup**

Six million women, children, and adolescents die from preventable causes every year.[1-3] The 2030 Agenda and the sustainable development goals (SDGs) encourage new ways of tackling this and other challenges, through partnerships and multisectoral collaboration.

It is well recognised that progress across many sectors contributes to health and development goals. We know that outcomes in areas such as education, nutrition, water and sanitation, contribute to improved health outcomes, and vice versa. Health is not only a universal right for individuals but also a key driver of sustainable socioeconomic development, as we have seen in our countries. Some of our most intractable challenges can be solved only by public sectors working with the private sector, multilateral organisations, non-governmental organisations, and others. This integrated way of working is at the heart of the 2030 Agenda.

We know that funding for programme activities does not always extend to the collaborative processes that make them happen. We encourage greater investment in partnerships, and in joint planning, implementation, and accountability. An important initiative in this respect is the recently launched Global Action Plan for Healthy Lives and Wellbeing for All, which identifies three strategic approaches: align, accelerate, and account[4] as well as cross-cutting areas where more innovative, synergistic efforts can greatly accelerate progress in global health.

The real world examples in this *BMJ* series describing how countries have designed and implemented multisectoral collaborations enable us to learn about the commonalities as well as the challenges.[5] We would like to share some of our own examples of efforts to improve the lives of the most vulnerable through country-led initiatives and global and national partnerships.

Success in India

India has made progress, with an increase in its human development indicators from 0.427 in 1990 to 0.640 in 2017.[6] However, much more needs to done to improve human development outcomes. The Intensified Mission Indradhanush strategy described in the series is one example of how multisectoral participation can improve service coverage for hard-to-reach populations.[7] To build on this progress, the prime minister launched the "aspirational districts" initiative in January 2018.[8] A total of 117 districts in 28 states were identified as aspirational districts using a composite index comprising health, nutrition, education, basic infrastructure, and poverty. States are the main driver of the programme, which involves multisectoral collaboration at central, state, and district levels. Using real time monitoring, districts are encouraged to catch up with the best ranked district in their state, and aspire to be the highest ranking district nationwide. This spirit of competition, learning, and cooperation has resulted in a rapid rise in human development indicators.[8]

The Norway-India Partnership Initiative (NIPI), launched in 2006, aims to reduce maternal and child mortality by providing strategic, catalytic, and innovative support to India's National Health Mission. A recent evaluation shows that it has strengthened health systems—for example, through higher quality nursing and midwifery education and improvements in home based healthcare for infants and young children.[9] We are proud that this collaboration has proved fruitful and provides a model for others to follow. A key factor in NIPI's success is India's commitment to, and investment in, maternal, newborn, and child health.

Global financing

We recognise that many countries face critical shortfalls in domestic resources for health, which threatens to push the SDG health goals out of their reach. There is also room for improving efficiency, as estimates show that 20-40% of all health resources are wasted.[10] Norway was one of the partners that launched the Global Financing Facility for Every Woman Every Child[11] at the Addis Ababa summit on financing for development in July 2015. The aim is to bring together multisectoral stakeholders to enhance investment in health and nutrition. In November this year, Norway co-hosted a replenishment conference that mobilised $1bn and several domestic resource pledges.[12] The next goal is to mobilise an additional $1bn for 2018-23. Working in partnership, we can jointly help to save 35 million lives by 2030.[13]

As these examples show, the SDGs give us a powerful stimulus for using multisectoral collaboration to work more effectively and achieve common goals. We can begin by investing in systems and mechanisms to promote partnerships with national stakeholders that endure through changing political landscapes. Political leaders must continue to show the political will to embrace new ways of working in partnership and to share our experience and achieve our goals.

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To achieve the SDG health goals we need to recognise the goals and outcomes of other sectors

Tobias Alfvén, Agnes Binagwaho, and Måns Nilsson call for multisectoral collaboration to become the "new normal"

Since the sustainable development goals (SDGs) were introduced in September 2015, we have read the phrase "we cannot continue with business as usual" many times. It is now common to hear calls to transform the way we work by taking an integrated approach and pursue multisectoral partnerships. However, it is still rare for proponents to explain how collaboration between different sectors can happen or what such collaboration looks like in practice.

It is therefore inspiring to read the article by Shyama Kuruvilla and colleagues that explores how health and development programmes have navigated the challenges of multisectoral collaboration.[1] Their work is based on *The BMJ* series of articles describing the experiences of multisectoral work in different countries and settings.[2] The synthesis of findings and proposed multisectoral model can be a valuable starting point in creating a recipe to promote and successfully work multisectorally.

The articles in the series describe a form of multisectoral collaboration in which organisations from different sectors come together to achieve a shared outcome. It's notable that all of the "shared outcomes" within the case studies are health focused, ranging from young people's mental health to immunisation services.

Broader view

Clearly it's not too difficult for health sector professionals to buy into health goals, but if we broaden the view of the SDG agenda it's important to recognise that other sectors work towards different goals and outcomes. These goals may feel distant to the everyday work of health professionals, such as improved traffic flow in cities, lower environmental impact from food production, creating peaceful and inclusive communities, or increasing the use of clean energy. The real trick here would be to develop strategies, policies, and practices that promote such sectoral goals together with health outcomes. This is what the SDGs are about; a coherent and integrated approach to resolve some of the world's major development challenges across environmental, social, economic, and institutional domains.

To make sense of this, and to foster multisectoral collaboration, we need a structured way of identifying interactions between sectors. When we achieve progress on one goal, how does this affect the conditions for achieving progress on another? An SDG interactions framework has been developed to help policy makers and planners to think these issues through.[3] Mapping the interactions between sectoral objectives requires, in itself, a multistakeholder process and provides the necessary starting point to carry out the "define" stage in Kuruvilla and colleagues' model.[1] In this stage, respective goals and issues are framed and structured across sectors, and their respective roles and priorities are determined.

A recent *BMJ* article looked at child health as an example of how an assessment of interactions between SDGs can be used to guide and align multisectoral action.[4] With such an understanding in place, collaborative partnerships can be created, building on where our goals as health professionals are aided by, or enable, the goals of, for example, the city planning agency for infrastructure development or the environmental protection agency. Moreover, conflicts between different goals can also be identified in this way.

Can multisectoral collaboration be institutionalised and scaled up as the "new normal" way of doing things? An example of institutional multisectorial collaboration exists in Rwanda, where the members of the social cluster from each ministry (health, education, gender and family promotion, youth, sport and culture, local government and decentralisation, and infrastructure) meet at least every two months to review all new policies and strategies to build consensus before they are presented to the prime minister and the cabinet.

Can the proposed framework by Kuruvilla and colleagues be used to create a recipe that will avoid creating a special platform for collaboration every time a multisectorial approach is needed? To make this approach work, and avoid only ad-hoc successes, it should include the mapping of interactions and structuring collaboration as part of the institutional procedures of decision making—not only national but also at local, district, and regional levels and wherever the planning, resourcing, and management of healthcare systems take place.

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