SOCIAL INNOVATION IN HEALTH:

CASE STUDIES AND LESSONS LEARNED FROM LOW- AND MIDDLE-INCOME COUNTRIES

World Health Organization

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SOCIAL INNOVATION IN HEALTH INITIATIVE

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LIST OF ABBREVIATIONS

CHW	Community health-care worker
LMIC	Low- and middle-income country
MOH	Ministry of health
NTD	Neglected tropical disease
NGO	Nongovernmental organization
SIHI	Social Innovation in Health Initiative
TB	Tuberculosis
TDR	Special Programme on Research and Training in Tropical Diseases
UHC	Universal health care
WHO	World Health Organization

ACKNOWLEDGEMENTS

DEDICATION

" The reasonable woman adapts herself to the world: the unreasonable one persists in trying to adapt the world to herself. Therefore, all progress depends on the unreasonable woman. **"**

We said farewell to a leading light in our field, a dear colleague, mentor and close friend, Pamela Hartigan, Director of the Skoll Centre for Social Entrepreneurship, who passed away on 12 August 2016. She was a champion for people not institutions, and a highly unreasonable woman, having co-authored The Power of Unreasonable People. Without her guidance, criticism, inspiration and foresight, the Skoll Centre and other such centres would not exist as they do today. We dedicate this publication to her.

PREFACE

Social innovation and the Global Health Agenda

The fast-growing field of social innovation in health-care delivery is creating much interest. At a time when the many valuable technologies, medicines and diagnostics should increasingly be benefiting populations, too many people are being excluded, particularly the most vulnerable in low- and middle-income countries. So what's missing? It appears that breaking down boundaries and engaging communities and the various health actors has become more important than ever in ensuring that interventions do not leave anyone behind.

In order to foster the dissemination of inclusive and creative approaches, the Special Programme for Research and Training in Tropical Diseases (TDR) is working with the World Health Organization (WHO) department for Service Delivery and Safety (SDS). It is expected that research in social innovation in health will lead to a better understanding of what works and why.

We are supporting research to examine how community members and a range of health-system actors are best engaged to identify health-care delivery issues, develop solutions, and implement them in order to bring about changes. This approach is founded on the integrated people-centred health-services framework that was endorsed by the World Health Assembly (WHA) in May 2016, and is strongly linked to achieving universal health coverage.

Examples of these types of innovations exist in all parts of the world. To ensure their sustainability and enhance their replicability, research on what works and what does not work, and measurement of impact is also needed.

The 23 case studies in this publication provide a first step toward this understanding. These studies came out of a collaboration spearheaded by TDR in 2014 called the Social Innovation in Health Initiative. This collaboration began with the Bertha Centre for Social Innovation and Entrepreneurship at the University of Cape Town, the Skoll Centre for Social Entrepreneurship at Oxford University, and the London School of Hygiene and Tropical Medicine. This effort also represents a joint TDR collaboration with the WHO Service Delivery and Safety department and is now expanding to new academic partners in low- and middle-income countries.

If nothing else, let us ask ourselves the question – WHAT IF community-based social innovations are a key element of the success of the global development agenda in 2030? This publication provides some hints as to what is possible, and hopefully will stimulate countries and communities to undertake similar approaches.

JOHN REEDER
Director, Special Programme
for Research and Training (TDR)

ED KELLEY
Director, Service Delivery and Safety
World Health Organization

INTRODUCTION

This publication is the result of three years of collaborative case study research conducted by the Social Innovation in Health Initiative (SIHI) partners. It aims to provide a deeper understanding of social innovation in health. The summaries of the 23 case studies presented display the diversity of approaches social innovations have taken to address grassroots health challenges. The insights and lessons learned derived from this case study research cast light on the valuable role social innovation can play in strengthening health systems in low- and middle-income countries (LMICs). It analyses the factors involved and highlights areas that need further study to best advance social innovation in health, strengthen health systems and contribute to universal health coverage (UHC).

Social innovations directly support the achievement of UHC and contribute to the implementation of WHO's integrated people-centred health-services framework. They provide new ways of working that enhance access to quality and affordable health care for all, particularly the most marginalized populations. A core component is the active engagement of community members and other health systems actors to identify issues, develop solutions and implement them in a sustainable way, providing added value to existing health interventions. These are key components at the core of the global development agenda for 2030.

Most of the time, social innovations are developed and implemented without support from rigorous scientific research. Evidence on what works well and what does not work, and the lessons learned, are critical in ensuring their performance continuously improves, their results are measured and sustainable, and that they can be replicated or scaled up to maximize their impact. The Special Programme on Research and Training in Tropical Diseases (TDR), co-sponsored by the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the World Bank and the World Health Organization (WHO), is in a privileged position to help embed research in social innovation in LMICs. Building upon its track record of multidisciplinary research on community-based interventions, TDR aims to catalyse global research efforts to advance social innovation in health-care delivery.

In 2014, TDR spearheaded the SIHI, in collaboration with the Bertha Centre for Social Innovation and Entrepreneurship at the University of Cape Town, the Skoll Centre for Social Entrepreneurship at Oxford University, and the London School of Hygiene and Tropical Medicine. The Initiative is working with international organizations including the WHO Service Delivery and Safety (SDS) Department and partner institutions in LMICs. In 2017, social innovation research hubs

were launched at the University of Malawi, the University of the Philippines, and the Makerere University in Uganda.

The mission of SIHI is to advance social innovation in health in the global south. It does this through a three-pronged approach: (i) fostering research to better understand what works and what does not work; (ii) building the capacity to embed research in social innovation; and (iii) exerting the influence of global, national and local actors in support of social innovation in health.

We trust that this publication will highlight the value of social innovation in strengthening health systems in LMICs, and the need to embed research in social innovation to enhance its effectiveness and sustainability. It is also expected that it will provide lessons learned that can be applied in other areas for further study, and identify possible next steps for researchers, social innovators, practitioners, decision-makers and funding agencies interested in advancing social innovation in health-care delivery.

Image credit: L van Niekerk, India, SIHI 2015

1. SOCIAL INNOVATION IN HEALTH

In the last century, the world has witnessed many great medical advances and ambitious public health declarations. Despite scientific progress and aspirational vision, the reality of the health systems and services offered to millions of people across LMICs is far from the actual needs and expectations: medical advances are often driven by the quest for scientific discovery to the detriment of understanding the contextual realities; interventions are developed on the basis of the perceived needs of a community by those who are furthest away from the grassroots; programmes remain disease-oriented as they enable uncomplicated monitoring and accounting; and device or medicine discoveries attract funding with greater ease than the pursuit of delivery interventions. In addition, beyond the 'what' that gets developed, the 'how' of implementation remains driven by top-down processes, pursuing community or frontline participation as a tick box exercise and not a centrally imperative feature of implementation (Walt & Gilson, 1994; Gillam, 2008; Penn-Kekana, Blaauw & Schneider, 2004; Adam & de Savigny, 2012). The 2015 Ebola epidemic serves as a sobering reminder of the complexity of addressing systemic, organizational and individual health challenges, which are even more evident during an emergency (Kruk et al., 2015). As expressed by Herbert and Best (2011), "We need new ways of thinking and of working in order to accommodate the complexity of the challenges in and urgent need for health system innovation and change."

Social innovation provides a lens through which change and the transformation of health delivery and health systems can be viewed and approached. This phenomenon has emerged as a better way of understanding and producing lasting social change, especially when current systems and structures are failing the very people they are intended to serve. Social innovation, as a practice-led field has attracted interest from scholars across a range of disciplines. The intended outcome of social innovation is an enhanced quality of life, and justice and equity for all members of society (Mulgan, 2006; Pol & Ville, 2009). Social innovation could hold the potential to breathe fresh life into the 1978 Alma Ata ideals of equity, social justice and community participation in basic health-care delivery (WHO, 1978; Walley et al., 2008). For the purposes of this case study research, we defined social innovation as: "A novel solution (process, product, practice, market mechanism) developed by an actor, in response to a priority health need within a geographical context and implemented by different cross-sectoral organizations. This solution has enabled health-care delivery to be more inclusive, affordable and effective."

Social innovations are initiated in response to complex systemic challenges and structural failures that result in people's needs being unmet, especially those of vulnerable or excluded populations. As Nicholls and Murdock (2012) explain, "intractable problems are seen as highlighting the failure of conventional solutions and established paradigms entrenched in intractable institutional settings across all three conventional sectors of society." The search for solutions amidst the complexity is hindered by silos within the public sector, private sector market failures and by fragmentation in the civil sector (The Young Foundation 2012). Contrary to the novelty applauded in commercial innovation, social innovation models are often formed by a combination of existing and/or new elements used in a different way. Irrespective of the creator or the implementing organization, the impact achieved hinges on the quality of the innovation. As explained in figure 1, there are different types of social innovations in health-care delivery. These can be: processes (e.g. reorganized care pathways); products (e.g. mobile phone applications); market mechanisms (e.g. social finance instruments); role and behavioural practices (e.g. peer-to-peer services); or new paradigms and policies. By nature, social innovations cut across organizational, disciplinary and sectoral boundaries (Mulgan et al. 2007) and novelty is often found in the ' how' of implementation. Social innovations are not developed in a vacuum or in a controlled environment, such as the laboratory, but from a systems perspective, which is responsive to the economic, cultural, political and social dynamics of the social system, and which is agile to the changing needs of people.

At its core, the process of social innovation is about social inclusion and bringing a change in the way people relate to each other (Westley & Antadze, 2010; The Young Foundation, 2012;). It is this specific characteristic of social innovation that could provide a new perspective in achieving health for all (Moulaert et al., 2005). The social innovation process embodies a bottom-up view to design and implementation that starts with the belief that communities and all members of society are competent interpreters of their own lives and have the capacity to solve their own problems (Mulgan et al., 2007). This is illustrated by the fact that community or civil society actors are the creators of a significant number of social innovations (Nicholls & Murdock, 2012; van Niekerk & Bonnici, 2014). The public health literature highlights the importance of community-directed and community-based participation as well as the inclusion of "street-level" implementers to enhance ownership and the adoption of new interventions (Remme, 2010; Adam & de Savigny, 2012; Gilson et al., 2014). In practice, these phenomena appear to varying degrees and have not yet been sufficiently embraced so that local communities are empowered, resourced and enabled to be the designers and implementers of the solutions to their needs. Increasingly, social innovation scholars have started investigating the link between social innovation and resilience.

Westley (2013) ascribes the generation of social and ecological systems' resilience to the engagement of vulnerable groups and the transfer of agency and power to them. It is this inherent participation of frontline actors, non-state actors and marginalized groups, and their capacity to find solutions to entrenched problems in their communities, that makes this a worthy area of further research to determine the role it could play in contributing to resilience (Westley, 2013).

Grassroots social innovations have emerged in an attempt to overcome health-system failures across LMICs. Our inquiry into social innovations in health was to understand whether there is value to be gained from these alternative health solutions, what their characteristics are and how the insights gained from them can provide new direction to strengthen health for greater inclusiveness, equity and affordability for millions of people.

Figure 1. Social innovation in health-care delivery

Social innovation in healthcare delivery

Diagrammatic representation of innovation-types and actors across sectors.
(Van Niekerk, L; UCT Bertha Centre; 2014)
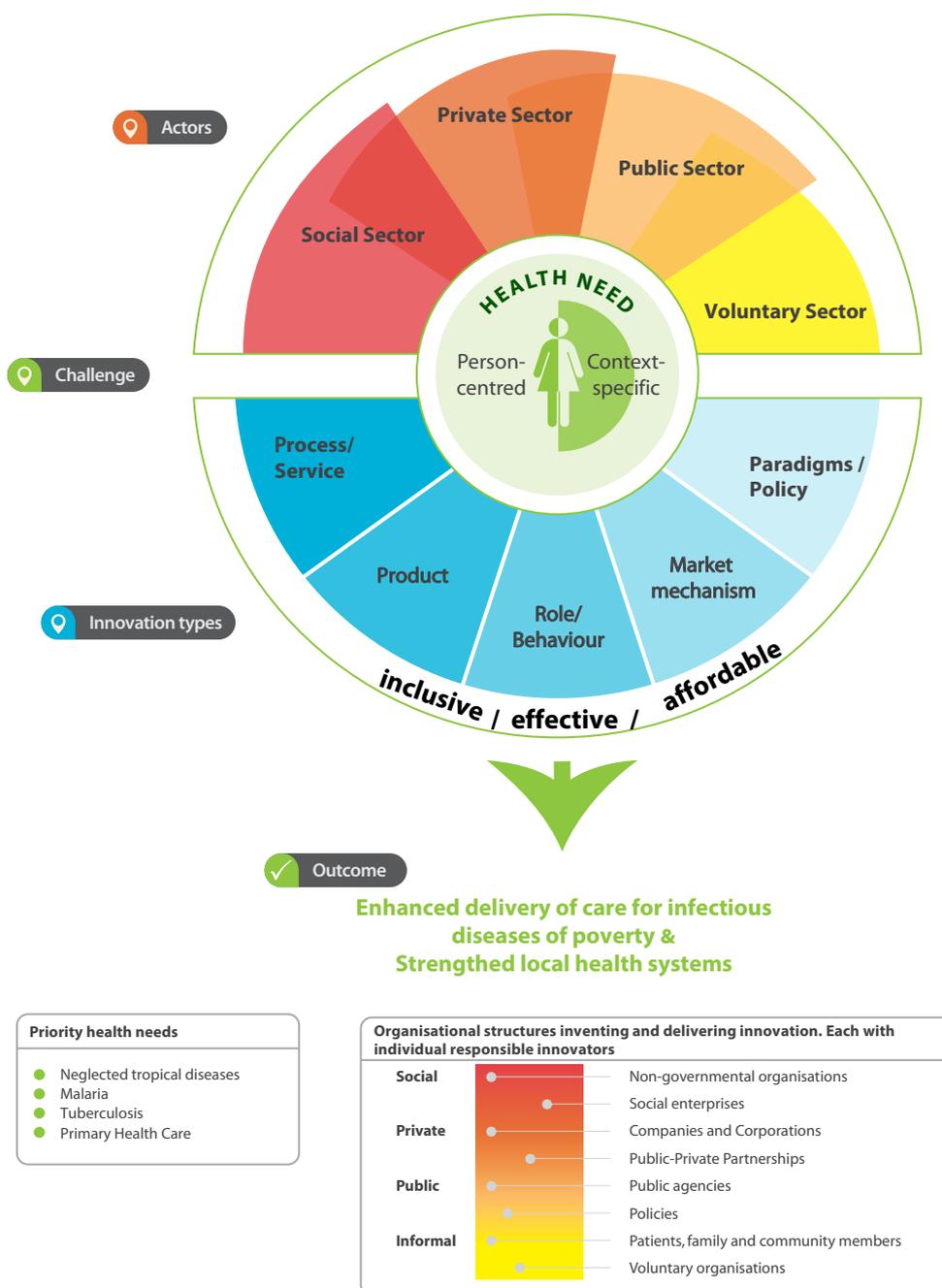
Note: Diagrammatic representation of innovation types and actors across sectors (van Niekerk, 2014).

2. CASE STUDY METHODOLOGY

AUTHORS: LINDI VAN NIEKERK (UNIVERSITY OF CAPE TOWN), LUCY GILSON (UNIVERSITY OF CAPE TOWN), LENORE MANDERSON (UNIVERSITY OF THE WITWATERSRAND), AND ROSANNA PEELING (LONDON SCHOOL OF HYGIENE & TROPICAL MEDICINE)

In order to better understand the value of social innovations in health in advancing and strengthening health-care delivery, a two-step research process was adopted.

2.1 STAGE 1 - IDENTIFICATION OF SOCIAL INNOVATIONS

The first objective of this research was to identify examples of social innovations in health implemented in LMICs in Africa, Asia and Latin America.A three-prong strategy was adopted to identify interventions that successfully address a health-care delivery need related to infectious diseases of poverty, specifically including malaria and tuberculosis (TB), or that are transferrable to infectious diseases of poverty. The identification strategy included: searching academic and grey literature; contacting international, regional or local network agencies directly; and launching an open crowd-sourcing call for potential social innovations.

The most successful yield of interventions meeting the set criteria (table 1) came from the open crowd-sourcing call. The literature review yielded scant results especially as follow-up revealed many projects identified in the literature have ceased after the completion of the research. Within a six-week period, 179 self-nominations were received from 48 countries. Of these, 46% came from Africa; 30% from Asia; and 10% from Latin America. The implementers of these interventions ranging across all sectors: nongovernmental organizations – NGOs – (55%); public agencies (24%); and for-profit companies (11%). From the 179 nominations received, 29 were excluded. The exclusion criteria were any of the following: the intervention was a medical or scientific innovation; it had been operational for less than one year; it had not been implemented in the geographical focus areas; or the application was incomplete.

TABLE 1. SOCIAL INNOVATION ELIGIBILITY CRITERIA

Attributes of the social innovation	• Focused on addressing a priority challenge in health-care delivery in Africa, Asia or Latin America • Implemented for more than one year • Addresses aspects of infectious disease either directly or indirectly (but not necessarily limited to infectious disease alone) • The intervention is a programme, process, product, practice or a market mechanism with a high degree of innovativeness (i.e. new and different in its context) • Inclusiveness – the intervention has allowed for care to be more accessible and equitable to the population of the context • Effectiveness – the intervention has achieved measurable evidence in demonstrating an improvement in care/health outcomes • Affordability – the intervention has a lower cost or is more cost-effective than the status quo of the context
Attributes of its transferability/ scalability	• If not directly targeted at infectious diseases, can be applied to this field • It has the potential to be used in other geographical contexts or in other population groups • The financial, organizational and market aspects of the social innovation are sustainable
Attributes of the innovating organization	The implementing organization could be a health-care facility, governmental, non-governmental or voluntary organization, social enterprise, company or corporation.

A panel made up of experts in infectious diseases, global health and innovation (table 2) reviewed 150 nominations. Two experts reviewed each nomination (one randomly assigned and one linked to the focus area of the solution), and scored them based on the weighted criteria (table 3). Following the Expert Review Panel's scoring, the highest ranked nominations were invited for a telephone interview and a core selection panel made the final selection. A total of 25 interventions, operational across 17 countries in the global south were selected for further study. The final 25 interventions were purposefully selected to ensure a case portfolio that was representative of geographical distribution, innovation models, diseases and organizational structures.

TABLE 2. EXPERT REVIEW PANEL MEMBERS

Be-Nazir Ahmed	Disease Control and Line Director, CDC, Directorate General of Health Services, Ministry of Health and Family Welfare Health Services, Bangladesh
Carel Ijsselmuiden	Director, Council on Health Research for Development, Switzerland
Cesar Veira	Advisor and Coordinator, Pan American Health Association (PAHO/WHO), Brazil (retired)
Christian Seelos	Visiting Scholar, Centre on Philanthropy and Civil Society, Stanford University, United States of America
Dana Hovig	Director of Integrated Delivery, Bill and Melinda Gates Foundation, United States
Fred Binka	Foundation Vice-Chancellor of the University of Health and Allied Sciences, Ho, Ghana
Lenore Manderson	Professor of Public Health and Medical Anthropology, School of Public Health, University of the Witwatersrand, South Africa and Visiting Distinguished Professor, Institute at Brown for Environment and Society, Brown University, United States
Lori Heise	Senior Lecturer in Social Epidemiology, London School of Hygiene and Tropical Medicine, United Kingdom
Luis Gabriel Cuervo	Senior Advisor, Research Promotion and Development, Pan American Health Organization (PAHO/WHO), United States
Lucy Gilson	Professor, Health Policy and Systems Research, University of Cape Town, South Africa and London School of Hygiene and Tropical Medicine, United Kingdom
Mary Ann Lansang	Professor of Medicine and Clinical Epidemiology, University of the Philippines, Philippines
Mitch Besser	Skoll Foundation Awardee, Physician & Founder of Mothers2Mothers, South Africa
Marlo Libel	Global Health Consultant & previous Regional Advisor for the Pan American Health Organization (PAHO/WHO), United States
Marc Ventresca	Lecturer, Strategic Management, University of Oxford Said Business School, United Kingdom
Patricia Mechael	Senior Advisor in mHealth, UN Foundation & ex-director mHealth Alliance, United States
Rosanna Peeling	Professor & Chair of Diagnostic Research, London School of Hygiene and Tropical Medicine, United Kingdom
Roger Mader	Innovation Consultant & Lecturer, Interaction Design, School of Visual Art, NYC. United States
Sarah Gelfand	Deputy Director, Social Entrepreneurship Accelerator, Duke University, United States
Uche Amazigo	Director, African Programme for Onchocercaisis Control, World Health Organization, Nigeria (retired)
Vera Cordeiro	Skoll Foundation Awardee, Physician & Founder of Associação Saúde Criaça (Children's Health Association), Brazil

TABLE 3. SOCIAL INNOVATION SELECTION CRITERIA

		WEIGHT (%)
Appropriateness of the solution to the need	The approach addresses a health-care delivery challenge that specifically deals with an infectious disease of poverty or could be applicable to this disease group	10
Degree of innovativeness	The approach is new, different or a significant improvement within the context to which it is being applied	25
Inclusiveness	The approach has the potential to be used by a large number of people, enhancing equity and access	15
Affordability	The solution is affordable to the poor who are otherwise excluded in the local context or the solution is more cost-effective than the status quo	10
Effectiveness	The solution has a demonstrated positive outcome on the health of the local population	15
Scalable	Within and across cultural, resource and environmental contexts, the solution can be applied to reach many more people	10
Sustainable	The financial, organizational and market aspects of the solution are sustainable	15

2.2 STAGE 2 – DESCRIPTIVE CASE RESEARCH

The second objective of this research was to better understand the potential value of social innovations in strengthening health-care delivery. Descriptive and exploratory case study research was deemed appropriate as a methodology to enhance our understanding of the phenomenon of social innovation in health. It further enabled a deeper understanding of the real-world context within which these innovations operate.

CASE FRAMEWORK

A case framework was developed and structured according to several units of analyses: (i) the case context, which serves as a stimulus, enabler or inhibitor for the development of the innovation; (ii) the inventing or implementing actor, who responds to a local health challenge within their context; (iii) the actor's response, which leads to the development of an innovative solution to addressing the challenge – this solution comprises various components and principles that contribute to its success and opportunity to be scaled up; and (iv) the implementation of the solution through a specific organizational structure and business model to support delivery to beneficiaries (figure 2).

The outcomes of each social innovation were considered in three areas: (i) its direct effect on addressing the local challenge and affecting the delivery of care for infectious diseases; (ii) its indirect impact on the health system; and (iii) its effect on the local country context by stimulating economic and social mobilization.

Figure 2. Conceptual framework for case study research conducted
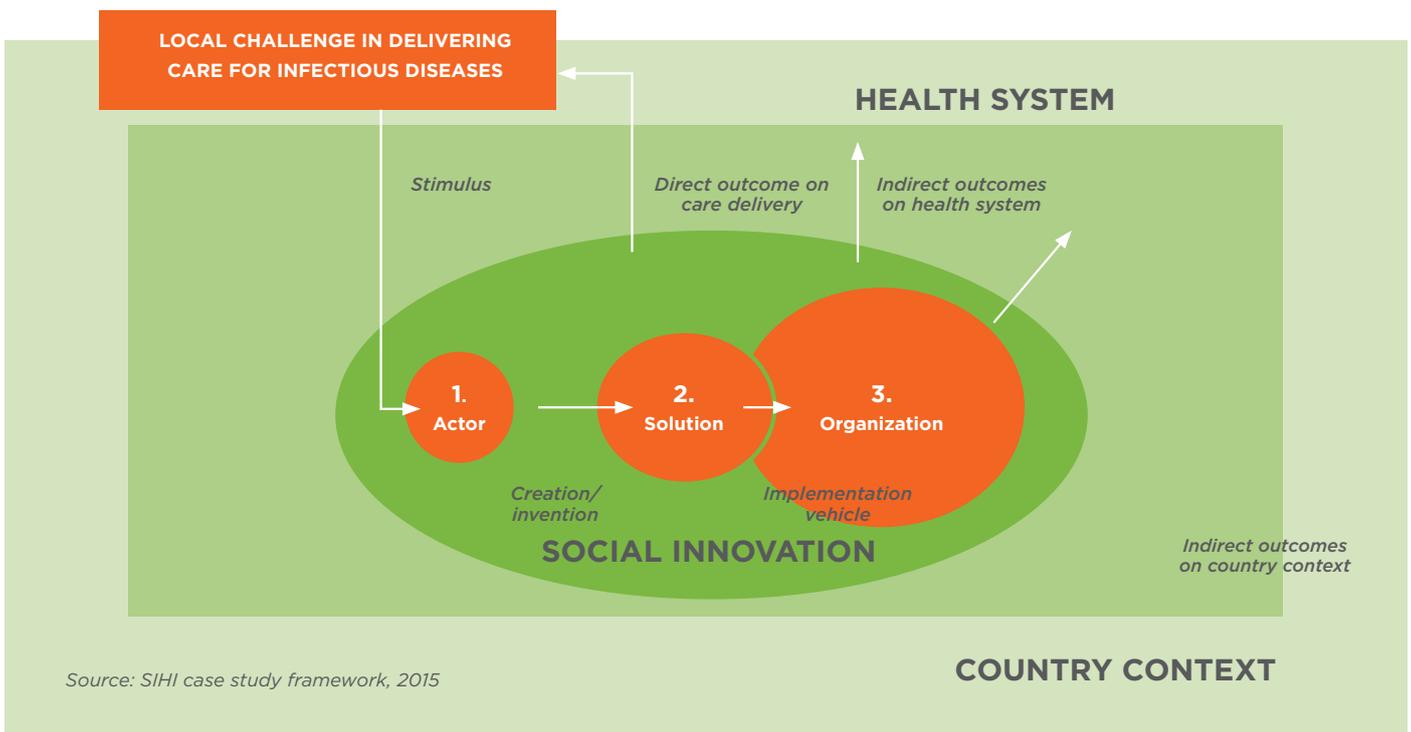
Source: SIHI case study framework, 2015

DATA COLLECTION

Data collection was primarily carried out using qualitative methods including organizational document reviews, primary interviews and participant observations. Field visits were conducted for each of the 25 selected interventions. An average of 3–4 days was spent at each site and the founder, employees, beneficiaries and country experts were interviewed.

During the site visits, two cases were found not suitable for inclusion in the study. Six researchers collected data from two institutions.

DATA ANALYSIS

Case study interviews were recorded (de-identified) and transcribed. The researcher who carried out the data collection was responsible for compiling the related descriptive cases. The case framework as well as the analytical questions (table 4) was used to guide the analysis and writing of each case study.

Following the compilation of individual case studies, a preliminary cross-case analysis was undertaken to aid in identifying key insights into how social innovations strengthen health-care delivery and areas requiring further research. Section 5 in this publication presents a synopsis and discussion of the 23 case studies. The full case study collection is available at **http://socialinnovationinhealth. org/the-case-studies/**, including how they relate to the thematic areas, providing opportunities to strengthen networks and collaboration both within and across these areas, and enabling multi-faceted approaches, and more robust and sustainable outcomes.

TABLE 4. ANALYTICAL CASE QUESTIONS

a. Why is this a good example of a social innovation in health?	Why is this a good example of a social innovation in health?
b. What are the key innovative core components within this case that have potential to be replicated, transferred or scaled?	• What are the core programme components and sub-components? • Which of these components is approached in a different way from the norm? • Who is responsible for delivering/executing this component?
c. What are the outcomes of this case in care delivery (for infectious diseases of poverty)?	• Is there evidence or data to substantiate this? Recognize any limitations • What further type of evidence will support this case?
d. What are the outcomes of this case in care delivery (for infectious diseases of poverty)?	• What are the key enablers and inhibitors encountered during implementation? • What other indication is there of success? • What are successes and challenges from the founder's journey?
e. How has the case achieved gains in improving health-care delivery, in the face of enablers and inhibitors?	• What are the key enablers and inhibitors encountered during implementation? • What other indication is there of success? • What are successes and challenges from the founder's journey?
f. How has the local environment responded/ supported this case?	• Beneficiaries • Community members • Policy-makers • Innovation eco-system
g. What relevance does this case hold for the global south?	• How does it impact/influence the field of social innovation? • How does it impact/influence the field of infectious diseases? • How does it impact/influence health systems?

3. CASE STUDIES

This chapter presents 23 summaries of the case studies of the selected social innovations. The full-length case studies can be found online at **www.socialinnovationinhealth.org.** The case study matrix (table 5) presents all case studies mapped by health focus, organizational structure, location, actors, main programme focus, and health-system function.

TABLE 5. CASE STUDY MATRIX

		HEALTH FOCUS					
		Malaria	Tuberculosis	Neglected Tropical Diseases	Primary Health Care	Maternal and Child Health	Sexual Reproductive Health & HIV/AIDS
ORGANISATIONAL STRUCTURE	For Profit	SPROXIL	Embryyo Technologies		LiveWell Clinics; The Medical Concierge Group		
	Not for profit / NGO / Social Enterprise		Operation ASHA	CEDIC; PILA; SMS Hub	Last Mile Health; Noora Health; Pharmacist Assistant Training Programme; Riders for Health; SWAP	LifeNet International; Living Goods	
	Government Institution	MOSQUIT					
	University			Schistosomiasis Control Initiative	ICHAPP	Drug Shops Integrated Management of Childhood Illness	SESH
	Partnership	Learner Treatment Kit			One Family Health		GP Down-Referral Model
FOCUS LOCATION	Community-based Delivery	Learner Treatment Kit	Operation ASHA	CEDIC; PILA; Schistosomiasis Control Initiative;	ICHAPP; Last Mile Health; SWAP	Drug Shops Integrated Management of Childhood Illness; Living Goods	SESH
	Facility-based Delivery	MOSQUIT		SMS Hub; PILA	LiveWell Clinics; Noora Health; One Family Health; Pharmacist Assistant Training Programme	LifeNet International	GP Down-Referral Model
	Community - Facility Linkage / Intermediate	SPROXIL	Embryyo Technologies		Noora Health; Riders for Health; The Medical Concierge Group		
ACTORS INVOLVED	Private Sector	SPROXIL	Embryyo Technologies		LiveWell Clinics; One Family Health	Drug Shops Integrated Management of Childhood Illness	GP Down-Referral Model
	Non-State / Other Sectors	Learner Treatment Kit		CEDIC; PILA; Schistosomiasis Control Initiative; SMS Hub	Last Mile Health; Pharmacist Assistant Training Programme; Riders for Health	LifeNet International; Living Goods	
	State	MOSQUIT	Operation ASHA	Schistosomiasis Control Initiative; SMS Hub	Last Mile Health; Pharmacist Assistant Training Programme; Riders for Health		GP Down-Referral Model
	Communities / Patients		Operation ASHA	CEDIC; PILA	ICHAPP; Noora Health; SWAP; The Medical Concierge Group	Living Goods	SESH
MAIN PROGRAMME FOCUS	Training / Education	Learner Treatment Kit	Operation ASHA	PILA; Schistosomiasis Control Initiative	ICHAPP; Noora Health; Pharmacist Assistant Training Programme; The Medical Concierge Group	LifeNet International	
	Service Delivery	Learner Treatment Kit; MOSQUIT	Operation ASHA	Schistosomiasis Control Initiative	Last Mile Health; LiveWell Clinics; One Family Health; Riders for Health; SWAP; The Medical Concierge Group;	Drug Shops Integrated Management of Childhood Illness; Living Goods	GP Down-Referral Model
	Community mobilisation	Learner Treatment Kit		CEDIC; PILA			SESH
	Technology	MOSQUIT; SPROXIL	Embryyo Technologies; Operation ASHA	SMS Hub	Last Mile Health; One Family Health; The Medical Concierge Group	Living Goods	
	Research	SPROXIL	Embryyo Technologies; Operation ASHA	CEDIC; Schistosomiasis Control Initiative		Drug Shops Integrated Management of Childhood Illness	SESH
HEALTH SYSTEM FUNCTION	Human Resources for Health	Learner Treatment Kit	Operation ASHA	PILA	ICHAPP; Last Mile Health; Noora Health; One Family Health; Pharmacist Assistant Training Programme; SWAP	Drug Shops Integrated Management of Childhood Illness; LifeNet International; Living Goods	GP Down-Referral Model
	Governance & Leadership			Schistosomiasis Control Initiative			
	Financing				One Family Health		
	Logistics		Operation ASHA		Riders for Health		
	Information	MOSQUIT; SPROXIL	Operation ASHA	Schistosomiasis Control Initiative; SMS Hub	One Family Health		SESH
	Products		Embryyo Technologies				

CENTRE FOR THE DEVELOPMENT OF SCIENTIFIC RESEARCH

Country of operation	**Paraguay**
Organizational structure	**Non-governmental organization**
Founding year	**2006**
Case Researchers	**Liliane Chamas (University of Oxford)**
	Lindi van Niekerk (University of Cape Town)

Chagas disease is a potentially life-threatening illness affecting between six and seven million people worldwide. It is responsible for 21 000 deaths annually (WHO, 2016a). In Paraguay, Chagas disease is endemic to the Gran Chaco region. The Chaco is a vast semi-arid geographical area in western Paraguay. Although sparsely populated, it is home to 115 944 indigenous persons or 2% of the population (Technical Planning Secretariat for Economic and Social Development, 2015). According to the Paraguayan 2012 census, 455 of the country's 711 indigenous communities lack health facilities and, where they do exist, the services are often insufficient. The constraints in health-care service provision pose a major challenge for preventing and managing Chagas Disease (United Nations Human Rights Council, 2015).

After recognizing the need for a community-driven approach to tackling Chagas disease, the Centre for the Development of Scientific Research (CEDIC) has adopted a community-centred research approach. It invites inclusive participation of all stakeholders to develop new context-specific solutions in addressing the disease in the Chaco region. Its inclusive co-design process allows for the development of an integrated pipeline of innovative product and process solutions. CEDIC draws from its rigorous research experience and its established relationships with local stakeholders, such as universities, local municipalities and the national government. Together with its collaborators, CEDIC operates as a "Living Lab", applying principles of co-design and user-centred research. By building relationships with various stakeholders and applying for international grants to finance its projects, CEDIC has been encouraging research and enabling collaboration between institutions and local communities. Although primarily funded through research grants, CEDIC is considering ways to diversify funding and become more sustainable.

CEDIC has yet to quantify the impact of its work in the Chaco. Its impact on the socioeconomic welfare and health outcomes of the communities, and the incidence of Chagas and the infestation rate of triatomines, cannot be fully measured due to difficulties in obtaining reliable baseline data and determining confounding variables. The National Program for Chagas Control of the Ministry of Health, however, reported a decline in the infestation rate in affected communities from 30% to 12%. Community leaders expressed their satisfaction with CEDIC's approach and were pleased that the NGO continued to understand their needs and to work on more projects with them.

This case study illustrates that communities can define new research priorities for academics. They can also actively participate in designing new interventions in response to these priorities in collaboration with experts and academics. By engaging and involving community members, it increases their ownership of the implemented interventions in the community. The way CEDIC operates provides an example of how the role of research can extend beyond the generation of new knowledge. Instead, research can also provide an opportunity to mobilize a broader, cross-sectoral group of experts and community members to help solve challenges faced by marginalized communities.

> **"We like working with them, they are the only ones that keep coming back [and helping us]."**
>
> **Community Leader, Chaco Region.**

Image credit: CEDIC, Paraguay

DRUG SHOP INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS

Country of Operation	**Uganda**
Implementers	**Makerere University, the Karolinska Institute, Uppsala University, and the University of Bergen**
Organizational structure	**Inter-university collaboration**
Founding year	**2011**
Case Researchers	**Lindi van Niekerk (University of Cape Town)**
	Rachel Chater (University of Cape Town)

Malaria, diarrhoea and pneumonia are collectively responsible for three-quarters of deaths in children under five (Liu et al., 2012). Studies have found that: timely community case management of malaria can reduce mortality by 60%; early treatment with oral rehydration salts can prevent 90% of deaths caused by acute watery diarrhoea; and providing antibiotic treatment in the case of pneumonia can result in a 70% reduction in mortality (Sazawal & Black, 2003; Sirima et al., 2003; Munos, Walker & Black, 2010). In Uganda, up to 63% of parents seek care for their febrile children primarily from private clinics and drug shops (Rutebembera et al., 2009; Awor et al., 2012). Drug shops are small private outlets that offer over-the-counter medicines and supplies for common illnesses, particularly in rural and hard-to-reach areas. In 2010, Uganda had 6636 registered drug shops and many more unregistered ones primarily serving the population residing in rural areas (Uganda Bureau of Statistics & ICF International Inc., 2012).

The Drug Shop Integrated Management of Childhood Illness project is a collaborative research initiative. Structured as a pilot programme, it aims to assess the feasibility and effectiveness of engaging private sector drug shop owners in the provision of care to children under five living in low-income areas in Uganda, particularly for the treatment of malaria, diarrhoea and pneumonia. The project selected a group of drug shop owners and provided them with integrated community case management (iCCM) training, appropriate diagnostics equipment (e.g. respiratory timers and malaria rapid diagnostic tests), and subsidized medication supplies. All participating drug shop owners received five days of training in iCCM and received their practical experience at local public health facilities. Accredited district health officials provided all training, and a supervisor and the district drug inspector conducted regular visits to the shops to assess treatment provision. Systems were put in place to facilitate drug shop owners' referral of children with severe conditions to the local public health facility. A campaign was also run to increase the awareness and knowledge of the local community around the type and cost of services that they could expect from accredited health facilities. Research was initially conducted using information from 7667 children visits occurring across 40 drug shops, and is currently ongoing.

This case study illustrates that activities intended to strengthen the technical capacity and quality delivered by the health-care system need to extend beyond the public sector to include private sector providers. This is particularly appropriate in countries such as Uganda, with high out-of-pocket health expenditure, and where low-income patients regularly tend to first seek care from private facilities. This case also highlights the opportunity for more collaboration between academics, policy-makers, regulators and entrepreneurs in the design of implementation strategies. More comprehensive and holistic strategies help ensure that an effective innovation is financially sustainable and amenable to widespread adoption.

> **"It excites us a lot that we've shown a way to engage with this group of drug shops and actually harness their potential for improving outcomes in child health."**
>
> **Phyllis Awor,
> Primary Researcher.**

Image credit: L van Niekerk, Uganda, SIHI 2015

EMBRYYO TECHNOLOGIES

Country of operation	**India**
Organizational structure	**For-profit, private limited company**
Founding year	**2014**
Case Researcher	**Elina Naydenova (University of Oxford)**

In recent years, there has been increasing recognition of the importance of medical devices and other non-pharmaceutical health-related technologies to all aspects of health care (Sinha & Barry, 2011). Despite advances in health technology, there are many diseases for which there are only inadequate or few technologies that can reduce their burden on health (Sinha & Barry, 2011). There are also significant challenges in financing and delivering technologies to those who need them. In India, the majority of medical devices manufactured are exported, while 75% of the medical devices used in the country are imported (Deloitte and Confederation of Indian Industry, 2010). About 70% of complex medical devices sit inoperable at their destinations in developing countries (WHO, 2011). Creating appropriate products for low-resource settings requires reassessment of what is considered a health technology, and cross-disciplinary innovation and in-depth understanding of the particular needs of each country.

Embryyo Technologies (Embryyo) is a private medical device and technology innovation company – based in Pune, India – specializing in context-appropriate, user-centred interventions in the field of public health. Its mission is to create breakthroughs in science, technology, research and design while solving the toughest challenges in global health to enable maximum impact in a sustainable way. Embryyo designs a wide range of low-cost innovations including devices for blood plasma separation for point-of-care diagnostics, a non-invasive bilirubin assessment in neonates, respiration rate diagnostics, a LED-based neonatal phototherapy system and a TB drug adherence monitoring system. Embryyo involves its end users in the design and testing process to make sure maximum benefits accrue to the intended beneficiaries and that their input is considered and incorporated throughout.

Embryyo has adapted a mixed funding model, leveraging philanthropic grants to fund the development of affordable solutions to public health challenges, before engaging with investors who can support commercialization. Currently, Embryyo's focus is on the design and prototyping stages, not the commercialization and distribution stages. Moving forward, Embryyo plans to explore three routes to market for its products: (1) licensing the intellectual property (IP) to a third party; (2) creating spin-out entities; or (3) managing the full commercialization process in-house.

The Embryyo case study illustrates how research funding can support start-up companies in LMICs to develop and test new low-cost, context-appropriate technology innovations. These creative young companies often require tailored business support and guidance to get the innovations into the local market while retaining the affordability of the product. The case study also shows how location-specific needs assessment and user-centred design can ensure that more appropriate devices reach people in need and prevent the adoption of ineffective or inappropriately costly technologies that could divert resources from other critical health-care areas (Sinha & Barry, 2011).

> "We fundamentally believe that good health is the primary signature of prosperity for any individual, their families, and the nation at large… with these kind of initiatives we are contributing our bit to health as well as economy."

Nishant Kumar and Prateek Jain, Co-founders, Embryyo Technologies.

Image credit: Embryyo Technologies, India

GENERAL PRACTITIONER DOWN-REFERRAL MODEL

Country of operation	**South Africa**
Implementers	**BroadReach Healthcare (private company) and North West Province Department of Health (DOH)**
Founding year	**2005**
Case Researchers	**Lindi van Niekerk (University of Cape Town)**
	Rachel Chater (University of Cape Town)

HIV prevalence in South Africa rose from 0.8% in 1990 to 4.3% in 1994 (Simelela & Venter, 2014) and was at 12.2% in 2012 (Shishana et al., 2012). In addition to its heavy HIV burden, South Africa is faced with a critical shortage of doctors. In 2013, there were only 60 doctors per 100 000 citizens, compared to a world average of 152 doctors per 100 000 (Econex, 2015). Strain on the country's health-care system is exacerbated by large disparities between the private and public sectors. Annual per capita health expenditure is approximately US$ 140 in the public sector, serving 84% of the population, and US$ 1400 in the private sector serving only 16% of the population (Benatar, 2013; Mayosi & Benatar, 2014). The distribution of medical specialists in the private sector is 86.5 per 100 000 compared to 11.4 per 100 000 in the public sector (Stuckler, Basu & McKee, 2011; Econex, 2015).

The General Practitioner Down-Referral Model (GP Model) utilizes the additional capacity of the private sector to meet gaps in the provision of health-care services for HIV patients in the public sector. It enables medically stable HIV patients to be referred down from public sector hospitals to local private general practitioners (GPs). It

has been specifically constructed to provide support for the overburdened public health-care system, which was struggling to cope with the large number of HIV patients needing antiretroviral therapy in South Africa. The GP Model is a public-private partnership (PPP) between BroadReach Healthcare, the DOH, and KOSHMED and MAIPA (two independent private GP associations in the North West Province). Donor funding was provided for 10-years to cover the consultation fees of the GPs participating in the GP Model. These fees were fixed at a negotiated rate, which was determined with the input of all partners, and structured so that it would be feasible for the DOH to absorb the costs if donor funding did not continue. Ten years into the GP Model, donor funding has indeed ended and discussions are at an advanced stage for the DOH to absorb them as initially planned.

Since the GP Model began in 2005, 4158 patients have been transferred to private GPs for routine HIV care. In an external study conducted by Navario (2009) comparing the GP Model and primary health care clinic (PHC) down-referral model, the following results were obtained: (1) the proportion of

patients who remained in care at the down-referral site with suppressed viral loads was 83% and 55% in the GP Model and PHC cohorts, respectively; (2) 88% of GP Model patients had suppressed viral loads compared to 67% of PHC patients; and (3) retention on treatment was 94% among GP Model patients and 75% among PHC patients.

The GP Model illustrates that contracting out selected health-care services to private providers with additional capacity is a feasible mechanism in increasing access to quality services for public sector patients in resource-constrained environments. The GP Model also demonstrates how appropriate costing increases the likelihood that effective models can be integrated into the public health system.

> **"** I think we are achieving excellent results for a very difficult disease [HIV]. **"**

Private GP involved in the GP Down-Referral Model.

Image credit: R Chater, South Africa, SIHI 2015

INDIGENOUS COMMUNITY HEALTH AGENTS PROFESSIONALIZATION PROGRAMME

Country of operation	**Brazil**
Implementers	**Oswaldo Cruz Foundation (FIOCRUZ) and Federation of Rio Negro Indigenous Organizations (FIORN)**
Organizational structure	**Government public health research institution (FIOCRUZ) and nongovernmental institution (FIORN)**
Founding year	**2009**
Case Researchers	**Liliane Chamas (University of Oxford)** **Lindi van Niekerk (University of Cape Town)**

Image credit: Adobe Stock

Indigenous peoples across the world are some of the most marginalized in society. They are often poorer, have less access to education and have worse health indicators than the general population. The distance, location of health facilities and, in many cases, the isolation of indigenous communities pose major barriers for accessing health services. Another key issue is the lack of cultural sensitivity and appropriateness of the care delivered. The health system in Brazil is shaped according to western, scientific values (De Moura-Pontes, Garnelo & Rego, 2014). This is in stark contrast to the perception of health and illness held by indigenous people, who define well-being more broadly than merely the absence of disease. Indigenous traditional medicine practices are passed down through generations and are heavily dependent on the land, food and availability of medicinal plants (Montenegro & Stephens, 2006). The fusion of western and traditional medical practices has yet to occur and there has been a lack of recognition by official health authorities of the role of indigenous health workers. Despite indigenous community health agents' vast knowledge in traditional medicine and their presence in the communities, the role of indigenous health agents has been significantly limited. In Latin America and the Caribbean there are almost 600 indigenous peoples (approximately 40 million people) who comprise over 12% of the total population (IWGIA, 2017). The 2010 Brazilian census estimated the presence of approximately 900 000 indigenous Brazilians.

The Indigenous Community Health Agent Professionalization Programme (ICHAPP) aims to enhance health-care services in remote indigenous communities in Brazil by incorporating the cultural underpinnings and voices of indigenous people and their local community health agents. It is the first community health-worker programme that has developed a formal training approach tailored to the contextual and cultural realities of these indigenous people. In a context where indigenous peoples are often severely marginalized, recognizing and equipping their local health agents helps ensure that health-care services delivered to these remote indigenous communities are both of a high quality and are culturally accepted. The training programme uniquely blends traditional medicine, biomedical approaches and general education. The first cycle of the programme, running from 2009 to 2015, trained and professionalized 189 indigenous health agents. ICHAPP has raised not only the awareness of the role of indigenous community health agents, but also the qualification that these health agents gain on completion of the education programme, which has enabled them to receive a salary for the work they do.

This case study illustrates how in countries with marginalized or distinct cultural population groups, a deep understanding of these communities' values and beliefs towards health and well-being provides insight into how health systems should be adapted or redesigned to allow for culturally respectful care that is truly people-centred. It shows how traditional community knowledge can be leveraged and integrated successfully along with biomedical approaches in a structured and cohesive way.

> **"It was the first time somebody was trying in a serious way to join tradition and biomedicine in Brazil."**

Luiza Garnelo, Oswaldo Cruz Foundation.

Image credit: Adobe Stock

LAST MILE HEALTH

Country of operation	**Liberia**
Implementers	**Non-governmental organization**
Founding year	**2007**
Case Researchers	**Rachel Chater (University of Cape Town)**
	Joseph Lim (University of Cape Town)
	Lindi van Niekerk (University of Cape Town)

Liberia's 12 years of civil wars resulted in over 200 000 casualties, the disruption of public services and the displacement of an estimated 800 000 people (Republic of Liberia, 2011). The war also left the health system in a fragile state. In terms of human resources for health, as of July 2014, there were an estimated 45 physicians practising in the public sector – a ratio of 0.01 physicians per 1000 population – well below the WHO recommended threshold of 0.55 per 1000 (IHME, 2015). Outside of the capital, Monrovia, there is little or no access to health-care services (Kruk et al., 2010). Of existing health facilities, 45% are without power and 13% do not have access to safe water (Republic of Liberia, 2011).

Last Mile Health (LMH) is a not-for-profit organization with a vision to strengthen the Liberian health system at grassroots and policy levels in order to increase access to care for people living in remote, hard to reach areas. It achieves this through a well-managed community health-care worker (CHW) model. LMH recruits and trains CHWs in: (1) community health and surveillance; (2) child health; (3) maternal and neonatal health; and (4) adult health. The training is given intensively for the first 12 months and then supplemented with annual refresher training. During training, CHWs also carry out active fieldwork and, upon graduation, receive ongoing clinical and managerial supervision. CHWs are equipped with diagnostic, curative and point-of-care tools and medication. They refer patients to health facilities as needed, per established guidelines, and provide point-of-care services when possible. Remuneration is performance-based and linked to measures such as accuracy and efficiency. In total, LMH covers a land area of 3925 square miles across Rivercess County, Konobo District and Gboe-Ploe District. It has deployed 283 CHWs to cover a population of 33 664.

In addition to its programmatic work, LMH supports the National Ministry of Health's Community Health Services Division by providing technical assistance to help develop policy to scale up the CHW model nationwide. This is part of a broader government initiative called the National Community Health Workforce Program (NCHWP). Over the next five years, the Liberian MOH, working with LMH, will train and deploy an estimated 4100 professionalized CHWs and 230 supervisors to provide care for approximately 1.2 million individuals living in remote areas.

The LMH case study is a great example of how NGOs can play a unique role in strengthening health systems by absorbing the experimentation risk for new innovative service delivery models, providing the financial backing and creating data systems to assess impact. It shows how country governments in turn can promote the adoption and scale of effective models. CHW programmes have significant potential to improve health-care delivery to people living in rural and hard to reach areas, if the programme incorporates best practices at each stage including recruitment and selection, training, equipment and supplies, and performance management.

> **"** I think social change gets created in two ways. One is to solve problems that have already been defined and the other is to define the problem in the first place…Embracing the consciousness to actually understand the problem in the first place and communicate around it: that remote villages are a distinct issue for health care, period. **"**
>
> **Raj Panjabi, Co-founder and Chief Executive Officer, LMH.**

Image credit: Last Mile Health, Liberia

LEARNER TREATMENT KIT

Country of operation	**Malawi**
Implementers	**Save the Children Malawi, MOH, Ministry of Education, College of Medicine of the University of Malawi, London School of Hygiene and Tropical Medicine**
Founding year	**2011**
Case Researchers	**Lindi van Niekerk (University of Cape Town)** **Rachel Chater (University of Cape Town)**

In Malawi there has been much focus on addressing malaria in children under five years old. However, children between 6 and 15 years old were found to have four times higher the risk of symptomatic and asymptomatic infection than younger children (Walldorf et al., 2015). Research conducted in 50 schools in the Zomba District has found that 60% of school-aged children were infected with Plasmodium falciparum, which is a major cause of anaemia and impaired cognition and educational development.

The Learner Treatment Kit (LTK) Initiative is a cross-sector collaboration that seeks to address the high burden of malaria experienced by school-aged children by equipping teachers to diagnose and treat malaria in primary schools. The LTK project partners developed a customized teacher-training programme incorporating all the elements of knowledge and practical skills required by a lay person to feel confident in performing the testing and treatment process for malaria. Teacher training includes seven day's residential training followed by two week's practicum experience in the local public health-care facility. In each primary school, two or three teachers, including the headmaster, are selected for training. Teachers are trained to identify children with symptoms of malaria, assess severity, conduct the test and accurately interpret the result, dispense the required medicine as per the weight of the child, accurately document all steps taken, monitor side effects, and know when to refer to a formal health-care facility. Schools are equipped with a learner treatment kit, which is a wooden box containing the supplies and treatments required for managing common emergency illnesses seen in school-aged children, including artemisinin-based combination therapy (ACT) and malaria rapid diagnostic tests (MRDTs).

The LTK Initiative is active in 58 primary schools in the Chikowi Traditional Authority, Zomba District, Malawi. From November 2013 to March 2015, there were 32 193 consultations and 20 290 MRDTs performed. Of the tests performed, 75% of children (n=16 322) were positive for malaria and received immediate treatment. A preliminary cost-effectiveness analysis comparing the Initiative's costs against the health facility's costs to deliver outpatient malaria services in the same time period showed it to be a cost-effective intervention, even with changing assumptions (Sande, 2016).

This case study shows how the education system can contribute to addressing the burden of malaria in school-aged children. Access to essential diagnostics and medicines is enhanced by shifting the task of testing and treating the disease to schoolteachers and by equipping school facilities so that they are able to carry out these functions. It also demonstrates how mobilizing and actively engaging different groups, including community members, traditional authorities, health authorities, education authorities, academic institutions, and NGOs enhances the durability of an intervention.

> **Because if learners are treated within the school, there is a smile on the face of the parents. Because it reduces the burden of travelling long distances to go to health services. They concentrate on their day-to-day activities. Productivity at the household improves because they are not spending time admitting the child to hospital etc. There are a lot of economic benefits from this mere simple intervention.**
>
> **National Education Officer, Lilongwe.**

Image credit: L van Niekerk, Malawi, SIHI 2015

LIFENET INTERNATIONAL

Country of operation	Burundi
Organizational structure	Non-governmental organization
Founding year	2009

| Case Researchers | Lindi van Niekerk (University of Cape Town) |
| | Rachel Chater (University of Cape Town) |

All health centres in Burundi are mandated by the national Ministry of Health to deliver a basic package of prevention and curative services, but 45% of these are unable to do so due to shortages in human resources, infrastructure, equipment or medicines (Chi et al., 2015). The resulting poor quality of basic service provision is reflected in a maternal mortality rate of 740 per 100 000 live births and an under-five mortality rate of 83 per 1000 live births in 2013 (WHO, 2015a). Whilst many donors and NGOs have focused on establishing new health centres, LifeNet has chosen instead to define a target population of existing faith-based health centres with which to partner.

LifeNet International (LifeNet) is a NGO in Burundi aiming to improve the quality of primary care delivery for low-income rural patients, in particular women and children. It operates as a relational franchise network providing medical and management training and coaching to their partners (faith-based health centres). The franchise network comprises 57 health centres across Burundi. The medical curriculum has the following modules, which cover: the basics of health-care safety for providers; issues regarding maternal and neonatal survival; and the management of common medical conditions experienced by children under the age of five. The three-part management curriculum focuses on sharing best practice principles, including professional ethics, financial management and pharmacy management (including logistics and human resources management). Prior to the delivery of every training module, staff members at the health centre are evaluated to establish their pre-existing knowledge of the topic. Data from the first quarter of 2015 shows a 34% and 21% increase in knowledge of basic health sanitation and safety, and care for newborns, respectively. There was also a 29% and 42% increase in knowledge on financial management, and logistics and maintenance, respectively. LifeNet supports its franchise partners to achieve financial sustainability, offers long-term mentoring, and provides ongoing evaluation of the quality of care. From 2012 to the first quarter of 2015, over 1.7 million patient visits were recorded throughout the network and over 300 hours of training were delivered a month. A pilot model is currently being implemented in Uganda.

The faith-based health sector has a long history of delivering health services in developing countries. The LifeNet case study illustrates that there is a valuable opportunity to partner with such non-state facilities to improve the quality of services delivered. Strengthening the capacity of existing health facilities, is a priority that should not be neglected alongside efforts to increase the number of new health facilities in a country. LifeNet demonstrates the use of social franchising as a mechanism to encourage the active engagement of all health facilities within a network in order to improve standards and enhance skillsets. In addition to strengthening clinical skills, training that includes management and financial skills is beneficial to primary health care workers, especially nurses, who work in settings with changing demands and limited external support.

Image credit: L van Niekerk, Burundi, SIHI 2015

"Yes, it works well because when LifeNet just gives us training, we improve our knowledge. And this knowledge brings us to accommodate many patients. And good service pushes even more people to confidently use health facilities. It is thanks to LifeNet that we got the dentistry training. LifeNet also gave us materials and now patients in this locality, they [used to use] the Ntare Health Centre, 14 km away, for tooth extraction, but now they come to us. "

(Translated from French.) LifeNet Partner Nurse.

LIVEWELL CLINICS LTD. (FORMERLY VIVA AFYA)
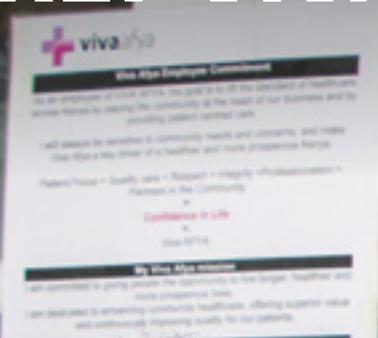
Country of operation	**Kenya**
Organizational structure	**For-profit company**
Founding year	**2009**
Case Researchers	**Lindi van Niekerk (University of Cape Town)**
	Rachel Chater (University of Cape Town)

Kenya, an East African lower middle-income country, is working towards achieving UHC for its citizens. With a general decline in economic growth, the government has been struggling to provide accessible and comprehensive primary health care services. Challenges include poor health infrastructure, pressing shortages of health care workers (0.2 physicians per 1000 people); low equipment and essential drug availability; and a high burden of communicable and noncommunicable diseases (PHCPI, 2015; WHO, 2015b). As part of its goal to achieve UHC, the Kenyan government has encouraged the development of the private sector (Chuma & Maina 2014). Of outpatient health care services, 30.1% are provided by private clinics and hospitals (Government of Kenya, 2014). Private sector utilization in Kenya is not only for the upper-income tier but even among the poor it is an important source of health care. Of the poorest quintile of Kenyans, 47% report that they first seek care from a private facility when a child is sick, believing that the quality is superior to that received in public health-care facilities (Marek et al. 2005; Barnes et al. 2010).

LiveWell Clinics (LiveWell) – formerly Viva Afya Ltd. – was launched as a private, for-profit company in 2009 in response to the need for accessible and affordable primary health care for people from the urban low and emerging middle class in Nairobi, Kenya. It is organized as a hub-and-spoke primary health care model and is located in the low-income densely populated urban areas of Nairobi. LiveWell aspires to create a sustainable and profitable business by focusing on attaining high patient volumes at a low profit margin and delivering operations in an efficient way. By 2015, the model comprised five larger hub clinics and seven smaller spoke health centres. The hub clinics provide comprehensive primary health care services including laboratory, pharmacy and dental services. These clinics have a clinical officer, a laboratory technician, a nurse, a pharmacist, a receptionist and a visiting obstetrics specialist. Smaller spoke health-care centres have a clinical officer or nurse and a receptionist. In 2014, the clinic chain provided 56 000 clinical consultations. On average, about 6000 customers per month receive consultations, diagnostic procedures or pharmaceuticals.

To support appropriate private sector engagement in enhancing primary health-care service delivery and achieving UHC, greater focus is needed on non-state actors who have succeeded in delivering care through innovative, affordable and accredited means. Across sub-Saharan Africa, a range of new private organizations have been established to improve primary health-care delivery. LiveWell shows that it is possible for private companies to do so in affordable and high quality ways by focusing on patient experience, innovative staffing models, a combination of medical and business skills, standardization of processes, alternative financing streams and collaboration with other public or private organizations.

> **"They [clients] come to us because of the convenience. They know they're going to pay something but it's quick service. Get it sorted out, go back to work, so you don't lose a day."**

Liza Kimbo, CEO, LiveWell Clinics.

Image credit: L van Niekerk, Kenya, SIHI 2015

LIVING GOODS

Country of operation	**Uganda, Kenya and partnership models in Zambia and Myanmar**
Organizational structure	**Non-governmental organization**
Founding year	**2007**
Case Researchers	**Lindi van Niekerk (University of Cape Town)**
	Rachel Chater (University of Cape Town)

Uganda has achieved a reduction in under-five mortality from 156 per 1 000 live births in 1995 to 64 per 1000 live births in 2013 (Liu et al., 2012). The most common diseases responsible for under-five mortality in Uganda include pneumonia (20.6%), malaria (19.3%), and diarrhoea (12.3%) (Liu et al., 2012). Maternal mortality also remains a challenge in Uganda, at 438 per 100 000 live births (Uganda Bureau of Statistics, ICF International Inc., 2012). The Sustainable Development Goals emphasise that continued efforts are required to reduce under-five mortality to 12 per 1000 live births and maternal mortality to 70 per 100 000 live births by 2030 (United Nations Human Rights Council, 2015).

Living Goods is a NGO with a vision to decrease maternal and child mortality from preventable diseases in low-income countries such as Uganda. Recognizing the value of community members in addressing health issues and preventing ill-health at a grassroots level, Living Goods has pioneered an entrepreneurial CHW platform that combines best practices in business and performance management with health-care delivery. Living Goods selects and trains community health promoters (CHPs), who go door-to-door providing basic health services. The CHPs focus on: diagnosis and treatment of childhood diseases, providing pregnancy and newborn check-ups; addressing nutritional challenges; and referring acute cases to qualified facilities as required. CHPs are enabled as micro-entrepreneurs and equipped with a basket of health products to sell while they provide their door-to-door health promotion services. Products include treatments for diarrhoea, safe delivery kits, fortified foods, clean cook stoves, water filters and solar lights. CHPs earn most of their income through product sales and Living Goods invests heavily in training CHPs and monitoring their performance throughout. CHPs are provided with a smart phone equipped with an application for: registering households visited; sending and receiving reminders; generating task checklists to perform during visits with protocols to support decision- making; and monitoring their own performance.

Living Goods has achieved significant impact in reducing child mortality by up to 27% (Bjorkman-Nykvist et al., submitted for publication). Through revenue generation from product sales, Living Goods sustains 60% of its operations and deliver services at under US$ 2 per person per year. Launched in Uganda in 2007, Living Goods has since scaled up its model in Kenya and has replicated it in Zambia and Myanmar in partnership with CARE International and Population Health Services, respectively.

The Living Goods case study illustrates how combining entrepreneurial approaches with community health provision not only supports the achievement of health outcomes in a sustainable way, but also enhances economic and women's empowerment of community members. In addition, entrepreneurial models reduce the financial investment required by national governments to support the scale up of CHW programmes. It demonstrates how best practice management techniques increase the impact and affordability of such programmes. Mobile data tools enable the organization to assess its performance on a continual basis, make data-driven decisions and address challenges without delay.

❝Health is coming to the home. I think that's what happening as we speak. I think it's beautiful how we're taking this centralized idea of a community health worker, a village where you went to someone who you know next door for help. **❞**

Charles Slaughter, Founder and CEO, Living Goods.

Image credit: W Bose, Uganda, SIHI 2015

MOBILE-BASED SURVEILLANCE QUEST USING I.T. (MOSQUIT)

Country of operation	**India**
Implementer	**Centre for Development of Advanced Computing (C-DAC)**
Organizational structure	**Government agency (not-for-profit)**
Founding year	**2011**
Case Researcher	**Elina Naydenova (University of Oxford)**

MOBILE-BASED SURVEILLANCE QUEST USING IT (MOSQUIT)

India's health system faces the challenge of monitoring and assessing the spread of infectious diseases in a large population of over 1.2 billion people. Malaria, in particular, poses a tremendous challenge for the entire public health system, especially in the country's north-eastern region where incidence and mortality are disproportionately high compared to other parts of the country. In 2013, the number of malaria cases was reported to be 0.88 million and the number of deaths 440 000 (National Vector Borne Disease Control Programme, 2016. However, experts have warned that official malaria figures underestimate the burden significantly; incidence is said to be between nine and 50 times higher and mortality around 13 times greater than officially reported (Hay, Gething & Snow, 2010; Dhingra et al., 2010). Without correct and current data, disease patterns are often misunderstood, health programmes do not accomplish their goals and resources are incorrectly allocated (Unite for Sight, 2016).

The Centre for Development of Advanced Computing (C-DAC) is a government agency of the Indian Ministry of Communications and Information Technology that conducts cutting-edge research and development (R&D) in information technology and electronics. C-DAC's projects leverage the organization's technical expertise to tackle pressing social challenges in India. One of these projects is C-DAC's digital platform for malaria surveillance, Mobile-based Surveillance Quest using IT (MoSQuIT). MoSQuIT automates and streamlines the otherwise manual malaria surveillance process undertaken by the National Vector Borne Disease Control Programme's Accredited Social Health Activist (NVBDCP/ASHA) workers in rural India. It was developed to address the challenges that the Indian health system faces in monitoring and managing malaria, especially in remote rural areas. MoSQuIT has four main objectives: (1) to provide a real-time snapshot of malaria incidence in a community; (2) to detect changes in malaria incidence distribution to initiate an appropriate health-system response; (3) to ensure transparency and accountability across the value-chain; and (4) to measure the effectiveness of anti-malaria interventions and assess health-system needs, such as stocks of medical supplies, in real-time. MoSQuIT uses the guidelines and policies that underpin the national surveillance programme delivered by ASHAs.

A pilot study was conducted across 50 villages for 18 months to demonstrate the effectiveness of the platform. C-DAC is now exploring deployment of MoSQuIT through the public health system and adapting the technology to serve other health challenges in India, such as the surveillance of TB.

The MoSQuIT case demonstrates how disease surveillance efforts can be strengthened through a streamlined technology platform that gathers data from different care providers along the patient care continuum. Integrated data collection coupled with real-time analytics can help detect disease outbreaks and trigger a quicker health systems response. In addition, it enhances transparency, communication and trust between different care providers.

> **The government feels that since data is not collected… malaria cases are not there. But due to such a system now, previously we were getting information on about 10 cases and now getting 100 cases; it is [a] big achievement for the surveillance system.**

Ganesh Karajkhede, Domain Expert, C-DAC.

Image credit: E Naydenova, India, SIHI 2015

NOORA HEALTH

Country of operation	**India**
Organizational structure	**Non-governmental, not-for-profit organization**
Founding year	**2014**
Case Researcher	**Elina Naydenova (University of Oxford)**

The shortage of trained medical professionals in India means that most patients recovering from medical interventions rely mainly on care provided by family members. With very limited information or training, families are often ill-equipped to provide support during the recovery process resulting in high rates of patient relapse and complications. Research has shown the value of equipping family caregivers to become more competent and confident in providing safe and effective care to patients (Scherbring, 2002; Reinhard et al., 2008).

Noora Health aims to equip a patient's family with actionable health information so they can become core components of high-quality health-care delivery. Noora Health has developed a 'train-the-trainer' method and certification programme for hospital staff, usually nurses. The programme teaches trainers how to effectively deliver health education and awareness to patients and their families. Noora Health also provides a range of learning aids and materials, which it develops with input from content specialists. Patient families receive an interactive, skills-based training programme, delivered by the trained hospital staff, and focusing on practical skills that they can use at home to facilitate recovery post-treatment. This allows family members to support loved-ones during their recovery, alleviating their anxiety and easing the transition from the hospital to the home. The training is optional for families who are told about it upon admission to hospital and during their stay by the ward superintendent. The programme is a combination of theoretical and practical training. Available in different languages, classes vary in size (between 5 and 30 people), and locations (hallways, waiting rooms and wards).

Since launching, the programme has been implemented in 26 hospitals across India and has trained 50 000 caregivers. During a three-month pilot study with adult post-surgical cardiac patients, Noora Health observed a 36% decrease in complications, a 23% decrease in 30-day readmissions and 55% increase in customer satisfaction.

The Noora Health case study shows how families are an untapped resource that could support an overburdened health system. By equipping family members with the basic skills to deliver effective home-based health care following a hospital admission, better patient outcomes can be achieved and readmission rates lowered. It also demonstrates the value of human-centred design and stakeholder engagement. Initially identified via a needs assessment as part of a university class, the programme has grown and evolved, with input from the patients' families and hospital staff, to optimize its value to the health-care system. By developing a portfolio of tools and content, Noora Health has constructed a platform to accommodate variability in needs across geographical areas, and across public and private facilities.

"They [family members] take weeks out of their lives to be with their loved ones, but basically they are relegated to standing outside, sitting outside, sleeping outside the whole time. They get to see their family member for a couple of hours each day... Then at the end of the whole thing they are given this enormous task to take care of the patient at home."

Shahed Alam, Co-founder, Noora Health.

Image credit: Noora Health, India

ONE FAMILY HEALTH

Country of operation	**Rwanda**
Organizational structure	**Limited liability low-profit company**
Founding year	**2012**
Case Researchers	**Lindi van Niekerk (University of Cape Town)**
	Rachel Chater (University of Cape Town)

In Rwanda, 72% of the population reside in rural areas and are widely dispersed across its mountainous landscape, making access to health-care services difficult (World Bank, 2015a). A major goal for the Rwandan Ministry of Health is to provide access to entry-level care within a radius of a 30-minute walk, and to open 1548 new health posts (small primary care clinics) by 2017.

One Family Health (OFH) aims to increase access to primary health care services for people living in the mountainous rural areas of Rwanda. In partnership with the Rwandan Ministry of Health, OFH has established a network of rural franchise health posts, owned and operated by local nurses. Grade A2 college-graduated nurses with five to eight years of clinical experience are eligible to join the OFH network. Upon joining, each nurse gains access to a rent-free community-owned building within his or her village in which to provide care. Nurses have the option of accessing a low-interest loan for infrastructure renovations, furniture, fittings, essential medical equipment and medicine stock purchases. Nurses receive training on Rwandan primary care disease protocols, basic financial management and medicine stock management using the OFH mobile platform. This training is followed by one week of work alongside a top-performing franchisee nurse in the network. Within each district, supervisors are available to provide nurses with continuous guidance and supervision, and manage the delivery of the required essential medicines to health posts. Basic feature mobile phones, coupled with real-time analytics, support multiple service delivery functions including electronic patient records, stock ordering, monitoring and billing.

Nurse franchisees generate their own income by providing primary care services to the people in their village. In return, they are reimbursed for their services through the national community-based insurance scheme (Mutuelle de Santé) and by co-payments received from patients at point-of-service. Patient volume can be as high as 40 patients per day. As the OFH network is regarded as an extension of the public health care system, complicated cases are referred to the local district public hospital. In 2015, 92 health posts were in operation in 11 of the 30 districts, providing employment for over 300 health and support workers, including the nurse franchisees. Since 2012, OFH has been able to provide basic health services for common primary care conditions to 550 000 patients in 850 000 consultations. An independent evaluation, commissioned by OFH in 2015, described a reduced travel time to health posts from 74 minutes to 14 minutes.

The OFH case illustrates the role of entrepreneurial health models in supporting government service delivery priorities. UHC goals are being advanced through a PPP between the Rwandan Ministry of Health and OFH, which is a low-profit organization. The partnership leverages the national health insurance fund to finance private nurse practitioners operating in rural areas. This increases access to health services in rural areas at the same user cost as comparable public services.

> **"The benefits of this [OFH] partnership has contributed private resources to support a limited public health budget, nurses to be empowered and have ownership and the community to have accessible care in close distance to their home."**
>
> **Rwandan Ex-Ministry of Health Representative.**

Image credit: L van NIekerk, Rwanda, SIHI 2015

OPERATION ASHA

Countries of operation	Cambodia and India
Organizational structure	Non-governmental organization
Founding year	2006

| Case Researchers | Lindi van Niekerk (University of Cape Town) |
| | Rachel Chater (University of Cape Town) |

India has the highest burden of TB globally, with 2.2 million new cases and 250 000 deaths annually and a growing number of multi-drug resistant (MDR) and extensively drug resistant (XDR) TB cases (Dhanaraj et al., 2015). Although the public sector in India offers free TB services, critical challenges exist in the pre-treatment loss to follow-up and treatment adherence. For low-income communities, challenges arise from long commutes to health-care facilities, long queues and waiting times, hidden costs to receive treatment, and missed days of work due to these access constraints.

Operation ASHA (Op ASHA) is a not-for-profit organization with a community-based model aiming to improve delivery of health-care services for low-income TB patients in India, and more recently in Cambodia. Op ASHA delivers the best practice Directly Observed Treatment Short-course (DOTS) strategy in a novel and accessible way. In urban areas, it does this by establishing community treatment centres in partnership with local informal providers, merchants or religious institutions. The responsibilities of these community providers entail case identification, patient enrolment, and observing daily treatment adherence through DOTS and counselling. Op ASHA supplies them with the pre-packaged TB medication provided by public health facilities. These partners receive a monthly

allowance to participate and also benefit from the increase in patrons visiting their shops.

In rural areas, Op ASHA trains and employs community members to take the diagnosis and care of TB directly to patients. These community providers, often young adults, play a vital role in transporting medicines to patients' homes in the villages, monitoring compliance and assisting patients with travel to health facilities, if necessary. To promote compliance, Op ASHA has designed an Internet-enabled application linked to a biometric recording system, which monitors patient drug-adherence and the effectiveness of community providers in supporting patients to receive and comply with their treatment. Through fingerprint biometric technology, every dose is monitored, records are secured and patients can be tracked across all centres.

Op ASHA operates in eight states in India. It has 4091 community partner distribution centres, 51 full-time staff and 126 community providers. Op ASHA reports that 6.2 million individuals in India have been reached and have received TB education and 41 000 patients have successfully completed TB treatment. In addition, 198 MDR-TB cases have been identified and enrolled on treatment. Op ASHA's average

treatment success rate is 88% and shows a default rate of less than 3%.

The Op ASHA case study illustrates how trained members from low-income communities can effectively overcome the last-mile delivery gap in TB care by extending services beyond the traditional health-care facility. Clear incentives and targets motivate community workers while also ensuring that TB patients complete their treatment. It also shows how innovative NGOs can play a role in creating effective models to complement public sector health-care service delivery.

So what we have done is this, we've utilized the community to bridge the gap between the disadvantaged and the government infrastructure. We provide the vital link between the two.

Rwandan Ex-Ministry of Health Representative.

Image credit: L van Niekerk, India, SIHI 2015

PARTNERS IN LEPROSY ACTION (PILA)

Countries of operation	**Philippines**
Implementer	**Philippines Leprosy Mission (PLM)**
Organizational structure	**Non-governmental organization**
Founding year	**2005**
Case Researchers	**Rachel Chater (University of Cape Town)**
	Lindi van Niekerk (University of Cape Town)

The Philippines has the highest number of new leprosy cases detected in the Western Pacific Region over the past decade. The registered prevalence for 2014 was 508 with 1655 new cases detected during that year (WHO, 2015c). Although elimination has been achieved when counting the entire population, there are pockets of high prevalence, which fail to meet the elimination criteria, especially in the Northern Luzon region (WHO, 2012). Maintaining early detection and treatment is essential if the disease is to remain contained. Leprosy also still carries severe stigma and people who have (or have had) leprosy, as well as their families, face discrimination and social marginalization.

Partners in Leprosy Action (PILA) is a strategy, implemented by the PLM, aiming to integrate stakeholders in the Philippines national leprosy system and provide them with resources to improve awareness, education and care for patients affected by leprosy, and to reduce stigma associated with the disease. PILA provides training and resources for district health officials, public sector workers and patients. PLM staff conduct orientations, provide information materials, and organize the training activities of municipal and city health officers, public health nurses, health workers and teachers. PILA also partners with the Department of Education to involve schools in the screening and education of communities regarding skin health and leprosy. Using 'skin health' as an entry point rather than 'leprosy control', PILA encourages community members to voluntarily consult for any skin disorder without the fear and anxiety attached to leprosy.

PILA also engages and has connections with the Department of Health (DOH), provincial chief executives (i.e. governors, mayors), local health practitioners, public sector leprosy coordinators, village health workers, private dermatologists, teachers, households and patients. Meetings, workshops, training courses, advocacy sessions and practical programmes integrate the different stakeholders and strengthen the existing system, providing a more holistic approach to caring for leprosy patients.

The PILA case study shows how community-based organizations play a unique role in supporting the final phases in fully eliminating the disease. Beyond delivering key services, these organizations can facilitate the integration and coordination of stakeholders in order to leverage appropriate skills and resources. It also demonstrates the value of engaging different sectors to raise awareness and knowledge of different health conditions, e.g. utilizing the education system to provide information to schoolchildren, which will then be passed onto family members. Increasing awareness and improving skills among frontline health workers, through regular training and engagement, helps improve the identification and treatment of neglected tropical diseases (NTDs).

> **❝** This PILA, it improves case finding strategy. It minimises discrimination and, with the help of the PLM, they also give us logistics for the orientation of the doctors, midwives, nurses and barangay [community] health workers in preparation of the PILA strategy. We taught the nurses, the midwives, the health workers how to identify and treat leprosy cases. **❞**

Regional Leprosy Coordinator.

Image credit: R Chater, Philippines, SIHI 2015

PHARMACIST ASSISTANT TRAINING PROGRAMME

Countries of operation	**South Africa**
Implementer	**Kheth'Impilo**
Organizational structure	**Non-governmental, not-for-profit organization**
Founding year	**2010**
Case Researchers	**Joseph Lim (University of Cape Town)**
	Rachel Chater (University of Cape Town)
	Lindi van Niekerk (University of Cape Town)

South Africa has one of the highest prevalence rates of HIV/AIDS in the world at nearly 19% amongst adults aged 15– 49 (UNAIDS, 2014). Although South Africa has made progress in stemming the HIV/AIDS epidemic through rapid expansion of antiretroviral therapy (ART) programmes (World Bank, 2015b), gaps in human resources for health present a problem in ensuring sufficient capacity, revitalizing primary care and supporting the integration of specific treatment programmes into the health system (George et al., 2012).

Kheth'Impilo is a South African NGO with a mission to support the South African national and provincial government health departments to scale up quality services for the management of HIV/AIDS at the primary health-care level. Over the past decade, Kheth'Impilo has developed a range of training programmes in support of this cause, one of which is the Pharmacist Assistant Training Programme. This progamme equips members of marginalized low-income communities to become professional active contributors to enhancing the efficiency of pharmacy services, increasing access to ART, and strengthening the human resource capacity of the public health-care system.

The programme recruits and trains predominantly unemployed community members to become pharmacist assistants. Learners attend class for one day a week at the Kheth'Impilo offices. For the remaining four days of the week they work in a designated pharmacy within a government facility. This helps them gain valuable practical experience while simultaneously increasing the facility's capacity and quality of care. They perform a wide array of clinical activities, ranging from dispensing ART to counselling patients. Kheth'Impilo encourages its instructors to adopt a holistic approach to the training so as to provide not only technical instruction, but also mentorship and counselling on issues outside the classroom to develop the learners' capacity for critical thinking. In addition, during their training, Kheth'Impilo supports its learners with a monthly stipend of 2100 Rand (US$ 160). Since it was launched in 2010, 310 pharmacist assistants have been trained across five provinces in South Africa, over 95% of whom have been employed in the public sector. A further 200 are in training.

This case study shows how shortages of health workers in public facilities can be overcome by creating a cadre of support assistants (e.g. pharmacist assistants). Support assistants work alongside more highly qualified health staff in performing select, basic tasks, thus freeing up the qualified health workers to dedicate their time and expertise where it is most needed. This enhances the overall efficiency of health care service delivery. Beyond the improved efficiency in service delivery, broader public value is also gained by increasing employment and promoting economic empowerment in low-income areas.

> **"** The value of the programme can be measured in statistics and currency but the real value is observing the growth and inspiration that comes from achieving a goal that you never thought was possible. I am humbled and inspired daily by my learners. **"**

Jacqui Ramage, Designated Supervisory Pharmacist, Kheth'Impilo.

Image credit: R Chater, South Africa, SIHI 2015

RIDERS FOR HEALTH

Countries of operation	**Kenya, the Gambia, Lesotho, Liberia, Malawi, Nigeria, Zambia, Zimbabwe. Case focus on Lesotho**
Organizational structure	**Mostly registered in countries of operation as a not-for-profit organization or non-governmental organization**
Founding year	**1990**
Case Researchers	**Joseph Lim (University of Cape Town)** **Rachel Chater (University of Cape Town)** **Lindi van Niekerk (University of Cape Town)**

For millions of people across Africa, access to health-care services remains a challenge. In sub-Saharan Africa, over 70% of the population is living in rural areas (World Bank, 2015a) where the best roads are often little more than dirt tracks. This poses significant challenges both for patients trying to access health facilities and for health workers conducting outreach work in rural areas. Despite the fact that experts insist that, after personnel and medicines, transportation facilities should be the MOH's third largest resource requirement they are frequently neglected. Consequently, trained health workers, medicines, vaccines and other medical supplies often fail to reach the people who need them the most.

Riders for Health (Riders) improves access to health care for rural populations by providing transportation services, including vehicle management, training and support services, to national governments and health-care delivery organizations in Africa. Riders enables the existing health-care system to be more effective by managing and maintaining a transport network of motorcycles and vehicles, which links the different elements of the health-care system together. Certified instructors combine theoretical and practical training to deliver courses at all levels of expertise, specializing in training health workers who utilize

vehicles to reach communities, particularly over rough roads and difficult terrain. Workers are trained not only to ride, but also to perform their own maintenance and basic repairs, and to adhere to rigorous safety standards. By equipping these riders with a motorcycle and providing appropriate training and maintenance, health workers are able to increase coverage and enhance health care accessibility to their respective populations. Riders provide additional support services, including supply chain distribution, and diagnostic sample transport and medical emergency transportation.

Across all eight countries of operation, Riders serves 21.49 million people and manages 1700 vehicles, which collectively travelled just under 13 million kilometres in 2014. Annually, the mobilized outreach health workers in Lesotho have over 45 000 extra health-service interactions and can typically reach four times further on a motorcycle and see six times more patients. Not only has access to health care been improved, it has been done so in a reliable, predictable and cost-effective way. The per-kilometre fee model is structured into manageable monthly payments. It allows the MOH to plan ahead and budget accordingly, reducing unscheduled costs and fluctuating expenditures.

The Riders case study shows how social innovation organizations

can be important contributors to strengthening the delivery capacity of the existing system by addressing areas where the system lacks expertise or resources. Riders works closely with the organizations and governments that contract its services to understand the needs and align strategies, which is important to ensure a trusting working relationship and the sustainability of the intervention. It also shows how an organization can offer strong standardized services but still remain flexible to the cultural needs, contextual realities and regulations of each country within which it works.

❝ With a bike, you can go anywhere you want to. It helps me do my job because, before Riders, I would just sit in the clinic or go to the nearer villages, but now I can go to the furthest places. ❞

Environmental Health Officer, Rider and Trainer.

Image credit: R Chater, Lesotho, SIHI 2015

SAFE WATER AND AIDS PROJECT (SWAP)

Countries of operation	Kenya
Organizational structure	Non-governmental organization
Founding year	2005

| Case Researchers | Rachel Chater (University of Cape Town) |
| | Lindi van Niekerk (University of Cape Town) |

Kenya has a high prevalence of communicable diseases, which places a major burden on the health system as well as the economy at large. HIV is the leading cause of mortality in the country at 14.8% (WHO, 2015b). There is a high prevalence of TB infection, as well as a co-infection rate of 45% for TB and HIV (Kenya National Bureau of Statistics & ICF Macro, 2010). Poor health is exacerbated by poor water quality and inadequate sanitation. Diarrhoeal disease remains one of the major causes of childhood morbidity and mortality in Kenya, particularly in areas where there are shortages of safe drinking water (WHO, 2009). Correctly used, public health products (e.g. bednets, household water treatment, hygiene products) have the potential to be cost-effective ways of improving the overall health and productivity of communities.

The Safe Water and AIDS Project (SWAP) is a community health network that utilizes best practices from public health, business and research. It prioritizes economic and social empowerment for marginalized community members and resource-poor communities in rural Western Kenya. SWAP identifies, recruits and trains community health promoters (CHPs), whose role is to go from door-to-door in their local communities, educating households and promoting good health practices. In addition, they are able to generate their own income through the sale of health products, thus becoming economically self-sustaining. They are recruited and trained free of charge and are then given products on credit at wholesale prices to sell in their communities at retail prices. CHPs can earn profit of up to US$ 110 a month, depending on the number of households they visit.

SWAP sets up Jamii (meaning 'community') centres, which operate as central business hubs for the CHPs of a given area. These centres are usually set up at a local government health facility and are run by a SWAP project officer. The CHPs visit the Jamii Centre on a weekly basis to reconcile stock and data, take their profits and replenish stock. The project officer at the Jamii Centre provides them with ongoing mentoring and training. External partners provide additional training in targeted subjects. In 2007, SWAP established its research department, which conducts studies on the impact and effectiveness of products and methods, and provides an avenue for revenue generation.

The SWAP case study demonstrates how marginalized patient groups can play a valuable role in extending care to remote communities through community health promoter platforms. Engaging and equipping these patients with knowledge and skills can result in women's empowerment and the altering of engrained societal perceptions of illness and disease. It also shows how health programmes in developing countries can improve the socioeconomic well-being of communities by incorporating entrepreneurial income-generating opportunities as part of service delivery.

Image credit: R Chater, Kenya, SIHI 2015

"They do door-to-door sales and health promotion. So they will check in the home: Is the pregnant mother going to the clinic? Are the children immunized? Is there safe water in the home? Do they practise hand-washing? Do they sleep under a mosquito net? And all these other primary health issues. A lot of them are really vulnerable women – that is widows, people living with HIV from very poor backgrounds – who are now economically empowered. So they make an income while they improve health."

Alie Eleveld, Founder, SWAP.

SCHISTOSOMIASIS CONTROL INITIATIVE

Countries of operation	**Burundi, Cote D'Ivoire, Democratic Republic of Congo, Ethiopia, Liberia, Madagascar, Malawi, Mauritania, Mozambique, Niger, Rwanda, Senegal, Sudan, Uganda, United Republic of Tanzania, Yemen, Zambia, Zanzibar. Case focus on Ethiopia.**
Implementer	**Schistosomiasis Control Initiative at Imperial College London**
Organizational structure	**Academic institution**
Founding year	**2003 (work in Ethiopia started in 2013)**
Case Researchers	**Lindi van Niekerk (University of Cape Town)**
	Rachel Chater (University of Cape Town)

Schistosomiasis affects an estimated 252 million people globally; 90% of this burden is found in sub-Saharan Africa. It is responsible for 300 000 deaths annually and 70 million disability adjusted life years (Steinmann et al., 2006; Hotez & Kamath, 2009; Adenowo et al., 2015). Chronic infection causes calorie malnutrition, growth stunting, anaemia and, ultimately, organ damage. It also impairs the response to childhood vaccines (Labeaud, 2009), suppresses the malaria antibody response (Semenya et al., 2012) and increases the risk of mother-to-child HIV transmission (Secor, 2006).

The Schistosomiasis Control Initiative (SCI) is a systematized capacity-building approach established on rigorous data that seeks to achieve schistosomiasis control and elimination in high-endemic, low-income countries. SCI's approach focuses on creating sustainable national programmes by strengthening a country's capacity. SCI's intervention begins with a national mapping exercise, which identifies at-risk populations in need of treatment. This is followed by mass drug administration campaigns that are supported by teachers and community members who receive specific training.

SCI leverages drug donations from private companies, and coordinates donor funding to maximize its impact and efficiency. In the initial stages, countries receive intensive support from SCI to help develop: training programmes; treatment strategies and budgets; governance, reporting, monitoring and evaluation structures; drug procurement and distribution channels; and community mobilization efforts. After a country is able to execute and implement the programme independently, SCI reduces its support and starts engaging in a new country. When SCI withdraws from a country, it ensures that there is sufficient funding and support for the programme to continue.

Since 2003, SCI reported being effective in distributing 150 million doses of praziquantel to approximately 40 million people across 18 countries. In 2015, they successfully delivered 25 million treatments and plan to double that number annually until 2020. All SCI partner countries have achieved reductions in schistosomiasis prevalence. In Ethiopia, 85% of affected people were reached through the April and November 2015 campaigns.

The SCI case study shows that developing countries can be successful in eliminating NTDs if they receive comprehensive support and ongoing mentorship to strengthen their local research, technical and delivery capacity. It also illustrates how partnerships and collaboration with the private sector provide an opportunity to unlock scarce resources, especially essential medicines, which could support the public sector in fulfilling its delivery mandate.

"SCI's role and ambition is to see anybody who is infected with schistosomiasis or at risk of schistosomiasis receiving a free drug, praziquantel, which will cure them."

Alan Fenwick, Director, SCI.

Credit: L van Niekerk, Ethiopia, SIHI 2015

SMS-HUB LEPROSY CASE MANAGEMENT SYSTEM (SMS-HUB)
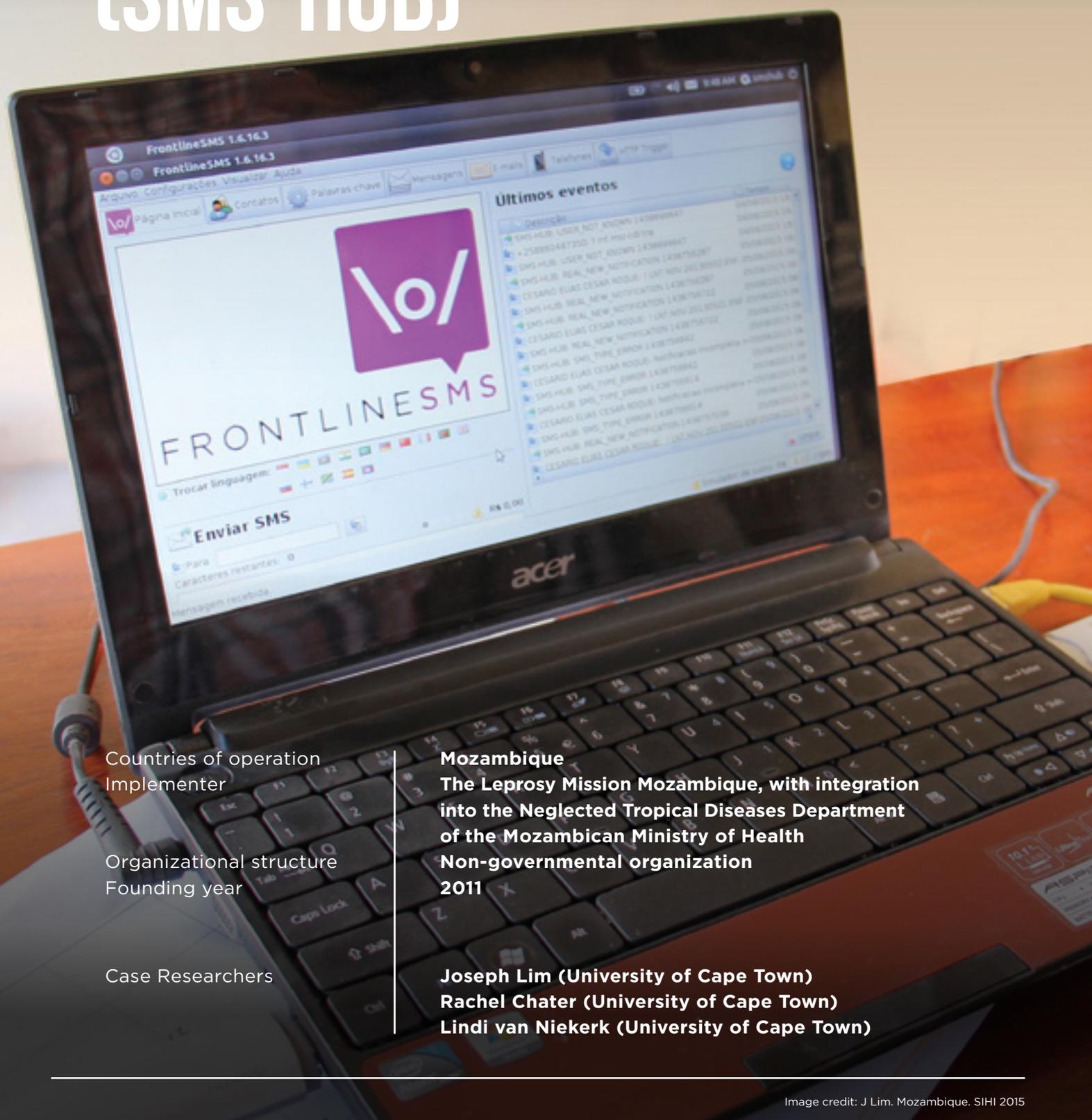
Countries of operation	**Mozambique**
Implementer	**The Leprosy Mission Mozambique, with integration into the Neglected Tropical Diseases Department of the Mozambican Ministry of Health**
Organizational structure	**Non-governmental organization**
Founding year	**2011**
Case Researchers	**Joseph Lim (University of Cape Town)**
	Rachel Chater (University of Cape Town)
	Lindi van Niekerk (University of Cape Town)

Recognition of leprosy's remaining prevalence even after reaching elimination on a global average led WHO to a call for renewed political commitment in the Bangkok Declaration of 2013. WHO highlighted the need for increased leprosy data quality, among other elements, such as improved logistical capacity and the integration of leprosy control programmes into those of other NTDs and primary care services (World Bank, 2015a; WHO, 2015c). In Mozambique, the existing notification and surveillance system for leprosy comprises multiple manual, paper-based procedures to document and transmit information across different administrative levels. This undermines the quality and reliability of leprosy data and case management.

The SMS-Hub Leprosy Case Management system (SMS-Hub) is an electronic System that uses a short message service (SMS) to capture leprosy notification data. The SMS-Hub is used as a case management system as well as a surveillance and monitoring tool. A SMS-based system was deemed most suitable as it does not rely on smart phones and can be used on any basic mobile phone. The system allows district and provincial health supervisors to capture all the case information normally captured in the paper-based register in one SMS. In addition, it can do basic data error checking. All data are stored on a central database where supervisors can easily access the key statistics and clinical details of all leprosy patients. Access to individual patient data, such as patient name, location and disease severity, enhances the supervisors' ability to provide follow-up care and ensures that patients are less likely to be lost in the system. It also provides valuable epidemiological information and allows supervisors to report medicine stock levels and ensure appropriate distribution of medical supplies across the province. Mapping exercises using the SMS-Hub information enables the detection of leprosy hotspots and areas of low-service coverage. The system is grant-funded and was developed using open-source platforms such as FrontlineSMS and MYSQL, which helped keep the costs low (set-up costs of US$ 9300 and running costs since initiation of US$ 800). The creation and evolution of the system began with a design process that focused on the users, which was followed by the engagement of district health supervisors. This bottom-up approach allowed for continuous feedback and adaption to ensure the system's efficacy and usability.

The SMS-Hub case study shows how simple, low-cost SMS-based mobile phone systems can improve the efficiency and effectiveness of disease surveillance in settings that previously relied on paper-based record systems. It illustrates how frontline health providers have valuable insights into the challenges affecting service delivery and, if given the space, support and opportunity, can develop novel ideas with scalable potential.

> **"The system is very good... because it allows us to understand the situation in our district. More than the district, we can understand the situation of [the] province, and more than the province, we can understand other districts. You just need to enter in the SMS system to get all the information."**

**[Translated from Portuguese.]
Eleutério Maita, District Supervisor of Macomia, Cabo Delgado.**
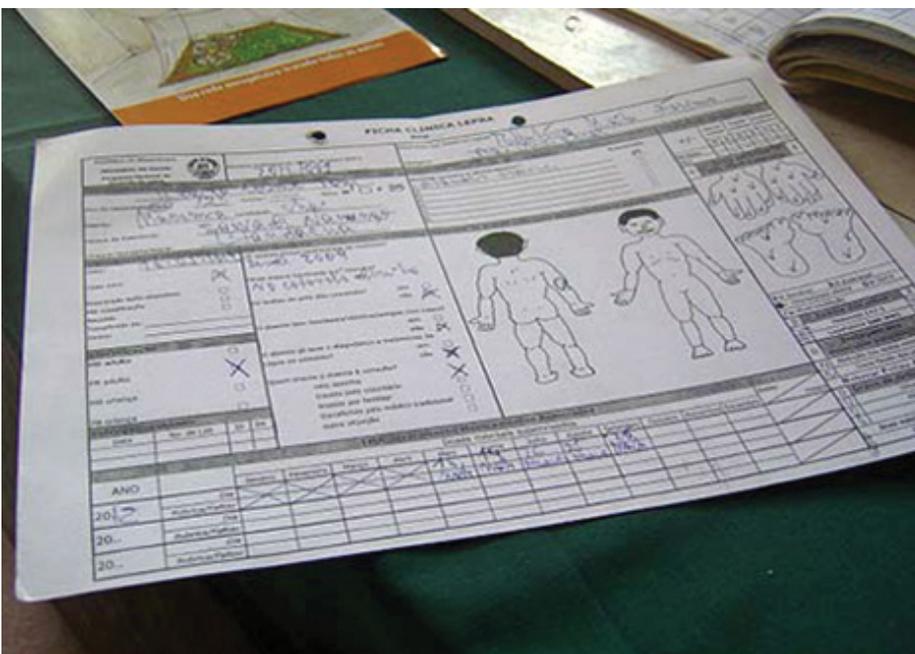
Image credit: J Lim, Mozambique, SIHI 2015

SOCIAL ENTREPRENEURSHIP FOR SEXUAL HEALTH (SESH)
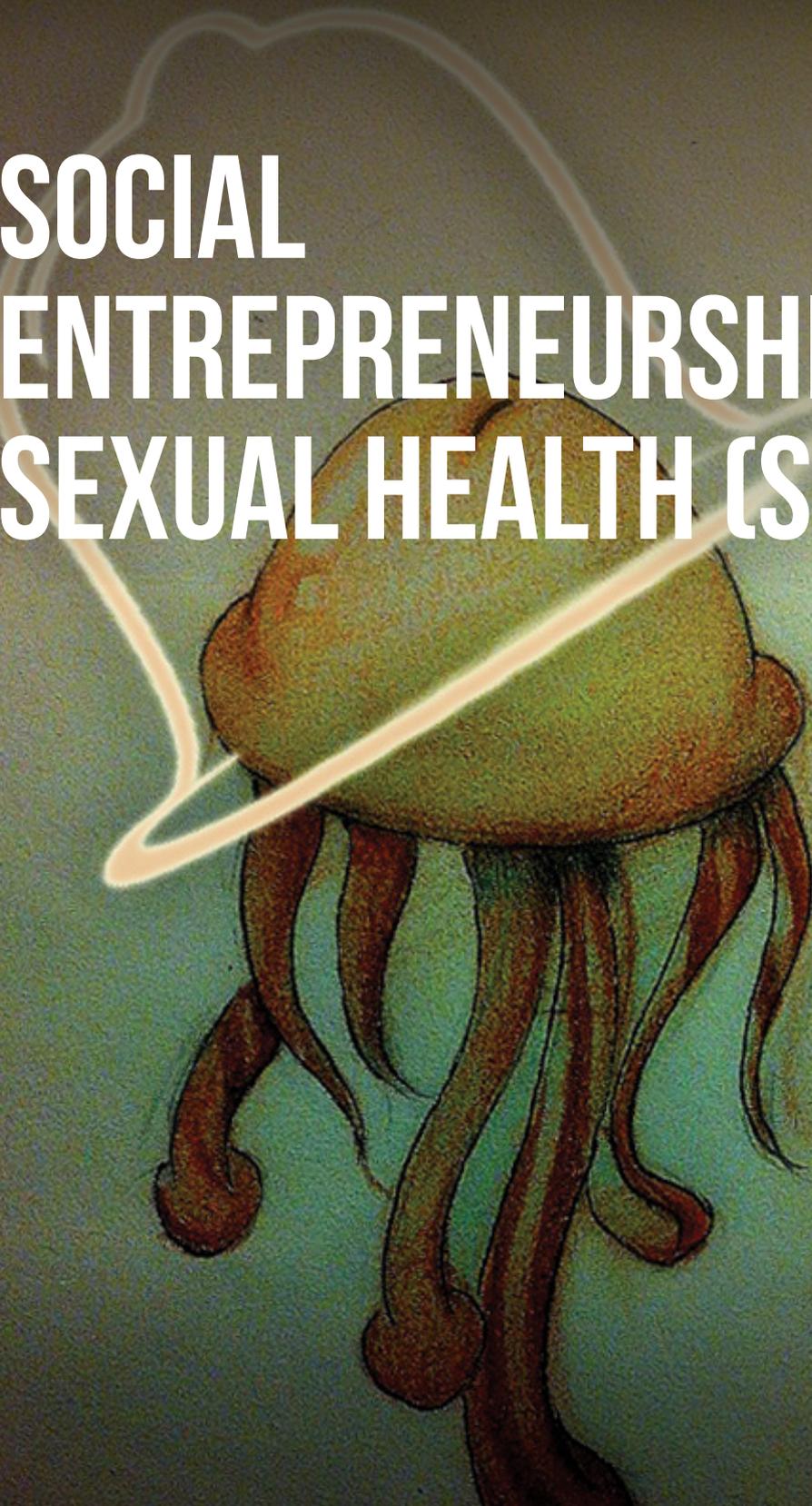
Countries of operation	**People's Republic of China, including Hong Kong SAR**
Implementer	**University of North Carolina Chapel Hill; Guangdong Provincial STD Control Centre**
Organizational structure	**Research programme**
Founding year	**2012**
Case Researchers	**Rachel Chater (University of Cape Town)**
	Lindi van Niekerk (University of Cape Town)

Sexually transmitted infections (STIs) have been recognized as a major public health problem in China. Existing approaches to sexual health and HIV testing promotion are inadequate. Usually, "top-down" and expert-driven (Li et al., 2009) conventional messaging campaigns fail to reach the communities most affected and do not result in the necessary behavioural changes (Zhang et al., 2015). High-risk groups often delay testing and seeking treatment.

The Social Entrepreneurship for Sexual Health (SESH) project is a multi-sectoral research collaboration led by the Guangdong Provincial STD Control Center and the University of North Carolina Project-China. The main goal of SESH is to leverage and test social entrepreneurial approaches, such as crowd sourcing, to enhance sexual health services. It operates from the idea that the generic "top-down" messages that have been developed by experts could be replaced by "bottom-up", tailored, customer-centred, locally appropriate messages using diverse creative inputs. SESH runs open creative contributory contests (CCCs) to crowd source messaging in response to proposed themes such as HIV testing, condom use and sexual health awareness. In a four-step process, the contest is launched as an open nomination call around a specific theme, the submissions are received and judged by a panel of experts and by an open community vote, and then the finalists are announced. These contests form the basis of research projects to evaluate the effectiveness of the crowd-sourced materials in comparison with expert-developed materials. So far, SESH has collectively published over 25 collaborative research articles in peer-reviewed journals.

The SESH case study illustrates how contributory crowd-sourcing contests can be a mechanism by which to engage the views and experiences of stigmatized patient groups. By encouraging open and inclusive participation, these contests allow for the creation of more culturally appropriate and non-judgemental health promotion messages. CCCs increase community engagement from a broad range of non-experts, including key affected populations, experience-rich leaders, and creative individuals. Furthermore, the contests have additional benefits: (1) they educate and sensitize those who participate; and (2) crowd-sourcing community contributions are more affordable than a professionally designed health campaign.

This case study also highlights the opportunities for researchers and academics to assess the outcome and impact of social entrepreneurship approaches in improving health, as they are adopted across different geographical contexts.

Image credit: SESH Global, China

> " Most of the social marketing campaigns and the guidelines-driven approaches are very focused on the experts knowing what's best for a community but what we found in China and in many middle-income countries is that the experts often don't know what people want on the ground, what gay men and other marginalized groups want and so what's really innovative about SESH is taking the wisdom of the crowds ... their preferences and attitudes and having those preferences and attitudes shape the messages that would be used to promote HIV and syphilis testing. "

Joseph Tucker, Co-founder, SESH.

SPROXIL INC.

Countries of operation	**Ghana, India, Kenya, Nigeria, Pakistan, the United Republic of Tanzania and the United States**
Organizational structure	**For-profit company**
Founding year	**2009**
Case Researchers	**Elina Naydenova (University of Oxford)**

Substandard, spurious, falsely labelled, falsified and counterfeit medical products, including medicines, vaccines and diagnostics, pose a major public health risk. They can harm patients and undermine confidence in medical products, health-care providers and health systems as well as exacerbate drug-resistant strains of infectious diseases (WHO, 2016b). On average, 10% of medicines worldwide and 25% of them in less developed countries are estimated to be counterfeit (Chika et al., 2011). The most common counterfeit medicines are those that treat infectious diseases, such as TB and malaria. Counterfeit antimalarials and anti-TB medicines are blamed for up to 700 000 deaths annually across the globe.

Sproxil Inc. has developed a technology-based solution for counterfeit medication that combines mobile phone use with simple low-cost product labels. Mobile Product Authentication™ (MPA) empowers individual consumers to validate the authenticity of the medication they are about to purchase. Consumers locate a label on the medication package, which when scratched reveals a unique personal identification number (PIN) code. Consumers then verify the code for free via a text message or phone call. If the code is fraudulent, consumers are connected to a helpline

that collects further information and facilitates follow-up from the local authorities responsible for tracking and eliminating counterfeit activities. While the customer interface is simple – eliminating the requirement for expensive equipment or complicated training, and accommodating the needs of most people in low-resource settings – the accompanying back-end data analysis and business model are sophisticated. The back-end analysis allows for the derivation of data-driven insights on counterfeit activities as well as consumer patterns. The business model uses these data to attract stakeholders who have the power to reduce counterfeiting, such as manufacturers of legitimate pharmaceuticals and government regulators. By collaborating with drug manufacturers whose market presence is endangered by counterfeit products, Sproxil Inc. helps protect manufacturers' brands and subsequently their profits. Government authorities can use the data acquired through this solution to identify sources of counterfeit medical products and bring perpetrators to justice. In general, the manufacturers cover the cost of the service; it is free for the consumer.

Since its creation in 2009, Sproxil Inc. has implemented its solution in multiple countries, including Ghana, India, Kenya, Nigeria and Pakistan,

and to diverse industries including agrochemicals and fast-moving consumer goods. This quickly scalable model has enabled the young company not only to become profitable in five years, but also to access markets in need of solutions to drug counterfeit challenges. It is this symbiotic mix of business and social purpose that drives the company towards enabling millions of consumers worldwide to access reliable products such as medication for infectious diseases. This case study demonstrates how private, for-profit companies can play a valuable role in generating and implementing solutions to public health challenges.

" We'll be tagged in a Twitter update that has a picture of a medicine… in Nigeria saying: 'we've just bought prenatal vitamins, and they were Sproxil protected…thank you. "

Jennifer Campos, Service Innovation Manager, Sproxil.

Image credit: Sproxil

THE MEDICAL CONCIERGE GROUP LTD.

Countries of operation	**Kenya, Nigeria, Uganda**
Organizational structure	**For-profit, limited liability company**
Founding year	**2012**
Case Researchers	**Lindi van Niekerk (University of Cape Town)**
	Rachel Chater (University of Cape Town)

Despite positive health system developments in Uganda, challenges remain in all four dimensions of access to health care: availability, geographical accessibility, affordability and acceptability (Penchansky & Thomas, 1981; Jacobs et al., 2012). Out-of-pocket expenditure on health care is 42% (Xu et al., 2006; Chandler et al., 2013; Government of Uganda, 2013). Distance to health facilities and associated high transport costs are further barriers affecting health-seeking behaviours.

The Medical Concierge Group (TMCG) is a Ugandan social enterprise providing free access to health care professionals and health information via existing communication technology platforms such as Facebook, WhatsApp Messenger, Skype and Twitter. It was developed in response to the opportunities presented with the rise of mobile phone technologies and the challenges around accessing affordable, convenient, quality health care services. In Uganda, 65% of adults own a cell phone and an additional 15% have access to a smart phone.

TMCG comprises diverse health care professionals, including doctors and pharmacists, who work from the TMCG call centre in Kampala. These professionals operate in shifts providing responses to a multitude of incoming questions on health and well-being 24 hours a day, seven days a week. The primary target beneficiaries for TMCG are Ugandan young adults between the ages of 18 and 35 years who are looking to be empowered with health knowledge and who are asking for new and interactive mechanisms to do so. Users pay standard call rates or data rates to access mobile platforms but the consultative service with a health professional is free of charge. For revenue generation, TMCG operates as a service provider for development agencies, health insurance companies and research organizations. Examples include: (1) operating as a partner to development agencies who are running health campaigns and require beneficiaries to be supported by on-call medical expertise; (2) providing analytical expertise to identify any disease outbreaks based on incoming requests from different geographical areas; and (3) providing strategic patient engagement initiatives over mobile technology, supporting clients of health insurance companies and health-care providers through automated reminder systems, post-hospitalization follow-up and satisfaction surveys.

The TMCG case study shows how technology is becoming an increasingly viable and affordable option to increase access to health information and provide health-care services to low-income communities, while also reducing the burden on public health facilities. This is especially relevant in the context of changing health-seeking behaviour of youth in African countries to favour technology-enabled, on-demand and user-friendly services from health-care providers. It is important for national regulatory frameworks to start engaging with advances in technology and their potential impact on health-care delivery.

> **" If you look at the Ugandan, East African and generally African demographics, we are young people. We are a young population and people want modern modes and interesting ways of getting information. It's no longer enough to say I will give you a health talk when you come to hospital. How can I get it in a more engaging way? "**

Davis Musinguzi, Co-founder, TMCG.

Image credit: L van Niekerk, Uganda, SIHI 2015

4. INSIGHTS AND FUTURE RESEARCH DIRECTION

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AUTHORS: LINDI VAN NIEKERK (UNIVERSITY OF CAPE TOWN) AND RACHEL CHATER (UNIVERSITY OF CAPE TOWN)

4.1 INSIGHTS

A preliminary cross-case analysis revealed several insights into how social innovations support and strengthen health-care delivery in LMICs. Further, the insights gained provided a deeper understanding into the phenomenon of social innovation in health. As the social innovation literature does not provide a definition for social innovation, or for its application in health, the 23 case studies highlight how social innovations may be different from traditional public health interventions.

4.1.1 SOCIAL INNOVATIONS ENHANCE GOVERNMENT/PUBLIC SECTOR HEALTH DELIVERY CAPACITY

Contrary to a pre-existing view that social innovations operate in isolation of existing systems, 80% of the featured cases demonstrated interaction and close linkages with the formal public health system. These innovations were stimulated by a clear need, gap or failure of the public health system to deliver accessible, affordable or quality health services. Instead of establishing parallel health delivery programmes, social innovations strengthen the public system by building their delivery capacity, acting as a link between health facilities and the community, or by extending key services into hard to reach or marginalized communities. Specific solutions included: up skilling public health providers through robust training programmes; conducting last mile medicine distribution and catalysing the integration of multi-sectoral actors with government. Social innovations unlock existing resources dormant within the country or bring new resources to compliment public sector delivery. Their experience in working at grassroots levels with communities and their attitude towards experimentation has contributed to their being able to make a technical contribution to several countries' governments.

4.1.2 SOCIAL INNOVATIONS RE-IMAGINE THE ROLE OF HUMAN RESOURCES FOR HEALTH

Adequate human resources for health, in terms of numbers, skills and attitudes, are key challenges in all the countries where social innovation cases are operational. Core to several of the social innovation cases is their ability to re-imagine the role of human resources. In particular, the idea of shifting certain tasks and processes to lay health workers has been adopted in order to extend last-mile delivery for medicines and diagnostics. Community members from affected areas are engaged and trained to provide accessible and affordable diagnosis and treatment on the doorstep of the patient's home, school or place of worship. Providers of discrete health services or processes extend beyond formal CHWs to include family members, patients and other non-medical professionals. To improve the skills and quality of human resources, social innovation organizations invest heavily in the training of

their employees or volunteers to ensure high performance. Training is focused and specific and extends beyond clinical or health training. Management and entrepreneurial training is frequently provided as a compliment to health training at all levels. To foster motivation, social innovation organizations have placed ownership of the work delivered in the hands of those delivering it. This increased ownership is matched with clear targets for performance and strong support structures allow for motivated agents and satisfied patients/customers.

4.1.3 SOCIAL INNOVATIONS PRIORITIZE IMPACT, AGILITY AND SUSTAINABILITY

For all social innovations, achieving impact is of the highest priority. Central to their ability to achieve impact is the fact that they can remain agile in programme delivery. The changing needs of the communities they serve along with the changing contexts of the countries they work in are matched by their ongoing ability to mould, pivot or adapt their programmes accordingly. In the context within which they operate, social innovations have also demonstrated how they can be embedded in the local eco-system and establish strong relationships with key individuals and institutions. Their agile nature, complemented by their ability to build relational capital, has supported the achievement of operational sustainability. Social innovations have further demonstrated strategies that contribute to achieving financial sustainability. These strategies include: entrepreneurial revenue generation through the sale of health products; the in-house development of technology platforms and sale of these to other organizations; and co-funding programmes that leverage available in-kind resources from the government.

4.1.4 SOCIAL INNOVATIONS SUPPORT DATA-DRIVEN LEARNING AND DECISION-MAKING

Mobile technology has become a key feature of many social innovations. The use of off-the-shelf mobile phones and tablets, supported by user-friendly customized platforms has changed the way support is provided, performance is managed, information is sourced and problems are identified. This technology has enabled social innovation organizations to democratize the data collection process not only to include researchers but also any member of the organization. Data are collected directly at the community level, not as a discretely timed activity, but as an integrated part of daily work. The growth of the Internet across LMICs is enabling the flow of data from workers, volunteers and patients to service providers in real time. Social innovation organizations are thus able to constantly receive feedback on how operational or contextual changes are influencing their services, and whether they are achieving positive outcomes in the populations they serve. Data-driven social innovation organizations have experimentation, innovation and learning as part of their organizational culture. In addition to the

benefits inherent for these organizations, the data they collect at community level have two other benefits: (i) they have enabled several of the organizations to go beyond their own learning and to use their robust data collection systems to conduct large-scale research studies in partnership with universities, thus building new knowledge; and (ii) the data, often shared with the local MOH, provide country decision-makers with greater insight of hard to reach population groups.

4.1.5 SOCIAL INNOVATIONS OUTCOMES EXTEND BEYOND HEALTH

Unique qualities inherent in many of the studied cases are their focus and drive to comprehensively address the needs of their communities. Despite the entry point or primary focus of these interventions being health-centric, their person-centred nature allows for a natural extension to address the social determinants of health. The studied cases have had an impact on economic empowerment, women's empowerment and social inclusion. A possible reason for this may lie in the multidisciplinary backgrounds of the creators of social innovation. The diverse perspectives brought by those with a background in business have created social innovations with embedded entrepreneurial models. These programmes have provided the opportunity for women in the communities, including nurse providers, to have agency over their own micro-enterprises. The revenue generated has in turn enabled these women to provide not only for themselves but also for their households. This economic impact at household level has improved the quality of life and reduced the incidence of disease. A second characteristic of the creators of social innovation is the value they place on social justice. Social innovations have thus extended their reach to marginalized populations as the beneficiaries of their services, and have included them as participants in the delivery of care. Marginalized populations involved in the cases studied include patients affected by leprosy, women living with HIV and men who have sex with men.

4.2 FUTURE RESEARCH DIRECTION

From this initial research, several areas of inquiry have emerged that warrant further study. Below are a list of research questions and actionable steps for researchers, practitioners or decision-makers interested in advancing social innovation in health.

4.2.1 IDENTIFYING SOCIAL INNOVATIONS

• What approaches/mechanisms can be used to identify in-country innovations from the community?

• How can identification mechanisms be replicated, tested and integrated into different contexts?

4.2.2 QUALITY ASSURANCE OF SOCIAL INNOVATIONS

• How do social innovators ensure the technical quality of their work (i.e. using the latest treatment, diagnostic or technology guidelines, using best-practice evidence)?

• What quality assurance support mechanisms could be created for social innovation organizations to support them in assessing and achieving quality assurance?

4.2.3 GOVERNMENT ENGAGEMENT

• How does engagement and collaboration occur between social innovators and national governments?

• What is the role and response of governments in creating channels of engagement and collaboration with social innovators?

• What are the barriers and enablers to integrating social innovations within the public sector?

4.2.4 GATHERING INFORMATION AND LEARNING

• How have social innovators used data/research to further their work and which types of research/data collection have been used?

• What is the role of technology in social innovation organizations to support research, and when and how could the same data platforms be integrated more broadly into the health system?

4.2.5 FUNDING AND SUSTAINABILITY

• What are the different funding mechanisms and capital sources used for social innovators from the global south at different levels of maturation or development? How and through which channels can funding specifically be leveraged to support innovators beyond the proof of concept stage?

• What is the role of donors in supporting social innovation, how can their funding be streamlined and harmonized in the application and reporting process?

• Health interventions can be co-financed by a mix of entrepreneurial revenue generation and donor funding, and can be successfully implemented in partnership with governments. NGO-managed interventions can be financed similarly, but is this a model for health-system financing?

5. CONCLUSION

The case summaries and research findings presented in this publication demonstrate the value of social innovation in health and the role it can play in advancing the Global Health Agenda. Community engagement, inclusiveness and an intersectoral approach with a multidisciplinary perspective are critical to enhancing health-care delivery. These lead to innovative interventions that reach vulnerable populations so that no one is left behind. Social innovation outcomes expand beyond health and offer great potential for the achievement of universal health coverage and the Sustainable Development Goals. Yet research is needed. Evidence on what works and what does not work will help to enhance the sustainability and dissemination of these innovations. Building upon its long history of research on community-based interventions, TDR is working with academic institutions, WHO and other actors to advance social innovation through research. It spearheaded the SIHI that aims to build local capacity to embed research in social innovation in LMICs. We trust that this publication will provide evidence and will encourage the various stakeholders to support and advance research in social innovation. Researchers, academic institutions, social innovators, health-system actors, international organizations, funding agencies all have a role to play.

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TDR / World Health Organization
20, Avenue Appia, 1211 Geneva 27, Switzerland
tdr@who.int / www.who.int/tdr

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