

CENTER FOR GLOBAL HEALTH DELIVERY-DUBAI

PROCEEDINGS

Primary Care 2030: Creating an ecosystem to enable disruptive primary care models to accelerate universal health coverage



IN COLLABRORATION WITH



CENTER FOR PRIMARY CARE HARVARD MEDICAL SCHOOL

Primary Care 2030: Creating an ecosystem to enable disruptive primary care models to accelerate universal health coverage

PROCEEDINGS

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Harvard Medical School Center for Primary Care Program in Global Primary Care

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Abbreviations

ASHA	Accredited Social Health Activists
СНМІ	Center for Health Market Innovations
CHW	Community health workers
LMIC	Low- and middle-income countries
NGO	Nongovernmental organizations
PACK	Practical Approach to Care Kit
PHC	Primary health care
PHCPI	Primary Health Care Performance Initiative
SEARCH	Society for Education, Action, and Research in Community Health
SPARC	Strategic Purchasing Africa Resource Center
UCMB	Uganda Catholic Medical Bureau
UHC	Universal health coverage

1 Introduction

Achieving high-quality universal health coverage (UHC) by 2030 will require the rapid, widespread adoption of highly disruptive models of primary health care (PHC) that support and integrate the work of mid-level providers, CHWs, and other non-physician health workers, empowered by advanced technology and data science. The Harvard Medical School Department of Global Health and Social Medicine and the Center for Primary Care convened a high-level meeting to discuss the role of disruptive care models and novel public-private collaborations in achieving UHC. Results for Development (R4D) and the World Economic Forum (WEF) served as convening partners. Access Accelerated provided valuable input and travel funding for three global leaders. The workshop was held at the Center for Global Health Delivery – Dubai on June 21 and 22, 2018.

The workshop was designed to achieve three key objectives. The first was to accelerate and inform the global agenda for development and adoption of disruptive, technology-enabled models of primary care service delivery. The second was to discuss the roles of private sector partner engagement and public-private partnership toward achieving UHC, including collaboration on novel financing mechanisms and health workforce strategies to promote quality and access to health services and products. The third was to catalyze mechanisms for accelerating novel primary care service model adoption, including in-country pilots and global working groups and networks.

Three key deliverables also shaped the workshop design: a global community of practice including working groups and networks; partnerships for piloting, testing and scaling new models; and workshop proceedings. The meeting was designed to catalyze the development of new relationships and networks across non-traditional partners, and to accelerate innovations in primary care systems worldwide through the creation of global working groups and networks. Planned intermediate-term outcomes included identifying new financing mechanisms and country partners to facilitate rapid, small-scale experimentation and scale up of disruptive primary care service delivery models involving novel public-private partnerships for piloting, testing and scaling new models. Finally, the workshop proceedings will be publicized to a global audience to further inform and stimulate the discourse on achieving UHC by 2030.

Participants were invited to the workshop from across a broad range of stakeholders. They included primary care providers from the public sector and policy makers from low- and middle-income countries, as well as private-sector partners from pharmaceutical, health information technology, and other health-related industries and the investment community. Participants also included thought leaders and academics focused on primary care systems development from the Global South and North, funders, and allied civil society organizational representatives.

1.1 ORGANIZATION OF THE WORKSHOP AND PROCEEDINGS

The workshop was structured into seven sessions across two meeting days. It was highly interactive, involving presentations, moderated discussions, panels, and smaller breakout group discussions.

The first session focused on visioning PHC and UHC in 2030, featuring a review presentation

on technology and primary care innovation as well as a panel of participants from different sectors and countries offering their views on the role of disruptive primary care models in achieving UHC. This session is summarized in Chapter 2 of the proceedings.

Chapter 3 summarizes the second session, which examined current innovative models of PHC and explored the potential for models of PHC in 2030. The session included two panels: a panel of innovators from organizations on the ground and a panel of reactors from the public and private sectors.

Chapter 4 covers the third session of the workshop—technology, scale, and access which focused on the role of technology in advancing workforce productivity and the quality, safety and reliability of care. The session included an innovator panel and breakout group discussions about the challenges, opportunities, and next steps for advancing technological innovations.

During the fourth session, participants and a panel of innovators from implementing and funding organizations were asked to re-envision the health workforce, followed by breakout group discussions on challenges, opportunities, and next steps for advancing workforce innovations. Content from this session is described in Chapter 5.

The fifth session focused on creating an enabling ecosystem to accelerate access to innovative, high-quality services, technologies, and products for PHC. The session featured an innovator round-robin and breakout group discussions on next steps for creating an enabling ecosystem; this session is reported in Chapter 6.

Re-envisioning health-care financing through novel approaches to financing and purchasing innovative services, products, and technologies was the focus of the sixth session, which is described in Chapter 7. The session included an innovator panel, breakout groups, and large-group discussions.

Chapter 8 provides a summary of participants' reflections on the workshop's two days of proceedings. It includes the two concluding panels' synthesizing remarks at the end of each of the workshop days, as well as summary presentations and the final largegroup discussion on next steps, committing to action, and metrics for success.

1.2 WELCOME FROM THE CENTER FOR GLOBAL HEALTH DELIVERY-DUBAI

Salmaan Keshavjee, director of the Harvard Medical School Center for Global Health Delivery–Dubai and Professor of Global Health and Social Medicine at Harvard Medical School, opened the workshop by welcoming participants on behalf of the Center. Box 11 provides more information about the Center's activities. Keshavjee remarked that after the Alma-Ata Declaration of 1978-a turning point in the field of public health that highlighted primary care as fundamental to achieving the goal of health for all-there was much optimism about the potential to develop good systems for delivering care in the communities where patients live and work. However, several factors prevented that from actually happening in the decades that followed. The Declaration was watered down, said Keshavjee, in that it did not give enough consideration to the nuts and bolts of getting care into the communities. Almost immediately after the Alma-Ata Declaration, Western countries entered a deep recession out of which the selective primary health care movement¹ emerged during the 1980s. He noted that although the movement (debatably) saved primary health care in a certain respect, it also watered it down further. The movement was framed by getting the "biggest bang for the buck" and was characterized by too little complexity and a lack of investment in strengthening health systems themselves. During the 1990s, structural adjustment policies defined the way that poor countries invested in health care. Loans to countries from the International Monetary Fund and World Bank were conditional upon stabilization through cutting government spending, liberalization by reversing "price distortions" and charging user fees, and privatization through selling state assets.

The consequences of this lack of investment in system strengthening are starkly evident

¹ Walsh and Warren 1979

today, Keshavjee said. However, he describd the primary health care movement to achieve universal health coverage as an incredible opportunity to collectively redefine how PHC fits into UHC and what it means to deliver quality care from the clinic and into the community where patients live and work. He urged the workshop participants to draw upon the best elements of the Alma-Ata Declaration and other lessons from the last three decades to find ways to set the tone and to push the agenda to make UHC a reality.

Box 1. Harvard Medical School Center for Global Health Delivery–Dubai

Salmaan Keshavjee, the director of the Center and Professor of Global Health and Social Medicine at Harvard Medical School, provided a brief overview of the work ongoing at the Harvard Medical School Center for Global Health Delivery–Dubai. The Center is addressing some of the most pressing health challenges in the region by focusing on research, medical education, and training that promises to improve health care delivery systems and patient outcomes for diseases prevalent in the United Arab Emirates, Middle East, North Africa, and neighboring regions in Africa, Asia, and Europe. It was established to promote the mission of Harvard Medical School: to create and nurture a diverse community of the best people committed to leadership in alleviating human suffering caused by disease. Specifically, the Center concentrates on the "last mile" of health-care delivery by addressing critical gaps in translating laboratory and clinical scientific advances into knowledge among communities. Work carried out by the Center contributes to closing those gaps through its focus on delivering care for health conditions with global burdens that are escalating rapidly, but which are not receiving the urgent attention from the global health community that they so urgently warrant.

The Center has four areas of focus: diabetes and obesity, surgical care, infectious disease, and mental illness. Special consideration is given to projects that focus on the health of women and children. To achieve its aim of improving health care delivery in diverse communities where people live and work, the Center's approach is to build capacity piece-by-piece and layer by layer. The Center's cooperative and faculty research awards program is a mechanism to support areas that may not have a culture of delivery research. Hosting high-level workshops and delivering symposia and courses contribute to creating an ecosystem of scholars in global health delivery. Knowledge and innovation generated from the Center's activities are captured and disseminated through outputs such as proceedings and policy briefs, which are driving action worldwide.

2 Primary care and universal health access in 2030

Chapter 2 summarizes the first session of the workshop, including a panel featuring visions of primary health care (PHC) and universal health coverage (UHC) in 2030. The chapter also includes a presentation on technology and primary care innovations that could be leveraged to achieve those visions. The session was moderated by Andy Ellner, conference co-director, director of the Harvard Program in Global Primary Care and Social Change, and CEO of Firefly.²

2.1 PANEL: VISIONS OF PRIMARY CARE 2030

To set the stage for the workshop, a panel of five workshop participants from different sectors and countries offered their views on the role of disruptive primary care models in achieving UHC. The panelists included:

- Beth Tritter, executive director at the Primary Health Care Performance Initiative (PHCPI);
- Jean-Paul Dossou, of the Research Centre in Human Reproduction and Demography (Benin) and the Institute of Tropical Medicine Antwerp (Belgium);
- Tim Evans, senior director for health, nutrition and population global practice at the World Bank Group;
- Catherine Levy, head of global health programs for noncommunicable diseases at Sanofi; and
- Shayoni Mazumdar, senior field manager at Dimagi (India)

Beth Tritter, executive director at the Primary Health Care Performance Initiative (PHCPI), opened the panel by emphasizing that disruption is an amazing force, but it needs to be tethered to anchors. She described three principles that could serve as those anchors to moor the workshop's deliberations. The first is to maintain a people-centered focus, because the focus can drift from the impact of disruptive innovation on people's lives during these types of discussions. She asked participants to bear in mind that innovation is really about trying out new approaches with actual people and that in gathering data, each data point represents someone's lived experience. "When we talk about success or failure of different approaches," she said, "... we're talking about the direct impact these approaches have on people's quality of life." While innovations need to be disruptive, scalable, sustainable, and context-specific, they also need to start and end by addressing what people need, what they want, and what they can access. Her second principle is to focus on quality of interventions, not just their size and scale. Strategies for financing health care can monopolize these types of discussions, because large-scale, disruptive innovations will only come to fruition through finding ways to pay for them. However, what really moves the needle is finding innovations for delivering these interventions. But as with every development intervention, access is only half the battle: quality is the other half. Rapidly scaling up services to reach all people by 2030 will require collaboration to bring about a revolution in quality of care as well as a revolution in access to care. Efforts to improve access and quality need to be carried out in parallel and not sequentially, she added. Tritter's third guiding principle is a relentless focus on developing evidence-based innovations by using evidence and data as the common language of innovation. In turn, those innovations can inform new evidence and best practices across the ecosystem. This lingua franca of evidence will also contribute to collaboration in the ecosystem by enabling

² More information about Firefly is available at https://firefly.health/ (accessed September 15, 2018).

clear communication across different sectors, setting shared goals, and moving in a common direction to achieve this disruption in primary care.

Jean-Paul Dossou, of the Research Centre in Human Reproduction and Demography (Benin) and the Institute of Tropical Medicine Antwerp (Belgium), reminded the group that technology and tools-regardless of their quality-cannot take the place of people collaborating with each other. The global community working on PHC is faltering somewhat in this respect, because the people who develop technologies are far-removed from those on the ground who must use that technology to solve problems every day. Thus, a key question to be addressed is how to design smart technology that works for people on the ground, which may require learning from the domain of social technology. Dossou strongly criticized the health district model, the "elephant in the room" that has been the cornerstone of PHC in many countries across Africa since the model was developed in 1987. It is a barrier to creating PHC systems that work, he said, because it prevents the development of strong and reliable accountability that is required for moving forward. He highlighted the need for coordinated, collective intelligence about how to translate technology into social tools that actually work on the ground. "We must bring everyone on board, because decision making is not only at the global or ministry of health level," he said, "...mothers, fathers, and children make health decisions every day, all of which matter at the PHC level." The task is to find ways to bring evidence to bear to support people in making individual health decisions. Evidence is critical not only for global- and national-level decision-making, but for individual decision-making. He asked the group to consider ways to promote collective understanding of challenges, collective setting of objectives, collective decision making, and taking collective actions. His last point was about complexity and finding ways to manage the inevitable unpredictability and

uncertainty on the path toward strong PHC by 2030.

Tim Evans, senior director for health, nutrition and population global practice at the World Bank Group, explained that as an institution that works primarily with governments, it is important for the World Back to get a sense of how PHC fits into its bigger vision of development. He noted that World Bank president Jim Kim is a clinician who is passionate about frontline care delivery and believes that demand from the highest level of policy is one of the greatest limiting steps to getting more effective action in health and education. To that end, he has created the Human Capital Index,³ which measures performance of countries in the education and health spaces. It can be used to hold up a mirror to top-level policy makers and catalyze improved performance in those sectors, he added. A powerful engine of change currently being pushed by the World Bank is to shift resources appropriately or using resources more effectively. Within the institution and beyond, this is engendering more willingness to consider how to do more and do better in the health sector. The World Bank operates in the health sector under the umbrella of UHC, he said, but there is no UHC without PHC.

Evans was particularly interested in considering how to change the paradigm and put "front lines first." Rather than focusing on the last mile and last child, the front lines should be prioritized because UHC is contingent upon getting to the front lines of every system. The implicit trickle-down economics model that underpins much of the current work is that growth in the center achieved by beating policy drums at the capitols, will eventually percolate to the front lines. But governments simply do not function that well, he said, and reality is that the front lines are largely staffed by nongovernmental institutions. Engaging with organizations already working on the front lines providing community-based services must serve as the impetus for this vision of putting the front

³ Kim July/August 2018

lines first, he said. The workshop could help to move further and faster in putting front lines first, said Evans. His first suggestion was to differentiate between contexts and create typology for developing multiple models of primary care that are appropriate for different types of settings, because there is no homogenous one-size-fits-all model of PHC that would be apt for both the mountains of Nepal and the favelas of Brazil, for example. The second is to recognize and embrace the plurality of providers. A shortcoming of the World Bank is that is does not engage well with nongovernmental institutions, he said, and they are looking for ways to work more effectively with the non-state actors delivering care on the front lines. One of their strategies is to look at how system reform to strengthen PHC can offer more scale-efficient support for global public goods. Compared to frontline providers, centrally organized institutions like the World Bank can more efficiently carry out work such as procuring drugs at lower costs, managing supply chains, and setting standards for training of health workers. These so-called 'plug ins' can help to empower and facilitate the work of those on the front lines, he said. Finally, he contended that supporting frontline workers in various ways across different contexts should be the engine that drives innovation, rather than romanticized notions that digital alchemy is the best solution to every problem. The community should be oriented toward **innovations that** add real value to the front lines of health systems by addressing the workers' greatest expressed and explicit needs, said Evans.

Sustainability was the first point highlighted by Catherine Levy, head of global health programs for non-communicable diseases at Sanofi. Her organization works with many pilots that die off once the financing ends. The first step to making the vision of PHC 2030 achievable and scalable is to support local actors through innovative business models, through insurance or other financing mechanisms. The second consideration is about which models to develop; she agreed with Evans that there is not a one-size-fits all approach. It is important to learn from successes in HIV, tuberculosis, and malaria, she said, even though most of those projects were financed externally. Also critical is to recognize new actors in the community who are focused on social responsibility and serving their countries. Echoing Tritter, she also reminded the group to find ways to better involve patients and their families. She said that **public-private partnerships** need to be further developed and more widely accepted by governments, some of whom are still reluctant to work with the private sector. Such partnerships might also help to increase engagement with patients by allowing them to take a more active role in managing their own health, she added.

Shayoni Mazumdar, senior field manager at Dimagi (India), said that from the innovator's perspective, the aim is to use technological solutions to bridge the gap between beneficiaries and high-level actors such as governments. Technology should enable frontline workers to do their jobs better, while also providing real-time data to facilitate monitoring and shape policy decisions. She hoped that the workshop would help to highlight and better understand the interdependencies among different groups in the system, because technology cannot drive change in isolation. Drawing upon the wide range of experiences and expertise of the workshop participants should help to develop a collective vision and to accelerate progress toward UHC, she said.

2.2 TECHNOLOGY AND PRIMARY CARE INNOVATION

Andy Ellner opened his presentation by emphasizing the need to see things differently and put people at the center in working toward the vision of PHC 2030. Given the appalling state of health-care from a global perspective, the first step is to figure out what good health care looks like while acknowledging the universal challenges inherent in creating a service that is sensitive and responsive to people's needs. His participation in global health dialogues has convinced him that some of the greatest challenges pertain to communication—how we think about certain ideas and words.

To contextualize some of those challenges, Ellner presented the clinical case study of a patient he has cared for in his PHC clinic in Boston for many years. "Ms. W" is a 45-year-old single mother of two, with a history of abusive relationships. She works nights as housecleaner and she smokes and drinks alcohol above recommended limits, as well as occasionally using illicit drugs. She has depression, uncontrolled diabetes, and hypertension. She has a low level of engagement with medical treatment, because work and family commitments often cause her to miss medical appointments; she also has difficulty in treatment adherence. He described this case to illustrate how the challenges of helping this woman to be healthier are universal challenges faced around the world. There is a tradeoff, he said, between generalizable approaches that are appropriate in all settings and very specific tactics that might work in given contexts or situations.

Disrupting PHC will require taking advantage of opportunities that did not exist during the Alma-Ata era, said Ellner. Technology is much more advanced, but it needs to be wielded with care—it has the potential to change the game, but reliance on technology alone as the solution could also make things worse. "We need to leverage this power we have now, that we didn't have last time, to reach front Many discussions about extending health coverage revolve around how to finance it, he added. He cautioned that the danger of concentrating on how to pay for it is that not enough attention is paid to what is actually being done—which includes many nonsensical, wasteful, and harmful practices and how that drives costs. The failure to focus on that aspect has been destructive for health-care delivery in the US. Getting to UHC will require thinking deeply and differently about what is being paid for and how technology can enable delivery of services.

2.2.1 Increased wealth and the shifting burden of disease

Ellner explained that as countries progress economically from the lower-income to the lower- and middle-income bracket, there is a concomitant epidemiological transition.⁴ The lowest income countries have a dual burden of acute conditions (e.g., infectious disease, trauma, childbirth, and surgical emergencies) and chronic conditions. As countries progress socioeconomically, the burden shifts toward chronic diseases (see Figure 1). A key difference in the Alma-Ata era of the 1970s is that many countries have now undergone that shift. The population of 2030 and beyond will need care primarily for chronic diseases. The health-care challenges in emerging economies are atrocious, with 150 million people facing catastrophic health-care costs each year. 400 million people worldwide lacking access to essential health services, and 100 million people being pushed into extreme poverty because of health care costs.

lines...not just health centers in rural areas, but the people on the front lines, who are the most important actors in PHC," he remarked. Technology is not the only difference between now and then, he continued. The global disease burden has shifted, the wealth of various countries has changed, and the balance of power is different. The political climate can sometimes be discouraging, but the opportunity to make a difference in the next decade is very exciting and encouraging.

⁴ Horton 2005



Figure 1. Burden of disease by country income

Source: Ellner presentation, Fuster, V., & Voûte, J. (2005). MDGs: chronic diseases are not on the agenda. The Lancet, 366(9496), 1512-1514.

Ellner predicted that within several decades, there will be a convergence of the global burden of disease toward chronic disease.⁵ This shifting burden, coupled with a lack of innovation in the delivery of health care, has led to a terrifying upward trend in health-care spending in the wealthier countries (see Figure 12). This increased spending tends to crowd out other types of spending that could have a greater impact on health, such as housing and education. "There is a crisis of value in the cost of care as we fail to innovate in primary health care," warned Ellner. He likened the US to a canary in the coalmine in this respect, because the US is facing challenges that every country will face if it becomes wealthier, the burden of disease shifts toward chronic, and there is a failure to innovate in the delivery of health care.

⁵ Jamison et al 2013



Figure 2. Health-care spending as a percentage of GDP (1980-2013)

Source: Ellner presentation⁶

2.2.2 Health workforce challenges and opportunities

According to World Health Organization estimates, there is a global health workforce shortage of almost 4.3 million doctors, midwives, nurses, and other health-care professionals.⁷ This shortage threatens the quality and sustainability of health systems around the world. It also exacerbates inequities when health-care workers migrate from lower- and middle-income and are recruited to address shortages in high-income countries. The focus is often on structures and the numbers of people trained to do specific things, but the opportunities lie in finding ways to empower the people who are already there to do more by rethinking how people doing health-care delivery spend their time.

Absolute shortages are a grave concern, but so is the low quality of services and poor labor productivity being provided in both the public and private sectors of low- and middle-income countries. Research shows serious issues with the quality of service being provided and the productivity of workers in clinics: practices scored low on infrastructure, clinical competence, and practice, as well as weak accountability measures among health care providers.⁸ These problems are not unique to low-income settings, Ellner added. The US faces similar issues in spending too much with

6 Figure source: https://www.commonwealthfund.org/chart/2015/health-care-spending-percentage-gdp-1980-2013

7 Aluttis et al 2014

⁸ Berendes et al 2011; Lindelow and Serneels 2006

little return on investment: "Unlike virtually all other sectors of the US economy, health care has experienced no gains over the past 20 years in labor productivity."⁹ He explained that in systems like those in the US and many other wealthy countries, most of the services are provided by the most expensive labor. If spending increases ten-fold and the most expensive workers have not been made ten times more productive, then the return on investment is very poor.

Ellner argued that disrupting PHC and achieving UHC by 2030 will require improving service quality and labor efficiency through strategic implementation of technology coupled with fundamental changes to the way that people work. The latter will entirely rethink how people in the workforce spend their time, their roles, organizational structure, management, and culture. "We can't keep doing what we're doing, anywhere, and expect to get to UHC by 2030," he cautioned.

2.2.3 Reframing primary care

Ellner explored the ways that PHC will need to be reframed in order to achieve UHC by comparing the traditional or current view of primary care, data, and patients with his vision for 2030. The traditional view of PHC is characterized by a person or place—a doctor, nurse, or specific health-care worker working in a clinic, center, or health station.¹⁰ PHC used to be conceptualized as a gatekeeper of sorts-that is, inferior or basic care that has to be circumvented to get "real" high-quality care at a hospital or medical center. PHC systems will keep failing if the concept of PHC continues to be construed in this way, he said. To describe his vision for the concept of PHC in 2030, he borrowed a definition¹¹ from the Primary Health Care Performance Initiative:

"Primary health care...serves as the main entry point into the health care system for the majority of health problems, provides proactive delivery of key preventive services to populations, and manages chronic conditions over time... it is continuous...people-focused and comprehensive, addressing the health needs of all members of society across the life-course...may include integrating and coordinating secondary and tertiary levels of care."¹²

Ellner contended that PHC must be rebranded as the best-quality care, enabled by technology, focused on people, highly coordinated and integrated with the entire continuum of care. PHC should be considered the main entry point to health care, characterized by the proactive delivery of key preventive services and management of chronic conditions over time. Reframing PHC is only the first step—after peoples' expectations are changed, they have to be delivered upon with the high-quality care.

A similar transformation is needed in the realm of data, said Ellner, especially from the perspective of frontline workers. According to the traditional/current view, data are reported "up" to higher-level authorities and donors, which may then be used for punishment or shaming. Systems are so poorly designed that data reporting is often paper-based, tedious and time-consuming, requiring extra labor or diverting existing labor to carry it out. A myopic focus on quantitative disease or intervention targets in isolation can obscure the bigger picture that data can reveal, he added.

⁹ Quote from Kocher and Sahni 2011

¹⁰ Frenk et al 1990

¹¹ Ellner noted that discussions can get bogged down in the distinction between primary health care" versus "primary care"; he directed participants to the Primary Health Care Performance Initiative's website for an explanation of how the concepts are related.

¹² Source: http://www.phcperformanceinitiative.org

Data in 2030 will be a game-changer, he predicted. Any industry or service that performs well will have a deeply embedded data culture. Data will drive continuous improvement and learning at points of care; it will capture dimensions of service and system performance and it will be shared seamlessly and transparently. Rather than being a chore that diverts time and resources from other activities, data collection will be collected passively as part of the care process. This will be facilitated by technology and systems designed to collect the data in real time and in structured ways that enable advanced analytics to help with prediction and planning.

The roles of patients and families must also undergo a seismic conceptual shift by 2030, Ellner said. Today, patients are considered passive recipients of a technically complex service who are lucky to get any care at all, so they should be quiet and follow directions. Providers tend to think about "doing things to" patients. "We tell them what to do, and if they're good they listen...if they don't do what we say, they're non-compliant. There are power dynamics around this relationship that are disruptive and largely antithetical to what promotes health for patients," he argued.

Discussions about disruption tend to center around technology, he said, but the real disruption needed is to change these power dynamics by transforming systemic thinking about the culture and organization of healthcare workers and hospitals. Putting people in the center does not mean that providers get better at delivering something to them, he explained; it means that patients and their families become essential partners in care processes and outcomes. In his vision for 2030, patients become critical producers of data, with mobile technology providing huge opportunities for structured data collection by empowering people and connecting them to the formal system. People who are constrained by structural barriers or health challenge, may require extra support to adhere to treatment. He reminded participants that

people will also be consuming data and other health information about quality of services and making choices about where they spend their time and money.

2.2.4 Evolution of health systems: key principles and drivers

No health system in the world is anywhere near to being fully evolved, said Ellner. However, high-value health systems will be need to be in place to adapt as the burden of disease continues to shift within countries and worldwide (see Figure 13). This will require a commensurate shift in the orientation of the health system from 'react and rescue' models to 'engaging and empowering' models. Patients must take a more active role and key provider competencies will need be drastically different and person-centered.

He charged the workshop participants with finding ways to create an ecosystem to allow the kinds of disruptive innovation necessary to accelerate toward UHC. This may require expanding beyond the public-/privatesector distinction to support innovation in this ecosystem. He noted that PHC tends to lose its way when focusing on very specific interventions and suggested that frameworks could be developed to strike the needed balance between complexity and simplicity. He warned participants not to assume that technology in and of itself will change everything. Technology is toothless unless it is accompanied by changes in the platform of service delivery and integrated appropriately into service workflows.

To guide the workshop's discussions, he asked participants to keep in mind three questions:

- What are the challenges and constraints to rapidly scaling access to innovation?
- What are the game-changing opportunities at the local, national, and global levels?
- What can we do as individuals or stakeholder groups in the next week, the next month, and the next year?

Figure 3. Evolution of health systems



Source: Ellner presentation¹³

¹³ Figure source: Ellner 2018 (in press)

3 Models of primary care, now and in 2030

3.1 INTRODUCTION

Chapter 3 provides a summary of the second session of the workshop, during which the participants explored models of primary health care (PHC) today and looked to the future of primary care models in 2030. The session was moderated by a team from the Center for Health Market Innovations¹⁴ (CHMI) at Research for Development¹⁵ (R4D): Donika Dimovska, senior program director at R4D, and John Campbell, program officer at R4D. Campbell opened the session with a presentation on disruptive models of PHC innovation, which was followed by a panel of innovators featuring representatives from Muso Health, Possible Health, Praava Health, and World Health Partners. Reactors from the public and private sector offered their thoughts from the perspective of both domains.

The moderators set the stage for the session by reminding the group that the global momentum to harness promising PHC innovations is continuing to mount, encouraged by widespread recognition that if they are harnessed effectively, these approaches can have a positive impact on the broader health system. However, despite this increased awareness about the opportunities, the promise of these disruptive solutions to contribute to country efforts toward UHC has yet to reach its full potential. The most pressing issues of today are questions about which models show promise in addressing priority challenges at scale and contribute to system strengthening, coupled with related questions around how such models can be scaled, adapted, and integrated into systems to help program toward national and subnational PHC goals. The session

was designed by R4D's CHMI to explore the landscape of primary care innovations in low- and middle-income countries (LMICs) by taking a more in-depth look at the questions of what works and how. The session provides an overview of the primary care models and their constituent "active ingredients" that are central to achieving a program's outcomes. It also includes relevant insights from technology-enabled models that have seized the opportunity to reinvent primary care delivery and have demonstrated a capacity to be taken to scale. The overall aim is to find practical ways to move forward by creating mechanisms to stimulate uptake and to accelerate scale up, adaptation, and integration.

3.2 DISRUPTIVE MODELS OF PRIMARY HEALTH CARE INNOVATIONS

John Campbell surveyed the landscape and provided a conceptual overview of PHC models and the specific strategies and core components that programs use. He focused on new models of technologyenabled PHC, new PHC models that integrate health financing and delivery, and innovative approaches for reaching remote populations at an affordable cost. He framed his presentation with an overview of the types of primary care models emerging in LMICs and the types of strategies or 'active ingredients' that they use to put innovation into practice.

Campbell explained that health systems built on a strong foundation of primary care delivery are more resilient, efficient, and equitable; they can respond to epidemics and pandemics in a more robust way. Primary care is a core component of robust health systems

¹⁴ For more information about the Center for Health Market Innovations, see https://www.r4d.org/projects/centerhealth-market-innovations/ (accessed September 13, 2018).

¹⁵ More information about Results for Development is available at https://www.r4d.org/ (accessed September 15, 2018).

and it is critical to delivering the benefits of universal health coverage (UHC). Despite these advantages, PHC is often the weakest link in health systems. While many LMICs have made improvements in some disease-specific areas, he added, their access to affordable, quality primary care services remains limited. Although many innovative PHC models are being developed in emerging markets, there are factors limiting the ability of those models to go the last mile and deliver high-quality, accessible care at scale. The potential of PHC is easy to conceptualize, he observed, but PHC is not very easy to realize. "As a group we have to come to grips with the fact that PHC will never advance to its full potential-to UHCunless some key challenges are overcome," he said.

3.2.1 Key challenges in primary health care

Campbell explained that before primary care can advance to become the central function and main focus of a health system, there are seven key challenges that must be overcome. The challenges include:

- Poor patient access
- Insufficient coordination and integration
- Acute shortage of skilled health workforce
- Misaligned incentives
- Under-utilization of technology and data
- Variable quality standards and regulation
- Lack of infrastructure

Accessibility to care is still a barrier for most patients to overcome, causing **poor patient**

access. Often the communication structures and channels needed for providers and patients to navigate the health system are not in place, due to insufficient coordination and integration; this also interferes with and limits patients' access to care. The acute shortage of skilled health workforce is another critical challenge, as are misaligned incentives. Governments are more willing to offer incentives within a fee-for-service model, thus rewarding volume over quality of outcomes. In most LMICs, PHC providers are not incentivized to provide care that improves outcomes and lowers readmissions. With respect to technology's expanding role in PHC, Campbell pointed to the underutilization of technology and data in which technology is perceived a means to an end. not as a transformative force. Variable quality standards and regulation can cause patients to lose confidence in the health system, reducing the efficacy of care. The final challenge he identified was the lack of infrastructure. Investment in hospitals far exceeds investment in PHC clinics, community health centers, mobile health centers, and neighborhoods kiosks. "We have to think about how to get care to the doorstep of people who need it most," he urged.

CHMI is working to find innovative ways to respond to these key challenges, said Campbell. He presented a set of innovative examples from around the globe of how primary care models can achieve scale and impact by lowering costs, increasing access, and/or improving quality. A description of how CHMI carries out this type of work is provided in Box 31.

Box 2. The Center for Health Market Innovations

John Campbell described the work of the Center for Health Market Innovations (CHMI). CHMI promotes the diffusion of health market innovations-programs, policies, and practicesthat have the potential to improve the quality and affordability of health care for low-income populations around the world. After a decade of studying innovative approaches, CHMI is confident that the challenges facing primary health care are not insurmountable. The Center for Health Market Innovations (CHMI) carries out this type of work by collating innovative examples from around the world: some of those models achieve scaling impact, and others do not. CHMI's process is to identify innovative programs, then to analyze them to determine the programs' specific components or approaches that contribute to increased access. They can cut the data in any number of ways to do an analysis that is meaningful for innovators addressing the same challenges, he added. This helps CHMI to surface high-level 'active ingredients' that can be put in front of policy makers and high-level government officials to catalyze real impacts. The connection facet of CHMI's work involves, for example, working to attain resources from global partnerships or creating targeted peer-learning platforms through which organizations can learn from each other in order to share best practices from their programs. CHMI now has a database of 1300 innovations from low- and middle-income countries. Around 450 of those innovations focus specifically on primary health care in a way that delivers care differently by reducing costs, increasing access, or improving quality.

3.2.2 Critical components to scaling up primary care delivery innovations

Campbell reported that based on their analysis, CHMI found four emergent themes among the innovative PHC models—the so-called active ingredients—that help these programs to scale up. These critical components to scaling up primary care delivery innovations include:

- Embracing a more patient-centered approach to care delivery
- Redesigning the health-care workforce to reflect empowerment and complete usage of all members of health care teams
- Leveraging technology in care delivery in meaningful ways
- Expanding the spectrum of health care delivery

Campbell presented a matrix that details some of the active ingredients used by various models of PHC to deliver frontline care today, how PHC components fit into those dimensions in the past, and CHMI's vision for the future of PHC in which those active ingredients are leveraged to the full extent (see Table 31 and Table 32). He noted that these active ingredients are not mutually exclusive; several of the organizations they analyzed were delivering PHC by leveraging any number of these or other approaches. He was hopeful that these active ingredients would be harnessed by innovators seeking to strengthen PHC systems and move toward this vision of the future.

3.2.2.1 Embracing a more patientcentered approach

Campbell turned to the first emergent theme, embracing a patient-centered approach to care delivery. He explained that patients have traditionally been passive recipients of care, within a dynamic in which they are expected to respond to "doctor's orders." Patients would generally have limited access to information and no access to digital health tools.

Today, health care models are emerging that encourage and empower patients to become active participants in decisions about their own health care. They have easier access to information via health portals, for example. He said that many patients engage in health seeking behavior in preparation for engagement with health systems—e.g., researching symptoms prior to health care visit. Today's patients have greater access and are more motivated to use multiple digital health tools, both mobile- and web-based, and patients are increasingly ordering certain tests online, such as genetic or blood work tests.

Campbell predicted that in the future, the patient will become the primary health decision maker and contribute as an active partner with physicians and health care teams. He suggested that physicians may not be involved in health seeking behavior at all. Patients might receive proactive, automatic medical information delivered directly to them via artificial intelligence or virtual reality platforms. The future patient may be able to order tests and have them analyzed via smartphone, as well as carry out self-care through applications that facilitate prevention and treatment, such as home screening and treatment via nanobots in the bloodstream.

3.2.2.2 Redesigning the health workforce

The next emergent theme is that, to bring an innovative PHC model to scale, the health-care workforce should be redesigned to reflect empowerment and ensure optimal usage of all members of health care teams, said Campbell. In the past, PHC providers were physicians, nurses, specialists, and medical care professionals. The workforce was heavy on specialists within a system that prioritized medical expertise; the primary method of care delivery was through individual care providers.

In the present PHC system, the workforce tends to span a larger range of providers, with health professionals and non-professionals providing care in a way that utilizes labor more efficiently. Non-professionals might include social workers, caregivers, and extended medical professionals. Robotic-assisted care givers are a new component of the workforce. However, there are not enough physicians in emerging markets, particularly general practitioners. Today, care is more likely to be delivered through care teams, which are a differentiator and an improvement from individual care providers. Some clinicians have the assistance of proper equipment and technology to diagnose and treat patients more effectively

In the future, Campbell predicted a shift toward patients themselves assuming many of the roles that providers used to play, with assistance from medical professionals and artificial intelligence. Fewer specialists will be in the workforce, having been supplanted by technology, but more primary care doctors will be in the workforce. Robots may even replace specialists for some surgical procedures. Care will be delivered by integrated care teams led by primary care doctors, he projected, thus putting primary care in its rightful position of the driver's seat within the medical continuum of care, for each patient that encounters the health system. Technology and management skills will be prioritized in the future, he added, and both the skilled and unskilled cadres in the health workforce will be assisted by artificial intelligence and robotics.

3.2.2.3 Leveraging technology in care delivery

Leveraging technology in care delivery in meaningful ways is the third theme they identified as common to scalable PHC innovations, said Campbell. In the past, technology had no interconnectivity and it was largely focused on physicians rather than patients. Low-tech equipment was often very costly to purchase and operate, and it tended to take the form of large equipment based in hospitals and doctors' offices.

Today's technology is much more high-tech, although it still has limited integration and interoperability with government health systems. Connectivity is also limited, but it is projected to continue improving. The technology of the present tends to be focused on both the patient and the physician, he said, although the power dynamic is shifting toward consumers. Technology is improving rapidly and is increasingly shaping the way health care is delivered, through wearables, smart devices, smart-phone-based applications and platforms, and virtual technology such as telemedicine.

In the future, Campbell predicted that technology will allow care to be delivered both virtually (such as telemedicine) and through embedded equipment (e.g., sensors). Technology will be primarily consumerfocused and feature extensive connectivity through wireless and cloud-based innovation. It will be driven by artificial intelligence and will leverage Big Data, genomics, and analytics within integrated, interoperable systems, he contended.

3.2.2.4 Expand the spectrum of care delivery

Campbell described the fourth theme, expanding the spectrum of care delivery as framed by a transition toward reaching patients in the environments where they live and work. In the past, institutional care in hospitals and doctors' offices was the status quo. Care was delivered only by medical professionals and the continuum of care was fragmented and disconnected, with patients accessing care in an episodic fashion. Care has traditionally been based on the knowledge and experience of professionals.

The current practice has transitioned from institutional care to more home- and community-based care, supplemented by virtual care (telemedicine), portable devices such as noninvasive blood glucose monitors, mobile applications to promote fitness and to monitor health issues such as cardiac conditions and diabetes. Mobile applications have spurred a shift from episodic encounters with health care to continuous involvement through the consistent patient/provider interactions that the applications facilitate. Although care may be delivered by integrated teams of multidisciplinary care providers including medical professionals as well as non-professionals—there is still limited collaboration among health-care providers, he added.

PHC of the future will focus on reaching patients in their homes or communities with telemedicine and virtual care, with automated test analyses carried out using artificial intelligence. Care will shift from siloed treatment by a single doctor to integrated care teams of multiple providers collaborating and coordinating care. Future patients will engage with the health care on a continuous basis, including practicing self-care through applications and devices to promote prevention, including *in vivo* diagnostics and treatment.

Campbell noted that these active ingredients are not mutually exclusive; several of the organizations they analyzed were delivering PHC by leveraging any number of these or other approaches. He was hopeful that these active ingredients would be harnessed by innovators seeking to strengthen PHC systems and move toward this vision of the future.

		PAST	PRESENT	FUTURE	
	THEME	ACTIVE INGREDIENTS	ACTIVE INGREDIENTS	ACTIVE INGREDIENTS	
Embracing the patient-centered approach	Patient role	Passive recipient of information and care; responds to 'doctor's orders'	 Empowered; active participant in treatment decisions 	 Primary decision maker Active partner with physicians and care teams Potentially no physicians 	
	Medical information	Limited access to medical information	 Easy access to medical information (via web, social media) Researches symptoms prior to doctor visit 	 Proactive medical information (re: potential illness) delivered automatically via artificial intelligence or virtual reality 	
	Digital health tools	No access to digital health tools	 Uses multiple digital health tools (mobile and web-based) Orders certain tests (including genetic tests) online 	 Orders and analyzes tests using smartphone Self-care via prevention and treatment (including more home screening, and treatment via nanobots in bloodstream) 	
Redesigning the health workforce	Providers	Physicians, nurses, other medical professionals	 Professionals and non- professionals (caregivers, social workers, etc.) Robotic-assisted caregivers 	 Providers Patients themselves, assisted by artificial intelligence and possible medical professionals 	
	Workforce	Many specialist doctors	 Too few physicians in emerging markets, especially general practitioners 	 Fewer specialists, more primary care doctors Robots replace specialists for some procedures (e.g., robotic surgeons) 	
	Care delivery	Individual care providers	Care teams	 Integrated care teams led by primary care doctors 	
	Expertise	Medical expertise is prioritized	Technology-assisted clinicians	 Technology expertise and management skills are prioritized Skilled and unskilled workforce assisted by artificial intelligence and robotics 	

Table 1	Active	ingredients	in	nrimary	health	care	innovation	(Part 1/2	1
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Source: Campbell presentation

		PAST	PRESENT	FUTURE
	THEME	ACTIVE INGREDIENTS	ACTIVE INGREDIENTS	ACTIVE INGREDIENTS
Leveraging technology in care delivery	Equipment	Large equipment— hospitals and doctors' offices	 Portable devices Wearables Smartphone-based Virtual technology (e.g., telemedicine) 	 Virtual (e.g., telemedicine) Embedded (e.g., sensors)
	Focus	Physician-focused	 Physician- and consumer-focused 	Consumer-focused
	Connectivity	No nterconnectivity	Limited connectivity	 Extensive connectivity Wireless Cloud-based
	Technology level	Low-tech	• High-tech, limited integration and interoperability	 High-tech Al-driven Leverages Big Data, genomics, and analytics Integrated Interoperable
pectrum of care delivery	Care setting	Institutional care (hospitals, doctors' offices)	 Home- and community-based care Virtual care/telemedicine Mobile apps—fitness, disease monitoring (cardiac, diabetes, etc.) Portable devices (e.g., noninvasive blood glucose monitor) 	 Home- and community-based Virtual care/ telemedicine Automated test analysis using artificial intelligence
	Integration	Fragmented, disconnected Individual physicians working in silos	Multidisciplinary care	 Integrated care Connected care teams
the s	Frequency	Episodic	Episodic	Continuous
Expand t	Type of care	Care based on knowledge and experience of professionals	 Minimal collaboration between doctors 	 Data-driven, evidence-based care
	Alternative care delivery	Care delivered solely by medical professionals	 Care delivered by medical professionals and non-professionals 	 Self-care via prevention apps and devices (including in vivo diagnostics and treatment)

Table 2. Active ingredients in primary health care innovation (Part 2/2)

Source: Campbell presentation

3.3 INNOVATOR PANEL ON THE FUTURE OF PRIMARY HEALTH CARE

During the innovator panel, expert participants shared key lessons learned regarding scaling up as well as challenges faced in taking innovations to scale and strategies for overcoming those challenges. They highlighted methods for collaborating with governments and private-sector stakeholders to integrate their specific models of care delivery. The panel was moderated by Donika Dimovska of R4D.

The featured innovators included:

- Dan Schwarz, chief medical officer at Possible Health
- Madeleine Beebe, institutional
 partnerships manager at Muso Health
- Prachi Shulka, country director for India at World Health Partners
- Sylvana Sinha, founder, managing director, and CEO at Praava Health

Dimovska set the stage by explaining that the confluence of technological advances, empowered customers, and rising demand by an aging population are ushering in this new era in health care. Although such trends have been emerging for some time, now for the first time they are accompanied by a rapid shift in health-care spending that is triggering major changes in behavior, fundamentally altering the health-care business, and revealing cracks in current operating models. "Simply put, health-care providers need a new way of thinking," she said. Dimovska asked the panelists to introduce their organizations and describe how they envision their organization contributing to the future of PHC.

3.3.2.5 Possible Health

Dan Schwarz explained that he is the chief medical officer for Possible Health,¹⁶ a publicprivate partnership that has been working with the Ministry of Health in Nepal for more than a decade. Possible Health works with the Ministry to provide direct service delivery at the community and facility levels. They facilitate several thousand encounters per day in multiple remote districts throughout the country, and work with the government on policy, training, and developing frameworks to build out Nepal's public health sector capacity.

Schwarz said that the work of Possible Health has two critical components related to the discussion about scaling up. The first is integration: they are integrated from the community to the facility and back, in a continual loop, to ensure comprehensiveness and continuity of care. Working closely with the Ministry, they have built an integrated system that includes CHWs and multiple tiers of facilities throughout Nepal's' PHC structure. They are also working to develop a continual loop of communication, working closely with Dimagi, Medic Mobile, and other local firms to develop facility-based electronic health record systems and applications to facilitate community-based communication. The second piece is that they are a formal public-private partnership. Possible Health is a private entity contracted and regulated by the government, with financing and regulatory frameworks developed entirely in the public sector. This is a differentiator in the LMIC context, he said. Most public sectors are used to being the guarantor of service delivery, but the conceptualization of government as regulator of the private sector is a new transition for the Nepali government. They have worked closely with the government over the past decade to support them in writing policies and navigating the development of regulatory and financing structures.

3.3.2.6 Muso Health

Muso Health¹⁷ has been working in Mali since 2005, said Madeleine Beebe, institutional partnerships manager at the organization. Muso intervenes in the peri-urban space as well as rural settings, serving around 317,000 people and collaborating with nine government-run community health centers.

¹⁶ More information about Possible Health is available at https://possiblehealth.org/ (accessed September 15, 2018). 17 More information about Muso Health is available at https://www.musohealth.org/ (accessed September 15, 2018).

They support 381 CHWs, by providing intensive technical support to the Mali government to support their scale up of CHWs. She explained that Muso's model is built around proactive CHWs and they are working to redesign the continuum of care from the community level to the community health facility level to maximize speed. Focusing on the "U" in universal health coverage, they are committed to ensuring that all patients receive the care they need, when they need it. CHWs go door to door for a minimum of two hours per day, six days per week, to identify cases, provide health promotion, build relationships, and foster trust. They strive to reach patients early and often by visiting each family one or two times per month. The CHWs provide an enhanced Integrated Community Case Management (iCCM) package and referrals to community health centers as needed. Muso works with and through the government-run clinics in the public infrastructure and they have removed user fees across that continuum of care. The total cost is around US\$10 per person per year and the community component costs around US\$4 per person per year, she reported.

The idea of measurement is a differentiator for Muso. "We try to hold ourselves accountable for population-level indicators and conduct population-level research," said Beebe, "because we want to understand whether what we're doing is working." She said that in their peri-urban setting, they have seen a dramatic reduction in under-five mortality and they are currently running one of the largest randomized controlled trials involving CHWs, covering about 100,000 people in rural Mali to test this model of PHC. She then looked to the future of PHC and UHC. With respect to the epidemiological transition discussed by Ellner, she said that Mali is nearing the end of that transition. Looking forward, equity will be an important guiding principle; continuing to account for contexts like Mali will be critical. She explained that Muso's vision is a proactive PHC that meets patients where they are and

is intentional about transcending the barriers that are known to cost lives. Their overarching goal is to contribute to a movement and a body of evidence that shapes the role that CHWs can play in this journey.

3.3.2.7 World Health Partners

Prachi Shulka, country director for India at World Health Partners,¹⁸ explained that it is a non-profit organization that aims to provide good quality health services to vulnerable and marginalized communities living in rural areas and urban slums. They develop frugal technology designed in-house to work in resource-constrained settings, as well as creating user management systems and collecting reliable data metrics to administer large-scale programs in real time. With this focus on PHC, they are implementing programs across the Indian state and in Kenya; the portfolio spans maternal child health, family planning, tuberculosis, pneumonia, childhood illnesses, and others. A triage model allows for basic care to be provided close to the community through enhancing the efficacy of locally available resources; entry points for secondary and tertiary care are available as needed.

This focus on PHC is critical, said Shulka, because populations tend to turn to home remedies instead of seeking health care for basic illnesses such as a fever, due in part to the scarcity of doctors in rural areas. However, if those basic illnesses become serious or life-threatening, people in rural areas will do anything to seek care in urban areas, including selling all their possessions. People also prefer to seek care in secondary or tertiary hospitals, which places a huge burden on the health system. This highlights a critical gap in early detection that would enable earlier diagnoses of acute health issues, which her organization is trying to address by building awareness and capacity to detect basic illnesses at the local level. A key challenge is that resources are very scattered and there is fragmentation across the public, private and non-profit sectors.

¹⁸ More information about World Health Partners is available at http://worldhealthpartners.org/ (accessed September 15, 2018).

"We need to have a system to bring these resources together to create an ecosystem of care," she said. They are focusing on delivering care to people who need it today, with the view to building upon that momentum to continuously strengthen the system and improve the quality of care delivered through training and other strategies.

3.3.2.8 Praava Health

Sylvana Sinha reported that Bangladesh is exceeding all other Southeast Asian countries according to social development indicators life expectancy is 72 years and there has been tremendous progress in maternal, child, and newborn health outcomes. She attributed this largely to the work of the government and nongovernmental organization (NGO) sectors in providing PHC in rural settings. However, for care beyond basic PHC, most people in Bangladesh need to travel to urban areas and access private facilities.

Praava Health¹⁹ is working to create a solution to this problem, said Sinha, who is the founder, managing director, and CEO of the organization. Previously, Bangladesh has only one accredited laboratory in the entire country: icddr,b.²⁰ However, there were many issues with diagnostic errors and anyone who could afford to leave the country for care was doing so, including lower- and middle-class people who would travel to India. Every day, the Indian embassy was issuing 1000-2000 medical visas for the half a million people per year traveling to India for health care. She noted that this is probably an underestimation, because many people go to India on a tourist visa and get health checks while they are there. Her organization surveyed people traveling abroad to seek care, finding that the number one reason was not in fact diagnostic errors, but the perception that doctors in Bangladesh were not spending enough time with them, were not answering their questions, and were not even looking them in the eye. This perception is supported by a recent study that found

PHC in Bangladesh spent an average of just 48 seconds per patient, placing the country at number 67 in the world.²¹

Praava Health seeks to rectify this by providing an integrated, team-based approach to care delivery and introducing valuebased concepts to delivery of care. Sinha explained that this work is guided by the aim of shifting the power dynamic in the system toward patients, framed by the concept of family medicine and PHC, with doctors who engage with patients and teams who manage care. They have a network of family health centers with group practices of family health professionals including family doctors with advanced training in family medicine, women's health professionals, pediatricians, ophthalmologists, dentists, and allied health providers (e.g., nutritional and psychological counselling, physiotherapy, and health coaching). They promote a team approach, while providing a range of in-house diagnostics on the back end through six laboratories established per international standards and a full range of imaging services. Everything is technologically integrated and they have established Bangladesh's first fully integrated hospital information system, featuring a patient portal where patients can access medical records, chat with doctors, and make appointments. They are looking at adding on behavioral management tools as well.

South Asia is different from most of the rest of the world in that most health care is financed by out-of-pocket payments, said Sinha, and more than two-thirds of health spending in South Asia is in the private sector. The system is plagued by corruption and patients' lack of trust, given that health care companies are making more money as people are getting sicker. Praava has introduced value-based concepts to the delivery of care, such as outpatient insurance and prescription packages that cost between US\$60-\$350 per year patients for unlimited access. The most inexpensive plan offers one annual

19 More information about Praava Health is available at http://www.praavahealth.com/ (accessed September 15, 2018).

²⁰ Formerly known as the International Centre for Diarrhoeal Disease Research, Bangladesh

²¹ Irving et al 2017

health check plus unlimited visits and the higher cost plans are for people with chronic diseases, such as diabetes and cardiac conditions. This program was implemented in 2017 and they are starting to examine whether the program is creating value for our patients, based on how frequently patients access Praava facilities as well as health outcomes.

3.3.1 Scaling up primary care: challenges and opportunities

Dimovska remarked that while scaling up primary care is important for improving access to essential PHC services, there are characteristics of primary care that make it inherently difficult to scale. These include:

- Lack of demand for primary care services from LMIC populations
- Difficulty attracting an already scarce supply of health workers
- Low margins that make it challenging to sustain and expand operations

She observed that these types of discussions of scaling pathways tend to center around the issue of what scale for PHC means from an organizational versus a systems perspective, as well as how an innovator can figure into scaling efforts. She asked the panelists to reflect upon their own visions about scale and what it means in terms of impact. Specifically, they were asked to identify the main factors that have enabled their organization to achieve a certain level of scale, the major barriers to large-scale impact that their organizations have faced, and strategies that have been used to surmount those barriers.

Beebe commented that scale has become the new hot topic, particularly among non-profits, with associated pressure to talk about scale in a convincing way; she was concerned that this pressure can oversimplify the conversation and lead to trite soundbites about scale. In Muso's setting in Mali, she said that the government is often the scaling partner, which is important because the public sector is a key, yet complicated, pathway. As an organization, they are still learning how to work with the government to bring their ideas to scale. Early on, Muso's focus and expertise was around how to deliver care effectively on the ground, but they are still learning how to become a good partner in working with the government, which requires a different set of skills and expertise. Looking forward, they will need to find ways to scale up through pathways other than the public sector. They will also need to consider how different pieces of the larger ecosystem can support government in more easily and readily embrace these kinds of innovations. It is more complicated than: "Here's this pilot, it works great, why isn't it at scale yet in our country?" She said they are looking at dedicated technical assistance for supporting not only governments, but also to other organizations-public-private partnerships will be an important piece. They are considering open-sourcing their model, which might allow different pieces to take to scale in different contexts where they may have more relevance.

Schwartz warned about the danger of fetishizing volume and outputs in conversations about scale, because health itself is not a measurable concept. An important nuance of the conversation is to differentiate between volumetric outputs and quality of outputs: that is, between volumetric or "direct delivery" scale and ideological scale. Organizations do not expect to provide billions of encounters in our organizational curves," he said, "that's not our mission, or our vision, for how scale or impact is achieved." When funders are single-mindedly focused on why outputs are not increasing more rapidly, it misses the mark of what it means to provide health to populations. In his opinion, public-private partnerships help to move the needle toward UHC. In many countries, the government will continue to be the guarantor, at least in the most marginal populations; there are subpopulations everywhere in the world with access to high-quality care that they can pay for out of their own pocket. To improve equity for marginalized, underinsured, and underpaid populations, guarantors need to work with

governments to **scale up from a directdelivery perspective**. For example, this would involve enabling and capacitating the Nepali government and guarantors of health-care delivery to do it better, with higher quality and more efficiency.

Scale requires a **combination of** entrepreneurship, appropriate technology, evidence-based management systems, and public-private partnerships to deliver care to the neediest people, said Shulka. In their context, there are only two scale options: the vast but inadequate public sector and the large but informal private sector. Both come with strengths and weaknesses, but the real challenge is integrating the two sectors by leveraging their individual strengths such that they supplement and complement each other. The neediest segments of the population vastly depend upon informal providers for basic care in their slums or remote rural communities, she said, adding that these informal providers are critical parts of communities because they have strong social skills. In contrast, the public sector focuses on skill-medically qualified professionals providing care—with less consideration to social ties in the community. She argued that to optimize the strength of both sectors and reach scale, the two sectors will need to be effectively integrated.

Sinha said that to reach scale in Bangladesh, they will have to build out their in-house training capacity to address critical skills gaps. Part of Praava's vision is to create systemic change in terms of the way health care is delivered and part of that involves **mainstreaming the concept of family medicine**. Years ago, there was a proposal that family medicine should be recognized as a specialty in Bangladesh, but the specialists blocked that effort and it still not recognized as a specialty by the government. Achieving scale in Bangladesh will be contingent upon mainstreaming this concept, among many other factors.

Dimovska asked the panelists about what they hope this group and the broader community

could do to make their organizations' work easier, so they can achieve impact. Sinha was skeptical about the impact on technology such as artificial intelligence on actual health outcomes; she conceded that technology does have a role in the future, but she was unsure how long it will take to get there. She questioned how technology is being used to create impacts for patients. Shulka suggested sharing best practices worldwide and developing strategies to address financing and insurance challenges. Beebe remarked that the issue of creating demand for innovations within systems and at higher levels of governance resonated with her. This loops back to the question of scale and who we hold responsible for it, she added, noting that innovators are often good at defining innovations and pathways, but not necessarily good at bringing them to larger spaces. She suggested that this will require an enabling environment that supports innovators all along that path. Schwartz suggested that global regulatory frameworks and global financing networks could incentivize and encourage more nuanced discourse around some ways the government partners with and enables ecosystems at the local level where care needs to be delivered, from big urban centers to rural remote districts.

3.4 SYNERGISTIC PRIVATE-PUBLIC COLLABORATION: REACTIONS FROM PRIVATE AND PUBLIC STAKEHOLDERS

During the next session, designated public and private-sector representatives reflected on synergistic private-public collaboration and how to more effectively work together to promote the scale of disruptive health care. To add the perspectives of the country governments and multinational corporations, representatives from the Vietnamese Ministry of Health and Pfizer reflected on the role that governments in partnership with the private sector can play in accelerating the scale of disruptive PHC innovations.

Dimovska noted that the private health sector is strongly influenced by, and also influences, the public sector. In LMICs, the public sector plays multiple roles in the health system through regulation, financing and provision of care. Partnership with the public sector remains a viable pathway for PHC innovations to achieve scale. Also, structuring mutually beneficial partnerships between primary care innovators and prominent private-sector players, like the pharmaceutical industry, can help ensure that the best ideas are being leveraged by those well positioned to impact the health of the population at scale, she added. The two reactors were Tran Thi Mai Oanh, director of the Health Strategy and Policy Institute at the Vietnam Ministry of Health, and Darren Back, senior director of social investments and global health programs at Pfizer.

Moving toward the vision for primary care 2030 will require changing the care delivery approach to enable patients to transition from passive recipients to active engagement and empowerment, said Tran Thi Mai Oanh. Innovations will need all stakeholders to be involved through community-based and teambased models. She reflected on roles that governments can play to contribute to scaling these PHC models. To provide better care to people, the government should establish and set the policy direction and framework with a focus on prevention and management of non-communicable diseases, not only curative diseases. She suggested that the government should also direct policy such that these activities engage all sectors and stakeholders related to health care. Health care is not only the responsibility of the health sector-it should be shared among all stakeholders—so the government should develop policies to better engage the private sector. In many countries, the number of private providers is huge and continuing to grow, but there are not adequate policies in place to codify their responsibilities and involvement in primary care. The focus should not only be on health care for people, but also on increasing the roles and responsibilities of

all related stakeholders, she said. Standards should also be developed and applied to both skilled and unskilled health workers. Raising awareness is another key role of the government-this new model of PHC will require raising awareness among leadership, stakeholders, and populations alike. The shift in focus from treatment and curative services to health promotion, prevention, and disease management will take time and investment of resources, she said. In Vietnam, implementing this transition has been challenging because investors still prefer to direct resources toward hospitals rather than PHC. Financing needs to be distributed more broadly at the system level to drive improvement in providers' delivery of care. She added that PHC should employ a capitated payment model, rather than a fee for service.

Back explained how the pharmaceutical industry works with organizations to bring value beyond funding alone. In addition to working with large international nongovernmental organizations (NGO), the Pfizer Foundation is also supporting emerging smaller entrepreneurial organizations on the ground through its Global Health Innovation Grants program, which provides funding as a mechanism to help these organizations demonstrate the efficacy of their models and strategize about how to scale up. As of the summer of 2018, the foundation was supporting more than 20 such organizations around the world.

Back noted that these types of entrepreneurial organizations are working on the ground with communities and local businesses (unlike many NGOs); they understand what patients need and design interventions to respond to that need. This allows organizations to be nimble and quick to respond as well as being very efficient in terms of services provided. These models are also focused on active delivery, he added, which involves proactively going out to meet patients' needs rather than waiting for patients to come. He noted that the relationships between these organizations can be complex. Governments may be resistant to recognizing the work being done through private organizations, because it highlights the lack of services being provided through the public system. These organizations also tend to be focused on continuous improvement and the foundation works to support those efforts. Back commended the leadership of these organizations for their incredible passion to deliver care on the ground to the people who need it most.

The pharmaceutical sector can help efforts to scale and increase impact in ways other than funding, such as providing technical expertise and support, Back added. It has a vast amount of skills and capabilities that can be loaned out to organizations to work side-by-side with implementers for four to six months at a time. He urged the group to see the pharmaceutical industry as a partner in these efforts, because they share the common goal with these innovators. The industry can also serve as a convener, allowing the organizations in their portfolio to share insights, practices and challenges.

3.5 DISCUSSION

3.5.1 Coordination with government systems

An interactive large-group discussion followed the panels. Issues around working with government systems were raised by Khaleda Islam, ex-director of PHC and program manager of national newborn health and integrated management of childhood illness at the Bangladesh Directorate General of Health Services. From a scaling perspective, she asked whether the organizations work with governments or set up their own health-care delivery separately. She also asked whether the organizations coordinate with governments, whether they share their data with governments, and whether they implement government protocols. Beebe replied that Muso coordinates and collaborates with governments within all of those dimensions. Sinha said that Praava is not currently working with the government in a formal capacity, but they are open to doing so. However, the public-private partnership model has not been as successful in Bangladesh as it has been in India and in other countries.

Shukla responded that World Health Partners is also working with governments, because the only way to scale is through the public sector. They are a donor-dependent organization that serves as an interface agency to facilitate between donors, government, and the public and private sectors. Their model involves working with both the public and private sectors to implement models in a diffused, franchise-style network, but all data are shared with the government. They also involve government trainers to help enhance the skills of both formal and informal providers. She reported that they are implementing a tuberculosis program that was jointly conceptualized by the government's tuberculosis division, donors, and implementing agencies. India has a tuberculosis epidemic, yet half of people with tuberculosis in the country access care from private-sector providers, where no data are collected for the government's

monitoring system. By creating an agency to interface between the private sector and the government, they have quadrupled tuberculosis notifications.

3.5.2 Integration into national health ecosystems

Dessi Dimitrova, practice lead for health systems at the World Economic Forum, asked about ways for organizations to become part of the ecosystem in the countries where they work, in order to ensure that operations would continue in an integrated, sustainable way even if the panelists themselves were not driving these programs with such passion and effort. Sinha said that they are trying to be open and collaborative with innovators and providers in Bangladesh; they have hosted some meetings, but data sharing is not yet happening due to mistrust and unwillingness to share data among people doing this type of work in Bangladesh. Beebe replied that Mali has a decentralized health system, so community health associations are technically responsible for health financing at the community level. While Muso is currently the payer for many of the services they subsidize, they make sure that money is routed through the community health associations and that the CHW contracts are held by the community health associations and not Muso.

3.5.3 Primary care versus primary health care

The terms primary care and primary health care are being used simultaneously, said Rani Bang, founder of the Society for Education, Action, and Research in Community Health (SEARCH). She asked whether the two terms are synonymous, given that health is not just medical care but extends to social, physical, psychological, and other factors. "If we want to improve health at the community health, we have to invest not only in medical infrastructure, but in the other factors that affect health, like water, sanitation, and economic status," she said. Andy Ellner, conference co-director, director of the Harvard Program in Global Primary Care and Social Change, and CEO of Firefly, posited that there is agreement among the workshop participants about the importance of both primary care—i.e., a narrower approach to the delivery of health care that is sometimes integrated with community approaches and the broader view of PHC. He referred participants to the Primary Healthcare Performance Initiative for an exploration of those distinctions.²² He noted that the workshop's discussion has used the term primary care, due to the focus on the delivery of the service of health care in ways that acknowledge the broader determinants of health.

3.5.4 Capitalizing on ambitious plans to disrupt primary care

Dimovska remarked that at a recent conference in India about innovation for UHC, the government of India presented an ambitious plan to achieve UHC by 2022, not 2030. One senior government official said he envisioned that all primary care in India would be run by the government within five years. Dimovska construed this level of ambition as an invitation from the government to suggest ways to disrupt health care delivery.

²² For more information about the Primary Healthcare Performance Initiative, see http://www.phcperformanceinitiative. org/ (accessed September 13, 2018).

4 Technology, scale, and access

4.1 INTRODUCTION

Chapter 4 summarizes the workshop's session on technology, scale, and access. The session included a panel of innovators who described their organization's work in this domain, after which the participants broke into smaller working groups to discuss challenges, opportunities and next steps for advancing and disseminating technological innovations in primary health care (PHC). Leaders reported back to the group at large about the working groups' deliberations and took questions from the participants.

The session was moderated by Andy Ellner, conference co-director, director of Harvard's Program in Global Primary Care and Social Change, and CEO of Firefly. He opened the session by reflecting upon the potential impact of technology upon equity. He noted that, "Perhaps it will reduce human interaction, increase the gaps between the wealthy and the poor, or exacerbate the power differentials in existing systems that disenfranchise huge numbers of people around the world". He warned that discussions of technology are often rife with misconceptions that a single new innovation will be revolutionary and when that fails to materialize, the focus moves swiftly on to the next innovation du jour. "We can't afford to do that in primary health care," he said, "...it's a mistake to hold up technology as the answer to everything." That said, technology is an important enabler for what needs to be accomplished and achieving UHC will be dependent upon it, he added.

Ellner offered an overview of what technology should do and what humans should do. He began with the broader point that technological innovation in and of itself is toothless when not paired with human innovation in the way technology is integrated into the work that is delivered. When it works well, technology can improve both efficiency and human productivity. It can help standardize components of health care such as immunization, cancer screenings, and basic management of chronic disease because technology exceeds the human capacity to run algorithms with high fidelity. Technology can also promote coordination and communication across teams of people over time, which is very difficult to accomplish without technology. Finally, he highlighted technology's role in collecting data (including customer feedback) and using that data to drive rapid improvement and innovation in service delivery.

4.2 INNOVATOR PANEL ON TECHNOLOGY, SCALE, AND ACCESS

The innovator panel on technology, scale, and access included representative from the following organizations:

- Shreya Bhatt, Asia regional director at Medic Mobile
- Shayoni Mazumdar, senior field manager at Dimagi (India)
- Chase Adam, co-founder and CEO of Watsi

4.2.1 Medic Mobile

Shreya Bhatt, Asia regional director at Medic Mobile,²³ explained that they are a non-profit technology organization founded in 2010 to improve health-care delivery in settings around the world. They serve this mission by designing, supporting, and implementing an open-source software toolkit that helps community health workers (CHW), clinical and facility-based teams, and managers work together to provide timely critical care. Their approach is deeply grounded in humancentered design, so in designing the toolkit they work closely with end users, primarily CHWs on the front lines. Medic Mobile is also mission oriented around specific use cases and they are trying to build an evidence

²³ More information about Medic Mobile is available at https://medicmobile.org/ (accessed September 15, 2018).

base for impact on health outcomes that can be replicated with partners at scale. She explained that the toolkit supports CHWs in delivering and coordinating care for maternal, newborn and child health, immunizations, family planning, Integrated Community Case Management (iCCM), nutrition, death reporting, outbreak surveillance, and other areas.

4.2.1.9 Mobile application for doorstep care

"We envision a world where community health workers are supported with the right technology as they provide timely care for their communities," said Bhatt. Medic Mobile supports this through the range of tools that are available on their platform, including phone-based tools to smartphone-based tools, and web-application-based tools. She described what a CHW sees and does with the Medic Mobile app, which is designed for doorstep care (see Figure 41). As a CHW goes door-to-door providing services to the community, they can use the application to manage their relationships with community members. They can see the profiles of families and individuals over time and can receive critical decision making and action support as they provide doorstep care, including task prioritization for follow-up care. This demonstrates the application's potential to help ensure quality, replicability, and reliability in care being provided, she said. The application also integrates a task list that can help to direct CHWs to the right homes at the right times, so that they are delivering care to those who need it most in their communities. It can help them manage their overwhelmingly busy schedules to support the delivery of reliable, consistent, and timely care in the last mile. The application dashboards show CHWs their own performance and progress against benchmarks set by their program or supervisors in real time. As such, the workers have autonomy over their own productivity and can work to enhance it.
Figure 4. Medic Mobile's applications for doorstep care



App for doorstep care



Source: Bhatt presentation

Beth Tritter, executive director at the Primary Health Care Performance Initiative (PHCPI), asked panelists if any of their clients looked at the productivity of CHWs from a service quality perspective, as opposed to service delivery outcomes. Mazumdar replied that at Dimagi, they assess their projects along three dimensions:

- Utilization: are workers using the software? How are they using the software?
- Outcomes: how many visits are happening? How are outcomes distributed?
- Quality: within the visits, are the workers doing everything they were supposed to do, such as following protocol?

She noted that not all partner organizations are concerned specifically with measuring

outcome quality, because the time and resources required can be cost-prohibitive for smaller organizations.

4.2.1.10 Toolkit for managers

Bhatt explained that the Medic Mobile toolkit supports decision makers through powerful and actionable analytics for CHWs' supervisors or managers. It features targeted and data-driven performance management tools that managers can use to carry out coaching, skill building, and refresher training for CHWs based on performance; the dashboard can also be used to implement performance-based pay to incentivize workers to perform well against set targets. The application can also support managers and decision makers to track system activity and carry out continuous program impact monitoring and evaluation, by looking at key activities and the impact metrics of programs. This allows them to evaluate how a program is doing, to identify resource changes needed, and to find ways to improve programmatic elements to achieve greater impact.

4.2.1.11 Challenges to scaling up

Bhatt concluded by outlining some of the challenges to scaling up from Medic Mobile's perspective, gleaned from their work with implementing partners ranging from small community organizations to international nonprofits to ministries of health. To date, they have worked in more than 23 countries in Asia, Africa and Latin America; in coordination with these implementing partners, over 20,000 frontline workers are being supported by Medic Mobile tools and devices.

Implementing programs at the last mile is a universal challenge, she said, because it requires deep contextual understanding and empathy for the CHWs being served and supported. It can be difficult to engage CHWs users beyond the initial months of deployment, she said, in order to help them integrate these programs and make digital health technology part and parcel of their everyday life. She noted that in some settings, for example, models of financial and nonfinancial incentives have been employed to develop very strong, well-supported, and well-supervised networks that can have a tremendous impact. However, achieving this can be a challenge when working at scale with ministries of health in scenarios lacking that degree of extensive support and incentivization.

Other scale-up challenges relate to sustainability, Bhatt added. It is difficult to account for the costs involved in setting up these types of program because in addition to startup costs, there are ongoing costs of running a digital health program at scale. This gives rise to questions about which stakeholders will take up different parts of those costs and how to negotiate this partnership across NGOs, technology innovators, high-impact implementing organizations, government partners, and nonstate actors (like mobile network operators) that also have an important role to play.

4.2.2 Dimagi/CommCare

Shayoni Mazumdar, senior field manager at Dimagi (India), explained that the organization was founded in 2002; they strive to create sustainable impact for underserved populations through providing technological solutions to frontline workers to support their service delivery. Dimagi²⁴ works with around 1000 projects across 60 countries in different sectors such as health care, agriculture, and education. CommCare²⁵ is their flagship platform, which can be used to design an application and deploy it to frontline workers.

4.2.2.12 CommCare features and use cases

Mazumdar provided an overview of CommCare's features and use cases. First, CommCare can empower end users—i.e., frontline workers-to deliver better services. For example, if a frontline worker needs to see the details of the last home visit, CommCare can design an application to provide that information, as well as overall metrics about the current village population, pregnancy rates, people who are due for checkup, and so forth. In addition to providing opportunities for higher-level data collection, it also serves as a platform for health care workers to work differently. The case-management feature allows for data tracking over time, which can be a challenge for health-care workers working in communities where people are highly mobile, for example. CommCare applications can also work offline, she said, allowing field teams to collect data without interruption. Connectivity issues are a common problem in the field and many of these workers do not have a mobile phone that they use very often. The "offline first" system is designed to address this challenge, because workers do not need a connection to capture and review

²⁴ For more information about Dimagi, see https://www.dimagi.com/ (accessed September 15, 2018).

²⁵ More information about CommCare is available at https://www.dimagi.com/commcare/ (accessed September 15, 2018).

data. The data can be synced later when there is a connection available. CommCare applications are also multimedia enabled, to empower workers who may not be able to read very well, or at all. To enable such workers, they are planning to use audio to ask patients questions and prompt workers with protocols via video, for instance.

During the discussion, Dr. Khaleda Islam, former director of primary health care and program manager of national newborn health and integrated management of childhood illness at the Bangladesh Directorate General of Health Services, asked if the CommCare application can be modified—for example, to ensure that, if a pregnant woman moves to another village, her data will be available to health managers throughout the system ensuring that she will receive the same quality of care, maintaining the continuum of care as well as ensuring that her database is updated regularly. Dr. Islam noted that she believes that this type of electronic database which is easily accessible by the health care providers, regularly updated and is available

throughout the system, is crucial to ensure primary care for patients as well as to ensure universal health coverage. Bhatt replied that the Medic Mobile platform is free and opensource. They work closely with organizations to build capacity within their teams to make necessary configurations directly. The toolkit is also person-centered and structured to make it easier for teams to coordinate care. The platform can support migratory workflows and situations where there is movement within that structure, she said. Because the toolkit works locally offline, all data gathered as a byproduct of this care coordination system can be accessed by every user at every level of the health-care system. For example, health workers use the tool to provide services and facility teams use the tools to monitor what is going on in their community. Managers and decision makers can see bigger-picture data to monitor the trends and impact. At the national level, they work with ministries of health officials to manage the aggregated data.

Figure 5. CommCare features and use cases





Real time data monitoring

Deployment of mobile applications



Source: Mazumdar presentation

4.2.2.13 aking the technology to scale

Mazumdar explained that Dimagi as an organization is not responsible for scale, but they partner with governments and NGOs to help them scale. In the past two years, they have been focusing on smaller projects in communities and in 2017/2018, they hit the 100,000-user mark. They believe that it is important to maintain quality of care while reaching as many people as possible with a product that is useful for service delivery. She noted that a large part of the shift from 2016-2017 was based on a pilot followed by a randomized controlled trial that lasted for about two years. The results were positive, demonstrating that introducing technology significantly increased the number of antenatal visits and increased family planning, for example. This served as the evidential basis for taking the technology to a larger scale.

To Tritter's question about looking at productivity from a service quality perspective, Bhatt said that their experience at Medic Mobile is different due to the types of partners they work with. Because partners deploying Medic Mobile's tools at scale have been invested in the idea of quality of care from the get-go, everything they design is informed by that perspective. They also realize that they cannot just equip CHWs with technology without considering the other critical facets of their ecosystems, like supervisors and managers. She noted that their partners are very passionate about having tools to monitor quality, which is a focus in Medic Mobile's work.

4.2.3 Watsi

Watsi²⁶ builds software for health insurance systems, explained Chase Adam its co-founder and CEO. A government implementing health care for 50,000,000 people has to sign up 50,000,000 people and identify them when they come in for visits. If each person has two checkups per year, it amounts to 100,000,000 claims per year to be reviewed and paid. Watsi builds software to make that process more efficient. The organization was originally to fundraise for health care, but they became involved in health insurance when a venture capitalist was interested in funding software to improve social services and health care. They formed a relationship with a group of nuns running a hospital in Uganda, who were also interested in insurance, so they formed a partnership with Watsi to implement a system for 10,000 people in the country.

4.2.3.14 How software can support health insurance systems

Adam related five ways in which software can support health insurance systems through mobile or web applications: enrollment, identification, claims, claims processing, and reporting. Enrollment can be done in a minute or less through the software, as can identification checks by verifying photos or fingerprints. Software can support claims including diagnosis, drugs, laboratory tests, and services; anyone can easily log in to approve or deny claims. The software's reporting function offers visibility into whether the system is making or losing money, into the treatments being provided, and into whether the treatments are being provided according to treatment guidelines. These advantages contribute to increased efficiency, reduced paperwork, better quality of service, greater time spent with patients, and improved data collection. He reported that Watsi had recently signed a contract to provide software to help run a national health insurance system in a country in Africa, which would roll out the next month.

During the discussion, Cicely Thomas, program director at Results for Development, asked if there is already universal health insurance in the country where they will implement the insurance system nationwide; she also asked about Watsi's overall approach. Adam could not provide specific details, but he replied that their strategy will be working in countries where some form of social or

²⁶ More information about Watsi is available at https://watsi.org/ (accessed September 15, 2018).

community-based health insurance has at least been piloted, but not in countries that already have some robust software already. Watsi believes in the iterative, bottom-up approach. They have created an environment where they can prototype and build the software next to a paper system, and once the system is proven, the transition will be minimal and seamless.

Madeleine Beebe, institutional partnerships manager at Muso, commented that if Watsi implemented their software in multiple settings, they could generate a comparative data set. She asked if they had considered this and whether they have talked to partners about storing the data openly and making it available to health systems researchers. Adam replied that there is no agreed upon standard for data, but they see Watsi as simply a platform, and are committed to the belief that patients and governments should own their own data and it is up to them how the data should be used. If asked, they would provide data to governments.

Tritter asked how Watsi is incorporating insurance data with patient visit indicators at the facility level and asked if Watsi's systems are interoperable with normal government primary care work. Adams said that the system is interoperable with DHIS2 or any data visualization tool. From a technological perspective, interoperability is not difficult and most modern platforms are interoperable, he said. The challenge is political—getting people to agree upon what data to collect. He surmised that insurance data, especially claims data, might become the core data set because it has to be accurate for the system to run.

4.2.3.15 Agile approach to building software

Adam said that in 2002, the National Health Service in the UK launched a software project that was purported do everything scheduling, electronic medical records, billing, reporting, prescriptions, etc. The project had a three-billion-pound budget and a three-year timeline. The NHS project ended up as the largest software failure in history, at nine years over schedule and a cost of 12.5 billion pounds, and the software was completely discarded. He remarked that software failures are often these types of large, top-down programs that take a "waterfall" approach. On the other hand, successful software projects almost always start small and take a bottomup, iterative, "agile" approach. The agile approach makes sense in software because software is essentially cheap and easy to change, he explained, and reflected upon whether there is a place for the agile approach in health-care technology. He noted that some features of health care make this approach more difficult, because the stakes are high, partnerships are required, and the government is involved. He urged the group to consider ways to create an environment that allows for the agile approach in building software for the health-care space.

4.3 TECHNOLOGY, SCALE, AND ACCESS: BREAKOUT GROUP REPORT OUTS

During the breakout session, participants explored the following questions in small groups:

- What are major challenges and constraints to making these technologies available at a country level?
- What needs to happen at a country level and are there opportunities at the global level?
- How can we scale up?

A summary of the challenges and opportunities highlighted by the breakout groups is provided in Box 41).

Cicely Thomas reported out from one of the breakout groups. She said that the group identified five major challenges that impede efforts to make technologies available nationwide. They include issues of interoperability, limited capacity and technological literacy among the governments as well as consumers and users. Further challenges include: the need to change the cultural paradigm toward using these kinds of technological tools and the need to ensure data privacy, as well as the barrier of weak government stewardship. In terms of their ideas for rapid scale up, Thomas said the group highlighted the importance of fostering a basic understanding of what it meant by the concept of technology-enabled PHC innovations. They discussed who the relevant stakeholders are and how to promote that basic understanding. The International Telecom Union (supported by the United Nations) was suggested as a potential partner to help with that awareness. The UAE also uses an accelerator platform to integrate ideas about technology, which could be another strategy. She said the group also underscored the need to build awareness and acceptance of these innovations at the country level, coupled with the capacity to actually implement them. This will be dependent upon government leadership—e.g. Singapore's Smart Nation strategy that supports the roll out of information technology across various sectors.

The next group's report out was provided by Peter Varnum, project lead for the global health and health-care team at the World Economic Forum. He emphasized the challenge of determining where the responsibility for scaling lies; his group also concluded that the government needs to drive the scaling process and be at the table from the beginning. Another challenge is user uptake, but having a government engaged from the outset also encourages common understanding around language, implementation, and scaling. They suggested creating a specific liaison role for an individual who understands the various interests of all relevant stakeholders, innovators, CHWs, medical professionals, and so forth. This person would liaise with everyone at the table and help to translate solutions into policy that can be implemented at the local level. He said the group also discussed behavioral factors

that influence the uptake of technology: barriers include technology that is not user friendly, interactive, quickly responsive, or consistently available. Software design should take these barriers into account, he suggested. He concluded by asking the group to consider the following: "How can we make people want to manage their health care with the same diligence that they manage their Instagram or Facebook account?" This would contribute hugely to the move toward valuebased health care, he said.

Darren Back, senior director of social investments and global health programs at Pfizer, outlined a set of additional challenges and opportunities discussed by his breakout group. There are challenges around data hosting and who owns cloud-based data, as well as finding the appropriate revenue model for technology. It will also be necessary to put security standards in place and make sure they are adhered to and to develop a maintenance and upgrade system. In many cases, decisions will need to be made about whether to discard legacy systems or migrate them into the new platform. In terms of opportunities, the group suggested finding ways to standardize the backbone design characteristics of platforms, to provide evidence to ministries about the potential productivity gains and efficiency gains. Different stakeholders should be involved early on to collaborate in identifying the needs of the system and the characteristics it should have. Given the degree of fragmentation in many settings, bringing these stakeholders to the table can help to shape the best model, he said. Another opportunity is to build a dedicated team to build government capacity and serve as a platform to facilitate and accelerate the development of technology platforms.

The next group's report out was provided by Donika Dimovska, senior program director at Results for Development. She opened by asking whether the framing around information technology is too narrow, and whether it should be broadened to include things like diagnostics. A key challenge is that governments lack a comprehensive digital strategy for innovators to work within and once a strategy is developed, it gives rise to the problem of implementation. She suggested developing an institutional mentality around lean testing and integration—i.e., "failing fast." The group discussed how the challenges evolve when scale is achieved, such as navigating complexities of working with different players. To address this, they suggested taking the opportunity to start thinking about scale from the outset in conjunction with all the relevant stakeholders.

Nathaniel Otoo, senior fellow at Results for Development, reported back from the final breakout group. Challenges include getting payers to finance the uptake of technology and innovation and ensuring that phones used to deliver mobile innovations are not used for other purposes. Innovations such as telemedicine may not account for local context—for example, staff at a teaching hospital may not be able to provide the best advice for a CHW on the front lines. Furthermore, innovations are sometimes implemented outside the regulatory space and it can be difficult to put regulations in place after the fact. Connectivity is another issue that can undermine efforts to implement phone- and computer-based innovations, as even those with offline modes still require activation. The group highlighted a set of overarching issues, he said. Innovations always need to be value-adding and they need to promote integration of services across the health sector. Stakeholders should be part of development process from the beginning. When developing innovations, it is also important to understand the power dynamics in the system as well as where the financial interests lie. Finally, the success of technological innovation is reliant on a commitment to change the culture.

Challenges	Opportunities
Interoperability	 Build capacity, awareness, and technological literacy among governments, providers, and consumers
Connectivity	
Changing the culture to embrace	
technology	Engage governments from the
Weak government stewardship	outset
 Navigating complexities of implementation and of working at scale 	Create a common language around technology
 Lack of comprehensive government strategy for innovation 	 Develop user-friendly, consistent technology
Poor user uptake	 Create a liaison role to understand the interests of all stakeholders Create dedicated government team to accelerate the technology platform
• Who is responsible for scale up?	
Ensuring data privacy	
 Setting and maintaining data security standards 	
Who hosts the data?	 Create an institutional mentality of lean testing and integration
Who owns the data?	
	Plan for scale up from the outset
Demonstrating productivity and efficiency gains	 All innovations should be value adding
Paying for the uptake of new technology	 Understand power dynamics and financing interests in the system
 Contextualizing telemedicine to local settings 	
Regulating innovation	

Table 3. Challenges and opportunities in implementing and scaling up technologies

5 Re-envisioning the health workforce

5.1 INTRODUCTION

Chapter 5 summarizes the fourth session of the workshop, which focused on re-envisioning the health workforce to be more team-based in delivering primary health care (PHC). The session opened with an innovator panel that included representatives from implementing organizations as well as three pharmaceutical industry representatives, who provided the perspective of investing organizations. The session was moderated by David Duong, Harvard Medical School, conference co-director and deputy director of Harvard Program in Global Primary Care and Social Change. Following the panel, participants split into breakout groups focused on challenges, opportunities, and next steps for advancing workforce innovations.

Duong reiterated that the health-care workforce is facing an expected shortage of 43 million health workers. "If we focus on the numbers it's very daunting," he said, "but if we focus on the productivity of current and future workers, and the quality of services these workers provide, then the problem gets much larger." Creative solutions will be needed to solve this problem. Today, the development of the health workforce centers upon the development and distribution of guidelines and protocols, then conducting large-scale trainings after the guidance is disseminated. He tasked the workshop participants with considering ways to move beyond this method and to consider who it is we are talking about when we talk about the health workforce.

5.2 INNOVATOR PANEL ON RE-ENVISIONING THE HEALTH WORKFORCE

Duong explained that the innovator panel features six representative organizations: three organizations implementing care delivery interventions on the ground and three organizations that are investing in health workforce training. The panelists included:

- Charlie Sword, Practical Approach to Care Kit (PACK) program
- Magnus Mordu Conteh, executive director of the Community Health Academy at Last Mile Health
- Koku Awoonor-Williams, director of policy planning, monitoring, and evaluation in Ghana Health Services
- Darren Back, senior director of social investments and global health programs at Pfizer
- Catherine Levy, head of global health programs for noncommunicable diseases at Sanofi
- Michael Fuerst, secretary of the Novartis Corporate Responsibility Board
- Deborah Gildea, head of Novartis Social Business (Asia)

5.2.1 Practical Approach to Care Kit

Charlie Sword of the Practical Approach to Care Kit²⁷ (PACK) program explained that it is designed to support mid-level PHC professionals to improve the quality of interaction with patients and quality of care that they can deliver in low- and middleincome settings. The kit is comprised of two components and available in both digital and paper formats. The first component is the PACK guide, a clinical decisions support tool, and the second is a structured program of onsite training facilitated by a facility-based training manager. PACK was developed over almost two decades by the University of Cape Town's Lung Institute and it is currently used by about 30,000 nurses and physicians in South Africa across 3,500 health centers. Since 2015 the British Medical Journal (BMJ) has been collaborating with

²⁷ More information about the Practical Approach to Care Kit is available at http://pack.bmj.com/ (accessed September 15, 2018).

University of Cape Town to create a global version of the guide that is as evidenceinformed as possible (the guide includes 2,700 clinical recommendations). They are moving toward the model of aligning the guide with the latest global evidence per the BMJ Best Practices product and WHO guidelines when available; the evidence will be updated annually with emerging practices. They are also collaborating on developing a toolkit and mentorship program to support local partners in tailoring the content for their setting prior to implementing the program. They are currently working in Nigeria moving from the pilot phase to national scale up and work is also ongoing in Brazil and Ethiopia.

5.2.1.16 Pillars of implementation

Sword emphasized that the program is much more than just the guide—it is aligned with the five fundamental pillars of implementation. The first is the **physical manifestation** of the guide itself, which has a suite of clinical algorithms and checklists covering 500 common symptoms and conditions. One of its most significant elements is that it reflects the scope of practice for all the health-care workers that operate in the PHC system. The guide is also unique in its ease of use, with all the prescribing levels delineated through color coding to ensure clarity. Unless something is designed to be easy to use at the point of care, he warned, it will not be used. When they conducted the pilot in Nigeria, they received reports that 73% of physicians used the guide for every single patient consultation. "So if you get the design right, people will use it," he said, "and that will follow through with benefits and quality of care." The second pillar is communication and engagement across the entire range of stakeholders, from regulators to policy makers to local governments, community leaders, and patients. The third is facility readiness. Before implementing a tool like PACK, facilities need to have the necessary equipment, medicines and tests available to

the extent possible. The fourth pillar, **training**, utilizes a cascading educational outreach model from master trainers to local facility trainers. Training is delivered fortnightly for 90-minute sessions, facilitated by a facilitybased trainer and focusing on clinical cases. With respect to the fifth pillar, **monitoring and evaluation**, they carry out randomized controlled trials when funding and time permit. At minimum, they are constantly monitoring to ensure that training is being followed and managed in a supportive way.

5.2.2 Community Health Academy (implemented by Last Mile Health)

The next panelist was Magnus Mordu Conteh, executive director of the Community Health Academy at Last Mile Health, Inc.²⁸ He explained that the Community Health Academy is a new initiative born out of a speech²⁹ delivered by the CEO of Last Mile Health, Raj Panjabi, in which he described a vision of recruiting, equipping, training, and supporting community health workers (CHW) using digital technology. This snowballed into interest and investment, leading to a partnership with Living Good to train 50,000 CHWs over the next few years to support 3 or 4 million beneficiaries around the world. He said that typically, these types of programs use the same kind of cascade training described by Sword: master trainers train the trainers, who train more trainers in the field, who then train CHWs in person, often spending weeks at a time with workers in the field. Instead, the Community Health Academy will use a digital platform to build educational content for community workers which they can access in the field, thus reducing the face-to-face classroom time. He emphasized that this is designed to be a blended learning approach, including some face-to-face training combined with a significant amount of multimedia content, such as podcasts and voiceovers that can be used to deliver training. In collaboration with HarvardX, they are using

²⁸ More information about the Community Health Academic is available at http://lastmilehealth.org/chacademy/ (accessed September 15, 2018).

²⁹ The speech is available at https://www.ted.com/participate/ted-prize/prize-winning-wishes/community-healthacademy (accessed September 15, 2018).

this platform to deliver e-learning education to ministry of health officials who support CHW programs. Connectivity is another important issue to address, he said. They are looking into technology with the capacity to download educational content and then broadcast the content offline (like WIFI) into the community, so the content can be accessed in those setting.

5.2.3 Ghana Health Service Community-Based Health Planning and Services

Ghana provides a good example of taking a PHC system to scale, said Koku Awoonor-Williams, director of policy planning, monitoring, and evaluation in Ghana Health Services.³⁰ Community-based primary health care service delivery³¹ (CHPS) is the basis for their PHC system. A study carried out between 1994-1998 by one of their research centers found that CHPS was associated with decreases in maternal mortality and child mortality and after the results were disseminated, pilots were conducted in several districts with similar positive results.32 In 2011, CHPS was adopted as the national strategy for PHC in Ghana and it has now been implemented in 5200 communities across Ghana, representing almost 85% of the population. Because of this government commitment, every region has a facility to train CHWs on CHPS. In Ghana, CHWs train for two years and are then paid by the government; around 70% of them then work in their own communities. Paid CHWs are supported by unpaid community health volunteers, who strengthen the system and allow for mobilization when needed. The primary goal of the services they provide is prevention through home visits, as well as delivering minor treatments and providing referrals. The program now has tools for

accurate costing and mobile platforms that can be used to support management.

5.2.4 Abundant Health program (funded by Pfizer)

Darren Back, senior director of social investments and global health programs at Pfizer, described a program through the Pfizer Foundation called Abundant Health³³ in Ho Chi Minh City, Vietnam. He selected this example because of the value of the evidence it has generated and the program's commitment from the local government to integrate it into existing systems and scale it up. He reflected on how to develop a team-based model in the absence of incentives, but by using other means to motivate staff to work together more efficiently. He said that Vietnam has made huge strides in recent years, but there are still prevalent health challenges, specifically hypertension and diabetes. The government has established a program to implement initiatives to address those conditions at the local level by 2020; currently, many of those cases are being treated at the hospital level, which is a huge drain on the system. Pfizer worked with FHI360 to develop the Abundant Health program in partnership with the Vietnamese Department of Health, Harvard Medical School Center for Primary Care, and the University of Medicine and Pharmacy at Ho Chi Minh City. They began by considering the types of interventions needed to improve patient care at the community level: for example, creating a high-functioning team to carry out non-communicable disease prevention without having to send so many people to the hospital. To illustrate the value of the team-based model, he described one of the components of the program's training around the quality improvement process. Without being required to do so, they undertook the assessment process and identified things they could do to improve the

³⁰ For more information about Ghana Health Services, see http://www.ghanahealthservice.org/ (accessed September 15, 2018).

 ³¹ For more information about community-based primary health care service delivery, see http://www.ghanahealthservice.org/chps/category.php?chpscid=98 (accessed September 15, 2018).
 32 Phillips et al 2006

³³ More information about the Abundant Health program is available at https://www.fhi360.org/projects/abundanthealth (accessed September 15, 2018).

level of care; it was a huge success in that they identified 20 hypertension patients and ten diabetic patients, as well as a high retention rate. With respect to sustainability and scale up, he said that they are working with the Department of Health at five commune health stations. Initially, they looked at issues that needed to be addressed at the core level. From that, they were able to scale up to an entire district and are exploring the possibility of scaling up to the entire city. Additionally, they have been working with both private and public-sector actors to find ways to share some of these best practices

5.2.5 Diabetes with Dignity program (funded by Sanofi)

Catherine Levy, head of global health programs for non-communicable diseases at Sanofi, described how the program Diabetes with Dignity was deployed in India after a pilot to test the effectiveness of a model of care for diabetes delivered by community workers in rural areas. Accredited Social Health Activists (ASHA) in India are women who work at the village level in maternal health, vaccinations, tuberculosis, malaria, and some communicable disease (but not chronic disease management). The idea was to train ASHA workers in diabetes and hypertension, so they could support the management of those conditions at the village level. Following the cascade of the health-care system in India, they first educated ASHA workers to train and screen adults for diabetes and hypertension; then they were given blood glucometer to measure blood glucose at random. The training empowered the ASHA workers and made them feel accountable.³⁴ Not only were they screening patients but also sending patients to PHC as needed, then following up with those patients on a monthly basis with lifestyle and diet recommendations. A study was carried out with the support of PHFI across two PHC centers, one in the same region as the village-level intervention and one in an area without intervention. The results have not yet been published, but she shared that there was a significant improvement in HbA1C levels in the intervention group. More importantly, because of improved screening, the PHC center that used to have 10-15 patients per month now saw 100-150 patients per month for hypertension and diabetes. The social element of the study was striking, she said. The project was endorsed by health sanitation committee at the village level, which made people less resistant to participating and helped to assuage their fears about being screened.

5.2.6 Healthy Families program (funded by Novartis)

Michael Fuerst, secretary of the Novartis Corporate Responsibility Board, provided some strategic context and rationalization for Novartis's work in this arena. In the mid-2000s, the company had two main foci: commercial activities in the high-income segment and impactful philanthropic programs. Influenced by the book The Next 4 Billion,³⁵ the company decided to do something different. Traditionally, the company's activities were situated at the top of the income pyramid, where normal commercial activities occur, and at the bottom of the pyramid, where they carry out the philanthropy (see Figure 51). Looking at market size and potential at the base of the income pyramid, they considered what it would mean to try to enter the middle of the income pyramid, where almost none of their business models were operating. Around 2005, they tried to develop a strategic approach to reach as many patients as possible in the global population and to that end, they developed targeted interventions in all of those income segments-their social business model is an element of this, he added.

³⁴ Levy noted that there were some issues with men who did not want their waists measured by a woman.35 Hammond et al 2007



Figure 6. Novartis social business: a tailored approach by income segment

1 PEW Research Center with data from World Bank PovcalNet (data 2011)

Source: Fuerst presentation

Deborah Gildea, head of Novartis Social Business (Asia), explained that they are a commercial unit within Novartis that looks at how to create novel business models to deal with both infectious diseases and noncommunicable diseases. She described the Healthy Families program, which started 10 years ago in India and has now expanded to 14,000 villages across 11 states, reaching 7.7 million patients in 2017. Around six years ago, they began exploring how to bring the program into Vietnam. Unlike in India, however, the Ministry of Health already has physical PHC situated in rural communities. The challenge was that as connectivity increased in Vietnam, patients have assumed that they should go to first-tier hospitals for treatment, thus clogging the system. Patients were also being diagnosed and treated too late due to poor awareness about non-communicable diseases. In Vietnam, they have taken the principles of the Healthy Families program and applied them with a more involved level of government partnership. In collaboration with the Vietnam Cardiology Foundation and

the local health stations in 14 provinces, they teach patients about non-communicable diseases, run health camps with local physicians, and also provide continuing medical education. The prescriptions that are generated by the program are sufficient for it to become self-sustaining, she added.³⁶ They have a commercial team working in parallel promoting awareness and speaking with physicians, like any other pharmaceutical representatives. This year, the program is projected to reach an additional 200,000 patients in Vietnam.

5.2.7 Discussion

Duong thanked the panelists for describing a diverse range of strategies for redesigning the health-care workforce from a variety of angles, including CHWs and other allied health professionals, like social workers in India. They offered different approaches, from the quality improvement approach to the teambased care approach; they also described how business models—not just philanthropic or

36 Gildea noted that in India, typically only about 5% of prescriptions are through Novartis.

social responsibility models—can be used to promote health.

5.2.7.17 Drawing upon existing resources and models of health workforce design

During the subsequent discussion, Tim Evans, senior director for health, nutrition and population global practice at the World Bank Group, asked panelists about informing the design of their frontline programs by accessing the global collective experience with respect to models of diabetes care or models of training CHWs. He noted that in Bangladesh, they train thousands of CHWs every day to serve 160 million people. Similarly, for diabetes treatment, the Bangladesh Institute of Research and Rehabilitation for Diabetes, Endocrine, and Metabolic Disorders (BIRDEM) is one of the biggest community-based diabetes care programs in the world, with 30 years' experience.

Gildea replied that this was what drove the inclusion of the Vietnam Cardiology Foundation in organizing the program: they are the local experts who could ensure that the program design was in line with the national guidelines. "We wanted to strengthen the existing health-care system rather than do something parallel to it," she added. Levy agreed that more time should be devoted to evaluating existing resources, but they are not easily available. Rather than reinventing the wheel, she suggested finding a way to create a repository of existing programs from around the world that are known to work. Conteh said that they recognize the fact that a huge volume of experience and content has

already been developed for training CHWs, so they are building a global faculty network with representation from multiple global experts and institutions. The intention is to create regional faculty networks when they establish regional hubs. They are planning to draw from existing training institutions, academic institutions, and ministry of health officials who have a wealth of training and implementation experience knowledge to inform the development of the Community Health Academy. He also acknowledged the contribution and support that Novartis and Pfizer have provided both financially and through access to their expertise, content, and experience.

Based upon his experience as part of teams that develop these business models, Fuerst said that access to data needed to develop these models is very problematic, which has consequent effects of delaying the lead time and the implementation time. Companies expect a relatively quick response from activities that are launched and this is hampered when the data are difficult to access. He added that in general, data collection is not robust, which leads to doubtful and at time unreliable data. "We as an industry need to be clear that we have a role in that regard," he said. "When we launch a program, we need a robust monitoring and evaluation program around it, and we need to be fully transparent with the results by having them evaluated by an independent partner." He explained that Boston University and Novartis Access are trying to do just that, so everything (e.g., protocols, instruments, raw data, and even contracts) are in the public domain so that everyone can access and replicate them without reinventing the wheel.

5.3 RE-ENVISIONING THE HEALTH WORKFORCE: BREAKOUT GROUP REPORTS

Participants broke into groups to explore the following questions about re-envisioning the workforce and to propose potential solutions:

- What considerations are needed to scale and sustain pilot/small-scale innovative programs? What level of evidence is enough to provide a "proof of concept" in order for an innovation to be ready to be scaled up to a regional or national level from a pilot program?
- How do you ensure original intended quality during the scale-up process?
- What are the different sources of funding that can be leveraged during scale-up process?
- How do we appropriately incentivize/ compensate allied health workers (e.g., community health workers, social workers, etc.)? What mechanisms of compensation can we consider?
- How do we incentivize a high-quality health workforce to be at the primary care level?

Sylvana Sinha, founder, managing director, and CEO of Praava Health described her group's discussions about the first question, considerations needed to scale and sustain pilot or small-scale innovative programs. There was much discussion about data and the need to set up monitoring during the planning phase and the need to **set up evaluation from the start of implementation**. The point was made that it may be difficult to be costefficient, but it is important to gather data on expenses in the pilot phase. Tracking data is critical from design to implementation.

Fuerst added that his group also explored this topic with a focus on the data creation, given to the lack of robust data that can be used to evaluate and inform programs. They discussed randomized controlled design as a good method for generating data and they agreed that metrics should be broad, because narrow data can obfuscate processes that are actually making programs successful. From a practitioner's point of view, monitoring and evaluation with an academic partner can make these programs more robust. He added that social business programs have to respond ad hoc to changes in the market, so if the method is too rigid or inflexible, it is possible to end up measuring the wrong thing.

Sara Miller, business development manager at Amana Healthcare said that her group used the analogy to illustrate the effects of scaling up: as a tree grows larger, it grows branches, flowers, and is unpredictable. They also discussed the necessity for **proof** of concept before scaling as well as the importance of having a good business plan coupled with a willingness to experiment. The group identified a set of considerations including continuous improvement, processes, stakeholders, and envisioning the scale-up process from the beginning. Conteh added that in moving successful pilots to scale, it is important to be careful not to assume that because a pilot is successful in one context or sample, it will necessarily succeed at scale in a larger region or nationwide. Contextual issues and challenges also increase directly as the size of the program increases. He suggested a **stepwise approach**: after success in one district, try again in another district before a national scale up.

With respect to the second question about ensuring quality during scale up, Conteh reported that his group focused on principles of motivation and **financial versus nonfinancial incentives**. The latter include tools, support mechanisms, recognition, capacity building, professional development, and growth. Ultimately, the group agreed that allied health workers should also be financially compensated. However, "one size does not fit all" when it comes to compensation, he warned. Compensation mechanisms—be they financial or not—should be tailored to the individuals and their particular roles and responsibilities to the extent possible. The group also emphasized the importance of strong advocacy for all workers to be paid, in addition to the non-financial support that should also be provided. Finally, they discussed different sources of potential funding to provide both financial and nonfinancial incentives for health workers.

Chase Adam, co-founder and CEO of Watsi, described his group's discussion about the third question, sources of funding that can be leveraged during the scale-up process. The group's consensus was that there tend to be many donors at the start of a program perhaps the first five years—but they do not want to commit indefinitely. They seem to want someone else to pick up the project after that first period. On the other end of that spectrum, however, projects that are ultimately funded by the government tend to reach scale. This highlights the "missing middle"-that is, what happens between the first period of donor funding and the eventual government funding for scale up? The group put forth the idea that the private sector could be a solution to the problem of the missing middle. The benefit of privatesector funding is that there are more revenue. scaling, and educational opportunities, he explained. However, the risk is that the private sector is motivated by profit and the result may be different than what government wants.

6 Enabling ecosystems

6.1 INTRODUCTION

Chapter 6 provides a summary of the first session of the workshop's second day. which focused on strategies for creating an enabling ecosystem to accelerate access to innovative, high-quality services, technologies, and products for primary care. The session opened with an innovator round-robin with representatives from Access Accelerated, World Economic Forum, Results for Development, and Roche. Participants then broke into smaller groups to discuss challenges, opportunities, and next steps for creating enabling ecosystems, with leaders reporting back to the large group for discussion. The session closed with a reactor panel in which select participants offered their reflections. The session was moderated by David Duong, conference co-director and deputy director of Harvard Program in Global Primary Care and Social Change, and Beth Tritter, executive director of the Primary Health Care Performance Initiative.³⁷

Duong explained that the session was framed by five topical areas:

- 1. Framing governmental regulations for innovation
- 2. The "how/what/who/where" of data
- 3. Structuring dialogue for inclusivity and openness
- 4. Increasing access for service delivery
- 5. Knowledge management

6.2 NABLING ECOSYSTEMS: INNOVATOR ROUND-ROBIN AND BREAKOUT GROUP REPORTS

During round-robin, each of the five innovator partners presented problem statements that capture issues encountered in trying to promote disruptive primary health care (PHC) innovations. The panelists included:

- Cicely Thomas, program director at Results for Development
- Ben Stewart, business development manager at Roche
- Dessi Dimitrova, practice lead for health systems at the World Economic Forum
- Deborah Gildea, head of Novartis Social Business (Asia)
- Darren Back, senior director of social investments and global health programs at Pfizer

After the round-robin, each of the breakout groups was assigned one of the problem statements to explore with the innovators. The breakout groups were led by the round-robin innovators, who also reported back on behalf of the groups.

6.2.1 Framing governmental regulations for innovation (Results for Development)

Cicely Thomas, program director at Results for Development, explored the problem statement about framing government regulations for innovation:

> "How can we begin to work with governments to identify practical strategies for accelerating the integration of innovations for overcoming country-specific obstacles to universal health coverage?"

Thomas reported that her organization has been thinking about how to begin working with governments to identify practical strategies for accelerating the integration of innovations.

³⁷ For more information about the Primary Health Care Performance Initiative, see http://www.phcperformanceinitiative. org/ (accessed September 14, 2018).

They have collaborated with the Joint Learning Network for Universal Health Coverage³⁸ to consider how government and market forces can be optimized to achieve universal health coverage (UHC) through PHC. The exercise generated several target outcomes that they hope to achieve. The aim is to reach the point where government and private sector (i.e., private providers involved in the provision of services) are committed to achieving shared objectives about PHC and are able to diagnose the misallocation of resources across sectors. Ideally, they would be able to effectively incentivize and pay for high-quality care across sectors through strategic purchasing and incentivizing quality PHC. The public and private sectors should also jointly have the ability and available data to monitor providers' performance, she added.

6.2.1.18 Breakout group report

Reporting back from the breakout group, Thomas said that they went broad and deep in their discussion of how to work with governments to identify practical solutions for accelerating and integrating innovation. They began by considering whether governments are even looking for innovation and if they are, what they do when they identify an innovation. Next, they shifted to thinking about whether those were the right questions to consider and whether it would be better to think more broadly about the issue. They highlighted the need for a **change in mindset** or paradigm of appreciating innovation in service delivery as well as the value of subnational, non-state actors who are bringing these innovations to the table. In terms of how to work with governments more broadly, they suggested that governments should be pushed toward operating in an environment/ecosystem that appreciates innovation if they are not doing so already. The group considered possible strategies for affecting this type of change in mindset, such as more investment in innovation research and creating more **innovation hubs** (equivalent to a biomedical research council, for example), both of

which will require financial backing from governments, foundations, the World Bank, and industry. They discussed the possibility of identifying and publicizing "**grand challenges**" around PHC to encourage innovation in these areas

Thomas said that the group sketched a process or results framework for building government awareness and interest in integrating these innovations: (a) garnering a global commitment to valuing innovation, (b) increasing the body of evidence and the number of innovations, and (c) making governments more aware of these developments so that they will adopt these innovations. Tritter added, "...the necessary changes to the enabling environment at the country level have to come from outside the country. It's not top-down, country to people: it's a global enabling environment being brought to bear on the country enabling environment."

6.2.2 The "how/what/who/where" of data (Roche)

Ben Stewart, business development manager at Roche, spoke about the problem statement about the "how/what/who/where" of data:

> "How do we establish a common understanding of what using 'data' means in the era of 'digitalization' of health care?"

Stewart described what data represent to his organization, with reference to the value it has for different stakeholders and how it can be used appropriately to realize its full potential. He explained that data can be part of the problem—by creating noise, complexity, and confusion—or data can be part of the solution. As an oncology company focused on the pharmaceutical and diagnostic pursuits, they are optimistic about the potential for data to move the enterprise forward from both the evidence and

³⁸ For more information about the Joint Learning Network for Universal Health Coverage, see http://www.jointlearningnetwork.org/ (accessed September 14, 2018).

research and development perspectives. He recounted an experience he had in Tanzania with a leadership program, which reminded him that the world is more similar than it is different and underscores the need to manage data successfully and use it responsibly. In the context of paper health-care records for cervical cancer, it is frustrating to know that there are guidelines for screening and simple interventions that can prevent cancer and save lives. However, having the necessary information locked away on paper records in different offices, whether in Tanzania or the US, causes critical missed opportunities to follow up with patients, to ensure patients are compliant with the guidelines, and to develop mechanisms for the simple care that can make a life-saving difference. It also leads to missed opportunities to ensure that existing resources are being used appropriately and effectively. Key questions to explore going forward, he added, include identifying the data that are most important to the pursuit of UHC, considering who owns the data, planning how to collect data and use it responsibly, and finding ways to use data to its full potential for the patient while also safeguarding that patient's privacy.

6.2.2.19 Breakout group report

Stewart reported that the breakout group highlighted three primary considerations about data in the context of designing PHC systems for universal health coverage. Data underpin the potential of innovative, disruptive solutions, he emphasized. The discussion spanned continuity of data, where data are generated, and how data are collected, stored, accessed, aggregated, structured, and used. The first consideration is about data-related rights. Having basic rights around what happens with data (not only health-related data) is critical and everyone involved must be aware of them--many people do not know about their rights concerning data. Governments are likely be the owner of data policies, but they are unlikely to be the driver of those rights or be responsible for making people aware of those rights. The second consideration is fit-to-purpose

critical infrastructure, rather than a grand design. This cannot be prescribed perfectly, but it is important that whomever is centralizing the health system provides basic principles and standards. This includes common infrastructure, interoperability, standards, and the ability for data to be aggregated and visible across the spectrum. However, there also needs to be flexibility for agile design based on use case. For example, designing an early warning system for infectious disease requires data from multiple sectors, such as airlines and health systems. Such a system will be very different than building a system to track patients in a dispensary in a specific region of a country. It is critical to understand the structure required and who will be developing the design, he added. The third consideration is data design from a macro perspective across the process of collection, storage, access, and use. How do we think critically about each step and ensure that we protect all the users of that data," he asked, "while still optimizing the potential of that data for the use-case objective?" Transparency of the data system design is a fundamental prerequisite for gaining trust of frontline health workers, who are the lynchpin for achieving universal coverage.

Tritter noted that the group gave consideration to responsibility around data protection **rights.** If governments are not necessarily responsible for determining the minimal viable solution for critical infrastructure, she asked who would drive the effort. In terms of data, Stewart replied that the legal rights reside with the government, but the expectation that they will actively ensure awareness is unfounded. In the UK, for example, they have very strong data protection rights but very weak awareness of those rights. Other parties will likely need to be involved, including NGOs, industries using the data, and other stakeholders. He suggested looking to the telecommunications industry as an analog of how that might work. With respect to the responsibility for critical infrastructure, Stewart said that in most cases there will not be a central provider. The realistic option

would be to provide guidance, direction, and basic standards, then give entities freedom to develop in a fit-for-purpose way to meet their needs, he suggested.

6.2.3 Structuring dialogue for inclusivity and openness (World Economic Forum)

Dessi Dimitrova, practice lead for health systems at the World Economic Forum, discussed the problem statement about structuring dialogue for inclusivity and openness:

> "How can a country platform convening diverse stakeholders enhance the impact of the individual organizations by co-creating a collective product that is sustainable (commercially or through corporate social responsibility) and of service to a country's populations and national plans?"

Dimitrova provided context on her organization's journey in trying to identify the enabling ecosystem and to bring partners together to develop the program Health Systems Leapfrogging.³⁹ She reflected upon how to drive a sea change in health delivery like the one that transformed the telecommunications system when mobile phones became affordable and accessible for much of the global population. However, she noted that it is not just technology that will catalyze the transformation in health care—it must be supplemented by changes in behaviors and operating models within the complex system that spans many different pieces. "We need to figure out how to move each piece and then how move them all together in harmony," she added, which will require an ecosystem of partners collaborating together toward this common goal.

Upon starting work with their convening partners, they realized that initiative should be backed by the government. They suggested flipping the typical process of how governments drive health-care transformation-that is, ordering equipment or processes aimed at solving a specific issue. Instead, they suggested that governments should bring the problem to the ecosystem and solicit solutions about how to address it. With the Health Systems Leapfrogging program, they began working in Nigeria on a regional level. The commissioner wanted to create a health insurance program, so they brought together a group of 15 partners, each of whom contributed a necessary piece for developing the program (e.g., frameworks, health workforce training, etc.). The state government provided funding for the program. However, once the commissioner's term ended and the federal government turned over, the entire program stopped.

Dimitrova said that this experience underlines a set of key questions to address:

- How can such programs allow governments to take the lead without exposing the programs to such vulnerability when governments change?
- How do we create national platforms to support governments in creating these programs?
- How do we go above and beyond advocacy to MOUs with governments to ensure sustainable delivery?
- Whose job is it to lead the charge toward UHC, beyond just a convening function?

6.2.3.20 Breakout group report

The breakout group's conversation focused on who should **convene dialogues between countries** to find solutions, said Dimitrova. They suggested a country-by-country approach, because no single institution can be responsible for the entire global effort. The government is not a suitable

³⁹ For more information about the Health System Leapfrogging program, see https://www.weforum.org/reports/health-systems-leapfrogging-emerging-economies (accessed September 14, 2018).

candidate, because they cannot reach all the stakeholders; however, they should be on board to co-host and co-facilitate convenings. She noted that nongovernmental organizations (NGO) often do the convening and bring the government to the table. To make the critical shift from convening to action, convenings should be clearly focused on a specific product or outcome. For example, convening around maternal and child health is not specific enough, because people from different organizations can go in different directions. If the convening is about delivering a specific form of care, on the other hand, then it can drive a specific movement toward implementation. Catalytic funding must be brought to the table, she added. The Global Financing Facility⁴⁰ was suggested as an example of the type of innovative financing mechanism that should always be present at these convenings. The group also discussed how to keep up momentum after **convening**, which might be the appropriate role for a secretariat, a lead organization, or a consultant embedded in a government. Tritter asked for a specific example and Dimitrova described a hospital in Karachi, Pakistan. It began as a community initiative funded by community members' donations and faithbased contributions. When the government realized how successful it was, the partners who established the hospital were able to create another hospital in a different province with government support.

6.2.4 Increasing access for service delivery (Novartis)

Deborah Gildea, head of Novartis Social Business (Asia), explored the problem of increasing access for service delivery: "How can we know and understand the gaps in health-care delivery to improve access to medicines for patients?"

Gildea illustrated the problem statement using some lessons learned during a study her organization carried out in Kenya in collaboration with Boston University.⁴¹ It was part of the Novartis Access program, through which they offer to governments a basket of 15 molecules addressing four of the key non-communicable diseases: type 2 diabetes, cardiovascular disease, respiratory disease, and breast cancer. The medicines they provide are aligned with the specific disease burden in the particular country and they cost US\$1 per monthly treatment. They entered into a MOU with Kenya in 2016 and as part of the implementation, Boston University was invited to run an independent study.42

Gildea offered some insights gleaned from the project's baseline study⁴³ that highlight the importance of understanding the ecosystem that needs to be changed. The first insight was the importance of understanding the full patient journey in the care pathway. Even if medicines are available in the public hospitals where patients typically go for diagnosis, patients will need to purchase medicines from pharmacies in their communities for their ongoing treatment. The program does not work if those pharmacies are charging market prices for the medicines. A survey of what patients pay revealed that the curve is strongly U-shaped. Even worse is that the poorest quintile pays even more for a generic product than the richest do buying brands in the city. This is compounded by the costs incurred by patients traveling to health care centers, which is a huge disincentive. The second key insight was understanding what is allowed to be done in the PHC system. They offered a good

⁴⁰ For more information about the Global Financing Facility, see https://www.globalfinancingfacility.org/ (accessed September 15, 2018).

 ⁴¹ For more information about the program, see https://www.novartis.com/news/media-releases/kenya-first-country-launch-novartis-access-expanding-affordable-treatment (accessed September 14, 2018).
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⁴³ More information about the study, including the protocol, study instruments, and baseline studies are available at http://sites.bu.edu/evaluatingaccess-novartisaccess/kenya/ (accessed September 14, 2018).

complement of both first- and second-line products, but the health centers were staffed entirely by nurses and the existing regulations prevented them carrying out some of the tasks to treat the patients. She suggested that the approach to non-communicable diseases should adopt a task-shifting approach, similar to the one that has been used for HIV care, to allow patients to receive treatment in the health centers they can attend. The final insight was that public insurance schemes do work, she said. There is clear evidence that in counties with good penetration of insurance, there is greater uptake of these medicines.

6.2.4.21 Breakout group report

According to Gildea, the breakout group structured their thoughts on the problem statement into three categories: knowledge sharing, quality medicines and access to health care, and behavioral change. With respect to knowledge sharing, they suggested creating an independent group where bestpractice information could be shared. The WHO could house this group, she suggested, because they have been successful in the past in driving change associated with a health crisis such as the HIV epidemic and the Ebola pandemic. To build awareness for the urgency of the PHC, it could be helpful to learn from mechanisms like Gavi,44 a public-private partnership that offers rewards to countries to incentivize vaccinations. If countries that qualify on a GDP-per-capita basis can demonstrate the capability to immunize 75% of the birth cohort, they receive vaccines for free initially and then receive them at a very reduced price. This incentivizes manufacturers with a long-term forecast and guarantee of volume. She suggested considering similar mechanisms to apply so that everyone can have "skin in the game."

In terms of quality medicines and access to health care, the group called for recognizing that **the price for the patient has many factors**—for example, the price from the factory might change substantially by the time the patient has to pay. Regulation can do much to address this, but regulations need to be enforced and they often are not. Furthermore, procurement laws are typically designed around the lowest price, meaning that they do not attract manufactures to put together the types of bundle deals that enable people to access innovative medicines more quickly. Going forward, regulations will need to be adapted to drive the transformation of PHC.

Behavioral change is also critical, Gildea said. For example, many patients have learned to judge the quality of their doctors by the number of medicines the doctor is willing to prescribe. This perversely encourages doctors to prescribe more medications that may not be appropriate in many cases. Patients' perceptions about the quality of health care will need to be reformed. She described an example from the Philippines, where "sin taxes" have been put in place to try to drive people away from consumption related to high-risk factors for non-communicable diseases, such as foods with high salt and sugar, alcohol, and cigarettes. Ideally (and perhaps not feasibly), those taxes would be reinvested back into the PHC system, she added.

Tritter asked about the relationship between setting standards for best practices-which might serve as the architecture of an incentive system—and driving innovation through an incentive structure. Gildea noted a prevalent tension between the two. From the industry perspective, incentivizing innovation often involves setting a standard and then trying to drive a price for that. In malaria, for example, an incentive structure might be designed to reward companies investing in research for future generation. However, more thought is needed about how to reward the basics as well as setting a premium on innovation that works both for the government and for providers, be they service providers or pharmaceutical providers. She noted that the breadth of industries that will need to come

⁴⁴ More information about Gavi is available at https://www.gavi.org/ (accessed September 14, 2018).

together for PHC is much broader than those represented at the workshop.

6.2.5 Knowledge management (Access Accelerated)

Darren Back, senior director of social investments and global health programs at Pfizer, discussed the problem statement about knowledge management:

> "How can we bring together practical and diverse perspectives, experiences and learnings from a variety of stakeholders to identify best practices that help facilitate sustainability across all areas of the health ecosystem?"

Access Accelerated⁴⁵ is a program that brings 24 pharmaceutical organizations together to think about ways to bring their resources to address non-communicable diseases in low- and middle-income countries (LMIC) around the world. Given that 80% of the 40 million deaths worldwide each year due to non-communicable diseases are in LMICs, "we can't tackle universal health coverage without tackling non-communicable diseases," he stressed.

Back described the three key components to Access Accelerated. In 2017, they partnered with the World Bank and have chosen to work with Kenya, Ghana, Columbia, and El Salvador to integrate non-communicable diseases within their PHC systems. The aim is to address some of the key barriers around non-communicable disease prevention and treatment. They have also partnered with the Union for International Cancer Control⁴⁶ to address challenges in female care and breast cancer in selected cities with populations greater than one million in Paraguay (Asuncion), Colombia (Cali), Myanmar (Yangon), and Ghana (Kumasi). Across the 24 partners, there are more than 100 programs focused on PHC, including the Abundant Health program funded by the Pfizer Foundation. Those 24 companies have committed to continue scaling up these programs and they are working with Boston University to catalogue the outputs of these programs to make the impacts, challenges, and opportunities visible across the board.

There is huge fragmentation in many countries with respect to UHC and noncommunicable diseases, said Back. In Kenya, for example, a large number of programs are being run and arguably, many of them are overlapping. Recognizing this fragmentation is the first step, he said. In 2018, they brought together a diverse set of stakeholders in Kenya, including patients and Ministry of Health officials, to explore barriers and ways to address them in a patient-centered way (through financial assistance, supply chain management, etc.). With the Ministry of Health, they are working toward putting together an analytical framework to catalogue the outputs of the large number of programs being run in Kenya, in order to determine what is working, what is not working, and whether there are better opportunities available that could be implemented.

6.2.5.22 Breakout group report

The breakout group discussed how to bring together insights and perspectives about PHC delivery to address the fragmentation that is evident in countries, said Back. To address the lack of standardization and rigor around the testing of evidence, they suggested the possibility of creating **principles for PHC interventions**, somewhat similar to those created by the pharmaceutical industry. Because of the fragmentation, governments and program managers do not know how to navigate this space, but governments do need to take on some risk. Donors also need clarity and direction related to the government's agenda.

⁴⁵ For more information about Access Accelerated, see https://accessaccelerated.org/ (accessed September 14, 2018). 46 For more information about the Union for International Cancer Control, see https://www.uicc.org/ (accessed

⁴⁶ For more information about the Union for International September 14, 2018).

As part of a country-level solution, the group proposed setting up a **council on** UHC innovation, which might be led by a government, but should include multidisciplinary stakeholders. The council could take the lead in defining the framework and principles. Key tenets might include data-driven decision making and open-source platforms, for example, and the council could also set the market-shaping function and the vision for PHC 2030. The council should draw upon the range of stakeholders' perspectives and lessons learned to define the agenda for stakeholders, innovators, and donors. The group also suggested that the government should consider incentivizing innovation in areas that are not currently attractive or viable for investors.

Ultimately, this knowledge could be fed into a **global knowledge management function**—a semi-legal body that sets the standards, best practices, and recommendations for countries. The important piece is that there needs to be a body and resources to help countries build capacity at the local level, so that there is infrastructure in place to implement these recommendations. This will help donors decide where to invest based on the need in the country. A standardized approach for assessing evidence and impact will help to avoid duplication and poor collaboration that ultimately cause fragmentation.

Responding to Tritter's question about the relationship between incentivizing best practices and incentivizing innovation, Back replied that he considers them to be interrelated. From his private-sector perspective, incentives provide guiding principles and sets an agenda that would allow for more nimble investment. This would be an improvement over the current landscape, which has international NGOs dictating where to invest.

6.3 ENABLING ECOSYSTEMS: REACTOR PANEL

Selected participants were asked to react to the session's proceedings on enabling ecosystems.

Panelists included:

- Magnus Mordu Conteh, executive director of the Community Health Academy at Last Mile Health
- Abhay Bang, founder of the Society for Education, Action and Research in Community Health (SEARCH)
- Tim Evans, senior director for health, nutrition and population global practice at the World Bank Group
- Donika Dimovska, senior program director at Results for Development

Magnus Mordu Conteh, executive director of the Community Health Academy at Last Mile Health, touched on the issue of government leadership. While acknowledging that it varies from country to country, he warned that many entities working in the NGO sector are at the mercy of governments and could be asked to leave countries at any time. The challenges highlighted during the session all pertain to government leadership, government funding commitments, and government ownership. "We should not give up," he said, "ultimately these countries are responsible for the health of their populations; we should continue to advocate for governments to take ownership and leadership." He noted that the time spent building capacity in government to lead these programs pales in comparison to time spent fundraising to implement these programs. He reported that WHO Regional Office for Africa and the International Telecommunication Union have signed a cooperative agreement to launch a digital health capacity-building program to support governments in leading digital health initiatives.47 The Community Health Academy is part of that work, and Conteh sits on the committee which is

⁴⁷ For more information on the imitative, see https://afro.who.int/news/who-and-itu-use-digital-technology-strengthenpublic-health-services-africa (accessed September 14, 2018).

developing the curriculum. He reiterated the need to spur governments into the leadership space to ensure the long-term sustainability of initiatives and investments. The private sector has a role to play in investing, he added, but they need to operate within an enabling environment of policies and regulatory frameworks that foster those investments.

Abhay Bang, founder of the Society for Education, Action and Research in Community Health (SEARCH), warned that scaling up innovations can magnify existing flaws and faults with disastrous consequences. Thus, innovations in health-care delivery should go through the same type of process of rigorous evaluation of effectiveness and cost effectiveness that biomedical interventions do. He also recommended incorporating risk prevention into the definition of PHC because it is unlikely that low-income countries will be able to stem the tide of non-communicable diseases with a treatment-only approach. He likened the treatment of non-communicable diseases to a black hole that will suck in infinite resources.

Tim Evans, senior director for health, nutrition and population global practice at the World Bank Group, remarked upon government's capacity as an agent of innovation in a way that fosters creation, assessment, evaluation, and implementation. He noted that the World Bank can help governments reform and build core capacities through an instrument called development policy lending that is not publicly well known. He suggested that this in an area fruitful for innovation reform and that advocacy for instrument is a powerful opportunity.

Referring to the workshop's venue, the Center for Global Health Delivery, Evans noted that there was no focus on health delivery either at Alma-Ata or in the Millennium Development Goals. The skew of innovation toward biomedical science, compounded by the absence of legitimacy associated with knowledge and evidence in the delivery space, continues to undercut the types of innovations in PHC delivery that are so urgently needed. To foster the agenda at hand, he urged participants to think about how the public and private sectors can be more effective in increasing the rigor in innovation and knowledge generation within the delivery space. He suggested advocating within countries' medical research councils for a shift in funding from biomedical research—which receives the preponderance of funding in this US\$10 trillion sector—toward investment in innovations for PHC delivery.

Innovation should also seek to intervene against bad behaviors, Evans said, by setting a clear agenda to discourage overuse and other bad practices. He noted that issues with overuse are on the rise in the move toward universal health coverage, because the "open wallet" can entice bad actors to manipulate the system (e.g., increasing the rate of unnecessary C-sections). Ministers of finance should be convinced that bad behaviors are being discouraged at the same time inefficiencies are being eliminated by "plugging leaks and closing loopholes," he said. This will garner a tremendous amount of legitimacy, greater traction, and larger budgets to push innovation further.

Donika Dimovska, senior program director at Results for Development, pointed out a common thread across many of the groups' solutions—**the call for some kind of coordinating entity, mechanism, or council**—and she suggested pinning this as an action item to be captured and further articulated. She noted that the groups described similar functions that this coordinator should fulfill:

- Generating evidence
- Understanding evidence gaps
- Finding innovative ideas
- Assessing the market
- Translating global evidence
- Synthesizing country evidence and putting it back into the global knowledge base

Tritter closed the session by reflecting on the session. She agreed that a clear theme had emerged about the need for some kind of country-level mechanism. She was struck by the tendency of the innovator panel and breakout groups to "let governments off the hook" in a sense, which she found puzzling given that the rhetoric around achieving UHC is that governments will take the lead in achieving it for their citizens. However, the group appears to be diametrically opposed to this rhetoric on how UHC will be achieved, she said, which is reflected in the lack of government representation at the workshop. She added that Conteh and Evans presented useful augmentation in their calls for mechanisms at the country level (governmental or not) to include all stakeholders. Additional observations from Tritter are provided in Box 61

Box 3. Moderator's reflections on the session

In her concluding remarks for the session, moderator Beth Tritter, executive director of the Primary Health Care Performance Initiative, outlined some of her reflections and observations about enabling ecosystems to drive primary health care innovations:

- Civil society, the private sector, and non-profit organizations need to have a strong role in convenings.
- Conversations should be shaped by incentives and some degree of global pressure.
- Stakeholders need to have skin in the game: "We can't bring people to the table without bringing money to the table also."
- Innovation councils could be used to change the way governments and other actors think about PHC and innovation.
- Global leadership is another missing piece; there is a place for the "grand dame" institutions of the global health arena to continue to refresh their relevance in the context of innovation.
- Groups like the assembled workshop participants also have a role to play in pushing those larger institutions to refresh their relevance, as well as in advocating for more innovative approaches.
- In communicating with patients about service delivery, it is easy to default to the semantic construct of delivering service *to* patients, but it is also important to get feedback from patients about what they want and need.
- Patients are a valuable source for understanding the contexts of service delivery: what they want, how they consume series, and how to innovate in communicating with them about their perceived need for care and their relationships with caregivers.

7 Re-envisioning health-care financing and purchasing

7.1 INTRODUCTION

Chapter 7 is a summary of the workshop's session on re-envisioning financing for primary health care (PHC) through novel approaches to financing and purchasing innovative services, products, and technologies. The session was moderated by Nathaniel Otoo, senior fellow at Results for Development, Andy Ellner, conference co-director, director of the Harvard Program in Global Primary Care and Social Change, and CEO of Firefly. The session opened with a presentation by Otoo and was followed by breakout group discussions on challenges and opportunities related to innovating health-care financing and purchasing, with group leaders reporting back on their group's deliberations.

7.2 KEY CONCEPTS IN INNOVATIVE HEALTH-CARE FINANCING AND PURCHASING

Otoo provided a synthesis of the workshop participants' feedback and comments from the first day of proceedings, noting that the group had many good insights into how to pay for innovative products, services, and technology. He underscored the principle that health is a human right, thus financing for health is a human rights issue. A set of key concepts identified by the group is included in Box 4.

Box 4. Key concepts in innovative health care financing and purchasing

Nathaniel Otoo presented a set of key concepts and issues related to innovative healthcare financing and purchasing that the group had generated:

- Ensure equity
- Plan and prioritize effectively
- Diversify resources
- Foster grassroots activism
- Pay for performance
- Maximize outputs
- Improve poor governance and stewardship
- Resolve inadequate funding issues
- Address ineffective supply chains and logistics
- Create public-private partnerships

- Pool effectively to support universal health coverage
- Coordinate stakeholders
- Generate and use evidence
- Channel funds toward frontline financing
- Deploy targeted interventions
- Involve and engage patients
- Strengthen provider payment methods
- Design financing packages effectively
- Strengthen primary care to drive economic growth

Otoo also highlighted issues related to measurement and how to quantify whether health care is being financed effectively. He summarized participants' visions for doing so, which included the following suggestions:

- Financing should be according to ability to pay.
- Strategic purchasing should be central in everyone's minds.
- Supply system should be integrated.
- Predictive analysis about the use of medicines should be done via artificial intelligence.
- Leadership costs should be reduced.
- Equitable access should be ensured.
- Public-private partnership financing mechanisms should be explored.
- Innovations in integrated care are needed.

Otoo then presented a framework that he sketched to help approach the issue of financing PHC. It included a governance component. He described the levers that can help to improve financing streams, including stewardship and governance, communication, and what he termed "policy entrepreneurship." With respect to the latter, he noted that many people who are savvy with technology are not as proficient in finding and leveraging opportunities for capital. He suggested that when done well policy entrepreneurship can positively impact resource mobilization, pooling, purchasing and service provision. He also described levers to enhance pooling, resource mobilization, and service provision: accountability, data and evidence, efficiency, and innovation. These factors move through the sieve of innovation to affect the entire value chain, he added. Ultimately, the goals of the health system should be to provide financial risk protection, to improve health status, and to increase customer satisfaction; all of those aims loop back into governance and the need for transparency.

To illustrate the importance of catalyzing change, Otoo shared a personal experience. In the run-up to the 2015 election in Ghana, health insurance was a foremost policy issue that generated much media coverage. He

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was working at one of the largest insurance agencies in Africa and recognized that there was a potential opportunity to be leveraged. He had a friend with government connections suggest to the president that his organization could help initiate the process of health insurance reform. The president agreed and within nine months, the countrywide health reform was complete. When a new president took office after the reform, the program was continued because they had created an explicitly stakeholder-driven, politically neutral process. An analysis revealed that a small number of upper-tier facilities were representing a disproportionately larger amount of resources in claims than the larger number of lower- and middle-tier facilities in the country. This finding led to a prioritization of PHC in Ghana that is still ongoing, said Otoo. At the regional level, those experiences have shaped another initiative he is involved with, called the Strategic Purchasing Africa Resource Center (SPARC).⁴⁸ More information about SPARC is provided in Box 5).

Box 5. Strategic Purchasing Africa Resource Center

Nathaniel Otoo explained that the Strategic Purchasing Africa Resource Center (SPARC) initiative is tackling questions about what type of services to buy (e.g., buying at the primary, secondary, or tertiary levels) as well as exploring how to use strategic purchasing to underscore the importance of investing in primary care. The model adopted for the initiative allows for the resources to be owned by an African institution, which will drive SPARC with support from Resources for Development for a few years, after which it will become African-owned. Ensuring that the system is sustainable is an overarching objective, he said. Otoo noted that on the African continent there is a wealth of capacity, but it is disjointed. To address this, SPARC works to make connections among key players involved in the purchasing of health services and experts in the field. They also seek to match capacities with demand and relevant experts. In addition to building technical capacity, they focus on building coordination and helping to facilitate knowledge generation that can be shared across the continent and worldwide. Many of SPARC's interventions are project-oriented, but there is a concomitant focus on long-term sustainability. To support the latter, they are working to advance the transition from fly-in fly-out technical assistance programs to initiatives that are owned locally and regionally. A parallel shift is needed from static knowledge to knowledge that is co-produced and co-owned, he added. SPARC aims to recognize the work being done by other groups and then to connect and expand on those efforts, for example, by adding the elements of advocacy and citizen involvement. SPARC also aims to help populations understand the importance of resources efficacy. Key instruments for SPARC are coaching and monitoring, country engagement, knowledge management, and joint learning. Otoo explained that they will use the hub and spoke model, in which the hub is a selected partner institution and the spokes are the institutional and technical capacities developed elsewhere.

⁴⁸ More information about the Strategic Purchasing Africa Resource Center is available at https://www.r4d.org/ projects/toward-health-strengthening-strategic-purchasing-expertise-africa/ (accessed September 15, 2018).

8 Re-envisioning health-care financing and purchasing: breakout group reports

During the breakout session, groups were asked to consider how to support the achievement of innovative models of financing of primary care services at the global, national, regional, and community levels over the short and long terms.

Ronald Kasyaba, deputy executive secretary of the Uganda Catholic Medical Bureau (UCMB), said that his group discussed how strategies for health communication needs to be developed at the global and national levels. This would involve continuous engagement with global actors who have the capacity to bring together various stakeholders across disciplines. At the community level, the group suggested looking at Ghana's experiences with capitated financing as a potential innovation for moving forward. Strategic purchasing at the community level should extend beyond purchasing at the point of service provision to capitation and focusing on what to buy. Although there are regulatory concerns at the national level in a setting like Ghana, regulating the separation of responsibilities at the national level could help to address this. The group also discussed how to navigate the political environmentcontinuity of innovation can be put at risk because politicians are transitory and have their own agendas to pursue. It will be important to find ways to sustain models of innovation in the face of political upheaval, such as engaging a non-political national-level champion for innovation.

Sylvana Sinha, founder, managing director, and CEO at Praava Health, reported back from the group discussion on the challenges related to innovative financing models, specifically through the lens of equity, stewardship, and governance. She said that the group found the language of the question lacking in clarity about what the concept of innovative financing means; similar linguistic concerns are that equity is related to access and stewardship is related to distribution. At the community level, people need to be more deeply engaged in identifying challenges, exploring implementation strategies, and adapting those strategies to their local contexts. As a countrylevel example, the group discussed how a universal health coverage (UHC) plan was recently rolled out in the UAE relatively guickly over the course of a year by understanding and evaluating three prongs of consideration: the population and the tiers of the population; the cost and their ability to subsidize that cost; and the potential sponsors, such as employers. However, she noted that the UAE has a smaller population and is much better resourced than most other countries. At the regional and global levels, the group suggested that parties should collaborate and brainstorm to identify shared challenges and key differences. This challenge has to be tackled at the country level, but the global and regional players can play a role in making connections and proposing solutions that have worked elsewhere. A key challenge is to quantify the true costs of the system, which can be obfuscated by hidden costs, such as bribes, and by the fact that pricing is lacking in transparency. Systemic costs need to be visible in order to understand the costs of implementing solutions, she added.

Abhay Bang, founder of the Society for Education, Action and Research in Community Health (SEARCH), reported back from the group that discussed country-level financing with a focus on private-sector resource mobilization and holistic financing. They limited the discussion to financing, resource generation, and pooling. User fees and outof-pocket expenses are the most widely used model of private-sector financing, which causes many enormous problems. In India, for example, nearly 60 million people fall below the poverty level each year because of the cost of health care. The intermediate model is private-sector resource mobilization, with private companies developing their own insurance schemes for employees or private groups. India has such a network with a risk pool of ten million families, for example. He remarked that may be more aptly characterized as group-sector resource mobilization than private-sector funding. While not an ideal solution, it is a good intermediate step toward holistic financing. Holistic resource generation requires resource pooling, which could take the form of government taxation, public health-care delivery, or insurance-financed private care delivery. India's prime minister has recently proposed an ambitious model through which 500,000,000 people would be covered by government-financed insurance. However, the model would only provide financial protection for care provided at the secondary and tertiary levels. This is a concern because in India, much care is delivered by the private sector, so the model has the potential to divert resources from primary care. In that it would effectively be financing the private sector, the model has been criticized as a scheme to finance the private hospital industry. The group also discussed accountability: if people pay for health care through taxation rather than direct payment, they may not trust that they will receive good, efficient care. Bang wondered whether the types of taxationor insurance-financed health care models that have emerged in European countries can be implemented in settings where the government is corrupt and inefficient.

Charlie Sword of the Practical Approach to Care Kit (PACK) program reported for the group that discussed accountability, transparency, and citizen engagement. They focused on the importance of **transparency related to spending** and looked at data related to the visibility of government spending through taxation, the visibility of donor-partner spending, and the visibility of individual spending by out-of-pocket expenditure. The group tried to be as granular as possible by looking at the primary, secondary, and tertiary levels. They considered how the service packages within primary care in a country can vary across different states or provinces. At the facility level, highly granular transparency is needed to determine how to spend money. Different audiences will want different things out of information, so it would be useful to gather information from the global level-e.g., comparing one country's PHC spend to another'-all the way down to information about how financial decisions are being made at the specific facility level. It is easier for communities to understand why a decision is made to prioritize water or electricity at the local level, for example, and similarly, it is easy to see why security or education might be prioritized over health care at the higher level. Striking a balance in the middle will be complex, but it may provide more visibility into the mechanisms behind decision making. The group also highlighted the roles of digitization and interpretation. In addition to being available, information needs to be made relevant and actionable to particular audiences who may have very different needs; it is not just about providing information to passive recipients and hoping they will engage with it. Sword emphasized the importance of ensuring that we provide the tools for people to understand priorities and of doing a better job surfacing local-level priorities and reflecting them at the policy level.

A few recurring threads were identified by the group that discussed strategic purchasing and measurement, said Madeleine Beebe, institutional partnerships manager at Muso Health. The first is to ensure that purchasing decisions take **equity** into account; the same applies to health financing schemes, making sure that those approaches promote equity and do not allow cherry picking. They also discussed applying an equity lens to measurement and the evaluation of success. A population-level approach could help to promote equity more effectively, as well: for example, using a pay-per-performance model based on the health of a community, region, or country rather than the same type of model based on the management of individual patients. The group discussed the importance of **transparency and community engagement**. Communities should know what is being purchased on their behalf, how much it costs, and the results it brings. Communities also need access to data generated by measurement that happens in their communities, so that they can provide feedback on the purchasing decisions being made on their behalf and become more engaged in decision making. The group also discussed ways to **make the economic case for health** and the struggle to articulate to other sectors the importance of proposed investments. On a related note, it is important to be able to translate evidence about why user fees are bad so that Ministry of Finance officials will understand. Finally, the group discussed the importance of **triangulated measurement** rather than relying upon on a single measure to determine if something has worked. Distortions can be caused by pay-forperformance measures, she added, which can be resolved by triangulating across patient outcomes, patient satisfaction, and financial risk protection to get the full picture.

9 Summarizing, synthesizing, and committing to action

9.1 INTRODUCTION

Chapter 8 describes the workshop participants' reflections on the proceedings and suggestions for ways forward and committing to action some of the ideas that were discussed. The chapter features a summary of the reactor panel from the last session of day one-the "what"-as well as a summary of cross-cutting themes and actionable items from the first day. It also includes a presentation on a potential action framework for enabling ecosystems for disruptive innovations in primary health care (PHC). This is followed by workshop participants final cross-sector, multi-country reflections at the end of the second day, which focused on the "how," aimed at identifying next steps, commitments to action, and metrics for success. The session was moderated by Catharine Smith, executive director of the Harvard Medical School Center for Primary Care.

9.2 REFLECTIONS ON PRIMARY CARE 2030: THE "WHAT"

At the end of the first day of the workshop, Donika Dimovska, senior program director at Results for Development, asked a panel of reactors to speak about general scale up from the governmental and global perspectives. Tran Thi Mai Oanh, director of the Health Strategy and Policy Institute at the Vietnam Ministry of Health commented that investing organizations aligned with the government priorities in Vietnam of focusing on capacity building for human resources as well as interventions to address non-communicable disease burden. She suggested that efforts to scale up PHC models nationwide in Vietnam might be informed by the work done by Pfizer in the country, for example. Working with policymakers will be critical, she added; they need to understand the evidence-based

impact that scale up would have, coupled with a strategy for advocacy, in order to make strides on the policy level. The appropriate conditions need to be in place for these models to be able to scale up, she said, and lessons learned from older models will help to identify and implement those conditions. She noted that the government recently put forward a resolution to strengthen PHC, but they will still need assistance in learning how to implement the policy.

Another governmental perspective was provided by Dr. Khaleda Islam, former director of primary health care and program manager of national newborn health and integrated management of childhood illness at the Bangladesh Directorate General of Health Services. Bangladesh has been implementing treatment for diabetes and hypertension at the grassroots level, which involves training the providers on diabetes and other noncommunicable disease management, also ensuring availability of drugs. However, the resources and training would be much more impactful if they were more easily accessible and proper demand for health care have been created at the community. She agreed with Oanh about the importance of advocating with policy makers. Research methods should have the flexibility for settingspecific contextualization, she added. When implementing training, it is also important to be very careful to maintain quality standards and to monitor the ongoing training and trainers. Dr. Islam has found that when scaling up from centers, there is a loss of monitoring and supervision, and that quality may deteriorate at the periphery level. It is equally important to maintain the quality and the standard of training and trainers; this includes managers of community health workers (CHW), who must also be trained and supervised otherwise desired impact of training will not be achieved. Dimovska noted

that those two country-level perspectives indicate the importance of having a scalability plan before implementing a pilot, as well as creating plans at the outset for generating data and for monitoring and evaluation.

A global perspective was provided by Peter Varnum, project lead for the global health and health-care team at the World Economic Forum. He reflected on what it would take to implement the factors highlighted by workshop participants as being necessary to enable disruptive PHC models. The refrain, "'why isn't anything happening?" is one he hears often at conferences around the world. He characterized this as an opportunity to create a global narrative such that when these conversations are happening, progress can be made because everyone is on the same page about the objective of creating the necessary enabling ecosystem. The need to account for contextual differences has been mentioned, he said, and outlined some further commonalities. The first is that partnerships are key for almost everything being discussed, including integration, multi-stakeholder connection, designing for scale from the beginning, and creating robust data systems and monitoring and evaluation systems. Data

collection must be accurate and robust. It is also important to think holistically from the beginning and acknowledge that contexts can and will change. In terms of sustainable funding, there is no one-size-fits all answer, but there are effective mechanisms that can be informed by examples of what has worked in different contexts. Finally, he said that there needs to be a central repository or means of access to support this global narrative, by contributing and sharing best practices across different settings and contexts. "It's one thing to say that we have good practices," he said, "but it's another to say that we know what they are and how to access them."

To open the second day of proceedings—the "how"—workshop rapporteur Anna Nicholson (Doxastic, LLC) provided a summary of the first day, which focused on the "what." She highlighted cross-cutting themes around what is needed to disrupt the current system and enable a new ecosystem that can foster innovative primary care models, as well as outlining actionable steps that the participants identified for promoting an enabling ecosystem for new models of primary care. The summary is provided in Box 6.

Box 6. Summary of workshop day one: the "what"

To open the second day of the workshop, rapporteur Anna Nicholson (Doxastic, LLC) provided a summary of the first day of the workshop's proceedings, including crosscutting themes around what is needed to disrupt the current system and enable a new ecosystem that can foster innovative primary care models, as well as actionable steps for promoting an enabling ecosystem for new models of primary care.

CROSS-CUTTING THEMES

- With the shift in the global burden of disease toward non-communicable diseases, coupled with the escalating shortage of health-care workers worldwide, short-term disruptions by means of innovative models of care and technology need to be situated within a longer-term paradigm shift in the culture and ethos of primary health care.
- Fundamentally, there can be no universal health care without primary health care. However, we heard that although health systems built on strong primary care delivery are more resilient, efficient, and equitable, primary health care is often the weakest link in health systems, due to a host of challenges that were outlined.
- Critical components to scaling up primary health care delivery innovations:
- Embrace patient-centered approach to care delivery.
- Redesign health-care workforce.
- Leverage technology in care delivery.
- Expand spectrum of health-care delivery.
- Shift from passive to active/proactive models of primary health care delivery.
- Learn from past and present models of primary health care delivery to inform future models.
- To create an enabling ecosystem for these disruptive new models, establish a global narrative framed in a common language around models and data.
- Strategize about how primary health care fits into the broader vision of development.
- Ideally, the aim would be to create systems, models, and platforms that are generalizable to a certain extent, but also flexible enough to be adapted to specific contexts.
- "One size doesn't fit all" in primary care across settings: this applies across the board to primary health care models, health-care worker roles, data collection methods monitoring and evaluation, etc.
- We heard the refrain "front lines first" from several participants: innovation (be it new models or technology) should be aimed primarily at positively impacting people's lives by adding value to the front lines of health systems.

9.3 REFLECTIONS ON PRIMARY CARE 2030: THE "HOW"

Andy Ellner, conference co-director, director of Harvard's Program in Global Primary Care and Social Change, and CEO of Firefly. He presented the structure of a framework for organizing the information and ideas that emerged from the workshop's discussions, broken down into themes or areas of policy as well as specific activities within those domains (see Table 81 and Table 82). He noted that further work will need to be done to flesh out the framework, including activities for affinity groups (e.g., advisors, corps, providers, entrepreneurs, etc.) and individuals. He described it as an opportunity to distill more learnings and to identify key opportunities.

Data represent a significant opportunity to move the needle in innovative primary care models, said Ellner. Guaranteeing basic rights around what happens with data is essentially a human right and beyond the right to privacy, there need to be basic principles or standards for data interoperability. Rather than being centrally aggregated, data storage structures should be standardized and interoperable to free up pipelines for sharing that data across systems and stake holders. It is also important to promote transparency in terms of how and when data is shared, he added.

In terms of purchasing and financing, the need for novel financing mechanisms is obvious, said Ellner. The vertical model of funding that has pervaded global health in recent decades needs to be shifted toward innovative models that focus on PHC financing, instead of incentivizing specific diseases or interventions. This should be complemented by a shared understanding of capitation in terms of how countries pay for things, but also in terms of pooled funds that may be available to help the poorest parts of the population. Other suggestions included a grand challenges program and the opportunities for innovative policy lending programs. It was also suggested that innovation could be used to discourage bad behavior such as fraud, overuse, and waste. "This is low hanging fruit when we're talking to policy makers about opportunities for health care financing innovation," he said.

Partnerships were another theme of discussion. Ellner noted that at the global level, a secretariat focused on advancing progress toward UHC through PHC could support this work by adjudicating countrylevel dialogues, facilitating ecosystems, and bringing stakeholders together to work in an enabling environment. At the country level, discussion centered on enabling ecosystems through mechanisms to ensure that all voices are heard.

Knowledge creation, sharing and

dissemination was a really fertile area of discussion that represents many opportunities. Ellner highlighted the need for standardization and rigor in evaluating PHC, identifying which innovations work well, and developing mechanisms to disseminate that knowledge. The idea of creating national institutes of health-care delivery would likely have resonance at the World Bank as an opportunity to create an enabling ecosystem, he added. Legal and regulatory opportunities are related to rights around data and creating frameworks for ensuring access to quality medicines. They can also be used to discourage bad behavior, waste, and fraud, he said.

The emerging idea of **behavioral and culture change** around health care will start to unlock further opportunities, said Ellner. The traditional perception of health-care quality centers on biomedically advanced care being delivered at tertiary facilities. However, this perception about quality must shift toward service that is highly convenient, takes care of the whole person, is responsive to patient needs, supports people around behaviors and prevention, and involves more than just treatment for chronic disease. The role of patients in the system also needs to transition toward becoming a partner in processes and outcomes

Ellner opened the floor to the group to contribute their ideas about additional elements for the framework, priorities that are compelling opportunities, and other strategies for moving these ideas forward.
Table 4. Enab	ling ecosystems fo	or disruptive prin	nary health care	innovations: action	on frame-
work (part 1/2	2)				

GLOBAL LEVEL				
Domain	Activities			
Workforce	• TBD			
Data	Guarantee basic rights around what happens with data			
	 Innovative financing mechanism for UHC by PHC 			
Purchasing	Grand challenges around PHC			
and financing	 Development policy lending (e.g. from World Bank) promoting innovation reform (e-governance, evaluation standards) 			
	Secretariat to advance PHC/UHC ecosystem dialogues			
Partnerships	 Establish agenda / standards that help to guide private investment in PHC innovations / rewards basics and creates premium for innovation 			
	 Institute for evaluating health delivery innovations / UHC innovation council / semi-legal body that set standards for assessing best practices 			
	 Standardization of principles in evaluating advances in PHC delivery 			
	 Independent group on best practices for PHC 			
Knowledge creation,	• Country rewards for meeting certain criteria to participate (e.g. Gavi)			
	 Change patients' perceptions on how to judge if health care delivery is good 			
	Global or regional innovation hubs			
	 Improve legitimacy or rigor and vigor of knowledge in the delivery space 			
Legal and regulatory	Guarantee basic rights around what happens with data			
Behavior	Change perceptions of quality in health-care delivery			
and culture	 Incorporate focus on prevention and healthy behaviors 			
change	Change in role of patient			

Notes: PHC = primary health care; UHC = universal health coverage Source: Ellner presentation

Table 5. Enabling ecosystems for disruptive primary health care innovations: action frame-
work (part 2/2)

COUNTRY LEVEL				
Domain	Activities			
Workforce	• TBD			
	Guarantee basic rights around what happens with data			
Data	 Basic central principles and standards for data interoperability with flexibility to adapt to different use cases 			
	Promote transparency in designing critical data infrastructure			
	 Innovations around discouraging bad behaviors in health-care delivery (e.g., overuse, fraud, other bad behaviors) 			
	Capitation			
	Strategic purchasing plans for national governments			
Durobasing	National-level committee for sustained political engagement			
and financing	Micro-credit networks for health financing			
	Transparency regulations and framework			
	Measurement frameworks for accountability			
	 Equity-based measurement approaches, especially for monitoring and evaluation, to ensure interventions do not worsen inequities 			
	• Country dialogues for organizing ecosystem (convening by non- state actor, bringing in government)			
Deutneuskins	Government sets desired results of innovations but not tactics			
Partnerships	 NGO/non-state actors helping build governmental capacity to lead initiatives such as in data 			
	Mechanisms need to include all groups			
Knowledge creation, sharing, and dissemination	Institute for evaluating health delivery innovations			
	Guarantee basic rights around what happens with data			
Legal and	Frameworks for driving access to quality medicines			
Regulatory	 Innovations around discouraging bad behaviors in health-care delivery (e.g., overuse, fraud, other bad behaviors) 			
Behavior	Change perceptions of quality in health-care delivery			
and culture	Incorporate focus on prevention and healthy behaviors			
change	Change in role of patient			

Note: NGO = nongovernmental organization Source: Ellner presentation

9.3.1 Discussion

During the final discussion, participants discussed next steps from their own perspectives, suggestions for future convenings, and suggested ways forward.

9.3.1.23 Next steps for participants

Magnus Mordu Conteh, executive director of the Community Health Academy at Last Mile Health, said that as a public health specialist he will be looking at how to incorporate these ideas into his own advocacy work and his engagement with various governments, philanthropists, and other nongovernmental organizations (NGO). As the executive director of the Community Health Academy, he looked forward to applying the rich information generated during the workshop to support the curriculum development for their health system leadership programs. Dr. Khaleda Islam said that she would share with organizations what she had learned while implementing innovative activities to support PHC on the ground in Bangladesh as the country is implementing may innovative approaches and changed health indicators dramatically in comparison to neighboring countries; she also offered to expedite any participants' communication with the government of Bangladesh if needed. Ronald Kasyaba, deputy executive secretary of the Uganda Catholic Medical Bureau (UCMB), said he will be pushing for PHC to lay the groundwork for UHC through his subnational and national-level engagements. Fatanah Ismail, public health physician and senior principal assistant director (primary care section) of the family health development division, Ministry of Health, Malaysia, said that they are looking at implementing PHC in Malaysia. She said that from a government point of view, it is difficult to work with the private or NGO sectors because the government is bound by bureaucratic issues.

Juhwan Oh, Seoul National University, said that after attending a PHC conference three years ago, his country is working on a PHC system reform pilot and a health insurance PHC pilot. He said that the workshop has brought new resources for moving forward and this will be triggering the next step in the process. Ellner noted that Oh was referring to an education program based on a study of the most exemplary PHC models they could find around the world. They have since extracted some of the key themes and learnings from the exceptional work that these organizations are carrying out, with the view to publishing the findings.

9.3.1.24 Suggestions for future convenings

Varnum said that this type of convening is the cornerstone of reaching the vision for primary care 2030. Its power is that it demonstrates the surprising closeness between the public and private sectors, which can help to build stronger cross-sector relationships. These convenings also contribute to a base of globallevel knowledge about country-level work, as well as providing an opportunity to progress the narrative, rather than just reiterating it. Madeleine Beebe, institutional partnerships manager at Muso Health, said that from the perspective of a small organization, the types of convenings they find the most valuable are the ones that ask the most of them. She also suggested bringing to the table USAID forprofit development companies because much of the work in this space is dictated by their decisions, which are often not reflected in organizations' best-practice strategies.

Catherine Levy, head of global health programs for noncommunicable diseases at Sanofi, remarked that the workshop is missing representation from patient associations, who should be systematically involved in these global meetings to share their ideas about what will resonate with patients and the public at large. Chase Adam, co-founder and CEO of Watsi, said that an issue encountered in the IT field is a lack of regulatory clarity about the standards to be adhered to as a software vendor—for example, cloud storage versus local storage, data standards, and what is meant by the concept of interoperability. Bringing stakeholders together to clarify these issues would be very helpful, he said.

Abhay Bang, founder of the Society for Education, Action and Research in Community Health (SEARCH), outlined a set of topics he would be interested in collaborating on for delivering primary care:

- How to deliver PHC to newborn babies at the community level49
- How to deliver PHC to the 300,000,000 members of tribal populations and indigenous people around the world
- Surgical care in PHC sector
- Reduction of noncommunicable disease risk factors through research and community-based action
- CHW training and management
- Integrating mobile technology with community health work to fill gaps in workers' knowledge

9.3.1.25 New funding mechanisms

Deborah Gildea, head of Novartis Social Business (Asia), highlighted the importance of finding new mechanisms to bring more money into the system. Her group discussed countries in which the total spending was adequate, but there were questions about how much to spend on PHC; in other settings, the total spend is nowhere near sufficient. She brought up the idea of using different finance mechanisms that have not been used before, such as development bonds. She asked whether governments should be creating bonds or if international institutions should create a different mechanism of financing. She noted that there are conversations happening globally about buying into some bonds as part of the ongoing commitment to global health, but such mechanisms do not exist at the moment. Other actors such as companies, finance institutions, and industries would be interested, she said, but the mechanism needs to be put into place.

Charlie Sword of the Practical Approach to Care Kit (PACK) program commented that bonds will not solve funding problems insofar as you still have to pay it. It adjusts the profile of when the money can be spent and provides a wave of upfront investment, but still requires finding a payer. Even when metrics are achieved, investors need their money back plus a premium to justify the risk they took on. He cautioned against thinking about bonds as simply an extra source of funding, although it may address a certain type of funding problems.

9.3.1.26 Establishing a health regulation body

Jean-Paul Dossou, of the Research Centre in Human Reproduction and Demography (Benin) and the Institute of Tropical Medicine Antwerp (Belgium) explained that he is a part of the leadership team of the West African Network of Emerging Leaders⁵⁰ (WANEL) in health systems research and practice, which is very active and connected in west Africa. Working with governments is very challenging due to high turnover and political instability, so he suggested establishing a health regulation body-a non-political entity with a mandate higher than the ministry of health-which would be sustainable and linked with the government. They are eager to see how this works in low-income countries and how this kind of model might provide global entities with sustainable model for discussion.

9.3.1.27 Building operational capacity on the ground

Dossou said that is also important to build up operational capacity of actors at the ground level to absorb technology and innovations. Beyond just designing and implementing guidelines, local actors need to be strengthened to find solutions to their own problems. They need support, ideas, and sometimes technology from the outside," he said, "but the system should always be built upon the idea of supporting their own ideas for

⁴⁹ A method called home-based newborn care has already been scaled up across India, Bang noted.

⁵⁰ More information about the West African Network of Emerging Leaders is available at http://www.wanelhps.org/ (accessed September 14, 2018).

addressing their challenges... Solutions need to be matched with problems on the ground."

9.3.1.28 Other suggested ways forward

According to Bang, the most important idea to emerge during the workshop was that global health delivery needs to become a science or discipline. Shayoni Mazumdar, senior field manager at Dimagi (India), asked where technology fits into the picture. She offered to consolidate some evidence about the cost-effectiveness of technology to share with the group. Conteh urged participants to continue to evolve thinking around health systems training. Kasyaba suggested focusing on improved strategic communications to promote an "us" rather than "them" message: "it's not the people out there," he said, "we are part of the community." Koku Awoonor-Williams, director of policy planning, monitoring, and evaluation in Ghana Health Services, called for recognizing the innovation already happening at the community level. Some of these organizations are very small, but they are making a difference. She also suggested finding ways to gain wider buy in for PHC and UHC.

9.4 CLOSING REMARKS

During his closing remarks, Ellner underscored two key high-level themes. The first is to create a culture that puts the **patient first**, by transitioning from the traditional, hierarchical health-care model to a model that redistributes authority and action to non-physicians to empower patients and families. The second is the importance of relationships, not only with patients but between care deliverers and care teams. Exemplary organizations working on the ground—both public and private—are using a proactive approach to develop and foster these relationships. It is also important to value the work being done by people working on the front lines and to build in growth opportunities for them to develop as individuals. He commended the group's discussions about technology and the roles it can play, as well as the discussions about how to communicate with people in positions of power to create an ecosystem for innovation in PHC delivery.

Noting the wealth of opportunities that have arisen from the workshop's discussions, Ellner said that he anticipates action on several fronts based on the meeting. The first is to operationalize some of the more abstract ideas about enabling ecosystems by implementing concrete activities on the ground in one or more countries. They will also explore with stakeholders how to take action on some of the policy innovations discussed and how to advance some of these big ideas on a global policy level. Proceedings of the workshop will be published, and they will look at opportunities for the workshop participants to collaborate on a joint publication. To maintain the momentum, they will also look at opportunities to convene again and to broaden this discussion to include the voices of patients, families, and people from other organizations innovating on the ground with disruptive PHC models.

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Appendices

Appendix 1. Workshop agenda



Primary Care 2030

Creating an ecosystem to enable disruptive primary care models and acceleration down the path to UHC June 21-22nd, 2018 | Dubai, UAE

THURSDAY, JUNE 21, 2018 Primary Care 2030: The "WHAT"

08.15

There will be a shuttle from the Raffles Hotel to the MBR-AMC each morning running at 15-minute intervals. The first shuttle will pick up at the Raffles Hotel at 08:15. The last shuttle will be at 08:45.

Please eat breakfast at your hotel. Coffee & tea will be available at the conference all morning.

08:30-9:00 **Registration and check-in**

> Mohammed Bin Rashid Academic Medical Center (MBR-AMC) Building 14 Dubai Healthcare City, Dubai, United Arab Emirates Case Method Hall, Ground Floor

- 09:00-09:10 Welcome from the Center for Global Health Delivery-Dubai Salmaan Keshavjee, Director, Center for Global Health Delivery-Dubai
- 09:10-09:30 Visioning: Primary Care and Universal Health Access in 2030 Five attendees from different sectors/countries will offer views on the role of disruptive primary care models in achieving UHC and hopes for the next two days
- 09:30-10:30 Welcome to Primary Care 2030

Andy Ellner, Harvard Medical School Welcome and context setting Introductions and small group discussions Large group reflection

- 10:30-10:45 Coffee and tea break
- 10:45-12:15 Models of Primary Care, now and in 2030

Overview of innovative primary care models Innovator panel including Muso Health, Possible Health, Pravaa Health and World Health Partners

Reactors from the public and private sector Reflections and synthesis

12:15-13:15 Lunch

13:15-14:45 Technology, Scale and Access

Andy Ellner, Harvard Medical School, Moderator The role of technology in advancing workforce productivity and quality, safety and reliability of care Innovator panel including Watsi, Medic Mobile and Dimagi Breakout groups focused on challenges, opportunities and next steps for advancing tech innovations Reflections and synthesis

14:30-14:45 Coffee and tea Break

14:45-16:40 **Re-envisioning the Health Workforce**

David Duong, Harvard Medical School, Moderator Re-envisioning the health workforce to be team-based Innovator panel including PACK, Last Mile Health, Ghana Health Service Community-Based Health Planning and Services and pharmaceutical industry representatives (Novartis, Sanofi, Pfizer) Breakout groups focused on challenges, opportunities and next steps for advancing workforce innovations Reflections and synthesis

- 16:40-16:45 Evaluations of Day One
- 16:45-17:00 Group Photograph
- 19:00-21:00 **Group networking dinner** all are welcome to join

FRIDAY, JUNE 22, 2018

Primary Care 2030: The "HOW"

09:00 There will be a shuttle from the Raffles Hotel to the MBR-AMC each morning running at 15-minute intervals. The first shuttle will pick up at the Raffles Hotel at 09:00. The last shuttle will be at 09:30.

Please eat breakfast at your hotel. Coffee & tea will be available at the conference all morning.

09:30-10:00 Summary & Highlights of Day One, Primary Care 2030: The "What"

Andy Ellner, Harvard Medical School Mohammed Bin Rashid Academic Medical Center (MBR-AMC) Building 14 Dubai Healthcare City, Dubai, United Arab Emirates Case Method Hall, Ground Floor

10:00-12:00 Enabling Ecosystems

David Duong, Harvard Medical School and Beth Tritter, Creating an ecosystem to accelerate access to innovative, high-quality services, technologies and products for primary care Innovator round-robin with Access Accelerated, World Economic Forum, Results for Development and Roche Large group discussion on challenges, opportunities and next steps for creating an enabling ecosystem

12:00-13:00 Lunch

13:00-14:30 **Re-envisioning Healthcare Financing and Purchasing**

Nathaniel Otoo, Results for Development and Andy Ellner, Harvard Medical School, Moderators Novel approaches to financing and purchasing innovative services, products and technologies Innovator discussion including Ministry of Health Representatives and global thought leaders Interactive group exercise Group reflection on challenges and next steps

14:30-14:45 **Coffee & tea break**

14:45-16:00 Summarizing, Synthesizing and Committing to Action

Catharine Smith, Harvard Medical School, Moderator Cross-sector, multicountry reflections Large group discussions to identify next steps, commitments to action and metrics for success

16:00-16:15 Thank you and closing remarks

Andy Ellner, Harvard Medical School

16:15-16:20 Evaluations of Day Two

Appendix 2. Workshop participants

Chase Adam	Co-Founder and CEO, Watsi
Fuzan Al Khalidi	Director of Government Development and Health Affairs Department, Strategies and Innovation Sector
Koku Awoonor-Williams	Director, Policy Planning Monitoring and Evaluation, Ghana Health Services
Darren Back	Senior Director, Social Investments and Corporate Responsibility, Pfizer Inc.
Abhay Bang	Founder, Society for Education, Action and Research in Community Health (SEARCH)
Rani Bang	Founder, Society for Education, Action and Research in Community Health (SEARCH)
Madeleine Beebe	Institutional Partnerships Manager, Muso
Shreya Bhatt	Asia Regional Director, Medic Mobile
John Campbell	Program Officer, Results for Development
Dessi Dimitrova	Practice Lead for Health Systems, World Economic Forum
Donika Dimovska	Senior Program Director, Results for Development
Trung Do	Partners Healthcare
Jean-Paul Dossou	Research Centre in Human Reproduction and Demography (Benin) & Institute of Tropical Medicine Antwerp (Belgium)
David Duong	Conference Co-Director, Deputy Director, Harvard Program in Global Primary Care and Social Change
Andy Ellner	Conference Director, Director, Harvard Program in Global Primary Care and Social Change, CEO, Firefly
Timothy G. Evans	Senior Director for Health, Nutrition and Population Global Practice, The World Bank Group
Michael Fuerst	Secretary of Novartis Corporate Responsibility Board
Deborah Gildea	Head of Novartis Social Business, Asia, Novartis
Khaleda Islam	Former Director Primary Health Care & Program Manager National Newborn Health & IMCI, Directorate General of Health Services, Bangladesh
Fatanah Ismail	Public Health Physician, Senior Principal Assistant Director (Primary Care Section), Family Health Development Division, MoH, Malaysia
Ronald M. Kasyaba	Deputy Executive Secretary, Uganda Catholic Medical Bureau (UCMB)
Priya Kumar	Health Director, Watsi
Phan Le Thu Hang	Deputy Director of Planning and Finance Department, Vietnam MOH

Catherine Levy	Head of Global Health Programs for Noncommunicable Diseases, Sanofi
Tran Mai Oanh	Director of Health Strategy and Policy Institute, Vietnam MOH
Shayoni Mazumdar	Senior Field Manager, Dimagi India
Sarah Miller	Business Development Manager, Amana Healthcare
Manal Mohammad Omran Taryam	CEO Primary Health Care Services Sector at Dubai Health Authority
Nasreen Molla Adamjee Health Delivery-Dubai	Director of Research and Programs, HMS Center for Global
Nahed Monsef Health Authority	Consultant, Director of Health Affairs Department, Dubai
Magnus Mordu Conteh	Executive Director, Community Health Academy, Last Mile Health Inc
Nguyen Ngo Quang	Deputy Director of Administration of Science, Technology and Training (ASTT) / Director of HPET project, Vietnam MOH
Juhwan Oh	Seoul National University
Nathaniel Otoo	Senior Fellow, Results for Development
Daniel Palazuelos	Harvard Medical School/Partners in Health
Andy Poh	Advisor Health Strategy, Prime Minister Office, UAE
Dan Schwarz	Conference Co-Director, Expert Lead, Harvard Program in Global Primary Care and Social Change, Associate Director, Primary Care, Ariadne Labs, CMO, Possible
Prachi Shukla	Country Director, India, World Health Partners
Sylvana Sinha	Founder, Managing Director, & CEO, Pravaa Health
Catharine Smith	Executive Director, Harvard Medical School Center for Primary Care
Charlie Sword	PACK programme
Sherif Taha	Specialist PM, Primary Care Strategy, Dubai Health Authority
Cicely Thomas	Program Director, Results for Development
Beth Tritter	Executive Director, Primary Health Care Performance Initiative (PHCPI)
Cassia van der Hoof Holstein	Fellow, Emerson Collective
Peter Varnum	Project Lead for the Global Health and Healthcare Team, World Economic Forum



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