



Commentary

Commentary: Primary health care in Tanzania – Leading the way through innovation

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Tanzania was ahead of its time when it embraced primary health care (PHC) to accelerate progress on child survival and included in benefit packages key cost-effective interventions to reduce maternal and child mortality. Realising the values of PHC required fundamental changes in the way the health system operated. Between 1999 and 2004, Tanzania doubled its public health expenditure from 9% to 18% [1]. District-level based decentralisation through local governments meant districts could gain control over their health budgets and selectively increase resources for core interventions tailored to district needs and demands [2]. There was a willingness to introduce and learn with the integrated management of childhood illness (IMCI) [3], and improve coverage of many other life-saving interventions [4]. Their scale up and integration in district budget financing [5] resulted broadly in major health gains (Table 1), including significant reductions in child mortality, with attainment of the MDG 4 target to reduce child mortality in 2013 [2]. Trends of increasing health gains continue to today.

Past success achieved through a decentralised approach proved the principles of PHC. Decentralisation still provides a wide range of decision-making choices to address the health needs and preferences across all districts in Tanzania [7]. However, disparities among districts in terms of focus, capacity and leadership [8], combined with systemic health system weaknesses, did not lead to changes in a homogeneous way and prevented past gains from reaching their full potential in every district (Table 1). For example, adolescents make up close to 25% of Tanzania's burgeoning population, yet they experience a range of adverse health-related outcomes related to poor sexual and repro-

ductive health, violence, nutritional deficiencies and non-communicable diseases [8]. Promoting and protecting adolescent health and wellbeing, and successfully leveraging the demographic dividend, will enable Tanzania to sustain and reap the health and social benefits from its impressive gains in child health.

Tanzania is leading the way in PHC with the adoption of digital technology and innovative solutions for some of its more pressing public health challenges, including adolescent health. Policy and infrastructural developments such as Tanzania's eHealth strategy (2013–2018) [9], and investments in fiber optic cables across Tanzania, provided an enabling environment for progress and present new opportunities for young people in both rural and urban areas, the next generation of digital natives. Mobile phone use has surged in Tanzania and close to 40% of the population has access to the internet. Like other African countries access to these technologies will only continue to grow especially as connectivity improves in rural areas.

Frontier technologies, such as artificial intelligence (AI) and machine learning, are transforming the delivery and accountability of services. For example, Tanzania is taking IMCI into its next phase, using AI to support improvements in case management algorithms and hence quality of care. An IMCI-derived decision-support protocol has shown how using mobile technology at the point of care not only improves clinical care [10] but also increases the likelihood a child will receive correct treatment at home [11].

Digital technology is not a magic bullet to tackling the systemic challenges to the health system in Tanzania. However, it should be exploited as an enabler of quality, people-centered care for all Tanzanians, both by transforming the ways in which essential interventions are implemented, especially in hard to reach areas, and improving the engagement and active participation of individuals, families and communities in health. Major steps are being made in Tanzania to combine digitalisation with well validated and effective interventions in PHC. It is high time to move beyond pilot schemes towards scaling up. There are also other challenges to overcome, including inadequate access to the latest technology, limited telecommunications infrastructure, low digital literacy, and still numerous socio-cultural barriers, such as gender constraints in access to digital tools. New policies, regulations and specific plans are needed as first steps so that digital tools can be embraced at the PHC level to ensure health for all. With the 2018 Astana Declaration bolstering the principles of Alma Ata, and on the brink of the 4th industrial revolution, Tanzania is well positioned to harness

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Table 1
Select indicators for women's children and adolescent health in Tanzania.

Key indicators	1990	2000 (MDGs)	2015 (SDGs)
Health impact			
Maternal mortality (per 100,000 live births)	997 (1990)	842 (2000)	398 (2015)
Newborn mortality (per 1000 live births)	37.8 (1990)	32.7 (2000)	21.1 (2017)
Under-five mortality (per 1000 live births)	171.6 (1990)	130.4 (2000)	54 (2017)
Stunting among children under five years of age	49.7 (1991–1992)	44.4 (2004–2005)	34.4 (2015–2016)
Malaria prevalence of children under five years of age	n/a	18 (2007–2008)	7 (2017)
Adolescent fertility rate (Per 1000 women aged 15–19 years)	144 (15–19)	132 (2004–2005)	132 (2015–2016)
Coverage			
DTP3 vaccine coverage	78 (1990)	79 (2000)	97 (2017)
Antenatal care coverage - at least four visits (%)	n/a	50.6 (2010–2016)	
Births attended by skilled personnel (%)	n/a	63.5 (2010–2016)	
Current use of contraception by currently married women 15–49 years (any method)	10.4 (1991–92)	26.4 (2004–2005)	38.4 (2015–2016)
Birth in a health facility	n/a	(47.1) 2004–05	62.6 (2015–2016)
Health system			
Government expenditure on health	9.4 (1995)	15.3 (2001)	12.3 (2014)
Nursing and midwifery personnel (per 10,000)	n/a	3.6 (2002)	4 (2014)
Medical doctors (per 10,000)	n/a	0.22 (2002)	0.39 (2014)

Source: All WHO Global Health Observatory Data repository except: current use of contraception, malaria prevalence of children under five years, adolescent fertility rate and birth in a health facility for which the source is Tanzania DHS 2015–2016 [6].

the opportunities for specific technology-driven improvements in public health, emphasising promotion, access, diagnosis and effective case management and, thus, again be at the forefront of PHC.

Author contributions

FB developed the initial concept for the commentary and together with RH developed the first draft. MT, SHM and HM reviewed and provided written inputs on the first draft. RH revised the draft which was reviewed by FB, MT, SHM and HM. Their additional inputs/writing were incorporated by FB and RH to finalise the commentary for submission.

Declaration of Competing Interest

The authors having nothing to disclose.

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