Realising the Potential of Digital Technologies for Healthcare Education

eLearning Solutions for Global Health

BY STEFAN GERMANN AND MELITTA REMINGTON

As can be seen in the low performance on Millennium Development Goals 4 (Child Health) and 5 (Maternal Health), adequate healthcare is still often out of reach for millions of the world's most vulnerable children and their mothers. While it is good to see that the estimated global number of deaths among children under five fell from 12.4 million in 1990 to 8.1 million in 2009[1], more than 24,000 children still die every day from conditions we know how to treat with proven, low cost interventions. In many countries, the time of birth is one of the riskiest times in a woman's life, with 342,000 maternal deaths annually[2] and many more lifelong disabilities as a result of pregnancy-related complications.

In September 2010, the UN Secretary General launched the »Global Strategy for Women's and Children's Health« (**www.everywomaneverychild.org**) – a generational opportunity to redress the shortcomings in women's and children's health. One of the key elements of the strategy is ensuring a *continuum of care* that includes reproductive, maternal, newborn and child health efforts[3]. But as Figure 1 (see next page) shows, there are significant gaps in coverage for many key interventions. These gaps need to be urgently addressed over the next five years, especially among the most vulnerable population groups.

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Abstract

ERSCHLIESSUNG DES POTENTIALS DIGITALER TECHNOLOGIEN FÜR DIE AUSBILDUNG VON GESUNDHEITSFACHKRÄFTEN – E-LEARNING-LÖSUNGEN FÜR DIE GESUNDHEIT WELTWEIT

Eines der zentralen Hindernisse für eine bessere Gesundheitsversorgung besteht in einem gravierenden Personalmangel in den Gesundheitsberufen, der Schätzungen zufolge bei 3,5 Millionen Mitarbeitern weltweit liegt. Fehlende Ausbildungskapazitäten stellen eine wesentliche Hürde beim Aufbau und Einsatz der benötigten Fachkräfte dar. Bestehende Ausbildungskonzepte sind vielfach kostenintensiv und bei der Entwicklung und Umsetzung zeitaufwändig, was die rasche Ausbildung einer großen Anzahl von Gesundheitsfachkräften erschwert.

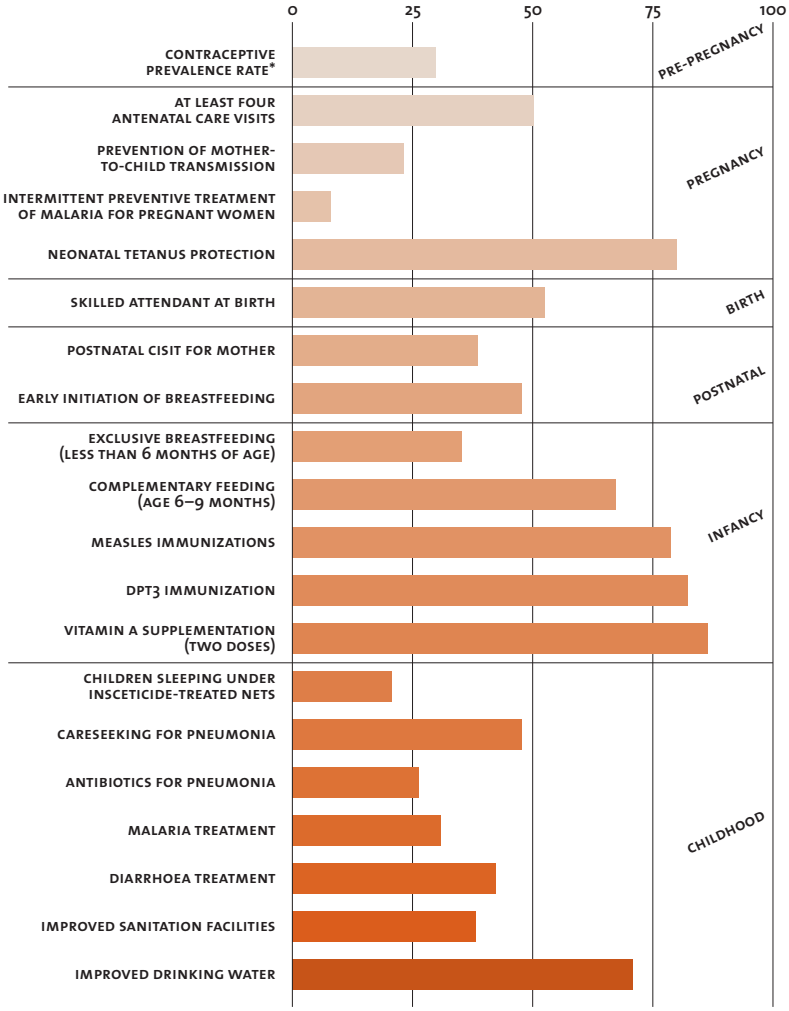
Die Ausbildung in diesem Bereich beruht traditionellerweise auf schriftlichen Unterlagen, erfordert die physische Anwesenheit von knappem Lehrpersonal und lässt sich nur schwierig skalieren — all diese Aspekte wirken der Ausbildung einer erheblich größeren Anzahl von Gesundheitsmitarbeitern entgegen. Um diese Herausforderung zu meistern, beschloss World Vision in innovative IKT-gestützte Ausbildungskonzepte zu investieren. Weltweit haben sich E-Learning-Konzepte bereits unter vielen funktionellen Rahmenbedingungen bewährt. Bei der Bewältigung von Herausforderungen im Bereich der Gesundheitsausbildung zeigte das E-Learning in einer öffentlich-privaten Partnerschaft beachtliche Wirkung.

Die Intel Corporation verfügt über umfassende Erfahrungen bei der Bereitstellung von angemessenen Lerntechnologien mit Hilfe von öffentlich-privaten Partnerschaften für Lernende, Unterrichtende und Bürger auf der ganzen Welt. In diese Bemühungen werden Stakeholder von staatlichen Behörden, NGOs, lokalen Ausbildungseinrichtungen und lokalen Anbietern eingebunden, die alle gemeinsam darauf hinarbeiten, Ausbildungslösungen zu entwickeln, die an die lokalen Bedürfnisse gut angepasst, nachhaltig und skalierbar sind und überdies Feedback-Mechanismen enthalten, die für Konsistenz und immer bessere Ausbildungsergebnisse sorgen. Somit erhalten die einzelnen Regionen mehr Gesundheit für ihr Geld, und das im Allgemeinen auch noch rascher. Intel passt zurzeit sein bewährtes Know-how im Bereich fortschrittlicher, adaptiver E-Learning-Inhalte und die dazugehörigen Plattformen an die spezifischen Anforderungen der Aus- und Weiterbildung von Gesundheitsmitarbeitern an, um den Ausbau von Kapazitäten, die Steigerung der Qualität und die Verbesserung des Zugangs zu Gesundheitsleistungen für Mutter und Kind zu unterstützen.

FIGURE 1

MEDIAN NATIONAL COVERAGE OF INTERVENTIONS

ACROSS THE CONTINUUM OF CARE FOR 20 *Countdown* INTERVENTIONS AND APPROACHES IN *Countdown* COUNTRIES, MOST RECENT YEARS SINCE 2000 (%)



* Target coverage value is not 100 %

Source: *Countdown to 2015*

One of the key constraints to improving performance against these crucial interventions is the severe global shortage of health workers. The Partnership for Maternal, Newborn and Child Health (PMNCH) estimates that achieving universal coverage of MNCH services will require an additional 2.5 to 3.5 million health care workers globally[4]. Furthermore, realising any in-country strategy on improving MNCH will require not only additional quantities of health workers, but also strengthening of existing capacity. Many countries are starting to invest in recruiting and deploying low skilled (but critical) mobile community health workers (CHWs). Good examples are Pakistan's plan to deploy over 140,000 Lady Health Workers and Ethiopia's efforts to recruit and train 30,000 CHWs. The PMNCH MNCH Consensus statement from 2009 calls for the mobilisation of over 1 million new CHWs to enhance much-needed primary health care efforts. While these developments are very welcome, they pose great challenges for adequate training of these large numbers of new, decentralised, local health cadres. Existing training approaches tend to be costly and take a long time to develop and deploy, making it difficult to train large numbers of healthcare workers quickly. For example, World Vision (a large international NGO) needs to train thousands of CHWs in an evidence-based approach called *time and targeted counseling* that equips CHWs to visit households with pregnant women and/or small children with time-specific health interventions and advise along the continuum of care. To meet this need, World Vision has decided to invest in ICT-based training approaches. Innovative eLearning strategies are crucial in addressing the huge health training challenge across over 70 countries and in over 1,500 programme sites.

Intel, through numerous healthcare education initiatives worldwide, has found significant challenges: Traditional CHW training is often paper-based and requires the physical presence of scarce trainers; it's also difficult to scale and lacks effective assessment capabilities. All of these factors work against the delivery of more training to significantly more CHWs. In addition, it's often difficult for CHWs to leave their heavy workload and travel to training sites. eLearning approaches—which deliver training locally through inexpensive PCs/tablets sourcing dynamic educational tools and material via the internet—now have a solid track record in many functional settings across the globe. Research and Intel's experience with eLearning show that learning is more personalised, educational outcomes are stronger as measured by skill sets, instructors are more positive and engaged, and communities are positively impacted socio-economically[5]. When deployed against healthcare education challenges in a public/private partnership model, eLearning solutions led by Intel have shown considerable impact in multi-regional programmes across more than 20 countries. In the Philippines, an initiative to deploy ICT-based learning solutions in nursing colleges is delivering medical training faster and more comprehensively through lessons that are easier to comprehend, more organised, and better illustrated in specific, concrete situations. Reactions from both students and instructors are extremely positive[6]. In India (which is facing a shortage of 500,000 medical professionals), many of the leading medical colleges are making the deployment of innovative ICT solutions a central part of their strategy. They are relying on the **Digital Healthcare Education Model** (developed by a broad public-private partnership that includes the India Department of Education and Intel Corporation) to increase their capacity to meet the substantial need for qualified healthcare professionals[6]. In programmes such as these, many stakeholders including governmental agencies, NGOs, local educators, and local suppliers collaborate to develop training solutions that are well-adapted to local needs, sustainable, and scalable. As a result, the regions affected are getting more health for their money and, generally, getting it faster.

Intel has vast experience in putting appropriate education technology in the hands of students, teachers,

and citisens worldwide. To date, Intel has invested over $1 billion in education innovation, gaining expertise and developing proven best practices. Currently, Intel is working with governments and organisations in over 60 countries to make technology accessible and to help strengthen education both in and out of the classroom. This includes the Intel Teach Program, which has trained 7 million teachers in over 50 countries. Intel's education efforts are focused on the development and delivery of localised digital content that enhances lives and enables new delivery models.

Intel is currently adapting its proven know-how on advanced and adaptive eLearning content and content delivery platforms to meet the specific needs of in-service and pre-service CHW training in order to help build capacity, increase quality, and improve access to MNCH. This know-how within Intel—including its Performance Learning Solutions team and sustainable education programmes—is a result of 11 years of experience in adapting appropriate technologies to maximise the learning experience within local cultural contexts. Intel's comprehensive education capabilities have been used in over 80 learning programmes worldwide, including numerous programmes in developing nations. Expanding this expertise into the area of healthcare training will help meet the global challenges to train more CHWs, midwives, nurses, and doctors. In providing a comprehensive content management and delivery infrastructure, these solutions:

- Fundamentally incorporate the work of local partners including educators, healthcare institutions, government agencies, and NGOs
- Are based on rich content developed by local and international subject matter experts
- Help overcome the challenges of distance, the shortage of qualified educators, and limited facilities
- Provide online and offline learning capabilities to adapt to the learner's situation
- Enable rich content including Flash, video, html, and 3D simulations
- Include online and offline assessment and reporting capabilities to track progress of individuals, groups, and regions
- Provide comprehensive content management capabilities to (maintain quality) in an open architecture (to maintain flexibility and integrate into other learning systems)

Harnessing this platform and Intel's expertise for healthcare education will bring the capabilities of applied and advanced learning technologies to bear on the needs of healthcare education in developing countries. The initial adaptations to healthcare education will focus on CHWs delivering maternal and child services within MDGs 4 and 5. Content will be focused on pre- and post-natal care, patient screening and risk assessment, birthing assistance, and effective referrals to other clinicians.

It has been well demonstrated that where appropriate ICT is available, skill levels are higher. The combination of proven eLearning platforms and localised expert content will have a considerable impact on meeting the challenge of greatly increasing the number of skilled CHWs, especially in developing regions. Getting the right skill to the right person in a timely manner has a remarkable impact on the amount and quality of healthcare delivered—and performance on MDGs 4 and 5.

As healthcare decision makers develop and deploy healthcare strategies, they should invest in proven technologies for CHW education and mandate ICT skills training for all CHWs. Implementing proven tools and programmes can make that happen—to the benefit of millions of mothers and children. ▮

For more information on effective uses of technology in the delivery of healthcare, see the Intel World Ahead Program **www.intel.com/Assets/PDF/Article/WA-321256002.pdf**, contact your local Intel representative, or contact the authors: Mel Remington, Global Emerging Market Healthcare Lead, Sales and Marketing, Intel Corporation, at **melitta.remington@intel.com** Stefan Germann (Dr.), Director, Partnerships & Learning, Global Health, World Vision International at **stefan_germann@wvi.org**

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