How design thinking can save lives

NAIROBI, Kenya – Design thinking and technology were applied to solve one of Africa's most pressing medical problems. In no other sector does technology hold such potential to save and improve the lives of African citizens than healthcare.

(L-R): Magnus von Knebel Doeberitz, Medical Director, Department of Applied Tumor Biology, Institute of Pathology,Heidelberg University Hospital; Elkanah Omenge Orang'o of Moi University, Nairobi; and Hermann Bussmann, Research Associate, Department of Immunology and Infectious Diseases, Harvard T.H. Chan School of Public Health.

And when world-leading medical research combined with expert local insights meet the latest in cloud-based technology, an opportunity beckons to solve one of the leading killers of African women.

"We have all the tools available to prevent cervical cancer, which is essentially a disease of disparity," explained Prof Magnus Knebel von Doeberitz, medical director, Department of Applied Tumor Biology, Institute of Pathology, Heidelberg University Hospital.

"Cervical cancer is six times more prevalent in poor or developing countries as it is in the more developed regions of the world. There is a strong humanitarian imperative to address the issue of cervical cancer prevalence among African women, particularly in light of the vital social role women play in African communities."

Cervical cancer is caused by the human papillomavirus (HPV), and is one of the leading causes of death among African women. The World Health Organisation (WHO) conservatively estimates that HPV infections cause 68 000 cases of cervical cancer in African women every year, although the lack of available data means this figure is likely much higher.

"Cervical cancer is the second most prevalent cancer among Kenyan women, and the most lethal. Our immediate priority with this solution was to reduce the mortality rate resulting from what is an entirely preventable cause of cancer by making effective screening widely available, and improving patient tracking," explained Von Knebel Doeberitz.

The current screening method, called Emerging Technologies in Cervical Cancer Screening (ETiCCS), was developed by the Heidelberg University Hospital. The SAP Design and Co-Innovation Center partnered with Von Knebel Doeberitz to supply the technology platform required to implement it at scale. In addition, Dr Omenge Orango'o of Moi University in Nairobi provided on-the-ground insights and support.

"It is critical to have an accurate and realistic view of actual on-the-ground conditions to ensure any solutions developed in a laboratory are effective when implemented in the field. Dr Omenge's insights into challenges relating to infrastructure and culture were invaluable during our test implementation," explained Von Knebel Doeberitz.

Mobile solution

In many lower-income countries, cancer screening is virtually non-existent, mainly due to logistical reasons.

"While testing can be conducted in a centralised laboratory, the challenge is to ensure effective tracking and longer-term care of women who return a positive diagnosis. We developed a biomarker that we used in our cervical cancer diagnosis, but the key missing element was an information transmission system that could provide access to accurate patient records no matter the location.

“Our partners at SAP then provided an offline mobile solution which can be connected twice per day to the SAP Cloud Platform as the backbone for our information handling system."

The SAP Cloud Platform enables seamless communication between all parties, combined with the mobile app even in very remote areas and environments with unstable internet connectivity. The technology makes data entry simple and access to patient data and test results are immediately available to medical professionals.

"The data information handling system is critical to the success of the ETiCCS solution. Effective diagnosis and treatment of cervical cancer requires the availability of patient information at any time to ensure at-risk women can receive the services and support they need. These linkages of care are often missing from developing countries, so using SAP's Cloud is an opportunity to integrate all information real-time in one place and overcoming local infrastructure limitations."

Design thinking

The ETiCCS solution has been successfully tested in a pilot study in Kenya. The model will now be replicated in other countries. "The solution is built on design thinking principles, and can be replicated in other countries fairly easily. There are two key elements to this: one is a keen understanding of the actual on-the-ground conditions in each country or region, which we gain by partnering with local experts.

“Secondly, data handling is crucial. Our partner SAP has tools that can revolutionise healthcare provision in developing and developed nations. With these elements in place, we can make a huge impact not only on preventing cervical cancer, but addressing other illnesses and diseases affecting the world's vulnerable populations," said Von Knebel Doeberitz.

SAP Africa's managing director: East Africa, Dr Gilbert Saggia, is equally excited about the impact of ETiCCS. "The potential for cloud-based technology solutions such as SAP Cloud Platform to transform the healthcare profession is unprecedented. It is hugely inspiring to see how the combination of expert research, local knowledge and modern technology can make an immediate and invaluable impact on the welfare of our citizens.

“We are excited to support the rollout of the ETiCCS solution to other countries by providing the technology backbone to this game-changing medical innovation."

Source: African Media Agency