

# Custom designing healthcare for Africa

There is no doubt that improving access to healthcare in Africa is a massive task. However, when it comes to developing new facilities, part of the challenge stems from the many remote and rural areas that require these services, as well as the high costs generally associated with such projects.



Laura Swanepoel, head of healthcare, building services, WSP

Learning from global trends and adapting these to suit African conditions may be the key to building successful networks of healthcare infrastructure and medical facilities across the continent, says Laura Swanepoel, head of healthcare, building services, WSP in Africa.

The next generation of healthcare buildings will be very different from those built in the past, and those we are familiar with today. A revolution in building design is already underway, which has largely been prompted by an acceleration of technological innovation, changing population demographics, shifts in expectations of how healthcare should be provided and environmental considerations.

“What the global trends teach us is that when building healthcare facilities, we must view these projects more holistically; considering not just design and delivery, but also whether the development is future ready. To answer this, everything from the design of the building envelope, to the use of low embodied carbon building materials, the natural environment and resources, as well as the socioeconomic and environmental impact of the building must be given due consideration,” says Swanepoel.

## Digitally driven healthcare services

Technological advances and the digitalisation of the healthcare industry are changing hospital design and planning; not to mention defining new approaches to patient care and administration.

Patients armed with information about their conditions are already informed consumers of clinical care, rather than passive recipients. It is therefore believed that patients will increasingly want to access services on smartphones and mobile devices. “The impact of technology adoption, however, will go far beyond simply providing mobile applications for patients to have basic interactions with doctors, or book appointments,” says Swanepoel.

Healthcare industries are being disrupted by widespread adoption of digital technologies including, increased connectivity, cloud computing, internet of things (IoT), big data and analytics driven insights, collaboration tools and continued advancements in robotics and artificial intelligence (AI).

Globally, and in Africa, there is already evidence of the effectiveness of wearable technology being used by medical professionals and medical aid providers to, for instance, advance patient care or customise insurance cover. Taking this a step further, AI-powered systems at the forefront of patient care, which can analyse data from sensors to provide continual or on-demand monitoring of conditions. Adopting these kinds of technology opens new conversations around telemedicine, in that machines can now be used to screen all symptoms and provide preliminary diagnosis, to deduce 90% of primary medical issues. In instances where health issues can't be diagnosed, patients can be referred to a secondary facility in more urban areas.

Furthermore, with the addition of collaboration tools such as video conferencing – advance high-tech solutions such as immersive telepresence, or consumerised applications such as Skype or WhatsApp - doctors and specialists housed together in technologically enabled hubs will be enabled to reach, diagnose and treat patients wherever they are. Drones can then be used to disperse and deliver medicine and emergency medical supplies – and any prescription, emergency or after care can, for example, be administered by qualified nurses onsite at the clinic or medical centre.

Swanepoel believes that adoption of such technology trends offers immense opportunity to expand the reach of healthcare services, even to remote and rural Africa. “These are just some examples of how technology can be used to increase access to primary – and possibly secondary - medical care for ever-larger portions of the population.”

## **High-performance building design**

Globally there is also continuous drive for efficiency and cost reduction, as well as increasing need for resilience to climate change and future energy and water scarcity. There is also growing understanding that the environment in which patients are treated and cared for is a significant contributing factor to the healing process. Patient-centric design is therefore a key ingredient in a successful healthcare facility.

“If we look at healthcare centres being built worldwide, there are a number of innovative architectural elements and sustainable design principles being incorporated. In Africa, there are some government-led and private hospital group projects that are adopting these principles, to create world class hospitals. Though, largely, we still seem to be falling behind this modern global trend and often, this can be attributed to concerns over delivering a project within budget. However, we need to break free of this way of thinking,” says Swanepoel.

“In the commercial property space, building for efficiency, sustainability and climate change resistance has already been proven to boast significant return on investment. Added to this, in remote corners of Africa there are limitations on basic service infrastructure – including water and power – to contend with. As such, there is so much evidence to support the value of incorporating sustainability best practice and renewable energy solutions to improve the quality of hospital design. Moving away from the principle of big concrete blocks that have a surgical and clinical feel, to instead create well-designed, functional spaces that are patient-centric, is both economically and sustainably sound,” she says.

High-performance hospitals and medical facilities may be rated and attain excellence across multiple measures of performance, from energy-efficient building systems to improved clinical outcomes, and enhanced patient and staff wellbeing, for instance. These built projects are designed based on the patient-centric approach, for a better experience and to deliver value and return-on-investment across the board.

## **New approaches to deliver healthcare to rural Africa**

Swanepoel believes there is definite scope in Africa but that high-tech and high-performance hospitals that deliver state-of-the-art care shouldn't be the sole focus. "In Africa, there are many remote and rural areas that are well populated, but where access to healthcare is severely limited or entirely lacking. In such cases, it may be better to adopt a more decentralised approach to healthcare that delivers services to a larger number of smaller facilities."

One growing European trend is the move away from traditional thinking of mega hospitals (hundreds to a thousand beds) towards more day clinics, which are smaller, and more specialised. "This approach offers significant opportunities in Africa, where more medical centres can be built – with the aim of providing highly efficient delivery of core healthcare services for people living in remote areas," says Swanepoel.

Key to the success of such an approach will depend on prioritising spending on specialised medical centres and finding the most cost effective and efficient manner to roll out day clinics in a networked series, across wider geographic areas.

Swanepoel indicates that there are already examples in Africa of prefabricated solutions for day clinics. "Such solutions include high performing, insulated, fire resistant, modular wall systems. These are easy to assemble and fully kitted, to ensure they meet all the necessary hygiene requirements for the health codes. With these prefabricated solutions we can come up with a standardised design, as well as blueprints for any ancillary buildings, which can significantly assist in managing development cost, delivery and quality assurance."

In Africa, innovation is about balance – and more often about the approach taken than the materials or technology used. There are certainly hubs of wealth and urbanisation with capacity to deliver more developed world solutions and facilities. At the same time, there are communities in remote areas that need access to basic healthcare services and medicine – where it is just as important to look at innovative approaches to deliver the basics well.

"There are many lessons to be found in studying global trends in healthcare infrastructure – and adopting a nuanced approach to the medical and hospital facilities we are building in Africa will make a massive, positive impact on the delivery of health services that are suited to the communities they will serve. These facilities that can be effective, sustainable and future ready," concludes Swanepoel.

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