



HEALTH INNOVATOR'S REVIEW

2014

1

NEEDS AND OPPORTUNITIES
FOR HEALTHCARE INNOVATION

2

COLLABORATIVELY
RE-IMAGINING HEALTHCARE

3

TRANSFORMING THE HEALTH
SYSTEM FROM THE INSIDE OUT

4

MINDING
THE GAP

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TECHNOLOGY ENABLING
INCLUSIVE CARE DELIVERY

6

PIONEERING APPROACHES
TO DELIVERING VALUE



Foreword

We are on a journey towards Inclusive Healthcare Innovation at the University of Cape Town, with no idea where the road will lead us, but with a deep conviction that we could contribute to transforming healthcare in South Africa.

This first Health Innovators Review is testimony that we have discovered passionate South Africans who have seen opportunities where others have perceived only challenges and constraints in healthcare. These are the health innovators, the high fliers who are soaring to new heights.

In the pages to follow you will read about inclusive, effective and affordable solutions, developed by inspirational individuals and organisations to meet pressing health needs experienced by patients or communities. There was no shortage of innovators, but selecting those to feature was no easy task.

In July 2013, we sent out an open call for nominations of existing healthcare solutions developed by South Africans for South Africa. The response was unexpected: over 100 nominations were received from all across the country. These were put forward to an External Review Panel of local and international experts in medicine, global public health, innovation and design. The criteria: solutions must be inclusive in equity and access, effective in improving health outcomes and affordable by being efficient or reducing cost. The External Review Panel selected a collection of remarkable health workers, social entrepreneurs and organisations to feature in this first Review.

Each solution in this Review is proof of the determination of South Africans not to accept the status quo, but to use their creative ability and relentless drive to deliver better healthcare to those who need it most. These innovators are not waiting for rockstars, superheroes or leaders to come and fix healthcare. Instead, they have successfully reimagined an alternative narrative of what healthcare could be in South Africa.

We do hope that this collection of profiles, articles and opinions will inform and enlighten you about existing context-specific solutions and perspectives. But more than that, we hope they will help to inspire and motivate positive, meaningful change in our country and across the continent.

So this is our invitation to you. Join us on this journey of Inclusive Healthcare Innovation. Let us find, develop and nurture the creation of solutions that will allow all Africans to receive equitable, accessible, and human-centered healthcare.

The journey starts here. What will your next step be?



Nominations received that met the criteria for being inclusive, effective and affordable according to various health needs:



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The Team

Meet the team who produced the 2014 Health Innovator's Review and read about their experiences of working on this project.



François Bonnici

is the Director of the Bertha Centre for Social Innovation where Inclusive Health Innovation is based.

After years of working in all areas of healthcare - from rural and primary care to global health policy; from public systems to private industry and development sectors; from academia to humanitarian emergencies - I have firmly held the belief that the people on the front lines of the health system get most creative and resourceful in the service of others, despite or perhaps due to constrained and difficult settings. This review confirms this conviction and we hope will provide the role models and inspiration for many others by demonstrating what is possible when the status quo is rejected in view of what might be possible.



Lindi van Niekerk

is the Lead for Inclusive Healthcare Innovation at the Bertha Centre.

Innovation isn't rocket science, it is simply thinking differently about the problem and developing a creative solution. But so often when working at the frontlines, we all become overwhelmed with the challenges and needs of our patients and the limitations that prevent us caring for them. We complain that the system must be changed but we forget that we are the system: you, me and each of the health workers across South Africa. However small, if we each develop an innovative solution, to enable the better delivery of care to our patients, the cumulative effect could be bigger than any of us can imagine. This Review just re-enforces my belief that even ordinary people, like you and me, can make a difference.



Gus Silber

is a journalist, author, and scriptwriter. His books include Phelophepa, the Healthcare Train, Ten lessons From the Future, and Radical Innovation, co-authored with Wolfgang Grulke.

Working on this project has been a joy and a privilege for me. Healthcare and innovation happen to be two of my abiding interests as a journalist, so I was curious to hear the stories of inclusive health innovation, from the frontline of healthcare in South Africa. I found the stories enlightening and inspiring. Too often, we focus only on the gloom and doom surrounding social services in our country. This was an opportunity to shine a light on the good and the great in the system, and to recognise and acknowledge the healthcare workers who are toiling under often very tough circumstances to make a difference, and to make healthcare better for us all.



Mark van Dijk

is an award-winning health & wellness writer, and the deputy editor of Men's Health

"As a journalist, I've learned that the most interesting answers come from asking the right questions. So it's been inspiring (and, as a potential patient, hugely encouraging) to hear the questions being asked by the industry's most innovative minds. What are the barriers to progress? How ready is your organisation for innovation? What are the most pressing needs? These are questions that apply to any industry – and it's been fascinating to learn how they're being asked – and answered – by the healthcare industry's smartest problem-solvers."



Shaun Conway

is an associate at the Bertha Centre for Social Innovation for Inclusive Healthcare Innovation

Through this Review, we have begun to explore ideas and examples of what we think Inclusive Healthcare Innovation means in our local context. I hope this will contribute towards further inspiration, ideas and practical actions that can enable all people to connect with their own authentic human needs for better health and wellbeing, to care and to be cared for.



Sam Surka

is an associate at the Bertha Centre for Social Innovation for the Inclusive Healthcare Innovation Initiative

The Health Innovators Review is an exciting collation of health innovations and innovators that are transforming healthcare with one great idea at a time. I hope it ignites an interest in inclusive health innovation and inspires others to re-imagine the future of healthcare in South Africa.



Adam Shear

is a Creative Director at Deep Agency

Design is playing an important role in shifting former perceptions, by breaking down preconceived notions of creativity, actively illustrating the significant and wider social application of design, and involving more people in the process.



Sebastian Basler

is a Graphic Designer at Deep Agency

Design is a process. Acknowledging, accepting and evolving, as it all unfolds.



Eldi van Loggerenberg

is a medical student, a wannabe poet, an optimist, and a dreamer.

One of the most exhilarating aspects about this project, for me, is the potential for fusion of passion and vision from individuals across social strata and spheres of influence. I find it exciting to see people, skills and resources brought together with the single purpose of improving healthcare.



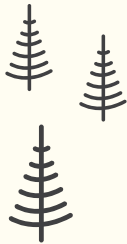
Chloe Ile

is a 3rd year medical student at the University of Cape Town.

I found my time spent working on the Health Innovators review to be a wonderful learning experience. It opened my eyes to the various avenues that can and need to be employed in order to create a better healthcare system. I am eager to see it come to fruition.

Innovating Inclusively to Make Healthcare Better

By **Dr François Bonnici** and **Dr Lindi van Niekerk**
of the Inclusive Healthcare Innovation Initiative
at the Bertha Centre for Social Innovation
and Entrepreneurship



It is often the simple ideas that cost nothing - “no tech solutions” - that can solve the problems faced in healthcare everyday. These are the kind of innovations we are looking for.

- François Bonnici

Healthcare is the art of healing, based on principles, teachings, and practices that date back to the dawn of civilisation. But in that ancient art lies a solid core of science, governed by the impulse to find new and better ways of promoting wellness, preventing and treating illness, and helping people live longer, healthier, happier lives.

We enter the realm of medicine because we are idealists at heart, seduced by the notion that the work we are trained to do can in some small way help to fix the ills of the world. Then we graduate, and we realise with a jolt that healthcare is not just an art, not just a science, not just a calling and a professional pursuit. It is a system.

And the system itself is often beset by malaise: devoid of a soul, riddled with bureaucracy, starved of resources, weighed down by years of abuse and neglect. As health workers, we pledge, first, to do no harm. But what can and should we do to serve the greater good? To heal the system in which we seek to heal the patient. To eliminate obstacles, overcome constraints, reduce inefficiencies. To make healthcare, public and private, better for the people it serves.

Innovation in healthcare must be based on needs and driven by empathy, as it seeks to find real, effective, and affordable solutions to the problems of the real world.



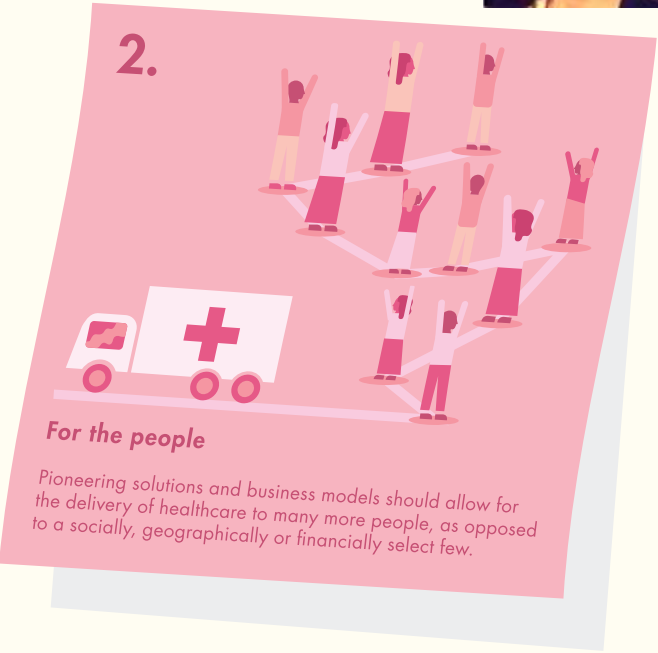
This may sound like a windmill-tilting crusade, in a developing society where the everyday priority is to treat and triage. Health workers in South Africa are already overburdened, already battling to cope. Where can innovation hope to find a place in the queue? To begin, let us cast this concept in a different light.

We tend to think of innovation as an act of alchemy that is born in thin air, ignited by the fusion of imagination and opportunity. But the truth is, innovation is born in need. It grows from real problems in the real world, and from looking and re-looking at those problems in a way that can reveal the solution hidden in plain sight.

Consider the dual social ills of homelessness and unemployment, for example. We could try to address these in the conventional way, through private sector initiatives or government programmes. But what if we could find a way for homeless people to build their own homes, using their skills as labourers= and artisans? Such a solution could uplift, empower, restore dignity, and help to change the face of property ownership in South Africa. This is what we call Social Innovation, and it guides the way we work at the Bertha Centre for Social Innovation and Entrepreneurship in Cape Town.

I believe the potential for transforming healthcare in Africa lies with our health workers – those dedicated people who understand the needs of their local communities best.

- Lindi van Niekerk



We take our cue from this definition by Frances Westley, the Canadian author, consultant, and innovation activist: “Social innovation is an initiative, product, process or program that profoundly changes the basic routines, resource and authority flows or beliefs of any social system.”

It begins with a shift in mindset, a fresh way of looking at a problem, and seeing it, instead, as a possibility. The corrective mindset focuses on what’s broken, and tries to fix it. The transformative mindset says: “It’s broken? Let’s change it.” In that way, it’s not so much a mindset, as a setting free of the mind.

Liberation is the first small step on the journey to innovation, chipping away at the big wall that proclaims: “This is the way we’ve always done things around here”. Then comes the giant leap, the profound changes to routines and beliefs. The wall comes crumbling down, brick by brick, and suddenly, there’s a new and better way of getting things done.

3.

Inclusively co-created

All Africans are acknowledged as innovators – from governments, businesses and academics, to health workers, patients and students. Solutions are created from the bottom up and the inside out.

4.

About thinking differently

Radical challenges call for radical new thought. System-wide impact calls for collaborative innovation from diverse disciplines – public health, medicine, business, financing, management, engineering and design.



To me, “inclusive healthcare innovation” is about enabling all people to connect with their authentic human needs for better health and wellbeing, to care and to be cared for.

- Shaun Conway

In the South African public healthcare arena, innovation opportunities abound, for those who dare to reimagine, and then, to redefine. In this Health Innovators Review, we tell the story of a young doctor, working his community service at a clinic on the Cape Flats, who grew increasingly frustrated with the filling in of clinical scripts in triplicate, for up to 50 patients a day. After a while, he couldn’t read his own handwriting, and nor could the pharmacists who often had to reject scripts for their ambiguous scrawl. So the doctor taught himself computer coding after hours online, and worked with a friend to develop a spreadsheet-based program that has made life easier for health workers, and allowed more quality time for consultations.

Then there is the technologist in Johannesburg, who cold-called a busy State clinic, day after day, in the quest to persuade them to use an SMS alert system to remind patients to take their medication and keep their appointments. Now, text alerts are an integral part of the system, and the system works.

But it would be wrong to think of healthcare innovation purely as a process driven and facilitated by technology. Some solutions are not just low-tech, they’re no-tech: look at the use of skin-to-skin contact, popularly known as kangaroo care, to bond mothers with their preterm babies, and enhance infant development in the neonatal phase.

Innovations like these - and there are many, as proved by the 100 submissions we received for the Health Innovators Review - do not necessarily flow from the free-form thoughts of policymakers and researchers and scientists. They come from people who work in the system, who are best placed to find ways to improve and transform the processes and protocols that define the status quo.

And they can come from anyone who is any way affected or touched by the system, from an intern to a nurse to a laboratory worker to a patient waiting patiently in the queue.

We think of Sizwe Nzima, a young man from Khayelitsha, who was waiting in a long, slow queue to collect medication for his grandparents, when he began wondering if there wasn’t a speedier way to connect the clinic to its patients. So he got on his bicycle and started a small company that today delivers chronic medication to more than 120 clients, and employs three people.

5.

Within people

It’s not just processes and products that need to change but also the routines, attitudes, resources and beliefs of the health workers who deliver them.

6.

Totally transformative

Healthcare in Africa doesn’t need small changes and improvements. It needs total transformation and large-scale reimagining of what has come before.

Often the simplest ideas have the most profound impact on healthcare. With our current connectedness, we’re able to harness simple, affordable technology to integrate health into everyday life.

- Sam Surka



At the Bertha Centre, we call this sort of thing Inclusive Health Innovation (IHI). We believe Inclusive Health Innovation can open the gateway of innovation to anyone in healthcare, on the frontline or on the fringes, just as we believe the benefits can embrace everybody in a chain of virtue that links healthcare to the broader society and the economy as a whole. Here’s how it works.

It is based on real health needs, and driven by empathy. It seeks pioneering solutions and business models that allows for healthcare solutions to be delivered to as many people as possible.

It calls for inclusiveness through co-creation, acknowledging all people as potential innovators, in government, in business, in academia, in the healthcare system and society at large.

It brings different disciplines together - public health, medicine, business, financing, management, engineering, and design - in the quest to see things differently. It seeks not just to change processes and products, but to change the routines, attitudes, resources and beliefs of the health workers who deliver them.

Finally, it transforms, totally, radically, and on a scale as large as our continent itself. Inclusive Health Innovation is innovation by Africans, for Africans, and we believe, based on what we ourselves have learned and seen, based on the energy, resourcefulness, and creativity of the people who have shared their innovations with us, that it holds the power to change the world.

To restore and reinvigorate the idealism that brought us into the healthcare system in the first place, and to make the world a better place after all. The ultimate epiphany is that the only real way to change a system, is to change the people who work within the system. Because we are the system, and the system is us.

Here’s to a continent filled with opportunities, here’s to innovation, here’s to healthcare, and here’s to the innovators who care enough about it to make a difference and bring about a transformed African future. ■

The Expert Review Panel

The challenging task of reviewing the nominations fell upon the experts of the Review Panel. With their vast experience in medicine, public health, management, design and innovation, they were asked to review and select the leading existing healthcare solutions in South Africa.

1

Andrew Jack
Pharmaceutical Correspondent
Financial Times
UNITED KINGDOM

2

Dianna Kane
Senior Designer
Medic Mobile
UNITED STATES

3

Dr Dan J Ncayiyana
Medical and Public Health Specialist
SOUTH AFRICA

4

Prof David Sanders
Emeritus Professor
School of Public Health
SOUTH AFRICA

5

Michael Norton
Founder, Honorary Director and Trustee
of Centre for Innovation in Voluntary Action
UNITED KINGDOM

7

Thulasiraj Ravilla
Executive Director
Aravind Eye Care System
INDIA

8

Prof Anjali Sastry
Senior Lecturer & Director GlobalHealth Lab
*Sloan School of Management,
Massachusetts Institute of Technology*
UNITED STATES

6

Dr Peter Raubenheimer
Head of General Medicine,
Groote Schuur Hospital,
University of Cape Town
SOUTH AFRICA

9

Prof David Woods
Emeritus Associate Professor
of Neonatal Medicine
*at the School of Child and Adolescent Health,
University of Cape Town*
SOUTH AFRICA

10

Glaudina Loots
Director Health Innovation
National Department of Science and Technology
SOUTH AFRICA

NEEDS AND OPPORTUNITIES FOR INNOVATION

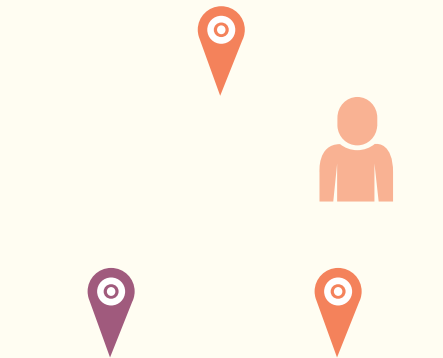
Understanding the future of innovation in healthcare begins with understanding the territory.

The most exciting opportunities for innovation lie on the boundary of theory and the unknown. What do we know about needs and opportunities for innovation in healthcare, and how do we go about imagining, exploring and discovering the unknown, where potential solutions lie? When you arrive in a new city, you might learn the territory by walking around. Or you might be guided by a map. Far more effective is to do both together, combining ground-level experience with higher-level guidance.

You need to understand the new territory. Who is involved? What are the needs of those we are innovating for? What are the opportunities for health workers, students, entrepreneurs and community members to innovate?

This first Health Innovators Review starts us on this journey in the South African context. In this section you will find the opinions of various stakeholders in the innovation eco-system, as they share their views about the healthcare needs requiring innovative thinking.

A Roadmap for Inclusive Health Innovation



Over the past year, we have been on a journey. Through a combined effort of speaking with those on the frontlines, revisiting our own experiences and understanding people around the world, we have tried to get a sense of how ‘innovation’ addresses the health needs in our country and creates opportunities to improve and reimagine the future of healthcare.

From our emerging understanding of this territory, we have developed version 1.0 of a map, adapted and informed by many sources, to guide the way we think and explore inclusive healthcare innovation in our own context (see the map after this article).

This map is constructed around the people who work at the frontlines of healthcare. It places ‘patients’ at the centre. But it also shows that the care interface, between individual healthcare workers and individual people seeking care, happens within a much bigger system of public and private healthcare delivery networks and learning networks.

The members of the innovation eco-system:

Located on this map are the various stakeholders whose opinions are captured in this Review. This includes healthcare policy-makers, such as Dr Keith Cloete, Chief Director: Metro District Health Services Western Cape Department of Health, who provides a public sector perspective on needs and opportunities for innovation in Cape Town. Dr Brian Ruff of Discovery Health, provides a private sector perspective identifying the growing middle-class as a new opportunity to create innovative, affordable financing solutions that can complement publicly-funded healthcare.

Professor Krisela Steyn from University of Cape Town shares how researchers are collaborating to design and test more effective models for chronic care to deal with non-communicable diseases.

From the opinions of frontline role players, it is clear that patients are seen as central to the need for innovation and the importance of engaging members of the community in the process. A range of ancillary care supporters, including family members, volunteers and community health workers, can provide more effective self-care and assistance.

Trainees, such as medical students, have already in the early years been able to very aptly cover some of the pressing challenges requiring innovation, especially in regards to primary health care.

Later in the Review, educators such as Prof Sabiha Essack, Prof Wim de Villiers and Prof Bongani Mayosi share their perspectives on how education should be approached more innovatively to ensure the right quantity and quality of the next generation of health workers in Africa.

Frontline healthcare workers like Dr Angela de Sa, Dr Anne Roberts and Sister Jane Booth, address the need for a integrated system approach, from the healthcare delivery infrastructure to the human resources, administration and management systems overseen by healthcare managers and administrators.

Healthcare Innovations – a systems and technology dimension

Healthcare innovations can generally be categorised as new ways of using existing and new products or services, or new ways of organising and managing healthcare systems and the people within them. We believe that making this distinction is useful, because technology innovations need to be introduced into systems in ways that enable them to function and be disseminated.



The purpose of innovating in health care systems is to improve care delivery and health outcomes. This can often be facilitated by new evolutions occurring in various dimensions – policy, organisational, clinical service, care, quality improvement, education and training and research. Some examples of these are:

- / Healthcare policy innovations, such as social health insurance, could radically transform access to healthcare.
- / Innovations for service provision include decentralising specialised clinical services to primary care sites.
- / Systems for educating and training healthcare workers and the general population can be disrupted by innovations such as training incentive schemes.
- / Research systems can be expanded by putting research tools and expertise into the hands of the community.

Innovating in healthcare technologies goes beyond what most people think of as ‘tech’ solutions. It includes opportunities to innovate in various dimensions:

- / Tools and methods to conduct research, such as mobile monitoring devices.
- / Healthcare education technology innovations, such as web-based platforms, can disrupt how we train healthcare workers, or equip individuals (‘patients’) to care for themselves.
- / Social technologies, such as ‘task-shifting’, create opportunities to reinvent relationships within the healthcare system, for instance to monitor chronic health conditions at home.
- / Environmental and infrastructure technological innovations can include inventions such as affordable waterless toilets that impact community health.

When designing and developing at the boundary of the unknown, within the highly complex systems for healthcare, we need to understand these systems better, to recognise evolving needs and to surface new opportunities for technological and systems innovations, as well as new ways of thinking about healthcare. In presenting this map, we would like encourage more people, especially those at the frontlines of the system, to explore this territory and uncover, support and utilize opportunities for developing inclusive innovations, to learn and adapt how we innovate and to ultimately refine and redefine the map. ■

Inclusive Healthcare Innovation Map 1.0

LEGEND



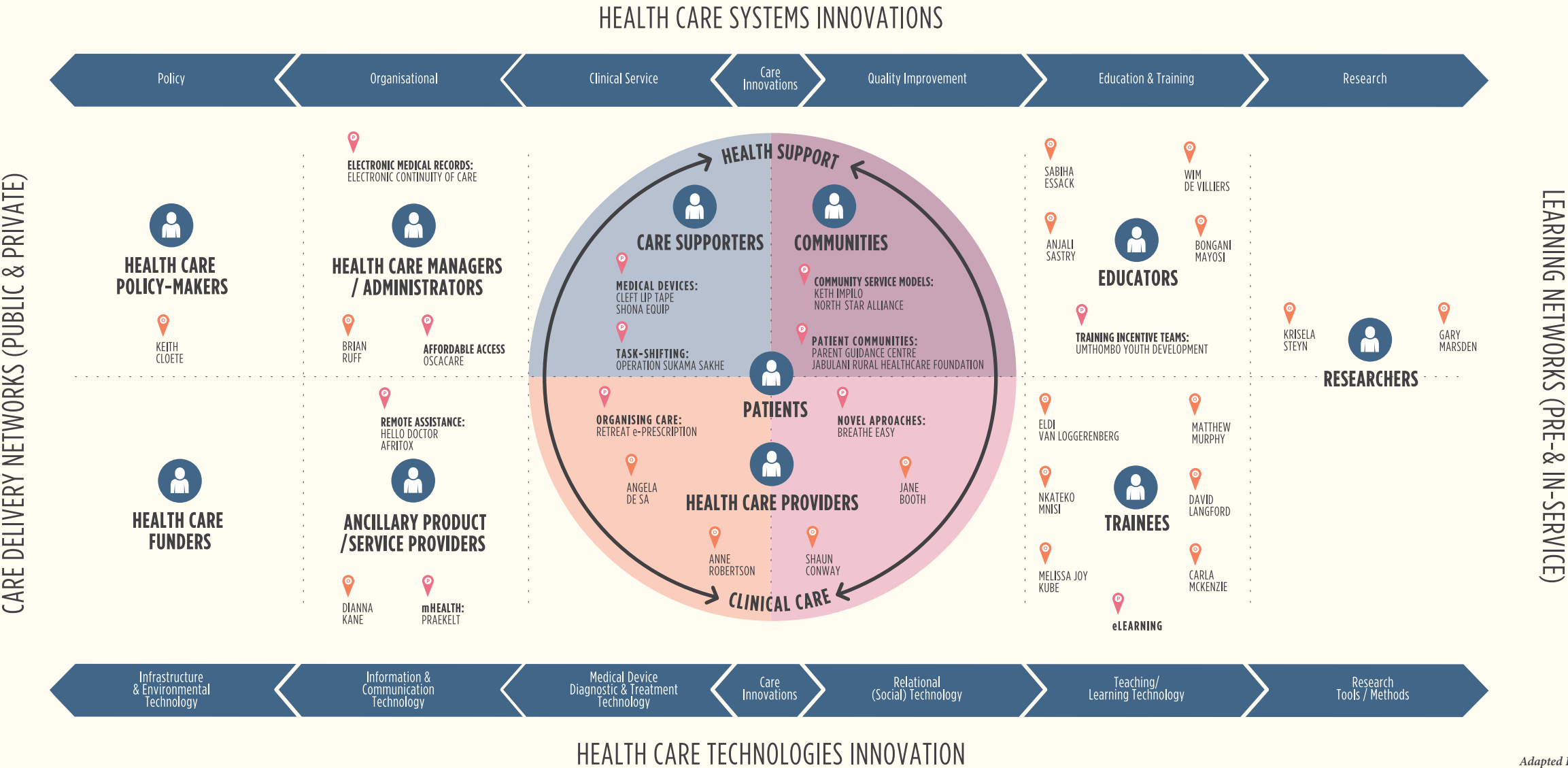
STAKEHOLDER



OPINIONS



PROFILES



Adapted From: Design for Care by Peter H. Jones 2013

Needs and Opportunities for Innovation

When it comes to healthcare innovation, there are three levels of entry. Picture them as a series of concentric circles.

In the central circle are the policymakers, who design policy and decide on new programmes. In the middle ring, are the departments and individuals responsible for the translation of these policies into implementation strategies, and ensuring through detailed oversight that they're implemented correctly. And then on the outer ring we find the front-line facilities, where those policies are implemented.

There are gaps and opportunities for innovation at all three levels. And Keith Cloete, Chief Director of Metro District Health Services at Western Cape Provincial Government, finds himself in the middle of it all. "I'm at the second level, straddling the other two," he says. "Someone once told me that my role in the system is like the neck in a figure-of-8. I'm the connection between the centre and the periphery."

Cloete has what he calls a "bird's eye view" of the whole system, which lets him make connections between the policymakers at the centre and the facilities at the periphery. "When I engage with the role players at a policy level, it's obvious from my perspective that they work in a siloed way," he says. "So I'll speak to colleagues in the Finance department, then an hour later I'll meet with colleagues in the Human Resource department, then I'll speak to my colleagues responsible for Health Programme Interventions such as new TB interventions, or the introduction of new vaccines, and so on, and so on. I'll visit the primary care facilities, and the same is true. They don't necessarily make the connection between what they're doing and what's happening at the facility down the road, or what the NGOs or community healthcare workers are trying to do."

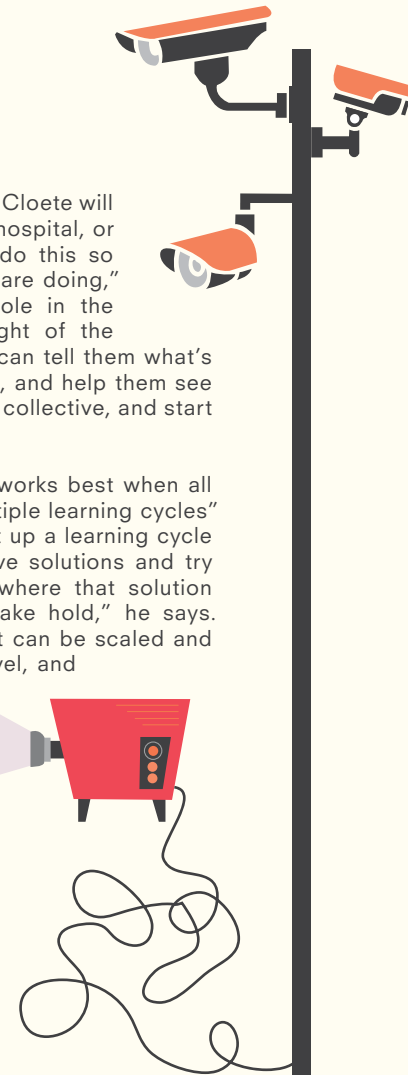
A Public Sector Perspective

- *Opinion of*
Keith Cloete

Three or four times a month, Cloete will visit a primary care facility, hospital, or similar frontline facility. "I do this so that I can see what people are doing," he says, pointing to his role in the implementation and oversight of the system, "but also so that I can tell them what's happening in other facilities, and help them see how they're part of a bigger collective, and start a conversation from there."

Cloete believes innovation works best when all role players engage in "multiple learning cycles" around an issue. "We've set up a learning cycle where we look for innovative solutions and try to find the local systems where that solution can be implemented and take hold," he says. "From there, we'll see how it can be scaled and cascaded up to the next level, and the next level after that."

For Cloete, that's the challenge. "Unless you actually sit with people, talk things through, and go through learning cycles, you're not going to make everybody see the full picture," he says. "We need to get to where we can all talk together and work through real-life problems to find solutions, and then all work together to implement those innovations." ■



A Private Sector Perspective

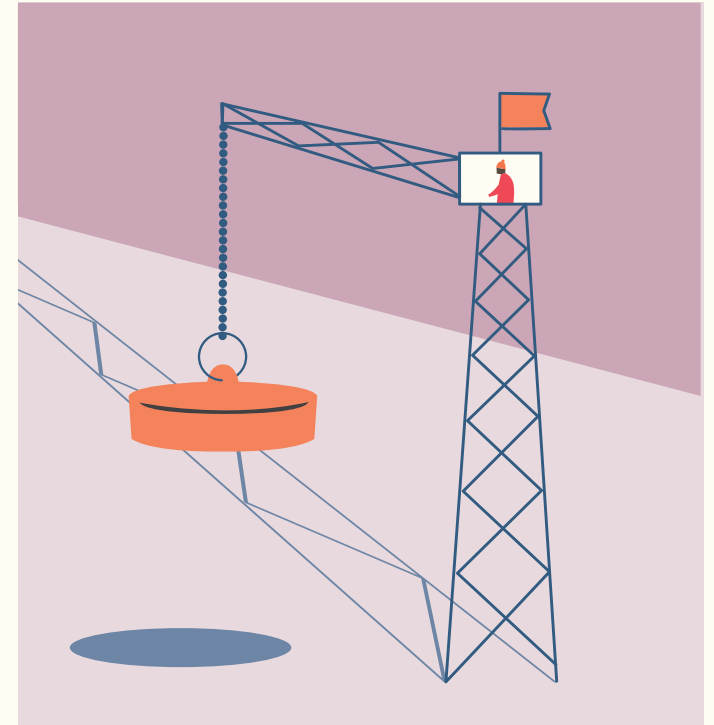
- *Opinion of*
Brian Ruff

South Africans, as a nation, are woefully underinsured. According to a 2013 study by the Association for Savings and Investments South Africa (ASISA), the life insurance shortfall for the 13-million earners in South Africa aged 15-65 is R9,3-trillion, while the gap in disability cover is R14,7-trillion.

There's a similarly dire situation in medical aid. In 2006, Statistics SA's Income and Expenditure Survey found that 8.2 million South African households (65% of households) had medical expenditure but did not have medical aid.

So where are the gaps for innovation in South African medical insurance? "That's not the question," says Brian Ruff, Head of Clinical Risk Management at Discovery Health. "The real question is, where is the innovation? I'm talking in particular about the gap market – people who are not indigent, but who are low-income. At the moment we have the public sector and the very pricy private sector, and nothing in between. So it's very clear where we need the innovation. The question then is, why isn't it happening?"

The problem is not a lack of doctors or a lack of money. It's much more complex and profound. The South African economy is structured in a way that encourages industries with large players, and it's difficult to innovate in between them. "We also have a mixture of laws and regulations that predate 1994, which weren't designed to promote innovation. In many ways, they were designed to frustrate innovation."



Along with this legacy, there are a lot of post-1994 regulations that try to promote fairness for consumers, while inadvertently obstructing innovation. "We need to unpick all of those regulatory issues and understand what we can get rid of or replace with something subtler," says Ruff.

Many middle-class South Africans who have health insurance are hanging on by their fingernails because it's not really affordable, says Ruff. At the same time, they're not prepared to take their chances in the public sector.

How many more would there be if there was self-insurance at a lower level, with the trade-offs that involves? Ruff estimates "maybe as many as another 10 million people, maybe as few as three or four million".

But as he points out: "It's interesting that there are so few people trying to fill that gap anyway." ■

Chronic Disease: A challenge or an opportunity for innovation in Africa

- Opinion of
Krisela Steyn

From available data, in South Africa and elsewhere, it's clear that chronic diseases, even when diagnosed, are poorly managed and not well controlled. According to the the University of Cape Town's Professor Krisela Steyn, one reason is that the model for ongoing, lifelong chronic disease care is completely different to the acute care model.

"Acute care is the traditional model for healthcare services," explains Professor Steyn. "You come in with a broken arm, it's put in plaster, you go away, and six weeks later it's fine and you've forgotten about it. But with chronic disease care, the patient comes in for the rest of their life, and they have to be supported to be able to look after the disease."

And that, Professor Steyn emphasises, is the key. "Unless you get the patient on board, you're not going to succeed. Imagine you have high blood pressure for the rest of your life and you need to take a pill every day. Who, in the final analysis, is going to determine whether you take that pill or not? It's not the doctor, it's the patient."

This is the model of Patient-Centred Care, where the patient comes on board as part of the team that looks after them. Several organisational models for chronic non-

communicable disease management have already been implemented internationally. These range from from the influential Chronic Care Model, which focuses on linking informed, activated patients with proactive and prepared health care teams, to the expanded Innovative Care for Chronic Conditions Framework, which puts greater focus on community and policy aspects.

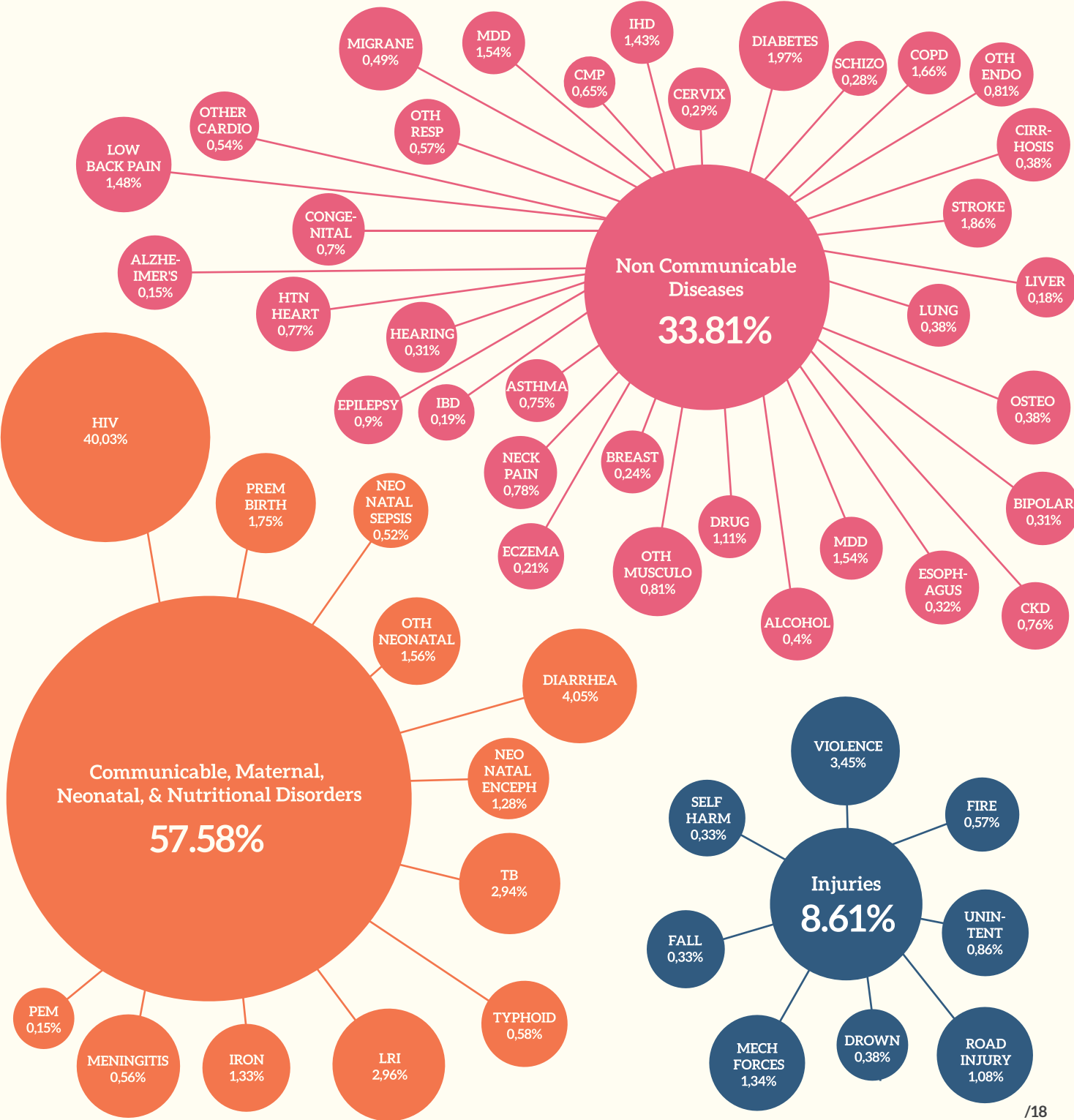
The World Health Organisation (WHO) has also formulated a concept called the Innovative Chronic Care Model, which looks at three aspects:

- 1/ The Patient. How do you get a self-motivated patient to share in responsibility for their own care?
- 2/ The Healthcare Provider. How do you ensure that staff at the facility where the patient is being treated have the required knowledge and are able to communicate with the patient in a patient-centred way?
- 3/ The System. What is the organisational structure of the system where the patient comes for care?

Professor Steyn is the Associate Director of the Chronic Diseases Initiative for Africa. This is a collaboration between the Universities of Cape Town, Stellenbosch and Western Cape; the South African Medical Research Council; the Western Cape Provincial Government; Shree Hindu Mandal Hospital; Ministry of Health and Social Welfare in Tanzania, and Harvard University.

The group looks for innovative ways to support the three corners of that triangle. Supporting the patient, supporting the staff, and helping to develop the system.

"It's clear that we need a different model of care for chronic diseases," says Professor Steyn. "We need to think differently about how our healthcare systems are set up. It's going to require innovation to make these changes, and it's going to require a new way of thinking. That, in essence, is what the Chronic Diseases Initiative for Africa is trying to take on." ■



Word of Mouth

– *Opinions of Frontline Providers*

A1

“I would say the big thing that makes it quite difficult for us is support structures. Folders are often misfiled, so one has to start from scratch if one can’t find the correct folder. Accessing clinical results, trying to access an appointment for a patient, waiting for more than a month for faxes from other hospitals, accessing results and information from other hospitals – that can be quite time consuming. Apart from obviously the general load and the numbers that need to be seen.

Another challenge we face is the repetitiveness of the consultation in terms of giving patients advice along exercise and lifestyle. We’re trying to address it by setting up a structured education system for our patients with chronic diseases. It will hopefully standardise information that patients are getting. Also, information sharing with patients and how to do it in a way that doesn’t take too much time.

Communication between referral facilities is a big need. Often when I refer a patient, the clinicians at the referral facility want to screen the referral first, and then they’ll fax back a date for the patient to attend an out-patient appointment. Sometimes you have to be quite a determined patient – or a neurotic doctor! – to get that appointment, because things fall through the cracks. If there were a way to make that easier, in some kind of electronic format, it would make life much easier – for us as doctors as well as for the patients.” ■

Angela de Sa

Family Physician,
Retreat Community Health Centre

We asked passionate health workers to share with us the real needs and opportunities for innovation on the frontlines of care delivery.
Here is what they had to say:

A2

“I think that the resources for health are not being harnessed. When I talk about resources I’m talking about nurses. I’m one of the last nurses who was trained in advanced paediatrics to look after children who are technology dependent and have serious health needs.

We need these kinds of nurses in all specialities like diabetes, oncology, to be able to run programs that are based on primary healthcare, where patients come from the community and are returned to the community. We need people to be trained so that they have the knowledge and the skill to be able to manage children like these. The nurse plays an important role right from admission to the home and back again, throughout the care of the patient.” ■

Sr Jane Booth

Nurse
Red Cross Children’s Hospital

A3

“In terms of rural healthcare, there unfortunately isn’t one single problem with one single solution. If there were, I suppose we would have found it already. There are lots of system failures in rural healthcare, but those are not insolvable and in many cases you can work around them.

But I think our most pressing need is for competent and motivated health workers. And there, one of the biggest problems is clinical leadership, which is one of the reasons why the health workers are not performing well.

There’s nothing simple about it, and there’s no one thing we can do. But a competent clinical manager of a facility can make an enormous difference to the way the facility runs, the way the health system works and the way the health workers perform their duties.

But it’s fair to say that many of our rural health workers are demotivated. There certainly have been challenges with drugs or equipment or supplies, but often health workers will use that as a crutch when they’re just not working effectively.” ■

Dr Anne Robertson-Sutton

Paediatrician
University of Limpopo &
Limpopo Department of Health

“Sometimes you have to be quite a determined patient – or a neurotic doctor! – to get that appointment, because things fall through the cracks.”

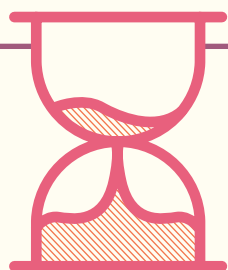
Tomorrow's Problem Solvers

— **Melissa Joy Kube** —

3rd year medical student

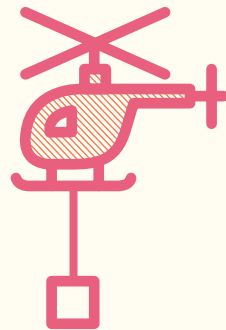
"One of the major problems in our healthcare system is the fact that problems are dealt with very late. While I understand the need for appointments to try to accommodate as many patients as possible, there are many circumstances where potentially reversible conditions are left too long before they are dealt with.

Implementing a triage system for patients who come to make appointments could address this problem. It won't be easy as other patients still have to be seen, but if life-threatening conditions could be identified when the patient is trying to make an appointment, there could be a better chance of helping the person's condition to improve."



What are the biggest challenges facing the delivery of healthcare in South Africa?

What can and should be done to make things better? We asked some young medical students to give us their diagnosis and prescription...

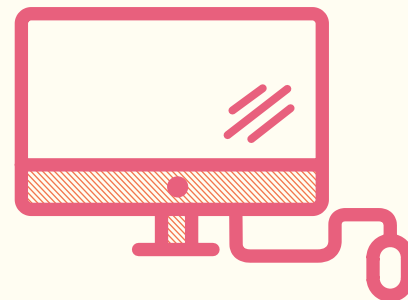


— **Eldi van Loggerenberg** —

3rd year medical student

"In many clinics, patients wait hours to be seen, often coming back for recurring problems. Unresolved issues or poor living standards within the community can cause or exacerbate health problems, burdening the healthcare system with problems it cannot always address directly.

Within clinics and hospitals, technology is often outdated, leading to repetitive, manual filling out of prescriptions and files. There is huge potential for electronic filing, appointment systems, prescriptions, and the accessing of information."



— **David Langford** —

3rd year medical student

"At the primary level, the number of patients presenting far outnumbers the number of adequately trained personnel. Chronic diseases are rife in South Africa and many patients are simply returning for medication refills. Separate queues for medication refills are employed in several hospitals and CHCs, an innovation that has helped the efficiency of the process.

Patients are not very knowledgeable about the key points of diseases. Many do not know any prevention strategies, or the difference between an antibiotic and an antiviral.

All of this stems from a business/client approach to medicine. This approach sees disease as a problem to be solved by the medical officer for remuneration without much sharing of information. A potential solution is publishing a public health "formulary" that includes the essential epidemiological and public health points that must be shared with the patient.

The medical profession is way too prestigious in South Africa. The high standards for entry into medical school lend themselves to elitism. At university we are taught family medicine principles and a biopsychosocial approach to medicine, but even this makes doctors seem magnanimous, giving gods who allow patients to present their problems for solutions given in an empathic, caring way. The balance of power allows doctors to make decisions without consultation, and without enough information-sharing to foster a good relationship."

— **Carla McKenzie** —

3rd year medical student

"Poor training and/or mobilisation of primary level healthcare workers. Community healthcare workers and primary care nurses, if able to access good training programmes, could manage a lot of the common health problems and contribute to a far more effective and streamlined health care system.

People who are from an area, who understand the area, and who are motivated by a connection to the area, should be targeted as possible community healthcare workers. Having responsibility over a certain portion of the community or a certain number of families might provide the motivation to creatively address health problems in the context in which they occur."

— **Matthew Murphy** —

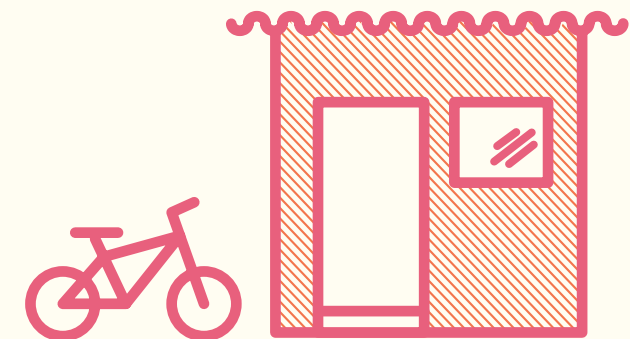
5th year medical student

"The health of our people is plagued by many difficulties. The quadruple burden of disease is extensive and seriously disables family and social structures. This impacts greatly on all walks of life, and potentiates the cycle of poverty.

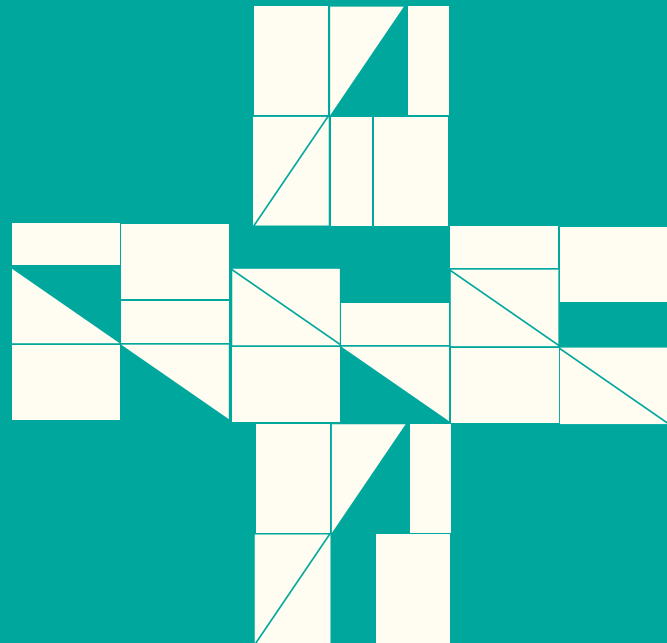
Our services aimed at remedying these burdens at times fall tragically short of the mark. While Primary Healthcare policy has been adopted, our main struggle lies in its implementation. Most health professionals want to work in bigger hospitals located in our cities, often to pursue academia but also because of personal and family lives.

As our skills shortages lie in rural areas, focus should be on training professionals from these areas. Healthcare should be provided by local people and in local languages. This fosters cultural competence and better quality therapeutic relationships.

Key to any major change in health in South Africa is empowerment of the population that passes through the health system. This applies at every level of care. Through our schools and clinics, there is great opportunity to reinstate a culture of self-efficacy and agency in our communities."



COLLABORATIVELY REIMAGINING HEALTHCARE



Better healthcare shouldn't be a dream. But a dream is where the possibility of better healthcare begins.



Close your eyes for a moment, and think about healthcare in South Africa and the continent beyond our borders. What images spring quickest to mind?

Perhaps a waiting room full of sick patients, some in wheelchairs, some sprawled on the floor, desperate to be seen, desperate to be healed. Perhaps you see a small rural clinic or a big state hospital, where overworked doctors and nurses battle against the odds to provide the quality of care that can add quality to life.

Now open your mind and think again, forgetting about obstacles and constraints and systems on the verge of collapse. Allow yourself to dream about the ideal healthcare system, a system that works to the best benefit of the patient, the healthcare worker, the community and the nation. What will it take to make this dream come true?

Often, we become entangled in the problems of the here and now. In our country, on our continent, these problems are vast and challenging. But the question remains: how will we achieve a healthcare system that cares for each individual in a dignified and appropriate way, while delivering the best treatment to free them from ill-health and disease?

We need to begin by imagining this ideal, because only then will we be able to focus our energies on transforming it into an everyday reality. We need to begin by thinking, dreaming and planning and working collaboratively.

Innovation calls for co-creation: people from all walks of life, sectors and disciplines uniting to develop bold solutions. In this section, we shine the spotlight on three successful projects that offer proof of the power of collaboration in healthcare: the Jabulani Rural Healthcare Foundation, Operation Sukama Sakhe and the Electronic Continuity of Care Record. All of these came about as a result of people dreaming collaboratively about how healthcare could be made better.

Let's never lose sight of what we can achieve, if we just open our eyes and our minds to ways of building better healthcare systems, and a healthier tomorrow for us all.

Africa's Inherent Innovative Potential

- Opinion of
Andrew Jack

South Africa may be better known for the export of diamonds, safaris and the fast food chain Nando's, but it is also the source of a pioneering model of health insurance taking hold around the world.

Vitality, part of the Discovery Health group, has recruited millions of clients in the UK, the US and more recently in Asia, offering incentives linked to healthy lifestyles including reduced gym subscriptions and vouchers for healthy food for those who attend check ups and undertake exercise.

It is one example of the growing trend of "reverse innovation" from emerging economies including countries in Africa, where spiralling demand for healthcare and the absence of solid funding or strong existing systems are helping spark a wide range of new approaches with potential to be applied elsewhere.

Africa has already demonstrated its capacity to leapfrog older "legacy" approaches in order to innovate. Mobile phone technology has been able to turn the continent's lag in fixed line infrastructure into an advantage, paving the way for Kenya's pioneering M-Pesa banking system, now spreading to many other countries.

In healthcare, the continent has proved an important ground for experimentation, in part reflecting its role on the "frontline" of many infectious diseases. In the 1980s, Tanzania was the testing ground for Karel Styblo's development of DOTS (Directly Observed Treatment Short-course), now the standard global approach for treating tuberculosis which has been since been applied from New York to New Delhi.

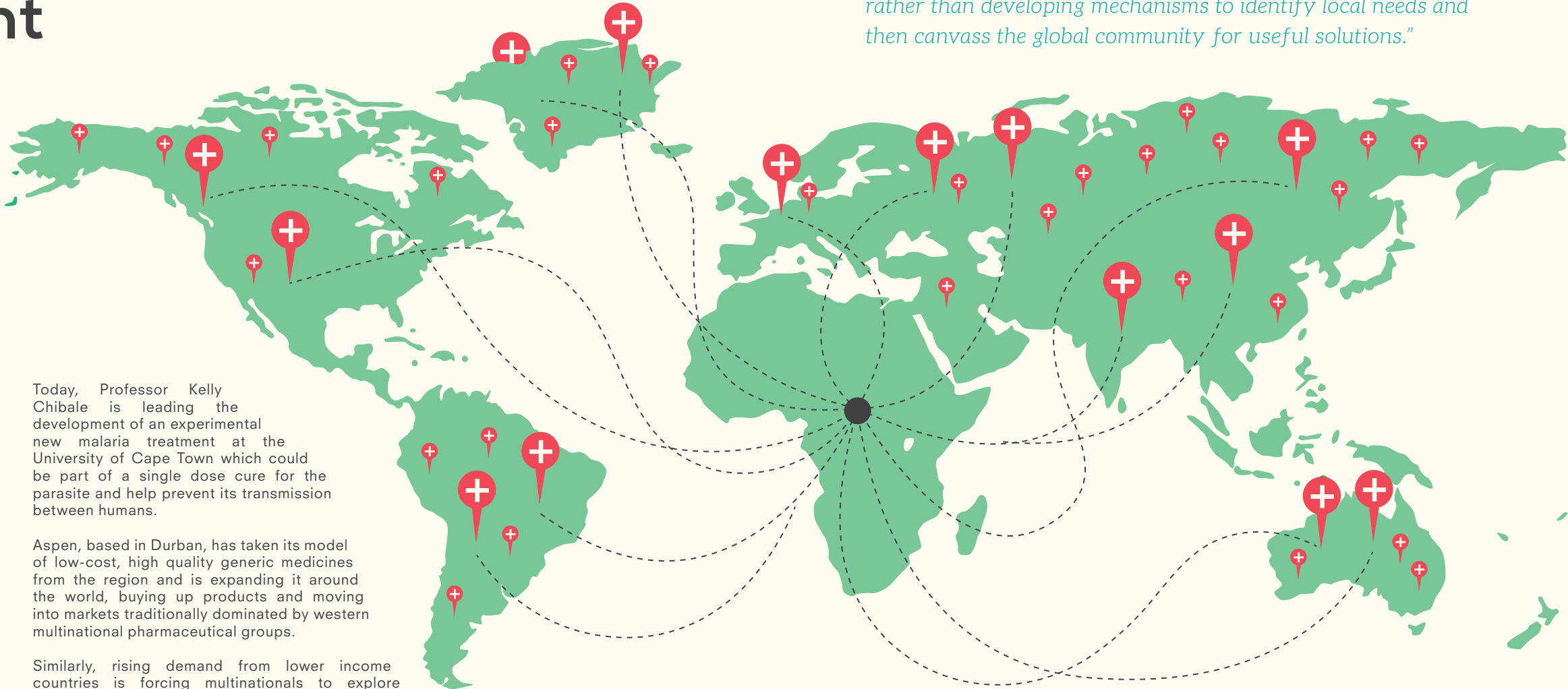
Today, Professor Kelly Chibale is leading the development of an experimental new malaria treatment at the University of Cape Town which could be part of a single dose cure for the parasite and help prevent its transmission between humans.

Aspen, based in Durban, has taken its model of low-cost, high quality generic medicines from the region and is expanding it around the world, buying up products and moving into markets traditionally dominated by western multinational pharmaceutical groups.

Similarly, rising demand from lower income countries is forcing multinationals to explore more relevant, affordable, robust and simple to use products with ultimately global relevance. As GE Healthcare found with low-cost electrocardiogram and ultrasound machines originally developed for India and China, there was also appetite in richer countries after the 2008 downturn.

For now, the reality is that there is much more innovation in healthcare commodities – from drugs and diagnostics to medical devices – than there is with human interventions and the broader systems required to enhance prevention, treatment and care. Overall, in the absence of greater and smarter investment, and against a backdrop of poverty and inequality, African healthcare outcomes remain poor.

"There is too often a focus on showcasing ideas seeking "users", rather than developing mechanisms to identify local needs and then canvass the global community for useful solutions."



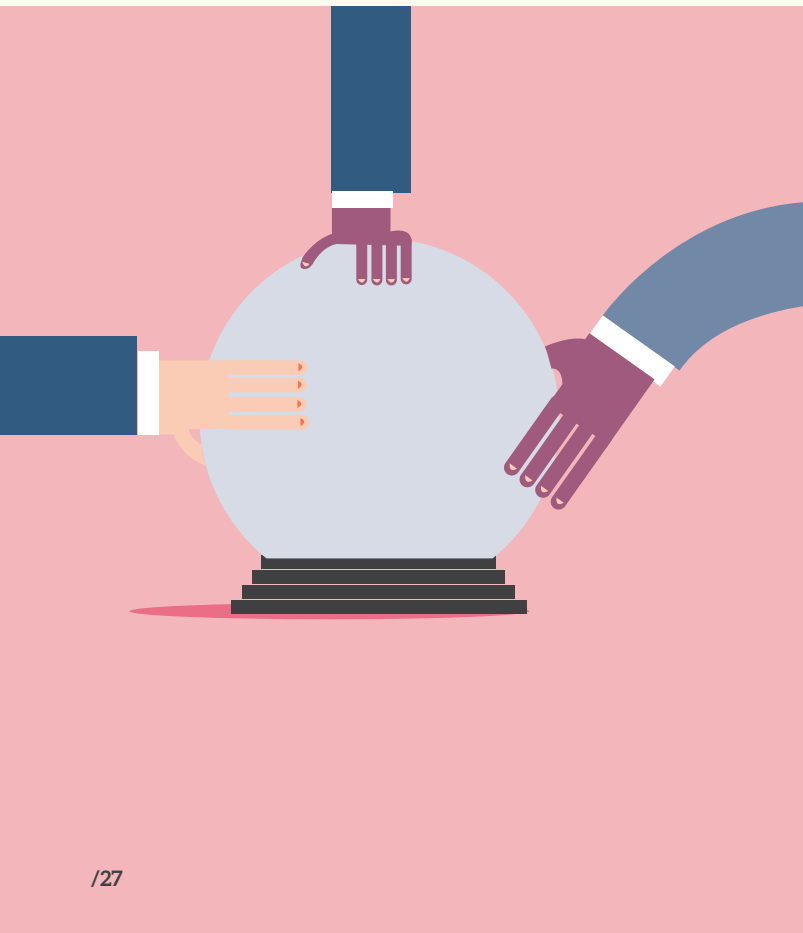
There is a welcome growth in conferences and competitions around innovation. But strip away the goodwill and the handful of "usual suspects", and there is still far more aspiration than proven, replicable projects. There is also too often a focus on showcasing ideas seeking "users", rather than developing mechanisms to identify local needs and then canvass the global community for useful solutions.

As the burden of chronic disease grows, the greatest demand in healthcare will be for more effective ways to change human behaviour, whether through incentives such as conditional cash payments or "task shifting" away from the small number with advanced medical qualifications to local staff and volunteers. For that, Africa has both pressing need and great potential to innovate. ■

Andrew is the pharmaceutical correspondent at the Financial Times in London

Daring to Reimagine

– The next generation’s vision for healthcare in South Africa



We asked medical students from the University of Cape Town to reimagine the healthcare system and share their vision for the future. **Here is what they had to say:**

A1 | “My dream is that the context in which people live would be a place that promotes health inherently. Affordable and easily accessible healthy food; safe living environments; all basic needs met; minimal and controlled infectious disease; accessible, stigma-free health information; smaller hospitals and bigger parks; safe and fulfilling working environments; more wellness and less disease; a thriving, and not sick, population.
My dream is that wellness would become a focus area of research, and that information about how one might improve one’s health – how one might thrive – would be as accessible, and considered equally important to information about preventing disease. My patients would be partners in their health.
My dream is that clinics and hospitals would be centres of excellence, efficiency and innovation tailored to the needs of the communities they serve; and with sufficient autonomy and resources to address local needs.
My dream is that ‘healthcare’ would be an activity that doesn’t happen exclusively at hospitals and clinics, but an ongoing activity undertaken by each individual in the home, community, school and workplace.” ■

Eldi van Loggenberg

3rd year medical student

A2 | “My vision is to place medical school at the same level as other professional degrees. This will make the medical profession more accessible to ‘ordinary’ students who are more likely to have an ‘ordinary’ relationship with patients. For this to occur we need more and better training facilities – an investment that government needs to make.
I imagine a referral system that allows treatment of the whole individual across a number of professions and enough auxiliary healthcare workers forming the base of the medical hierarchy.
I imagine a system in which medical therapy is tailored to the patient’s needs, in which doctors have enough time to get a detailed history, perform a thorough examination and treat the whole individual.
A healthcare system in which patients are not afraid of doctors, in which patients do not think of attending a physician as “uncomfortable”. I imagine a system in which the medical professional cares once again.” ■

David Langford

3rd year medical student

A3 | “For me our future healthcare system should be built based on equity of resources and equality of patient care. The gap between private and public is still very large and although it’s difficult to attain, I think our healthcare system should be striving towards every patient that enters a health facility receiving a quality of service one would expect in a private hospital. This should be irrespective of who they are and what their condition is.” ■

Melissa Joy Kube

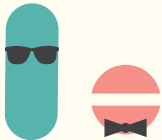
3rd year medical student

A4 | “My dream for healthcare is not so different than that put forward in the Alma Ata Declaration of 1978. However realising these lofty ideals actually requires a health system that functions through the work of individuals.
It is also important to see health workers through the biopsychosocial lens, as we do our patients. Through my experience in the system, albeit brief, I have seen so many healthcare workers reject Primary Healthcare theory or health promotion in favour of “just getting the job done.”
There surely is something wrong with a system where idealists are outnumbered by cynics. We must address the reasons why none of the potential proponents of PHC believe in it.
I dream of a system that has healthcare workers treating patients from their very own communities. I dream of a system where healthcare workers live in the community in which they work, a system where home based care and community participation is commonplace and our people become the masters of their fate. I dream of a system where there is no us and them.
Let’s localise healthcare so that friends are working together for health, rather than doctors treating patients. Only then will the greatest benefits be realised in individuals’ lives, through promotion and prevention, when the health provider truly wants the best for their patient.” ■

Matthew Murphy

5th year medical student

The Value of Collaboration



How ARV-Clubs demonstrate the importance of multi-stakeholder collaboration in implementing and sustaining innovation.

Many of us have a romantic image of a lone innovator, working through the night, alone in the laboratory, seeking a miracle cure. It's a nice idea, but it's not how real innovation works. In the real world, healthcare breakthroughs come through team effort, collaboration and cooperation.

One success story that illustrates the value of collaboration by multiple stakeholders is the antiretroviral therapy (ARV) Adherence Clubs. Originally developed by Médecins Sans Frontières at Ubuntu clinic in Khayelitsha, the ARV Adherence Club Model creates groups or clubs amongst patients who are healthy and have demonstrated adherence to their ARV treatment.

Each club has a bimonthly appointment to visit the clinic at a set time, and no club is bigger than 30 people. Enrolment is voluntary. And the model works: more than 300 ARV Clubs have already been formed, accommodating close to 9 000 patients. As patients spend less time at clinics, so the burden on healthcare workers is eased.

The project's success is based on a collective effort, on two levels. Firstly, the group effort of the club "members", and secondly on the part of the stakeholders who worked together to put the model in place.

"When you talk about health innovations, I think collaboration is generally the answer," says Dr Jannie Mouton, clinical manager of the HIV Treatment Programme at the Western Cape Department of Health. "There's hardly ever one entity that has it all, and that's how the ARV Clubs started, with the initial innovation from MSF, and then we at the Western Cape Health Department joined with other departments. We held joint forums and workshops where we sat and planned, and everybody brought something to the table. The collaboration for the ARV Clubs in the Western Cape was crucial. I don't think any one of us could have done this without the others."

Dr Mouton believes the ARV Adherence Club Model can – and should – be replicated and integrated to include all chronic diseases. "It's really paved the way for that," he says. "We just don't get chronic patients together like this, so we're looking at the ARV Clubs as a model for all chronic disease management."

He sees public-private partnerships becoming even more important in South Africa, in light of National Health Insurance. "We'll have to look at what resources are available in the communities, whether those are public or private, and work together to utilise those resources optimally," he says. "Look, one party can't always do what the other party does. We operate on different scales, we don't always have the same resources, and the models don't always suit everybody. But we can learn from each other and make that fit into our systems."



The ARV Clubs provide a telling metaphor for the importance of collaboration in healthcare innovation. Initially, the 30 patients who formed each club were on their own. They needed something – a mechanism of some sort – to bring them all together.

Looking at the bigger picture, Dr Mouton sees a similar need for healthcare innovators. "Everybody can contribute something," he says. "But the important thing is that a platform should be created for people to come together. We have so much information and knowledge and expertise, as MSF did with the ARV Clubs, but somebody has to create that space and bring everybody together. And we all have to be open to that." ■

Jabulani Rural Healthcare Foundation

- **Health Innovator**
Zithulele Hospital

Mqanduli, Eastern Cape

Photo: Taryn Gaunt

A Celebration of Care

Set in a landscape of rugged physical beauty, Zithulele District Hospital stands at the centre of an innovative campaign to improve healthcare and make a positive difference to the lives of patients and communities

The innovation:

The Jabulani Rural Healthcare Foundation is an NGO that complements and expands the work being done to serve communities by Zithulele Hospital in the Eastern Cape.

The lesson learned:

Partnerships drive innovation. Find people and organisations who share your vision, and they'll help you bring it to life.

Nature sings an elegy in the Eastern Cape, the heartland where Nelson Mandela was born and came home. Here, between the wild sea and the lilting hills, beneath a sky that shines with heavenly light, the land is given easily to lament. This is the poorest of South Africa's provinces, with many in the rural areas battling to get by on Government grants alone.

Almost 18 per cent of the population is HIV-positive, and there is a greater shortage of doctors and nurses here than anywhere else in the country. And yet, the Eastern Cape is a place of great spirit, heart, and dedication in the face of challenge, as you will find on a visit to a district hospital called Zithulele, just south of Coffee bay and the ocean-battered rock formation known as Hole in the Wall.

The name of the hospital means "The Quiet One" in isiXhosa, but the statistics tell a louder tale. Every year, the 147-bed facility treats some 27,500 patients and delivers 1,900 babies, and the multidisciplinary clinical team of 30 provides quality care to meet the needs of a community of 130,000.

It is a mammoth task, complicated by under-funding, under-staffing, and the rugged remoteness of the region, a 90-minute drive from the nearest town, Mthatha. But just as those waves keep pounding against the rock, so do the people of Zithulele persevere.

Rural healthcare calls for resourcefulness and creative thinking, and one model solution put in place by Zithulele is an NGO called the Jabulani Rural Healthcare Foundation. Jabulani is Zulu for celebrate or rejoice, an ideal that takes its cue from the calling and zeal that drew the husband and wife team of Dr Ben and Dr Taryn Gaunt to the former mission hospital in 2005.

Jabulani was established as a way of fulfilling and complementing that sense of mission, by easing some of the pressure on staff and bringing the broader community into the process of "helping the hospital function better", as Dr Ben Gaunt, Clinical Manager and one of the directors of the foundation, explains.

The foundation takes on a range of supporting chores, from purely practical matters such as procuring paper, to pre-packing and distributing antiretrovirals to surrounding clinics, to acting as a funding conduit for the purchasing of specialised wheelchairs for the therapy department.

"Rural healthcare is not going to be fixed overnight," says Dr Gaunt. "But we can make it a lot better. We have a dream, and more than that, we have a duty."

"There are a lot of needs that the Government simply can't meet," says Dr Gaunt. "It's often the small things that are the most frustrating. Jabulani plays a vital role by supporting the hospital, and acting as an umbrella organisation for people who want to make a difference."

That includes active partnerships with other NGOs working in the region, such as Philani Mentor Mothers (maternal and child health), Mercy Ships (primary eye care), the Donald Woods Foundation (extending the ARV programme) and Axium Education (working with high school learners).

The foundation employs about 30 people, among them counsellors, translators, and pharmacy assistants who act as an auxiliary corps at Zithulele, but the vision goes far beyond the basics of healthcare.

Jabulani runs a preschool, a library, and an early childhood development programme, and it is also addressing rampant unemployment in the area by providing micro-finance for aspirant entrepreneurs. There is a multi-function community centre that will soon include a maths and science lab, and plans for a "Healthy Village" project that will feature a park, gardens, and the planting of indigenous trees in communal spaces.

Jabulani, says Dr Gaunt, is making a positive difference to clinical staff, patients, and people in the community, and he credits the foundation for the important role it has played in helping Zithulele improve its services over the past eight years.

He also sings the praises of his "amazing" team, including Dr Karl and Dr Sally le Roux, the fellow husband-and-wife duo who helped to set up Jabulani.

The cost of setting up an NGO is relatively low, allowing a state hospital to tap into individual and corporate funding and bypass some of the logistical and bureaucratic constraints that stand in the way of improving and extending healthcare.

"Rural healthcare is not going to be fixed overnight," says Dr Gaunt. "But we can make it a lot better. We have a dream, and more than that, we have a duty." Here, at Zithulele in the Eastern Cape, that dream is being put into action, and the song being carried on the wind is one of rejoicing. ■

Operation Sukuma Sakhe

- Health Innovator

KwaZulu-Natal Office
of the Premier
& BroadReach Healthcare

KwaZulu- Natal

Poverty is the enemy of progress. It is a social ill that begets other ills, trapping its victims in a spiral of despair from which there is no easy escape. It wears people down, sapping their spirit, weakening their defenses with hunger and disease. In South Africa, according to a 2013 report by Statistics SA, more than a quarter of the population live below the food poverty line of R305 a month.

The figure is even more troubling in KwaZulu-Natal, the country’s most populous province. Here, 33 percent live in poverty, exacerbated by high unemployment and a high prevalence of HIV. And yet, this is an enemy that can be defeated, not so much through hand-outs, as through hands held out in support, upliftment, and the prospect of better days to come. Sukuma Sakhe.

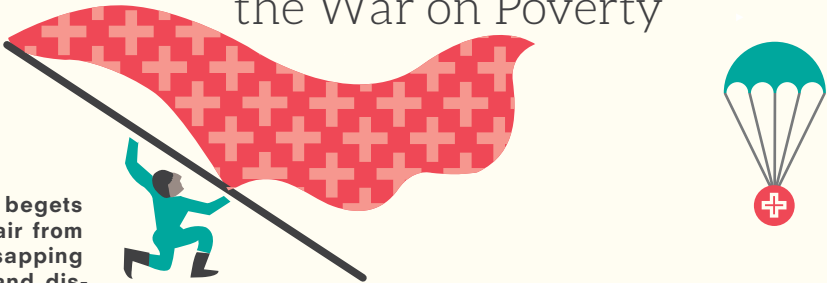
It means “Stand up and Build” in isiZulu, and it is the rallying-cry of an initiative that takes its cue from the National War on Poverty Campaign, launched by then-President Thabo Mbeki in his State of the Nation address in 2008.

Operation Sukuma Sakhe (OSS), is a regional spin-off of the campaign, seeking to unite political and traditional leadership, civil society, community-based organisations and communities themselves, in the quest to combat poverty and address its side-effects.

“It is not a programme,” stresses Dr Fikile Ndlovu, General Manager: HIV and AIDS, KwaZulu-Natal Office of the Premier. “It is an approach. It begins with the notion that poverty remains with us, but people can stand up and do something about it.”

Stand and Deliver

In one of South Africa’s poorest provinces, a unique model of multidisciplinary collaboration is helping to uplift, empower, and make a meaningful difference in the War on Poverty



Building on the military metaphor, Operation Sukuma Sakhe acts as a united front against poverty, with the battle being waged from “War Rooms” in municipal wards. These are bases for Community Development Workers, Community Caregivers, Youth Ambassadors and other field workers, who can be called on to meet the most basic needs and strive towards the highest ideals of poverty alleviation.

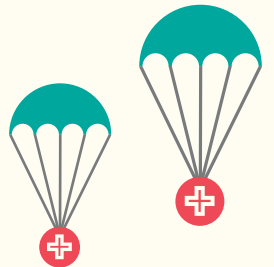
The need, explains Dr Ndlovu, may be as simple as a wheelchair for a bedridden patient in a rural area, or it may be an ambitious behaviour-changing intervention, such as the closing of taverns and the searching of schoolbags in an area where teenage alcohol and drug abuse was rife.

Operation Sukuma Sakhe tackles the root causes of poverty, as well as the symptoms, and its ultimate goal is to get people to take charge of their own escape from the spiral. “It’s amazing to see how people are able to motivate each other and to start thinking for themselves,” says Dr Ndlovu. “We encourage people living in poverty to garden, to work with their hands, to look at commercial ventures. We need to create the space for people to make a change in their lives.”

Dr Veni Naidu, from BroadReach Healthcare, a Social Partner of Operation Sukuma Sakhe, speaks of the “path of graduation” from poverty to independence.

The innovation:
Operation Sukuma Sakhe, based in KwaZulu-Natal, is a united front against poverty and illness, bringing Government, Municipalities, NGOs and communities together to meet basic needs and strive towards the highest ideals of poverty alleviation.

The lesson learned:
Big challenges call for bold initiatives, and bold initiatives call for integrated action. No single individual or organisation can hope to overcome a foe as big as poverty on their own. But by joining forces, and by organising their campaign along military lines, with clear strategy, strict discipline, and strength of purpose, many, together, can win the battles.



“Building on the military metaphor, Sukuma Sakhe acts as a united front against poverty, with the battle being waged from “War Rooms” in municipal wards.”

“There is documented evidence of people improving their circumstances to be gainfully employed,” says Dr Naidu. “There is a bursary scheme from the KwaZulu-Natal Premier’s Office to worthy recipients. Community Caregivers are provided career opportunities to further their studies and to go on to qualify as healthcare and auxiliary social workers.”

In turn, these graduates from poverty serve the community and become part of the greater campaign to win the war.

“Sukuma Sakhe is a large diverse family, where everyone has a specific role to play,” explains Dr Naidu. “We advocate for working together, pooling resources and working towards the same goal.”

This integrated, multidisciplinary approach calls for strong support from Government and Province, working across departments to coordinate and deliver services according to need. But it also calls for methodical reporting from the field, where community workers and Ward Councillors provide the intelligence on poverty levels and urgent cases of need.

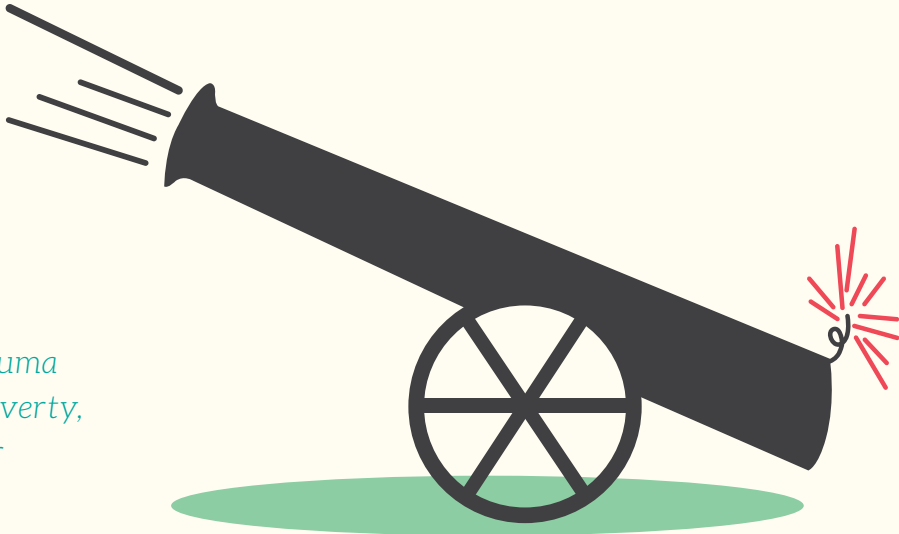


Already, under Operation Sukuma Sakhe, more than 2,000 Community Health Workers have been trained in primary health skills, including screening for HIV and TB, monitoring early childhood development, checking adherence to ARV regimes, and performing home-based care.

While Operation Sukuma Sakhe fights the War on Poverty from the top, the secret of its success is that it is led from the field, by the communities it aims to serve.

“The community leads the response and identifies their needs,” says Dr Naidu. “Then the service providers, such as Government, Local Municipalities, NGOs and the communities themselves, deliver the services required to move individuals and households to independence.”

Fighting the symptoms and causes of poverty, in a nation as unequal as South Africa, may seem like a lost cause. But in one of the country’s poorest provinces, Operation Sukuma Sakhe is proving that people who work together can win the small, everyday battles that will eventually turn the tide against the war. ■



Electronic Continuity of Care Record

- **Health Innovator**
Western Cape
Department of Health

A Record Achievement

Faced with the challenge of too much paper and too much red tape, a multidisciplinary team at the Western Cape Department of Health came up with a 21st Century solution that is helping to ease the burden on clinicians and guide patients on their journey of care

The innovation:
The eCCR (Electronic Continuity of Care Record) is a software application designed to integrate and digitize medical records for patients being discharged from public health facilities.

The lesson learned:
The first challenge in innovation is to articulate the need. People don't always know what their needs are, but once you have crystallised and defined these needs, it is easier to begin working on a solution.

"The eCCR provides an abstract of the patient's stay in hospital, making it a resource of great value to role-players across the spectrum of care."

There is a hospital in Cape Town, tucked into a bend just off Nelson Mandela Boulevard, that stands at the very heart of innovation in healthcare, not just in South Africa but in the world. Groote Schuur Hospital, with its stately classical façade set against the crags of Table Mountain, was the site of the first human heart transplant, performed by Dr Christiaan Barnard and his team over nine grueling hours on December 3, 1967.

How appropriate, then, that the hospital continues to set the pulse of progress in patient care, as the pilot site for a project that is helping to bring clinical record-keeping into the 21st Century. It's called the eCCR, or Electronic Continuity of Care Record, a groundbreaking and easy-to-use software application developed by the Western Cape Department of Health, as part of its "patient-centred" Healthcare 2030 strategic plan. Healthcare takes its cue from the needs of the patient, and the clinician knows that every milestone on the quest for healing must be meticulously noted in dispatches.

Medical records are an integral element of sound professional practice, and one of the most vital documents is the Continuity of Care Record, which tracks a patient's progress through the system and allows for seamless transfer to other healthcare providers. But poor record-keeping is rife in South Africa, and can be a major frustration for those working in public healthcare. "It would drive me bonkers when I received a bad discharge summary, and I had to start from scratch to figure out what the patient's needs were," says Dr Robin Dyers, Registrar in Public Health at Stellenbosch University and the Health Impact Assessment Unit of the Western Cape Department of Health.

As the coordinator and champion of the multidisciplinary eCCR development team, he points to research that shows that as few as 25 per cent of TB patients who are discharged from hospital actually arrive in primary healthcare, because of poor communication between the various levels of care. The sheer weight of red tape adds to the burden. Discharging a child with TB from a hospital calls for a clinician to complete up to 10 different forms, says Dr Dyers.

Another headache for the healthcare professional is missing or inaccurate ICD (International Classification of Disease) codes, which are required for insured and uninsured patients discharged from public hospitals in the Western Cape.

The solution: a simple and intuitive computer application that integrates and standardises all the necessary forms, making it easy to capture ICD codes, prescriptions, and other data prior to discharge.

Developed by software programmer Shane du Plooy, who gave up many lunch-hours at the Western Cape Department of Health to work on the application, the eCCR provides an abstract of the patient's stay in hospital, making it a resource of great value to role-players across the spectrum of care. But that mandate proved to be the greatest challenge in the development of the program, says Shane.

From Pharmacy to Finance, from ward clerks to clinicians, from hospital managers to Health Impact Assessment directors, there was a wide range of stakeholders whose needs and concerns had to be accommodated.

There were issues of ethics and data security to be considered, as well as compliance with national health standards and the funding frameworks of major health programmes such as HIV and TB. But in the delicate process of give-and-take, the guiding principle was always: patient first.

"The eCCR provides the patient with a comprehensive summary of their stay in hospital," explains Shane, "as well as a description of the journey to achieving a desired health outcome."

For clinicians, a big part of the value of the eCCR database is that it can be used to audit the quality of care, and draw up disease profiles. The program is intuitive enough to require only a 20-minute orientation for those who will use it in the field.

And initial results, at the Groote Schuur Department of Internal Medicine, have been very encouraging; with primary discharge ICD code coverage going up from 10% to 100% for a sample of 40 records. Since the eCCR software is generic and scalable, it could easily be implemented at other healthcare facilities that have access to computers and printers.

Even in the age of smartphones and instant access to information, public healthcare is still a long way away from the ideal of the "paperless hospital". But by applying their minds and energies to a practical electronic solution, the team at the Western Cape Department of Health has been able to prove that technology and knowledge can help ease the malaise of too much paper, bound up in too much red tape. ■

Reimagining the Future of Healthcare in Africa



The ultimate expression of innovation is innovation of meaning

Reimagining the future of healthcare challenges us to think differently about health and care, to create a vision for the forms of healthcare experiences we should all expect to produce and to receive.

The need to reimagine current healthcare practices and service models globally is driven by monumental challenges facing humanity, including: ageing populations with complex chronic health needs, spiralling costs of healthcare, new biotechnologies and information technologies, as well as the environmental and ecological stresses on health that will result from climate changes.

The most powerful innovations will come from reframing how we think about healthcare and from disrupting the rules of the game. For instance, shifting the overall goal from 'healthcare as a service' to 'individuals managing their own wellbeing' or changing who we define as a healthcare worker.

We already have fine examples across Africa of how new cadres of trained community health workers using mobile communications technology and point-of-care diagnostics can save the lives of mothers and children and provide the crucial link between poor people and institution-based healthcare.

Elon Musk, the South African-born contemporary pioneer, has shown how it is possible to make aspiring visions of the future become realities. He is successfully innovating radical reinventions of the car (Tesla), renewable energy (SolarCity), space exploration (Space-X) and the concept of travel (Hyperloop).

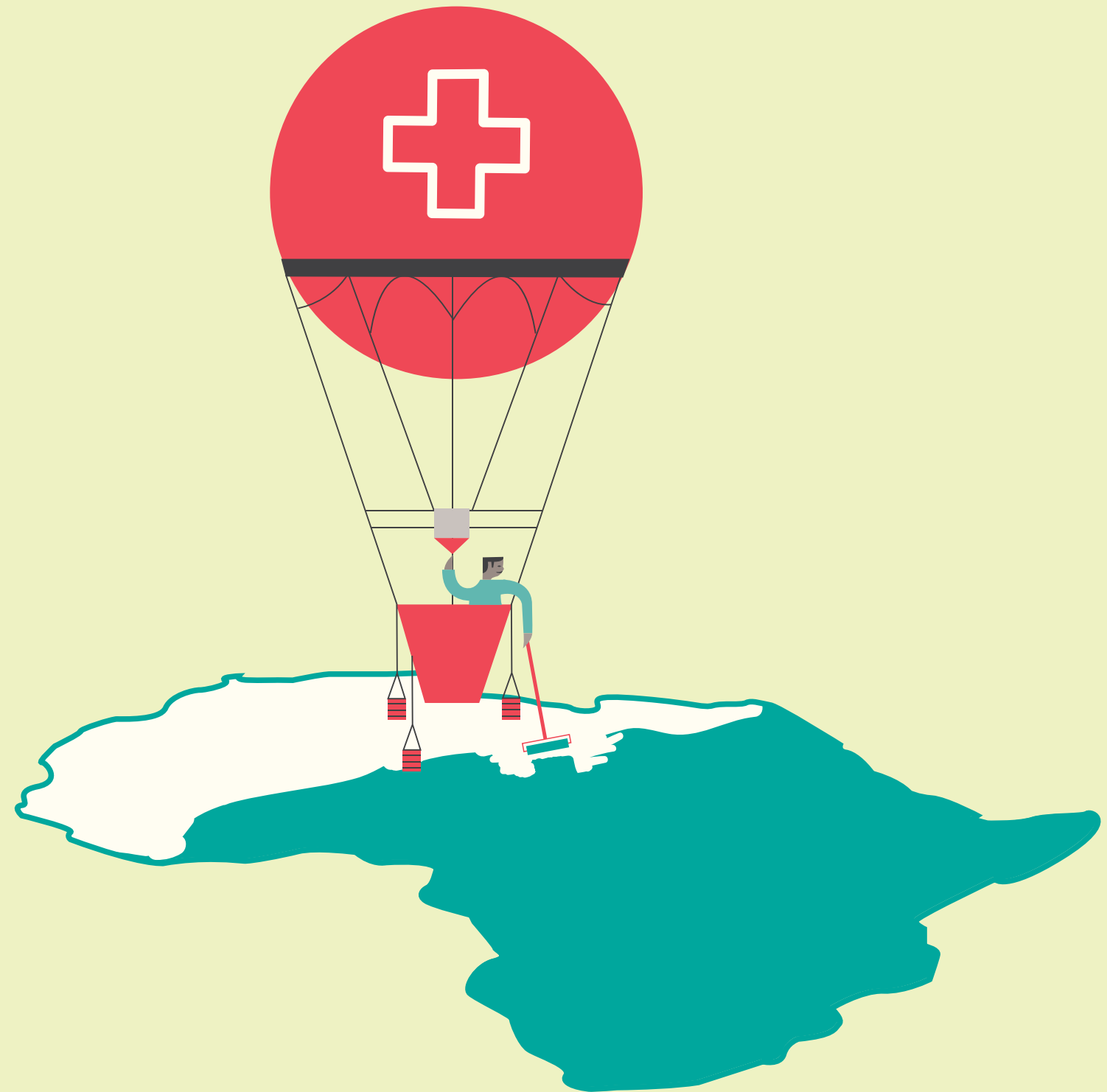
To innovate successfully, Elon believes that we have to go back to fundamental universal principles such as the law of thermodynamics. Rather than trying to incrementally improve on other people's historical inventions, fundamental understanding takes us back to all things being possible (within the constraints of nature).

So what fundamental principle could we start with to innovate healthcare? Could it be the deep societal value of 'caring' that we all identify as a basic human need?

Caring can be a core benefit of healthcare - for both the giver and the receiver of care. Innovations that enable us (people in the healthcare system) to 'care more' or to 'provide better care' could bring about some of the biggest disruptions in how healthcare is delivered and experienced. Caring is inclusive.

So to innovate more inclusive healthcare, we should be imagining new and better ways to include the 'social technology' of caring into the mix of other technology innovations. In this way, we will be able to make better use of information, deliver smarter treatments, make healthcare more affordable, and connect more people to the health services, information and care that they need. ■

Shaun is an associate at the Bertha Centre for Social Innovation



Design Thinking: an innovative approach to achieving the aims of Primary Healthcare in South Africa?

In 2010 the South African Department of Health called for a new strategy to achieve the aim of a long and healthy life for all South Africans through the overhaul of primary health care.

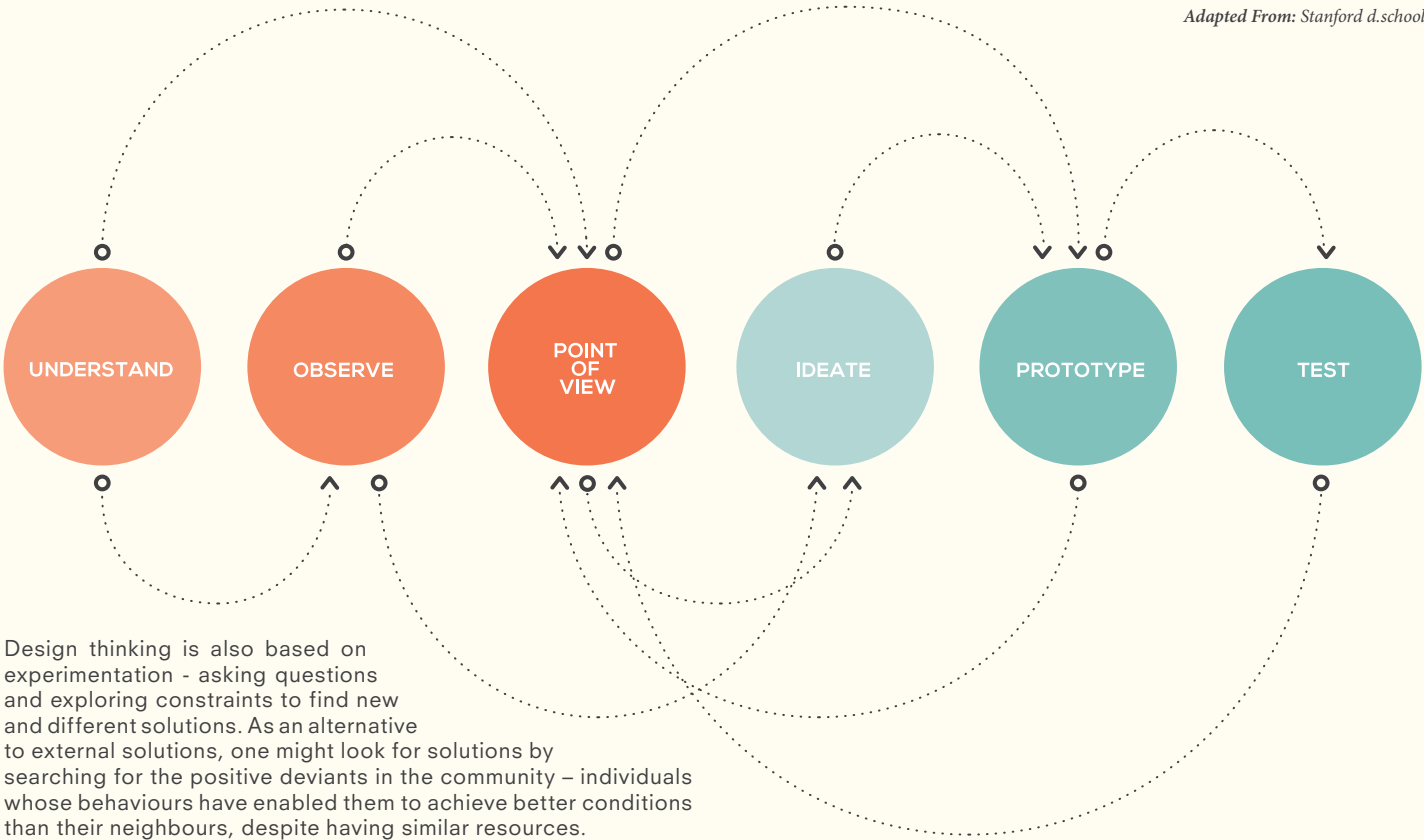
In 2010 the South African Department of Health called for a new strategy to achieve the aim of a long and healthy life for all South Africans through the overhaul of primary healthcare. This strategy has three key areas of focus: to strengthen the district health system; to focus on population-based health achieved through outreach teams, community health workers and community participation; and to emphasise and address the social determinants of health.

However, despite an emphasis on ‘outreach’, aspects of these recommendations seem to be rigid, top-down, ‘one-size-fits-all’ strategies. Considering the heterogeneous South African health context, policies should emerge from the ground-up and be adaptive to the needs of each health community. Is it reasonable to expect greater patient or community satisfaction and participation, and improved health outcomes, without immersion in the context of particular communities or community involvement in policy development?

Design thinking might offer an alternative strategy for problem solving. Because it is a people-first, tailored approach, it could be a promising complimentary strategy for achieving the goals embodied in primary care principles.

The term ‘design thinking’ emerged when IDEO, a global product design firm, started working on projects outside the traditional field of design. Their work shifted from the design of consumer products to the design of consumer experience. Design thinking aims to be human-centered, integrating the needs of people, the possibilities of technology, and the requirements for successful business practice.

The essence of this approach is to start with empathy: the capacity to recognise how others feel, and imagine the world from multiple perspectives. In this way, solutions might be imagined that are inherently desirable and meet the user’s real needs.



Design thinking is also based on experimentation - asking questions and exploring constraints to find new and different solutions. As an alternative to external solutions, one might look for solutions by searching for the positive deviants in the community – individuals whose behaviours have enabled them to achieve better conditions than their neighbours, despite having similar resources.

At its core, contrary to current top-down approaches to developing policy and solutions, design thinking allows solutions to emerge from the ground-up.

One example of the values of design thinking is the Aravind Eye Care System in India. Established in 1976 by retired ophthalmologist Dr Govindappa Venkataswamy, the system is guided by the belief that ‘quality is for everyone’. Aravind aims to reduce unnecessary blindness caused by cataracts through high-quality ophthalmic care, for the rich and poor and especially for those in rural communities.

The Aravind Eye Care System used two constraints as catalysts for innovation: the poverty and inaccessibility of its rural clientele and its own limited access to expensive tools. Instead of using imported intraocular lenses at \$200 a pair, which would limit the number of patients that could be helped, Aravind built its own manufacturing plant in the basement of one of its hospitals, producing lenses at \$4 a pair by using relatively inexpensive technology. The Aravind system illustrates how elements of design thinking achieved scalability and affordability, translating into millions of people gaining access to quality care.

Design thinking is an emerging theory and is not easy to define. Applied practically, it has produced promising outcomes in many settings. It might offer a useful shift in perspective in approaching pressing health challenges in South Africa, in developing solutions and implementing policy.

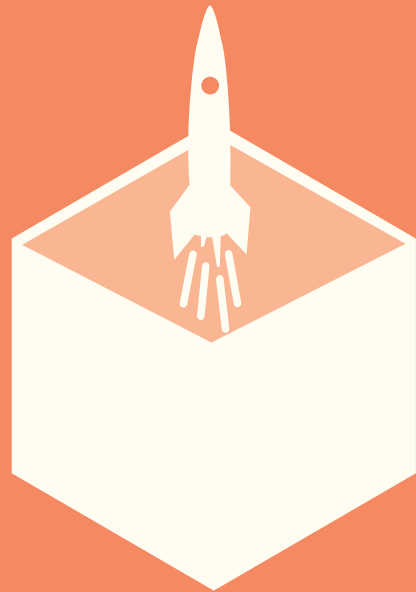
In our context, a multitude of policies have failed to achieve desired health outcomes. Implementation failure is often blamed.

Kautzkyi and Tollmani eloquently state in the 2008 South African Health Review: “In order to salvage today’s over-bureaucratized and rigid primary care service, an intense effort to develop new models and approaches to PHC delivery is warranted. It will require the best minds in the health sector to refocus peripherally, developing innovative health system designs, integrated district-based health worker training initiatives, and experimental work at scale.”

Using design thinking as an approach to problem-solving might be one way of responding to this challenge. ■

This article has been adapted from Eldi’s MBChB II research report.

TRANSFORMING THE SYSTEM FROM THE INSIDE-OUT



Africa's health workers are a force to be reckoned with.

These individuals dedicate their lives to serving their patients and communities. However as noble as this seems, performing the simplest tasks of delivering healthcare can be extremely arduous in Africa due to shortages in resources, poor management and failures of the system.

Under these conditions, it is easy to become demotivated and demoralised. But yet, there are health workers who endure despite the challenging circumstances and rise above the odds to deliver to their patients the best possible care.

As if this is not commendable enough, there are those who go beyond the call of duty, using their deep medical knowledge and experience to develop innovative solutions that can provide better care. These solutions can not only empower, enhance and save lives of patients, but also lead to greater efficiency and cost-reductions.

The healthcare system is more than hospitals and buildings. It is the people, the health workers and patients, who are the system. In this section you will read about Undine, Jane, Salahuddien, Clare and Dean, all extraordinary individuals who are transforming healthcare from within. They are the real super heroes, the rock stars and the leaders. They were not content to merely accept the status quo of care delivery but they innovated to address the needs of their patients and communities in better ways

We are showcasing only 5-examples, but how many more health workers like these are there across the continent? Health workers with creative ideas for delivering care better. What could happen if we as citizens and experts collaborated, supported and enabled them to convert their ideas into action?

The potential for healthcare can be found within the system. We are the system. No longer do we need to wait. Let us bring about positive change from the inside out.

Make Frontline Innovation Visible & Change the System from the Inside Out

- **Opinion of**
Anjali Sastry



Across the planet, every day, nurses, doctors, and their colleagues wrestle with the challenge of delivering healthcare to those who most need it. Many agree that to enable improvement, we need to learn what works and support innovation.

There's wide consensus that management and business tools could help. Organisations in low-resource settings could benefit from practical assistance in marketing, operations, change management, design, technology use, finance, strategy, and systems. My own experience bears this out.

Dozens of improvement projects that my collaborators and I conducted in Africa and Asia via MIT Sloan School of Management's GlobalHealth Lab reveal that the right management approaches can improve efficiency and effectiveness of clinics, hospitals, and programmes that serve the poor.

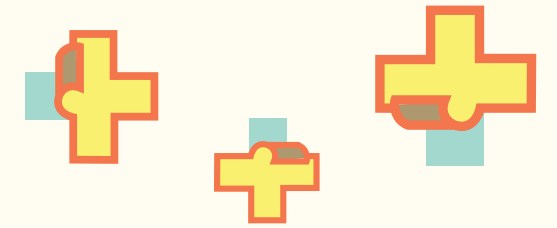
But my field experience reveals more than gaps in providers' management toolkits. Collaborating closely with frontline workers has taught me much about the work of healthcare innovation. I've learned that frontline workers make flawed healthcare systems work for patients by improvising practical new solutions. But because this work is underappreciated, we fail to understand - and to harness - all that could enable or stymie needed change.

"The resulting recognition of frontline workers' efforts could help shore up their motivation and engagement. Acknowledging local innovations could encourage new leaders and change agents to emerge."

So, with an eye to enabling us to better appreciate both needs and opportunities in frontline innovation, I'd like to share my inventory of some of the everyday invisible work involved in serving the neediest:

- /devising creative ways to address patient needs, including by leveraging or repurposing existing services or infrastructure;
- /finding and using information about patients and the community, including non-medical aspects, to enable better care;
- /gathering data from the organisation's daily operations to find opportunities for improvement or to make the case for change;
- /designing new materials, systems, processes, and flows for patients or staff, to better manage care and operations;
- /fixing things that aren't working and crafting workarounds for broken or missing inputs;
- /building internal coalitions and momentum to enable change or improvement;
- /advocating for missing resources;
- /organising, rationalising, and managing physical and electronic spaces;
- /building supportive external relationships;
- /learning from colleagues elsewhere tackling similar challenges;
- /and, teaching others and sharing what they have learned.

If much of the work that people do to make the system better goes unrecognised, efforts to improve performance are inherently invisible and inevitably undervalued. Are we asking for healthcare innovation, yet failing to appreciate and support what people are already doing? Are we extolling the virtues of new devices, drugs, and software at the cost of overlooking every other aspect of healthcare delivery innovation?



I've been thinking about what it would mean to take seriously the invisible, innovative work of healthcare delivery.

We'd build novel two-way collaborations with frontline workers. We'd commit resources to documenting and examining what works. More prospectively-designed research is needed, for sure, but we need to first find and invent the new ideas. Let's harness action research, collaborative action learning, natural experiments, case studies, ethnographies, and more. Videographers, journalists, writers, and masters of social media could make valuable and enriching contributions to the documentation. Systems thinkers and policy visionaries could add needed contextualisation and analysis to ensure that new ideas are aligned with health and development goals.

The resulting recognition of frontline workers' efforts could help shore up their motivation and engagement. Acknowledging local innovations could encourage new leaders and change agents to emerge.

But this new movement could do much more: It could equip innovators - leaders, administrators, reception staff, aides, physicians - to define and label the practices they co-develop or discover.

Academics, educators, and professional experts could help establish results, then connect high-impact innovations to existing knowledge, management training, and communities of practice. This could allow innovators to locate their own improvements in a broader set of professional frameworks and methods. Innovators could tap into others' experience and knowhow, contribute to shared knowledge, and help advance techniques across domains and settings.

Over the years, professional practice in software development, manufacturing, and clinical care benefited from such development. Imagine the gains if we could do the same. Frontline healthcare workers' innovations could be codified, disseminated, and improved upon, and we could finally follow our own advice by learning from each other and facilitating innovation that is grounded in frontline realities. ■

Anjali is a senior lecturer at the MIT Sloan School of Management and the Director of the Groundwork Initiative and GlobalHealth Lab

Parents Guidance Centre

- **Health Innovator**

Undine 'Mmatumelo' Reuter

Gelukspan, North West Province South Africa

Hope, Faith, & Ability

In one of the poorest rural areas in the country, a programme to shift perceptions and unleash potential is making a positive difference for people with disabilities

Hope is a small step in the right direction, the start of a long journey towards a brighter future. And where there is hope, in the small village of Gelukspan, in the district of Greater Mafikeng in North West province, there is a “University of Life” for children, youth, and families learning to cope with Cerebral Palsy and other disabilities.

That’s what Undine Rauter likes to call the Parents Guidance Centre (PGC), at the Gelukspan District Hospital. Here, in a quiet rural area afflicted by drought and poverty, Undine found her calling. A sports therapist and physiotherapist from Northwest Germany, she arrived in South Africa at a time of unrest and chaos, on the crux of the transition to democracy.

It was April, 1993, just days after the assassination of Chris Hani. At the request of a missionary group, she had come to see a 150-bed institution for people with disabilities, where there was a desperate need for physiotherapy. Shocked and overwhelmed by what she saw, she decided to stay.

Today, Undine is known in the area as Mmatumelo, which is Setswana for Mother of Faith. But faith and hope alone have not been enough to fulfil her mission of making a difference. The slogan of the Parents Guidance Centre, says Undine, who is fluent in Setswana, is “CP ga se boloi”. It means: Cerebral Palsy is not witchcraft.

The centre confronts and challenges age-old perceptions that disability is a curse, by providing interactive therapy and educational programmes that aim to inspire, uplift, and empower. Poor rural children with severe disabilities are among the most marginalised groups of people living in South Africa, says Undine. District-based projects, focussing on training and education in the local language, can make a substantial difference to their quality of life.

The innovation:

The Parents Guidance Centre is a “University of Life”, set up to challenge myths and misperceptions surrounding disability, and uplift and empower youth and adults through counselling, therapy, and vocational training.

The lesson learned:

Innovation in healthcare is a marathon, not a sprint. Take it step by step, get to understand the people and their challenges, and budget your strength. Because the road is long and hard, and you need to be strong.

“All our programmes emphasise life-skills, understanding, and coping. That’s why we call the Parents Guidance Centre the University of Life. It is a humble and humbling place where we see positive proof that people can and do change.”

Working with a team of Physiotherapy Assistants and community-based volunteers, including parents who run disability centres in their own villages, Undine has shifted the focus from institutionalisation to integration and inclusion.

That is a long-term ideal, but it’s not for nothing that the Parents Guidance Centre is also known by the Setswana name Reakgona, which means “we can”.

The centre runs practical courses for mothers and caregivers, helping them to accept, bond with, and stimulate the development of their children.

Disability, says Undine, is not seen as something to be pitied, and its limitations are not seen as an excuse. Through counselling, therapy, vocational training, and leadership and youth empowerment workshops, the centre opens doors and changes lives.

The simple ability to communicate, using a laptop computer, or to motor around on an electrical wheelchair, can be a breakthrough for young people who would once have been bed-ridden and alienated from family and community.

Undine speaks with a motherly pride, too, of an intervention that introduced one of the toughest, most demanding sporting codes to Gelukspan. Wheelchair basketball.

The Gelukspan Basketball Team, known as GBT Mongoose, has produced players for the national squad, and once famously recovered from being 12 points behind to win a game. But the real triumph for Undine has been seeing the “graduates” of her University of Life go on to take charge of their own destiny.

The centre has been able to place children with Cerebral Palsy in school, and employ people with disabilities in its busy wheelchair workshop, where the life-altering innovations have included the provision of customised prone trolleys for a group of young paraplegics. Given access to services, including long-term study and the opportunity to work, severely disabled children have a better chance of becoming self-sufficient adults who can contribute to society and become breadwinners for their families, says Undine.

The centre runs on a modest annual budget of R250,000 which covers training and incremental upgrades of services and facilities. But there is wealth here too, in the shared learning, the step-by-step progress, and the relentless determination to prove that disability does not have to equate to inability.

“People with disabilities motivate and inspire me,” says Undine. “When I see what they can do and what they can overcome, I always ask myself, why are you complaining? They teach me to love and be positive. They teach me to hope.”

For Mmatumelo, the Mother of Faith, who came to visit and chose to stay, lessons learned are lessons given in return. ■

“People with disabilities motivate and inspire me,” says Undine.

“They teach me to love and be positive. They teach me to hope.”

Undine Reuter

Image Credit: Undine Reuter



Breathe Easy

- **Health Innovator**

Jane Booth

Red Cross Children's Hospital, Cape Town

The little girl sits up in her hospital bed, wide-eyed, a smile playing across her face. She reaches out to touch her baby doll, dressed, just like she is, in pink. Around her neck, the child wears a white band, holding in place the silicon device that is helping her breathe. A tracheostomy tube.

Of course, the doll wears one too; they've been through a lot together. But today, they're about to leave the ward at the Red Cross War Memorial Children's Hospital in Cape Town, and head for the one place every child deserves to be. Home. Cared and nursed for in the heart of the family, she will have the best chance of recovering and growing strong. And her parents, too, will be able to breathe easy.

That's the premise of a groundbreaking initiative run by Paediatric Nurse Jane Booth and her dedicated team at the Red Cross, where about 50 patients are admitted for tracheostomies every year.

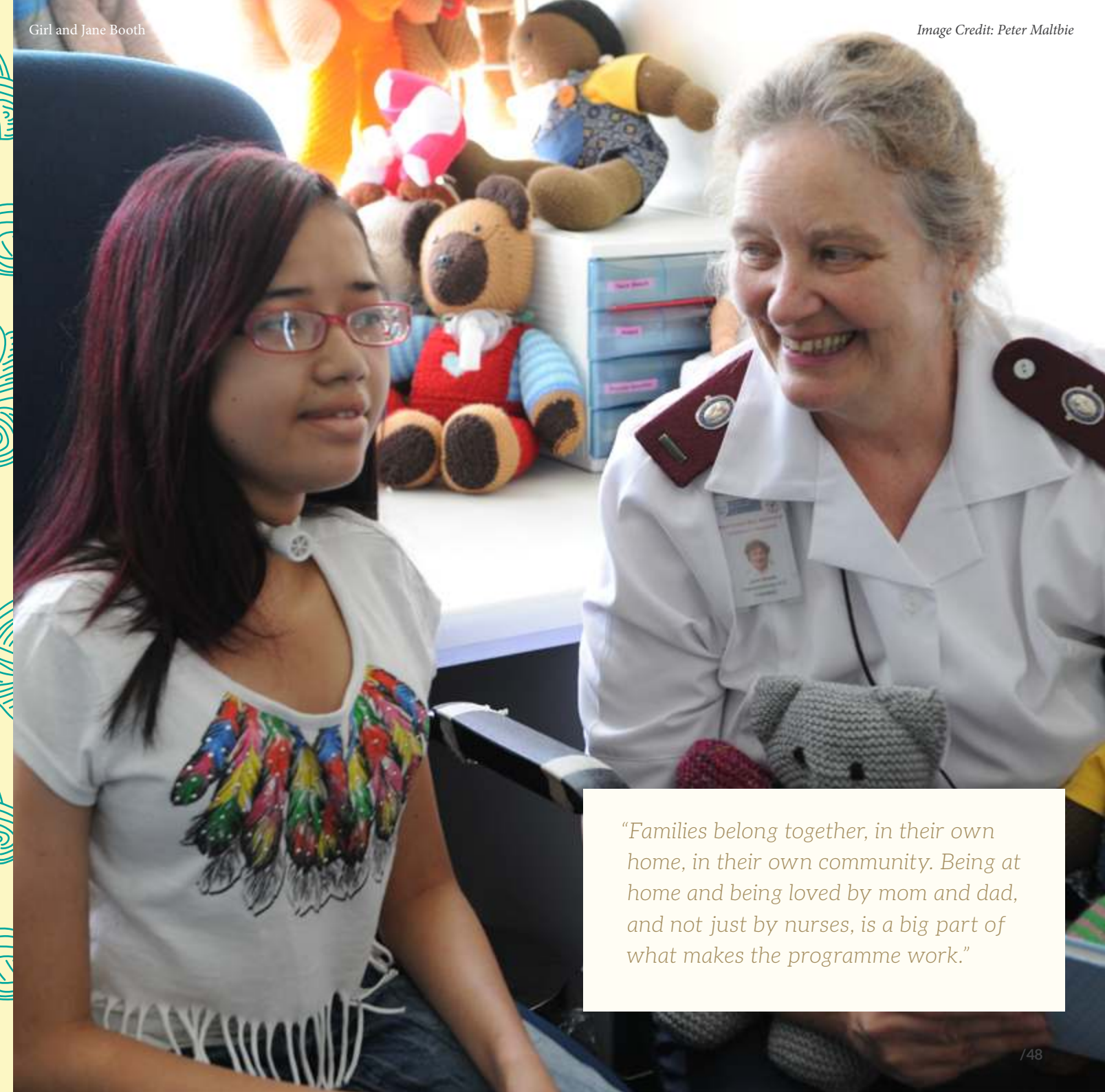
Home is Where the Heart Is

How a groundbreaking programme, developed by a team of experts at the Red Cross War Memorial Children's Hospital, is helping young tracheostomy and ventilation patients and their parents breathe a little easier

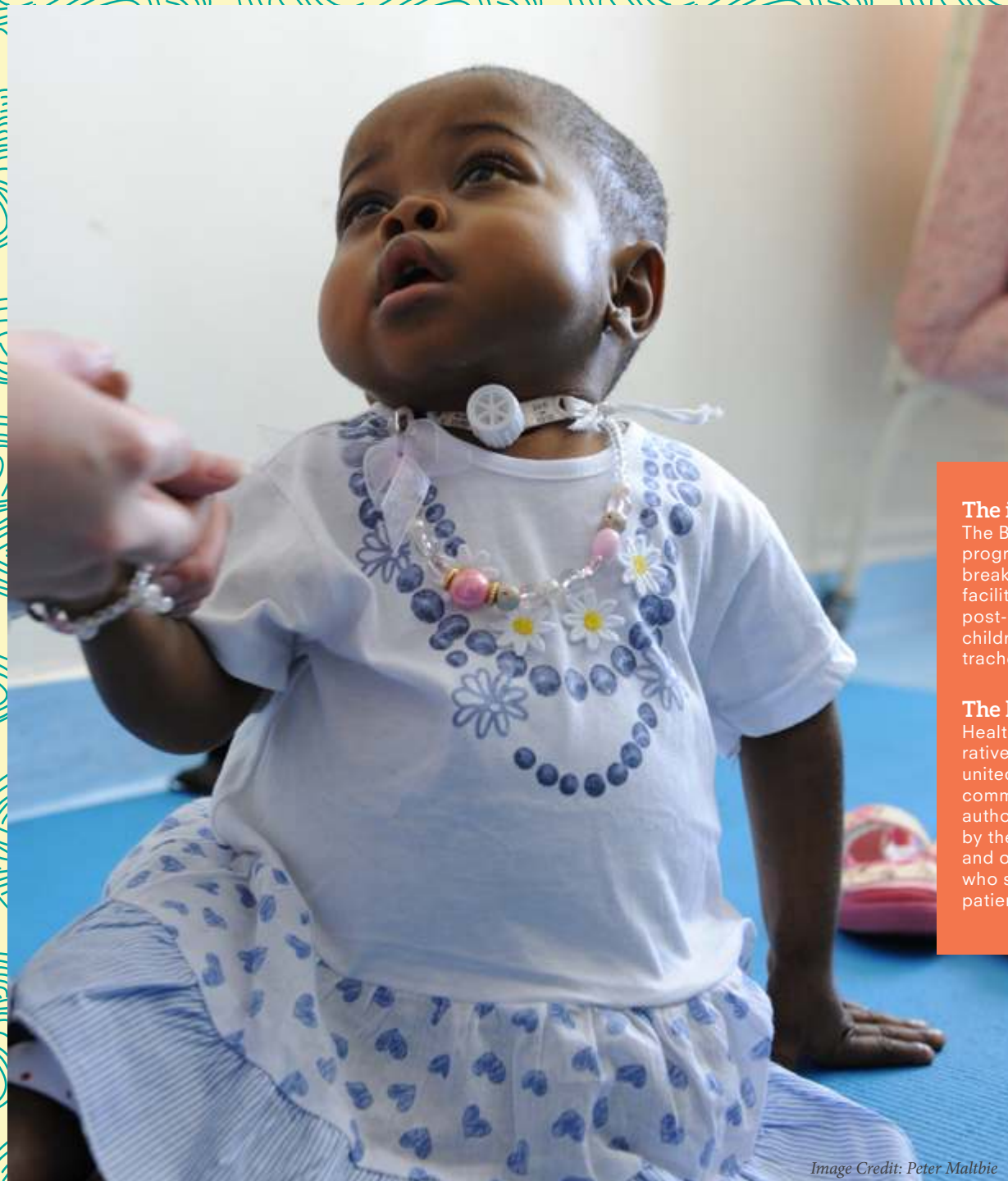
Traditionally, these children with chronic conditions would have stayed in hospital indefinitely for post-operative care, including the daily changing of tracheostomy tubes by medical staff.

But the Breatheasy programme, founded by Sister Booth, Professors Louis Reynolds and Max Klein, and social worker Sheila Berger in 1989, puts the power to help things get better in the hands of the parents. The news that a child is going to need a tracheostomy - a small incision in the throat, followed by the insertion of a curved tube into the windpipe, to relieve an obstruction, clear the airway or for ventilation - can be devastating.

But Sister Booth, a mother herself, puts it in perspective: "Doctor," she always tells parents, "is going to save your child's life. And you don't have to worry, because I'm going to be your helper."



"Families belong together, in their own home, in their own community. Being at home and being loved by mom and dad, and not just by nurses, is a big part of what makes the programme work."



The innovation:

The Breatheasy programme is a ground-breaking initiative that facilitates home-based, post-operative care for children who have had tracheostomies.

The lesson learned:

Healthcare is a collaborative effort, calling for united action by families, communities, and local authorities, as well as by the doctors, nurses, and other health workers who strive to make their patients better.

Image Credit: Peter Maltbie

Before the operation, parents are interviewed and given a basic understanding of what to expect. They are given a doll with a tracheostomy to take home to show the other children and the family.

Once the patient is stable, they are transferred to the Breatheasy ward where the training takes place. Parents are given training in tracheostomy management and care, including the daily changing, cleaning, and suctioning of the device, as well as emergency procedures in case of complications.

On discharge, equipment donated by the Children's Hospital Trust, a public-private partnership, will have been installed and adapted to the individual environment. This is often where the greatest challenge lies.

The Red Cross serves some of the poorest areas around Cape Town, and some patients will return to little more than a shack made of wood and corrugated iron. But Sister Booth, who calls herself a "perseverer", doesn't give up that easily. An electricity box and a plug-board are essential for a ventilator, if required, and she works closely with the municipality to get the home connected to the grid.

At the same time, patient and family stay closely connected to the hospital, through a carefully-monitored programme of follow-up visits and advice by phone and SMS. "I've learned that mothers and children belong together," says Sister Booth. "Families belong together, in their own home, in their own community. Being at home and being loved by mom and dad, and not just by nurses, is a big part of what makes the programme work."

And it is working beyond all hope and expectation. More than 700 children have been discharged into home care since 1989, adding up to a saving of 32,500 hospital days, or about R93-million a year. But the real saving, says Sister Booth, has been in the social and psychological effects of long-term hospitalisation.

Children, naturally resilient, tend to do well at home, and most grow quickly out of their condition. There are lower incidences of complication, such as blocked tracheostomy tubes and infection, and thorough hand-washing and a regimen of cleanliness take care of any concerns over the non-sterile home environment.

The success of the Breatheasy programme has left Sister Booth feeling heartened and inspired, and she now hopes to see it applied to other chronic paediatric medical conditions, such as neurosurgery, renal, cystic fibrosis or cerebral palsy. The secret of the programme lies in the combination of clinical professionalism from an expert, multidisciplinary team, and the natural, nurturing instinct of the parents.

"I walk the walk next to them," Says Sister Booth. "It's almost as if, just by giving them the chance to care for their child at home, you're unlocking their inner strength. They become the experts, and you just have to be there to help."

Back at the Red Cross, the mother of the little girl deftly inserts the tracheostomy tube, and smiles as Sister Booth looks on. It's time to live up to the wry motto of the Breatheasy programme. "Get them out of here," Sister Booth likes to say: "Get them home." ■



Image Credit: Peter Maltbie

Cleft Lip Tape

- **Health Innovator**

Salahuddien Dawjee

Department of Orthodontics, University of Pretoria

A Sticky Solution for Cleft-Lip Babies

When an injury in sporting competition left him in need of physiotherapy, Professor Salahuddien Dawjee had a moment of revelation that led to a better way of treating his young patients



Technology advances, and when it does, healthcare must step in stride with it. “The most difficult of problems,” says Professor Dawjee, “at times have the simplest solutions.”

The innovation:

The application of physiotape, a commercially available elastic material commonly used to stabilise muscles after sporting injuries, to treat babies born with a cleft lip and palate.

The lesson learned:

Always be open to new methods, new technologies, and new ways of treatment. Look outside your immediate environment for inspiration. Sometimes, the solution will present itself when you least expect it.

Archimedes had his Eureka moment while lying in a bath. He leaped out and ran down the street to tell the world, without putting on his clothes.

Einstein saw the light while riding his bicycle, applying his mind to the principle of energy in motion.

But for Professor Salahuddien Mohamed Dawjee, of the Department of Orthodontics at the University of Pretoria, epiphany was as easy as falling off a horse.

An enthusiastic endurance rider, he had dislocated his shoulder in the rough-and-tumble, and was undergoing physiotherapy after an operation.

He ran his fingers over the physiotape, a brightly-coloured elastic material, cotton-based, adhesive on one side, commonly used to stabilise the muscles after sporting injuries. This is what I need, he thought, to help the babies.

As an orthodontist, Professor Dawjee has a keen interest in the treatment of babies born with a cleft lip and palate. This is one of the most common congenital malformations, and the only definite remedy is surgery, performed at four to seven months postpartum.

But in the interim, when parents are often reeling from shock, and a mistaken sense of blame and guilt, there is a simple measure that can make a world of difference. Physiotape.

Lip taping, as the practise is called, is an old technique, helping to promote tissue approximation across the cleft, and minimise scarring and complications after surgery.

But conventional surgical tape, replaced daily, has its drawbacks. It can irritate the skin, leading to rashes and bruising, and a degree of relapse that may negate the benefits.

The Eureka of physiotape, explains Professor Dawjee, lies firstly in its ability to imitate the natural elasticity and function of the muscles. Applied to a cleft, changed only once every three days, it assists with feeding and facilitates facial expression. The physiotaped infant can smile, and as a welcome side-effect, so can the parents.

“The new tape is fantastic,” says Professor Dawjee, who designed a protocol for its testing that was approved by

the Research and Ethics Committees of the University of Pretoria. “You can stretch it and it will draw together almost immediately. You can replace or remove it with ease, and it does not irritate or leave any residue on the face or the skin.” The simplicity of the process means it can be taught and advocated by nursing staff even in remote areas, saving parents the trouble of repeated visits to central clinics.

The tape is most effective when used on newborns. “They don’t have all their tactile facilities, so they’re not going to really feel any discomfort,” says Professor Dawjee. “The younger we get them, the better.”

He has been heartened to see a marked positive improvement in patients, within six weeks of treatment. This for a technique of cleft-lip taping that was once unpopular, even abandoned, because of the associated high risk of skin irritation and allergic reaction. The lesson?

Technology advances, and when it does, healthcare must step in stride with it. “The most difficult of problems,” says Professor Dawjee, “at times have the simplest solutions.”

He sees broader applications for physiotape, including the correction of hemifacial microsomia, a congenital disorder that affects the development of the lower half of the face.

As he points out, when the body is deformed, it affects the disposition of the soul. Emotional discomfort cannot be measured, but it can be felt, and the use of such simple, affordable, and convenient technologies can help to engineer a revolution of the self.

Innovations that work are sometimes referred to as “sticky”, because they pass the test of everyday practical use.

Physiotape, steered from the sports field to the primary health arena, has a stickiness born from a new way of looking at an old problem, and for Professor Dawjee, it holds a lesson for all who hope and plan to innovate. “You must never stop thinking about ways to treat and fix things.”

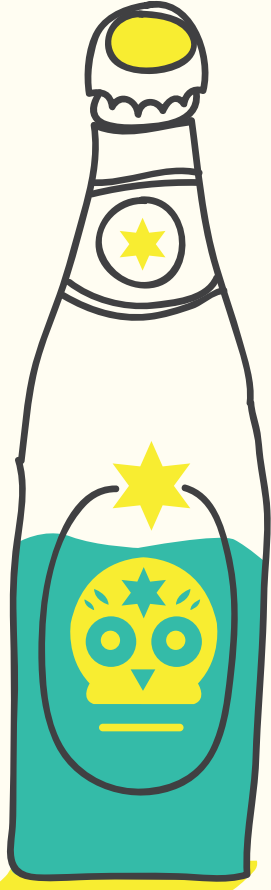
Even when you’re lying on a hospital bed with a dislocated shoulder. He hasn’t been back in the saddle since, but in the quest to make life easier for his young patients, Professor Dawjee has proved that you can rise when you fall. ■

AfriTox

- **Health Innovator**

Clare Roberts

Red Cross Children's Hospital, Cape Town



Know Your Poison

Taking emergency medical knowledge into a new age of enlightenment, AfriTox is a South African poison information database that can save time, money, and lives



The innovation:

AfriTox is a digital and online database of toxins and toxic substances, providing easy, potentially life-saving access to relevant and appropriate knowledge in emergencies.

The lesson learned:

Innovation is just the start of the process. Doctors and other healthcare workers need to sharpen their business skills and learn to “talk up” what they are doing, to create broad awareness and acceptance of the features and practical benefits of their innovation.

In a shack somewhere on the Cape Flats, a small child sees a bottle of cooldrink on a table. Enticed by the bright colour, she reaches up, pulls off the cap, and takes a swig. But it's not cooldrink. It's paraffin. In a house closer to the city, a toddler proudly opens a kitchen cupboard and grabs a carton with a pretty picture on the outside, too young to know the meaning of the skull and crossbones on the label. On a hike on a mountain trail, a teenager plucks a wild mushroom and adds it to the pot for that night's stew.

Each scenario holds the potential to cost a life, if quick and effective action is not taken. For the medical practitioner, the challenge is to identify the toxin, often from the sketchiest of clues, and apply the correct treatment and procedure.

Here, knowledge is the primary antidote, and for years, clinicians in South Africa have come to rely on two emergency poison information lines, based at Tygerberg Hospital and the Red Cross War Memorial Children's Hospital in Cape Town.

Dr Clare Roberts, Director of the Poison Information Centre at the Red Cross, recalls the “chaotic” system of index cards and textbooks that served as the original engine of knowledge. “It was as if we were living in the Dark Ages,” she says.

Now, a new age of enlightenment has dawned, with the development of an easily-accessible online version of the database, called AfriTox. Compiled in 1984, as part of a research project, the regularly-updated database has traditionally been sent on CD, by post, to medics and hospitals in South Africa and five other African countries.



Dr. Clare Roberts

Image Credit: Peter Maltbie

AfriTox avoids the “tedious process” of calling a poisons centre for advice, possibly reaching an unanswered or engaged telephone, and having to call repeatedly about a complex case.

It is one of only four poisons databases worldwide, in English, and is the only database unique to Africa. Local knowledge matters, because South Africans are poisoned by South African products and plants, and bitten by local snakes and spiders. From an original 200 toxins, the database has grown to more than 40,000. Doctors anywhere can access the database from a desktop or laptop computer, smartphone or tablet. A downloadable version is available for sites with only intermittent Internet access. Seconds and minutes save time, and in an emergency, they can save lives. As Dr Roberts points out, AfriTox avoids the “tedious process” of calling a poisons centre for advice, possibly reaching an unanswered or engaged telephone, and having to call repeatedly about a complex case.

The database is provided free to public health facilities, and for an annual subscription fee to registered medical practitioners. Poison Information Centres, or PICs, such as the one at the Red Cross, are extraordinarily cost-effective, says Dr Roberts. “They save much more than they cost to run.”

She points to an authoritative North American study, which found that each dollar spent on a PIC avoided \$14 being spent elsewhere in the healthcare system. That's a return of 1,400 percent on an investment in healthcare.

“More poisoned people are saved by fast, appropriate treatment, hospital stays are shortened, and most importantly, harmful unnecessary treatments are avoided,” says Dr Roberts.

Using the AfriTox database, a doctor can identify the potentially toxic substances in a product that may hold no other clue than the brand name, determine whether the amount ingested is cause for concern, and follow more than 600 step-by-step protocols for treatment.

In South Africa, children represent up to 70 per cent of all victims of poisoning, with children aged 1 to 2 being most at risk. The Red Cross alone sees some 500 cases of poisoning a year, and about a fifth of these are paraffin poisoning.

Education is key to fighting the scourge, but decisive, informed action in a clinic or emergency room can make all the difference when a child has had a close encounter with a toxin.

In the smallest public clinic and the largest private hospital, there is a place for AfriTox, says Dr Roberts. It saves time, it saves money, and in a world where curiosity and misadventure can easily lead children into danger, it holds the power and the potential to save lives. ■

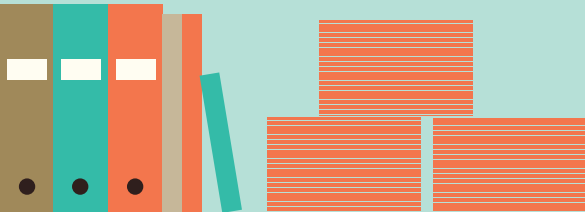
E-Prescription

- **Health Innovator**

Dean van der Westhuizen
Retreat Community Health Centre Cape Town



Dean van der Westhuizen



A Better Prescription

Frustrated by the time-consuming process of filling in scripts in triplicate, a tech-savvy young doctor found a smart new way to get with the program

“The key is not to let pessimism squash your idea. Just go ahead and do it. Let people see for themselves how it works, and how much of a difference it can make.”

The innovation:
Rx-Assist is a spreadsheet-based application that makes it easy for doctors to generate legible scripts, minimising ambiguity and maximising quality time for consultations.

The lesson learned:
Don’t let pessimism and scepticism stand in the way of a good idea. If the idea is good enough, take the time to test and prove the concept, and let people see and understand the practical benefits for themselves.



I t was at a place called Retreat, on the Cape Flats near Cape Town, that a young doctor named Dean van der Westhuizen took a small step forward for medicine.

His quest:

to address a conundrum that has cast a cloud of doubt over the clinical fraternity for generations. Their handwriting.

Patients may scratch their heads over a scrawl on a prescription, but pharmacists are even more long-suffering, having to grapple with ambiguities in a field where life itself may hang on a thread of illegibility. Does that say four-hourly or six-hourly? Is that micro-grams or milligrams?

For Dr Van der Westhuizen, freshly graduated from the University of Cape Town, and working his year of community service at the Retreat Community Health Centre, it was easy to see where a slip of the pen could creep in.

He was seeing up to 50 patients a day, for chronic conditions such as diabetes, hypertension, epilepsy, and osteoarthritis, and many were on a “shopping list” of up to 12 different medications. But the real headache was the red tape.

Each consultation had to be noted in triplicate on a clinical script, with doctor and patient details, allergies, diagnosis, and drugs, and each form would take four to five minutes to fill in. Multiply that by 50, and it’s a good few hours out of a busy day.

“I got quite frustrated with having to write these scripts by hand,” says Dr Van Der Westhuizen. “The more you spend on that, the less time you have to spend with the patient, and the more frustrated and irritated they are likely to get in turn.”

There had to be an easier way. A modern way, a digital way, in one of the last professional disciplines that still calls for hand-penned epistles on paper.

Passionate about technology, Dr Van der Westhuizen took computer programming lessons online, at a site called Codeacademy, and he brainstormed solutions with a friend, John Bradshaw, a commercial manager at Pick n Pay.



The result:

Rx-Assist, a spreadsheet-based application that generates chronic scripts with a few clicks of the mouse.

The program runs in Microsoft Excel, using a series of macros, or short, coded instructions, to guide the doctor through the process. The doctor begins by selecting a diagnosis, for which a list of appropriate drugs is provided.

Then the doctor selects the required drug, time period, and any allergies that may contraindicate the medication. A script is propagated, and the necessary details are automatically filled in.

The doctor prints the script in triplicate, completes the patient's details, and signs the hard copy, legibly or otherwise. The benefits?

"The program allows you to spend more time on effective patient care," says Dr Van der Westhuizen. "It reduces prescribing errors and improves job satisfaction, by eliminating a lengthy and tedious task."

Patients have a better experience too, with more time, in a brief 10-minute consultation, to talk to their doctor face to face. And of course, pharmacists enjoy the novelty of a typed and clear script that allows them to dispense with guesswork and rejections on the grounds of safety.

"What they say about doctors' handwriting is true," concedes Dr Van der Westhuizen. "Even my own handwriting is illegible. I think it's because we have to write so much, and there is so much repetition, that you end up writing quicker and quicker. If you can reduce the amount of scripts that are rejected by pharmacists, based on handwriting, it can have a massive knock-on effect."

A big advantage of Rx-Assist is its ease of use. Anyone who can navigate a spreadsheet can use it, and it doesn't call for a high-spec computer. Drugs lists and provider details can be easily updated by the doctor, eliminating the need for IT support.

Working in the public health sector can be frustrating, says Dr Van der Westhuizen, now a medical officer in Ophthalmology at Kimberley Hospital Complex.

The forward-thinking, tech-savvy clinician must often contend with scepticism, bureaucracy, and practises that are inefficient but ingrained into the system.

"There are so many ways technology can improve things. But you need to prove your concept before people will accept it. The key is not to let pessimism squash your idea. Just go ahead and do it. Let people see for themselves how it works, and how much of a difference it can make."

He credits his Clinical Manager at Retreat, Dr Angela de Saa, and the Facilities Manager, Henry Lemmetjies, for their support and motivation, without which that small step forward may never have evolved into a giant leap. ■

More Frontline Innovators Making a Change from Within

— **MOBILE XHOSA** —

Saadiq Moolla, *Medical student,*
University of Cape Town

“I was inspired to create Mobile Xhosa based on my own healthcare experiences overseas, as well as the problems I have encountered while working in the hospital during my studies. Mobile Xhosa is a free-to-access cellphone-based tool that aims to help doctors and other healthcare workers communicate with their Xhosa speaking patients. It provides translations for commonly used phrases in history-taking, examination, side-room investigations, special investigations, treatment and health promotion. It also boasts a Xhosa-English dictionary. Mobile Xhosa aims to be one of the tools doctors can use to overcome the language barrier during medical consultations, along with interpreters and language training.” ■



— **MEDIVATE** —

Dr Julian Fleming
Emergency Medicine Physician

“Our solution, a mobile health application running in the Western Cape Metro Emergency Medical Services for rescue services, is a part of the operational armament of the rescue practitioners in their day-to-day duties. The inspiration came from the desire by the Cape Town Metro for more real-time access to information. This is enhanced through the mobile platform that allows images, GPS locating and real-time reporting of incidents that is uploaded to the control centre, allowing for more efficient use of time and resources in the rescue scenario.” ■



A surprising number of frontline healthcare workers have been experimenting with how they can develop their own digital technologies to allow for better care delivery to their patients

A teal target icon with a brown dot in the center.

— **CLINICAL PRACTICE TOOL** —

Dr Riaan Duvenage, *Head of Surgery,*
Worcester Hospital

“Faced with the major barrier of being the only full-time employed surgeon for the Cape Winelands East Overberg region of the Western Cape, I contemplated the concept of “virtual” outreach and support – in short, a way to provide round-the-clock specialist surgical guidance. The result was a website-based clinical practice tool, which has since developed into a multi-function web-based clinical practice system, currently including clinical, administrative and managerial sections.” ■



— **VULA & BRIEN HOLDEN VISION INSTITUTE** —

Dr William Mapham
& **Professor Kovin Naidoo**

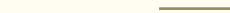
“The Vula mobile phone application is a useful addition to the normal examination provided by health professionals. It’s designed to help promote eye health, can be used to screen people for eye conditions and helps to refer people in need to the eye care professionals. Essentially the application increases the reach of eye care services to anywhere that has a smartphone.” ■



— **PICTURE EXCHANGE COMMUNICATION SYSTEM** —

Megan Ellis, *Speech Therapist,*
Tambo Memorial Hospital

“I noticed a large number of children coming to Tambo Memorial Hospital’s speech therapy department that appeared to present with Autism Spectrum Disorder characteristics. They presented with very specific therapy needs, and could not be accommodated into the existing therapy groups or clinics. After going on a course for the Picture Exchange Communication System, I created my own PECS communication files using resources available at the hospital, and now use PECS to help children that attend the clinic to communicate their wants and needs.” ■



— **DIABETES CAMERA** —

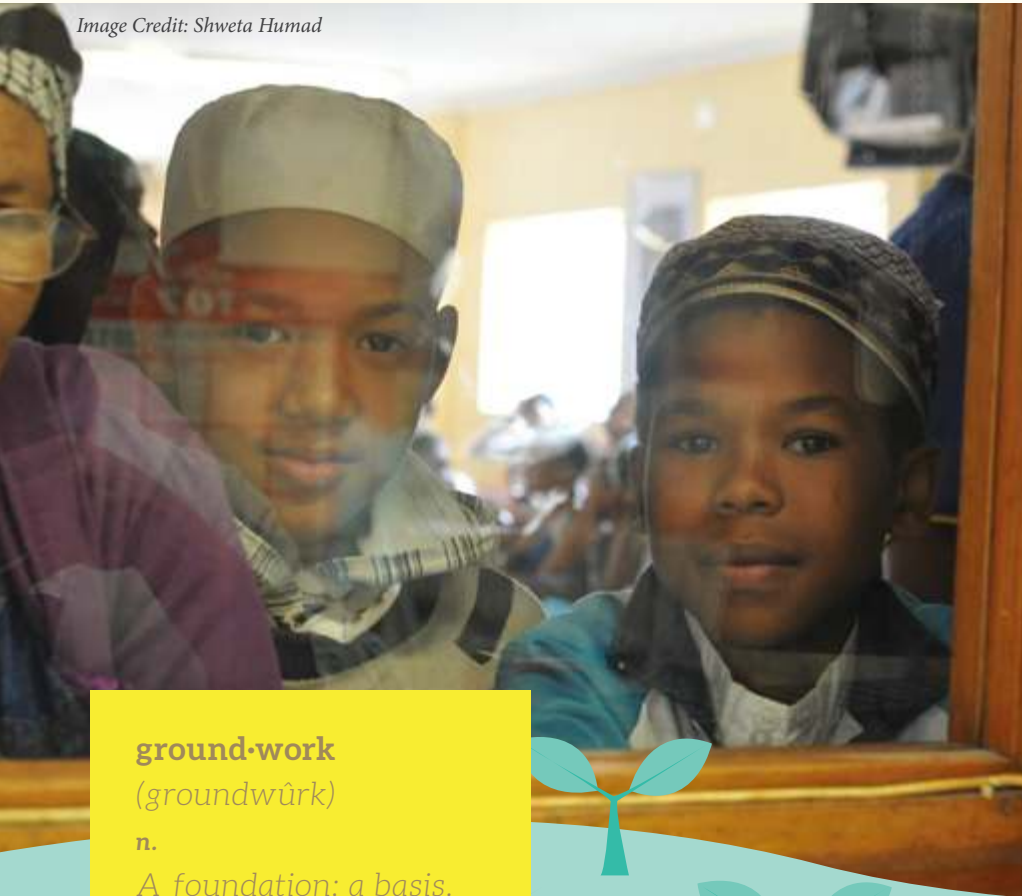
Professor Bob Mash
Head of Family Medicine,
University of Stellenbosch

“Despite diabetes being a common condition in South Africa, the quality of care is poor and this is particularly a problem with screening for retinopathy and eye complications. Our solution has been the development of diabetes retinal screening by fundal camera that can be operated by a community health worker and used to screen the eyes of patients with diabetes for retinopathy. Digital images are sent to an expert who reports back on the presence of retinopathy and makes recommendations about the need for treatment and follow up.” ■

The Groundwork of Innovation:

How collaborating on real challenges spurs learning and change

Image Credit: Shweta Humad



ground·work
(groundwûrk)
n.
A foundation; a basis.

We’ve been running a bold experiment at the Massachusetts Institute of Technology Sloan School of Management in Cambridge, USA.

GlobalHealth Lab pairs faculty-mentored teams of MBA, Masters, and PhD students with organisations on the frontlines of healthcare delivery in Africa and Asia. Students, faculty, and staff design each collaboration to tackle a specific challenge. Projects address operations, internal processes, and logistics; strategy or business model development; technology adoption decisions; understanding patient demand and marketing; or integrated approaches to overall management.

At GlobalHealth Lab we aim to operate as colleagues, not consultants, with our partners in the field. We work to uncover capabilities, assets, and resources within the organisation, and to use business tools and practices in new and practical ways. The aim in every case: to enable more and better care for the people who need it most.

Since 2008, we’ve worked on nearly 70 projects with partners in Kenya, Uganda, India, South Africa, Tanzania, Nepal,

We will continue to be guided by the notion that everyone has a role to play in healthcare delivery innovation. No idea is too small. In fact, it’s often the apparently incremental innovations that have the biggest impact.

Bangladesh, Botswana, Burundi, Mozambique, Sierra Leone, Malawi, Ghana, and Zambia. We’ve collaborated with some of the smallest and largest NGOs in the world. We’ve worked in the public and private sector, with ministries of health and public health departments, with m-health, diagnostic, and medical device companies, and with faith-based organisations.

Focusing on real challenges. At the Chebairwa Health Centre in rural Western Kenya, patients used to wait an hour before their first interaction with clinic staff. Often they would find that the medication they sought was out of stock, or the clinician they needed to see was out. A GlobalHealth Lab team worked with clinic staff to create systems to ensure that patients are greeted on arrival, wait-times are minimal, and visit flow is smooth. Their field research revealed unmet medical needs that the clinic could serve, and financial analysis improved cost accounting and pricing. Since then, the clinic has seen an improvement in patient satisfaction and a large increase in scope and volume of care.

Enabling learning and change. Partnering with organisations like Chebairwa has taught us a lot about what works and what doesn’t when it comes to healthcare delivery innovation.

We learned that apparently innovative ideas don’t automatically solve problems. Some of our projects faltered for lack of collaboration and staff support, while others succeed beyond our wildest expectations, as frontline staff took a new idea and made it their own.

We learned that it’s often simple, affordable changes that yield the biggest impact for the organisation and the patient.

We learned to customise each effort carefully. Our staff and students spend months working remotely with each partner to better understand the context and its challenges, building genuine relationships that last.

Building the groundwork. Across dozens of projects, we’ve seen reductions in patient wait times, improved operational efficiency, successful market entry, increased revenue, improved patient care and satisfaction, successful implementation of new technologies, effective marketing campaigns, and successful deployment of strategic plans. We are now investigating the effects of our projects. What we learn could take us beyond traditional research by shedding light on innovation at the leading edge of healthcare delivery in low-resource settings, yielding knowledge that could reshape theory, teaching, and practice.

Thanks to six years of collaborations, GlobalHealth Lab has created a network that reaches millions of patients, thousands frontline healthcare workers, and hundreds of healthcare delivery sites. These relationships, along with our partners’ collective reach and range, offer potentially vast assets to tap into. Could networks like ours allow learning and innovation to be shared more effectively? Could we harness the tools and methods of academic research and business analysis to better transfer innovative ideas and successful practices from one setting to another?

Our Groundwork Initiative takes on this challenge. We aim to build on the triple payoff we’ve discovered by linking teaching and research via practical collaborative projects: new field-tested methods for improving healthcare delivery; potentially impactful advances in management education; and, thanks to our partners in the field, better healthcare for more people.

We will continue to be guided by the notion that everyone has a role to play in healthcare delivery innovation. No idea is too small. In fact, it’s often the apparently incremental innovations that have the biggest impact.

What are your ideas? How can you test, refine, and spread them? We’d love to help by sharing our results and methods.

Join the conversation: <http://groundwork.mit.edu> ■

Kate is the research & projects lead for the GlobalHealth Lab

MINDING THE GAP



Africa's health worker crisis can be compared to a leaking bucket of water.

Our continent carries 24% of the global disease burden, but only has 3% of the health workforce. Sub-Saharan Africa only has 39 000 health workers, a far cry from the 280 000 needed.

Our first response to the crisis has been to pour more water into the bucket. Attempts to increase the number of health workers have proven challenging. In the 47 countries of sub-Saharan Africa, there are only 168 medical schools. Eleven of those countries have no medical schools, and 24 have only one.

The second response might make the most sense. Seal the gap and stop the leak. But halting and hindering the migration of health workers, or preventing them leaving the healthcare system to take up a different profession, cannot easily be enforced by policy makers.

Have we maybe been tackling this challenge in the wrong way? Instead of trying to correct the gap, can we find ways of transforming the system itself? Perhaps a completely alternative "water collection" system, rather than our broken bucket?

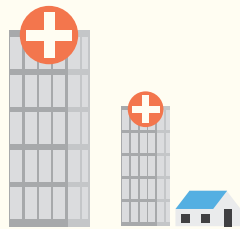
As our opinion leaders indicate in this section, this will require more than programmes and processes to increase the number of trained health workers. Rather, the innovation should delve deeper, into shifting the very routines and beliefs of the social system.

Training African health workers according to Western education models has not yielded enough professionals to meet the requirements of a continent, or have the social accountability and responsibility required to heal their own communities. But there are bold exceptions. One true social innovation you will read about in this section, the Umthombo Youth Development Foundation, has been able to achieve a generation of rural torchbearers.

There can be no health without a workforce to care for us. Here lies an innovation opportunity for us all to think about. Let's strive to develop solutions to this grand challenge. Let's shift the social system, transcend methods of discovery, and go beyond rural and urban or geographical boundaries. Let's do whatever it takes to transform healthcare.

Quantity vs. Quality

- *Opinion of*
Sabiha Essack



Charts, tables and supply-and-demand curves are the sort of things you’d expect to find scribbled on the board of an Economics lecture hall. But that’s exactly the sort of data that drives the thinking of Professor Sabiha Essack, Dean of the Faculty of Health Sciences at the University of KwaZulu-Natal.

“The challenge in South Africa is that the supply is not meeting the demand,” she says, pointing to a table, compiled from the World Health Statistics 2011 and the Human Resources Strategy of the national Department of Health, which shows that the health worker density per 100 000 population is substantially lower in South Africa compared to the vast majority of countries against which the country is benchmarked, including the BRIC (Brazil, Russia, India and China) nations.

Professor Essack believes South Africa’s supply problem is twofold. “On one hand, there’s an issue of quantity and distribution,” she says. “The majority of our healthcare professionals are based in urban areas, as opposed to rural areas, and there’s also a mismatch in the practitioner-to-patient ratio in the public sector versus the private sector.

“But then there’s also the quality aspect. And here it’s not just about the disciplinary knowledge and skills of our graduates, but also their values, attitudes and behaviours, which are not meeting the needs of the population.”

The problem is complex, and so, believes Professor Essack, is the solution. “We need an overhaul,” she says. “Not just in terms of finding innovative ways of increasing the numbers, but also improving the quality of our healthcare professionals. The question

Is the problem that South Africa doesn’t have enough doctors... or is it that the doctors we do have don’t have the appropriate accountability?

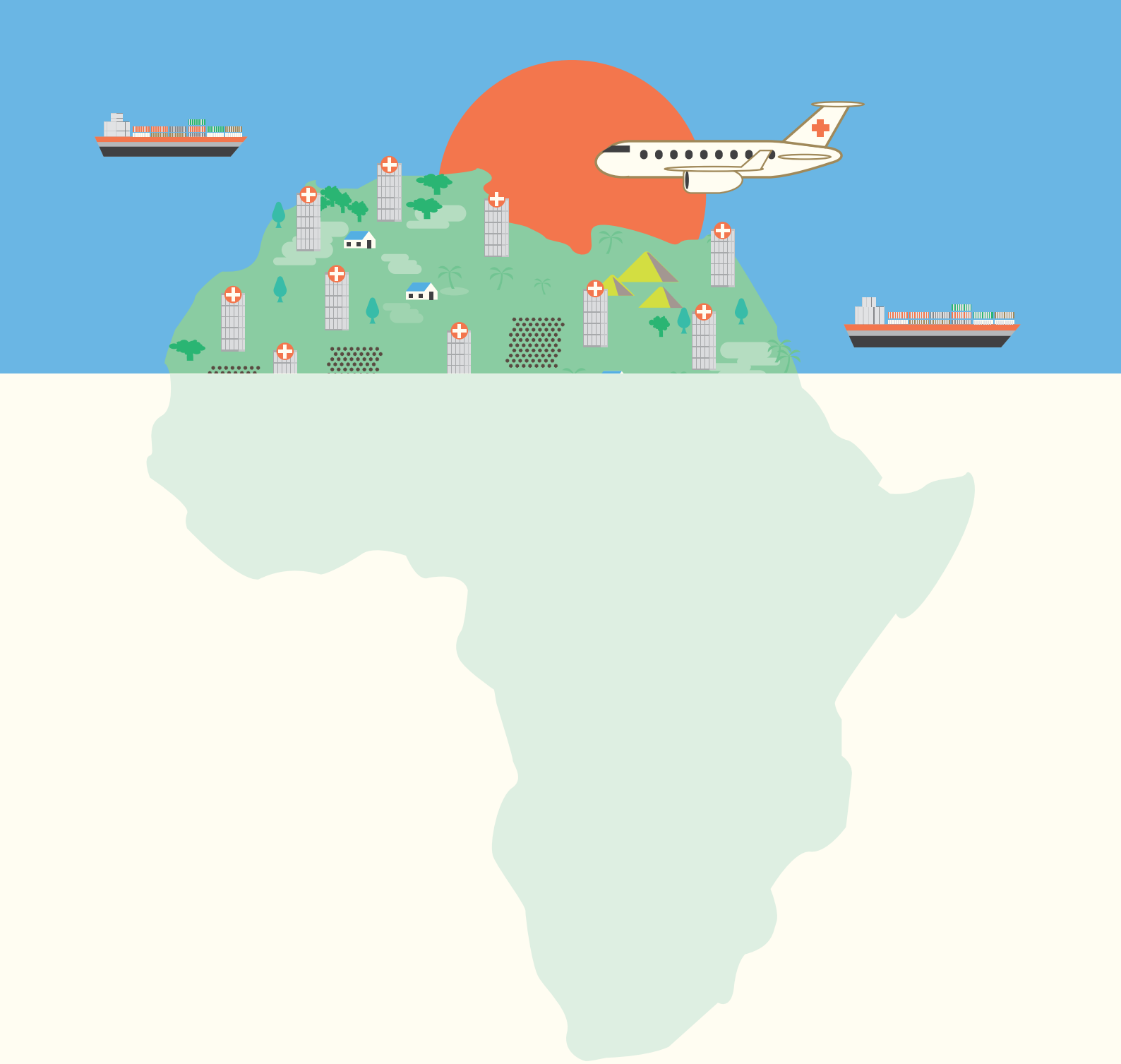
is, what can we do in terms of improving their competencies, knowledge and skills – and also, to put it simply and superficially, improving their bedside manner?”

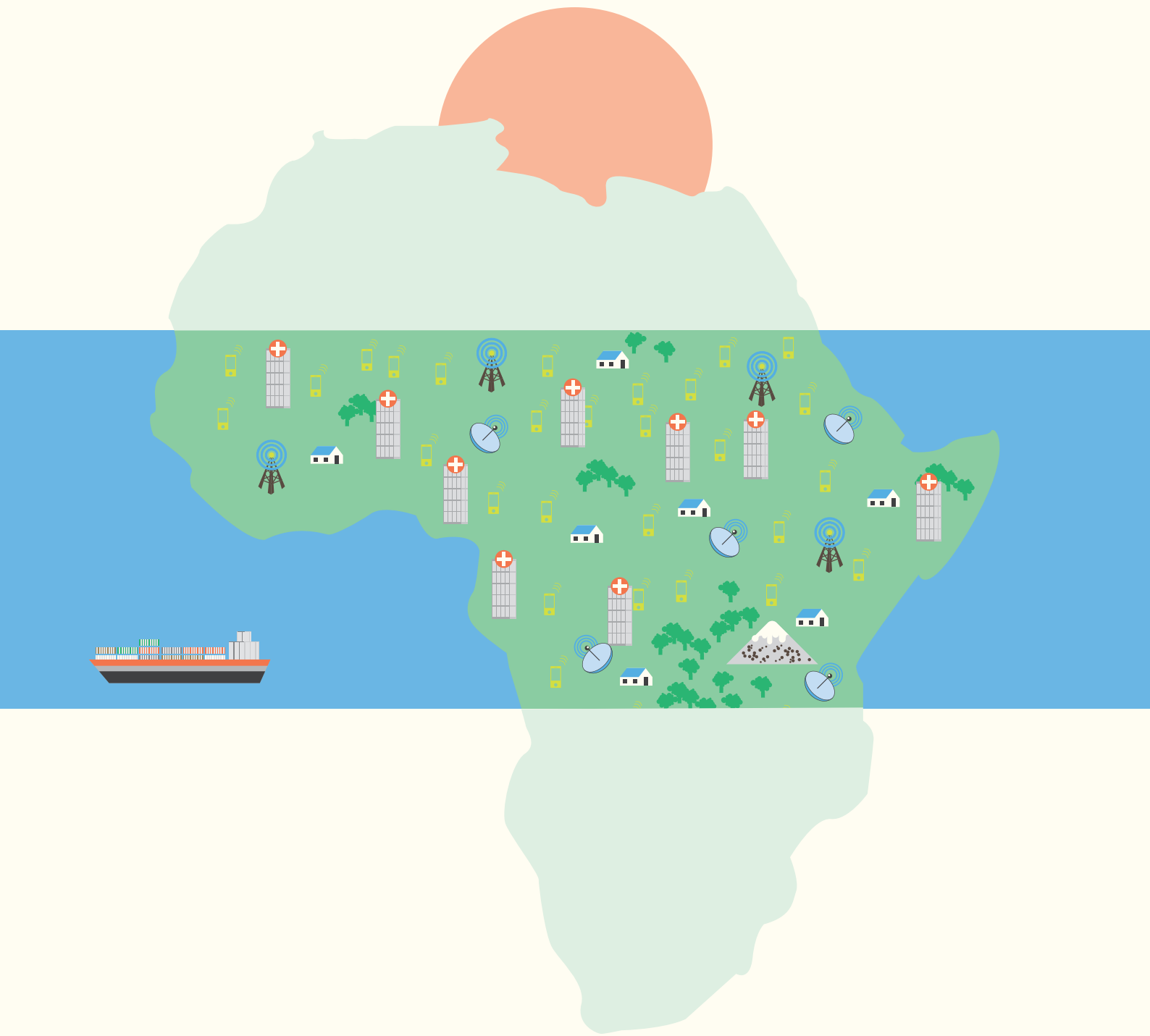
She believes that when it comes to educating our healthcare professionals, the “easiest” thing is to ensure they achieve the knowledge, skills and disciplinary content. “What’s more difficult is the softer issues, which speak to the healthcare professional being the change agent for the community he or she treats,” she explains. “Those skills are taught intangibly, and the challenge is how to teach a curriculum that builds in these things so that they are enacted upon by the student. Those are the intangibles that take a special kind of pedagogy to inculcate.”

Professor Essack is now looking to drive innovation around the curricula, moving beyond the practical skills and disciplinary knowledge base, and towards interrogating social accountability. “It’s also about the attitudes, behaviours and values of our healthcare graduates,” she says. “It’s on the periphery of the curriculum, and it’s not engaged with or articulated consciously.” “My own criticism of the work I’ve been doing is that I’ve only been looking at quantity,” Professor Essack admits. “But we’re now working with the Academy of Science of South Africa to really look at reconceptualising health professional education in terms of quantity to quality.”

Those charts and tables are about to get a lot more interesting. ■

Prof Sabiha Essack is the Dean of the Faculty of Health Sciences, University of Kwa-Zulu Natal





New Opportunities In E-Learning

- *Opinion of*
Wim de Villiers

For every 20 people in South Africa, there are 13 mobile phones. That's according to a new report published by the GSMA, the body that represents the world's mobile operators. That 65.7% penetration rate, the highest in Africa, brings a massive potential for information technology, telecommunications...and health innovation.

Professor Wim de Villiers, Dean of the Faculty of Health Sciences at the University of Cape Town, believes mobile technology is turning the healthcare industry on its head. "In a sense, it's a disruptive innovation," he says. "The goal in the end is to deliver better care, more efficiently, and I think this is the way to get there."

Professor De Villiers recently returned from the United States, where, he says, "innovation is front and centre". Based on the trends he saw, he has identified several opportunities in the field of e-learning.

He points to the example of MOOCs, Massive Open Online Courses, where teaching can occur via e-learning in a number of ways. "The teaching can be aimed at all sorts of different levels, from basic learning to more sophisticated education," he says. "On one hand there's a more formal method of this kind of education, where qualifications or certificates may be gained from association with various institutions of higher learning. On the other hand MOOCs could also be done in a more informal way."

The explosion in free, high-quality, readily available educational content, from recorded lectures to PDF notes, is revolutionising the way teachers and students interact.

Africa's mobile boom is turning health education, and the healthcare industry, on its head.



It's also changing the way students choose to learn, bringing with it an entirely new generation of learners: plugged-in, switched-on Millennials.

"This so-called Millennial generation learn in a different way," says Professor De Villiers. "And we need to think of different ways to impart knowledge and deliver content to them. The innovation here lies in finding new methods of content delivery, perhaps via podcasts, or a similar way of accessing information electronically. This is especially true in Africa. We know that here there's a much deeper reach via mobile technology like cellphones, smartphones and tablets."

Driven by advances in software, and by the boom in mobile broadband, device manufacturers are also producing better, faster and cheaper hardware. These affordable, lower-end tablets represent a massive opportunity for African healthcare innovators, educators and researchers, taking information, as Professor De Villiers puts it, "from the bench to the bedside to the bundu".

"We're seeing that here at UCT, where we have some pilot projects on the go where we provide tablets to students. I think in the near future it's probably going to be required or included in the fee structure that students have these tablets. I think that increasingly, this is going to be a way in which we will educate healthcare workers. A lot of learning can occur this way, and it's viable throughout Africa." ■

Prof Wim de Villiers is the Dean of the Faculty of Health Sciences, University of Cape Town

Doctors Tailor Made for Africa

- *Opinion of*
Bongani Mayosi

Dr James Russell is a minor celebrity in Sierra Leone. And why wouldn't he be? He was named the country's Medical Doctor of the Year in 2008, and he's been instrumental in advancing cardiology in the West African state.

But his story could be very different. Instead of returning to Sierra Leone after undergoing training in echocardiography and high care at the University of Cape Town, Dr Russell could easily have taken his expertise to a country with better equipment and better facilities.

So why didn't he? What made the difference? Professor Bongani Mayosi, Head of the University of Cape Town's Department of Medicine, believes the key to keeping Africa's best doctors in Africa lies in developing the skills they can use in their home countries.

"As everybody knows, we have a shortage of specialists on the African continent, and it's a critical barrier to progress," he says. "But the problem is that our model for creating those types of specialists is based on European and US models, and often you're trained far beyond what your country requires.

"We're positively driving the brain drain out of the continent, because we have uncritically adopted training models that work for other countries. So what we've started doing now is training the cardiologists in a modular manner, according to the needs of their country."

Professor Mayosi helped to train Dr Russell, and he describes what has happened in terms of cardiac services in Sierra Leone as being "nothing short of a revolution".

"Dr Russell established Sierra Leone's first cardiac service whereby a patient can get a diagnosis by someone who is competent

An innovative approach to education is helping to keep Africa's best doctors in Africa.



in imaging, and can receive high care," says Professor Mayosi. "And that's exactly what Sierra Leone needed. It does not have the equipment for open-heart surgery, but it does for diagnosing certain conditions."

Sierra Leone's Ministry of Health is now sending doctors to UCT for shorter periods, for training on skills that would be immediately applicable to their country.

Another benefit of this innovative approach to specialist education is the way it's helping to drive development.

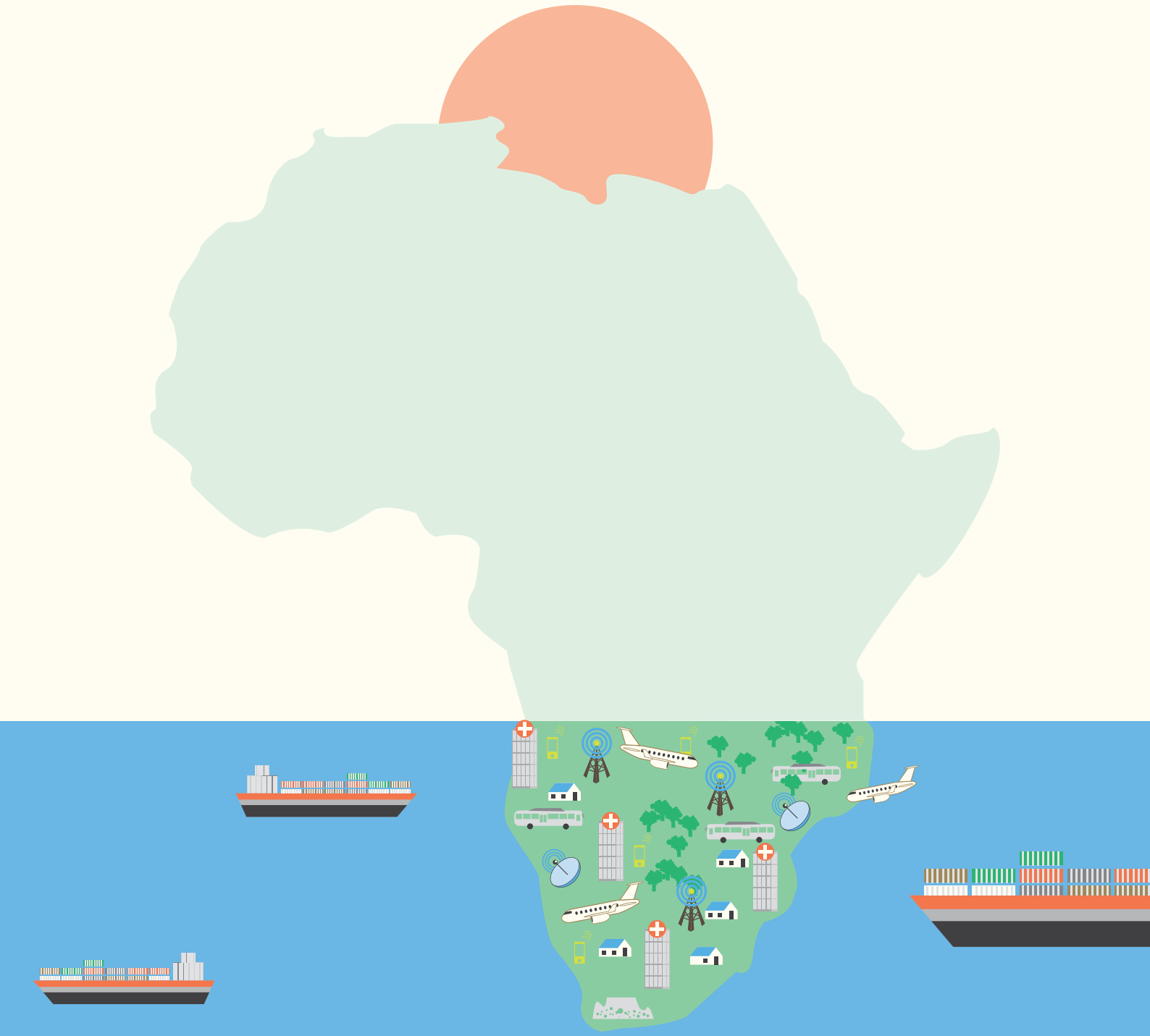
"Dr Russell is now coming back to spend another six months with us to learn cardiac pacing, and he'll go back again having added to what he already has," says Professor Mayosi. "So we're beginning to see a situation in which you start training a person in what the country needs; then they go back and develop a service; then that service then demands a higher level of training; and so they come back for more advanced training. And it spirals from there."

This model of triangulation sees training occurring within Africa, with stronger centres supporting weaker centres, but with funding coming from outside the continent.

Dr Russell came to Cape Town for training that was funded by the World Heart Federation in Geneva - it's now funded by Medtronic - and now he's gone back to Sierra Leone.

"And that's the way it should be," says Professor Mayosi. "We need to repatriate resources that have left the continent." ■

Prof Bongani Mayosi is the Head of Department of Medicine University of Cape Town



Umthombo Youth Development Foundation

- **Health Innovator**
Andrew Ross
Kwa-Zulu Natal

A Well-Spring of Hope & Healing
Through an innovative programme of training, mentorship, and support, the Umthombo Youth Development Foundation is helping to turn bright and ambitious students from the rural heartland into the healthcare professionals of tomorrow

THE MODEL

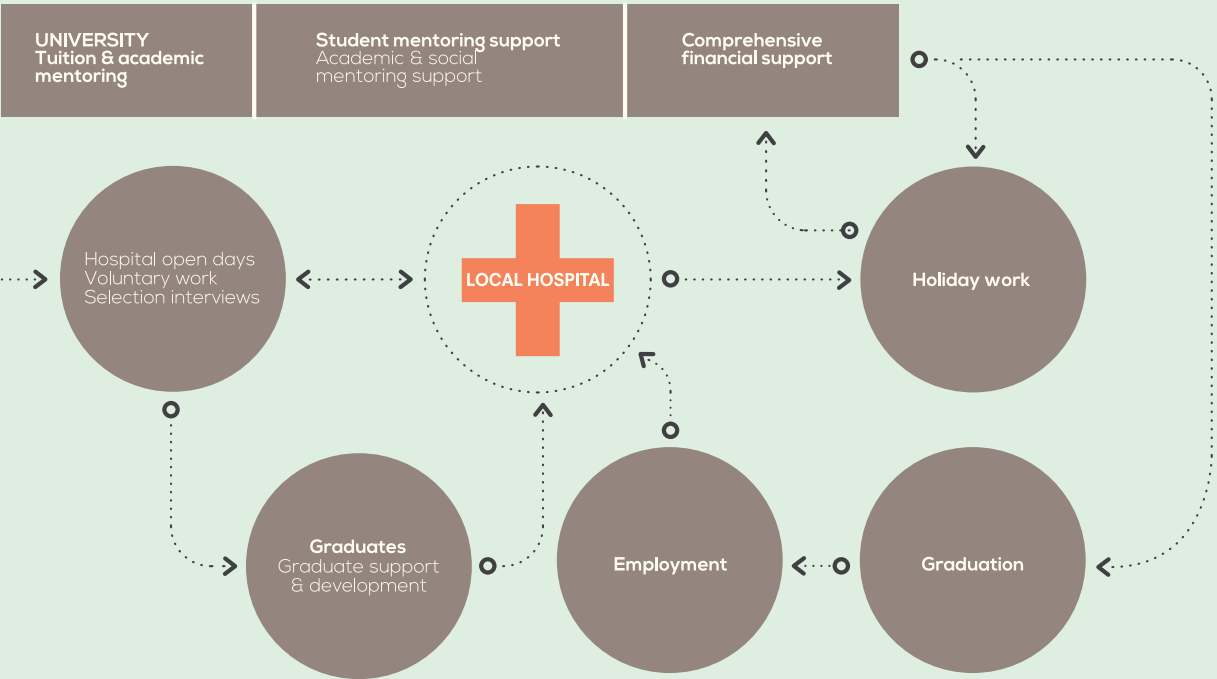


Image Credit: Umthombo

Image Credit: Umthombo



Image Credit: Umthombo

Between the warm waters of the Indian ocean and the rolling hills of the Lubombo mountain range, lies a district of KwaZulu-Natal called Umkhanyakude.

The name, in isiZulu, means “the light that is seen from afar”. It is a place of wetlands and wildlife, of forests, creeks, beaches and lagoons that seem untainted by the passage of time.

But the breathtaking beauty of the region cannot mask the ills that afflict its people. There is little electricity, piped water or sanitation here, and diseases such as malaria, TB, and HIV/Aids are rife.

Only five public hospitals and their clinics serve a populace of more than half-a-million, and there is a chronic shortage of professional healthcare staff.

And yet, there is a glimmer of light and hope, in the form of an innovative project that seeks to bring out the best in the young people of Umkhanyakude and other rural districts in KZN and the Eastern Cape.

The Umthombo Youth Development Foundation, formerly the Friends of Mosvold Scholarship Scheme, was set up in 1998 to address one of the most challenging problems facing healthcare in rural South Africa.

How do you build a pool of bright, dedicated, fully-qualified healthcare professionals, eager and able to help heal communities in need? The answer: you reach out to the communities themselves. Umthombo provides scholarships for local youngsters who harbour the passion and the promise to become medical professionals, health scientists, or primary healthcare workers.

The brightest of the crop go back to their roots, as doctors, optometrists, psychologists, physiotherapists, nutritionists, social workers and more, lighting the way for good health and acting as beacons of inspiration for their peers.

The new graduates pay back their scholarships through the capital of work, with one year of practise for each year of study. And the project itself is working, says Dr Andrew Ross, Founder and Trustee of the Umthombo Youth Development Foundation.

“When we set out to do this,” he recalls, “we had people telling us it’s impossible, you’ll never find the right people in the rural areas. And even if you do, they’ll never succeed at university. And even if they do, they’ll never go back home to practice.” Wrong, on all counts. The programme has already produced 180 graduates in 16 health professions, and over 80 percent are still working in rural healthcare in their home communities. Only seven have moved into private practice.

The innovation:

The Umthombo Youth Development Foundation addresses the skills shortages in rural healthcare by providing scholarships for promising youngsters, who then return to their roots to serve their communities as qualified healthcare professionals.

The lesson learned:

Sometimes, the best solutions to the crisis in public healthcare are those that lie closest to home. Find ways of unlocking and harnessing the potential of young people in their own communities, and you’ll be helping to lay the foundations for a better future.



Image Credit: Umthombo

For Dr Gavin MacGregor, director of the Foundation, the big lesson has been that rural youth do not have to abandon their roots to make a success of their lives. “There is huge potential for greatness here,” he says. “We need to develop these areas, not just give up and go to the city. Life can be good here. Let’s stay and make a difference.”

As an investment in human development and the long-term betterment of communities, the programme continues to pay outstanding dividends. Umthombo’s graduates are able to communicate with patients in their mother tongue, and are held in high esteem in their home communities.

As part of the programme, they go back to their high schools and encourage and motivate other students to unleash their true potential. They are more than graduates, more than professionals; they are role-models of achievement against the odds.

“The fact that you’ve got local students going back to their home communities encourages everyone else in the area,” says Dr Ross. “It’s not easy, but they’ve been able to prove that if you dream a dream, and you work really hard at it, you can make it come true.” But Umthombo is much more than a scholarship scheme for students seeking a future in healthcare.

Living up to its name, which means “well-spring” in the Nguni languages, it serves also as a source of mentorship and support, with successful students offering a helping hand to those who follow in their footsteps.

Students from rural communities, sent to study at tertiary institutions in the cities, can face many challenges, far away from home. They may battle with English as a medium of instruction, and the fast pace of the academic programme can prove overwhelming.

That’s why Umthombo runs its own mentorship programme, headed by Dumisani Gumede, who graduated as a physiotherapist in 2004, and returned to his home community to work at Mosvold Hospital in Ingwavuma.

There are 14 volunteer mentors across the country, offering guidance, practical advice, and moral support, by SMS, email, and monthly face-to-face meetings.

Holiday work at their local hospital each year assists students with the practical skills to complement the theory, and helps to build relationships with hospital staff.

It’s all part of a project that has become a model of rural healthcare development and staffing across the country, blazing the trail for a new generation of young professionals: the torchbearers who have seen the light from afar. ■



Image Credit: Umthombo

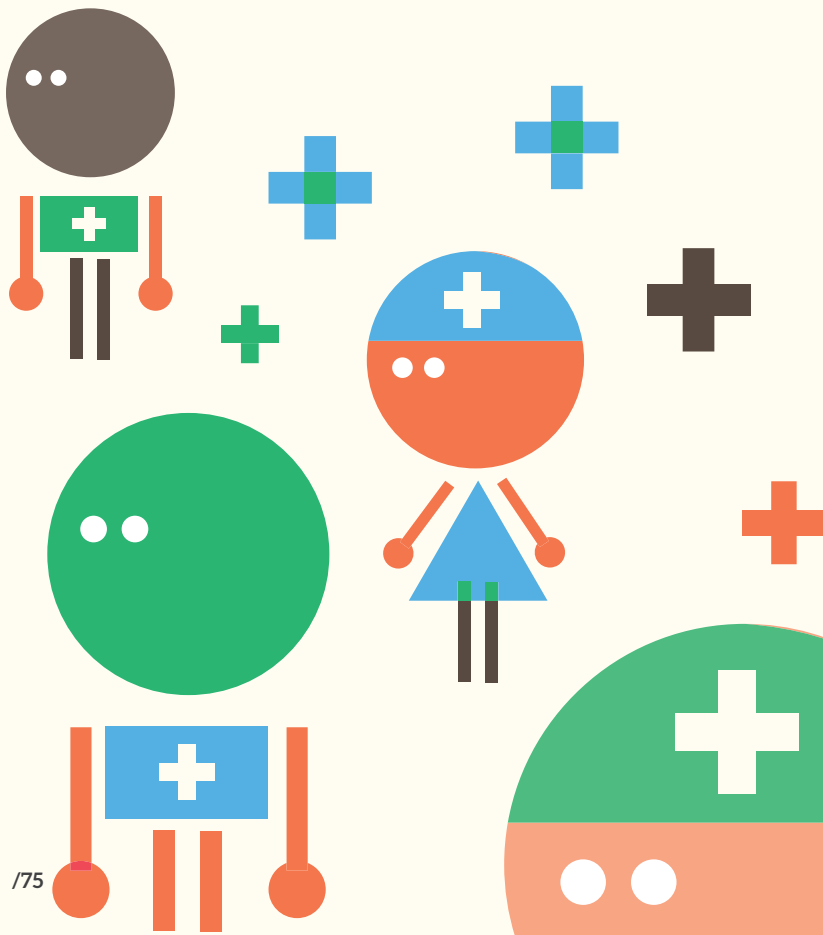
“They are more than graduates, more than professionals.

They are role-models of achievement against the odds.”



Is There A Doctor In The House?

South African healthcare is battling to cope with a pressing shortage of healthcare workers. Here's what three innovative organisations are doing to place healthcare practitioners in areas where they are most desperately needed



We don't have enough doctors. It's a claim you'll hear often when you talk about the need for innovation in South African healthcare. But until you see the numbers, you don't fully appreciate how urgent the situation is. Some 43.6% of South Africans live in rural areas, but only 12% of doctors and 19% of nurses work there. And the well of human resources is running dry.

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Saul Kornik, CEO of **Africa Health Placements**, explains: "The eight medical schools in South Africa cumulatively produce approximately 1 200 doctors each year. Over their career, half of these doctors will move to work overseas. This leaves about 600 doctors in South Africa."

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Three quarters of these doctors will work in the private sector, leaving only 150 for the public sector. Of those remaining in public service, the vast majority will work in urban centres, leaving as few as 35 doctors from any single year of graduation serving the rural areas of South Africa.

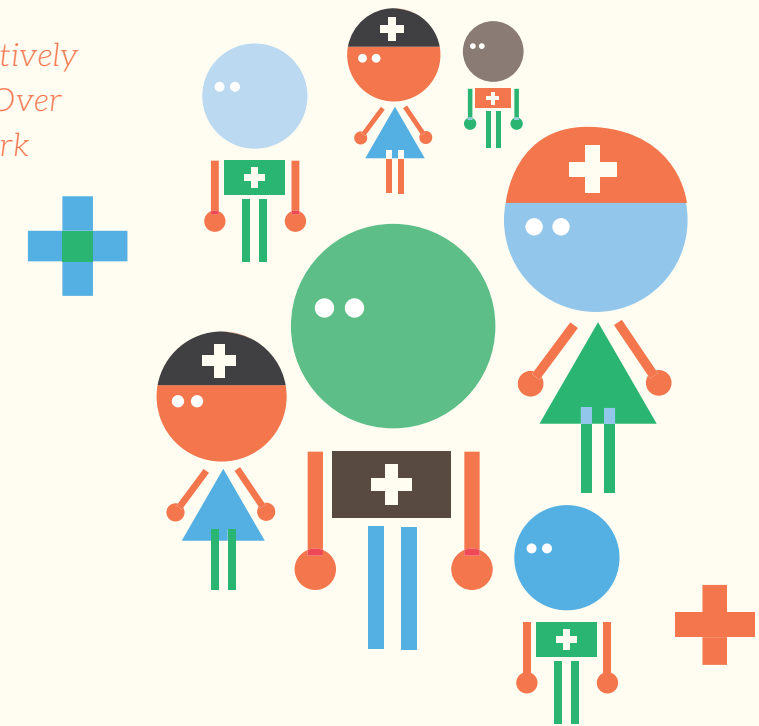
Africa Health Placements (AHP) sources and places local and foreign-qualified healthcare workers for public healthcare facilities in rural and underserved areas. Since its inception in 2005, AHP has helped to source and place 2 678 healthcare professionals (1 760 foreign-qualified and 918 local) in public healthcare facilities. Again, Kornik puts the numbers in perspective. "In 2012, AHP placed almost 300 healthcare professionals in public healthcare facilities which had an impact on 2.9 million South Africans. This figure is ten times the number of graduates that end up in rural health."

The Umthombo Youth Development Foundation, meanwhile, has emerged as a response to the continual shortages of staff at Mosvold Hospital, a district hospital in Ingwavuma, KwaZulu-Natal, serving a population of about 230 000 people. The scheme started in 1999 at Mosvold hospital and has produced 137 qualified medical personnel covering 16 different health science disciplines. It has spread to 11 rural Kwa Zulu Natal hospitals and 2 Eastern Cape rural hospitals.

A handful of other innovative solutions have emerged, ranging from community health workers equipped with cutting-edge technology to importing foreign doctors. But these are stop-gaps. South African healthcare needs real innovation in human resources.

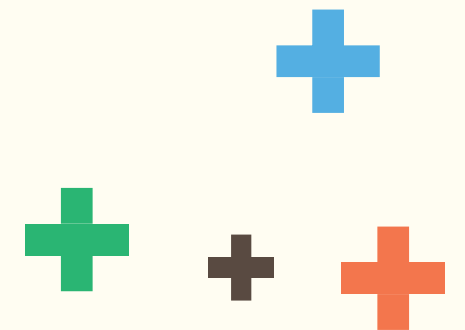
Strategies such as importing Cuban doctors or other foreign qualified doctors are short-term solutions, say Professor Ian Couper and Nontsikelelo Mapukata-Sondzab, director and coordinator, respectively, of the **Wits Initiative For Rural Health Education (WIRHE)**.

There is a need for home-grown professionals who understand the context and have a commitment to serve their communities. The WIRHE recruits disadvantaged students from rural areas into health science courses and supports them towards becoming health professionals.



The aim is to provide a model for addressing the workforce shortages in rural areas. There are 55 students in the WIRHE programme, and 33 students have graduated, 15 as medical practitioners, 6 as pharmacists, 5 as occupational therapists and the rest as other health professionals.

Programmes like these are going some way to addressing the shortage of doctors. Of the WIRHE graduates, 24 are working in rural public hospitals, while the remainder are completing internship obligations. The average pass rate has been consistently around 90%, making it clear that the focus of the programme is on quality as much as quantity. ■



TECHNOLOGY ENABLING INCLUSIVE CARE DELIVERY



We live in an age where technology has the potential to enable healthcare delivery like never before.

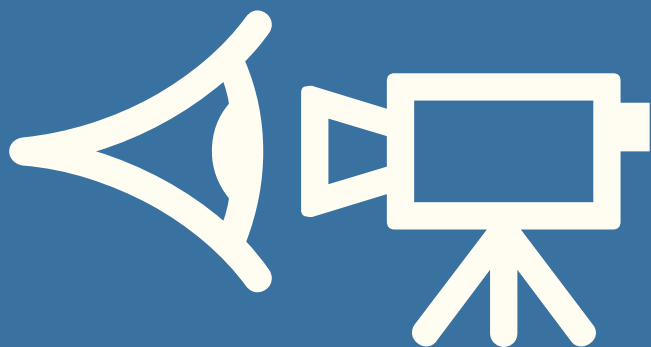
But we cannot be naïve enough to assume the impact will always be positive. As Gary Marsden states, quoting Kranzberg's maxim: "Technology is neither good nor bad, but nor is it neutral." So how do we as innovators develop a technological consciousness?

In this section you will read about innovators who have harnessed the power of technology for greater inclusiveness. These technologies are inclusive in their accessibility and affordability, enabling and empowering more people to receive the care they need.

With 253-million mobile phones across sub-Saharan Africa, the connectivity revolution is putting information in the hands of millions. But how do we ensure this information is context and culturally specific?

Are we designing products based on our perceived understanding, or out of empathy and deep knowledge of the real needs of communities? For technology to truly transform the way healthcare is delivered, our enthusiasm should be challenged into developing products and services that meet people's needs. It is not the what but the how that becomes imperative.

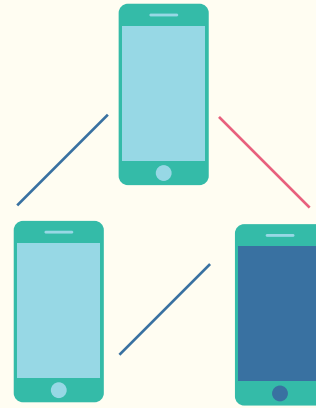
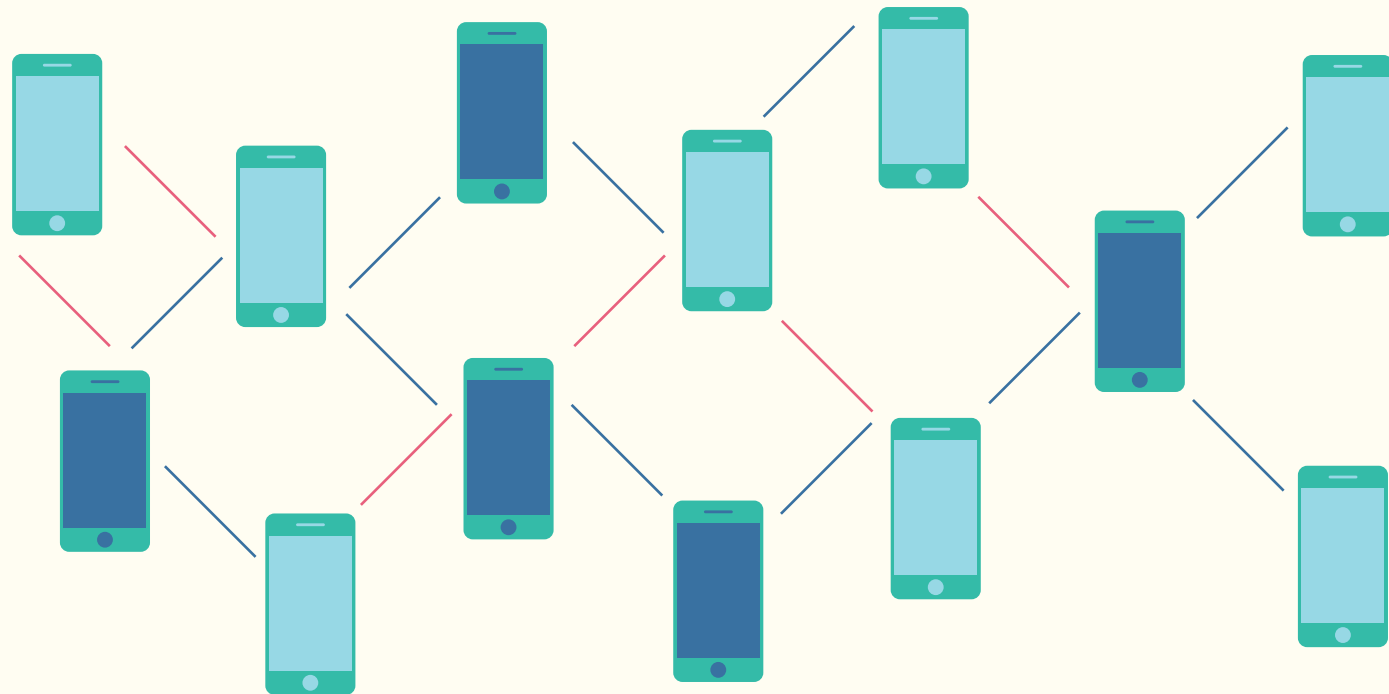
Technology can thus only be truly inclusive and effective when it is democratised through co-creation. By working together, we can build healthier societies through the power of technology.



Democratising Mobile Technology through Design

- *Opinion of*
Gary Marsden

Much has been written about the growth of cellular handset ownership in Africa. Response has ranged from wild enthusiasm about the development opportunities and access to information, to despair over what is seen as a new form of digital colonialism. Whatever your views, there is no escaping Kranzberg's maxim: "Technology is neither good nor bad; but nor is it neutral."



So if technology is to have an effect, the key questions to ask are:

- 1/ Who gets to decide upon that effect?
- 2/ And how do we create technology to have the effect we desire?

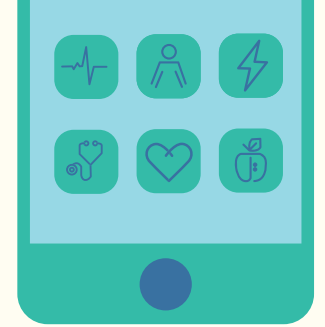
Our research group at the UCT Centre in ICT for Development is all about creating technology specifically for the developing world. Based primarily in the computer science department, we work with academics from all over the university to create relevant mobile technologies.

So how do we decide what to create? And having done that, how do we create it? It turns out that the two questions are closely intertwined.

The guiding philosophy of our group is that of User Centred Design. We work alongside communities, placing their needs at the centre of the design process. We follow an iterative method (akin to Action Research) of observing users, sketching designs with them and re-evaluating until we have a design they are happy with and we can implement. We then create that technology, deploy it in the community and evaluate its impact. This we keep iterating until we have developed a viable solution.

By following User Centred Design, we answer our first question by empowering the community to create the technology they deem fit. No external technology is forced upon them by our research agenda, by well-meaning but misguided philanthropy, or by the profit-driven desires of technology companies.

Gary submitted this article prior to his passing on 27 December 2013. He was a professor in the Computer Science Department at the University of Cape Town. He will be greatly missed by all his family, friends and colleagues. Gary inspired us all and his legacy and work will live on at the University.

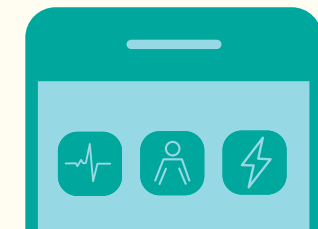


The challenge in the research is how to make sure the community we work with can express their views clearly. Many of the people we work with have no concept of technology (e.g. the difference between hardware and software); have visual and textual literacies widely different from our own and have different metrics for what constitutes a successful technology. To us, it seems this is the most honest approach we can take.

Our research contribution has, therefore, not been about the technology we create, but more about how we can effectively engage users in a technical design process in which their desires can be heard.

In this way we have created mobile software for remote diagnosis, trained community healthcare workers, created solar-power education devices, culture preservation software and many other projects. We try to refine our methods so we can more quickly and accurately create technology to meet the needs of our users. We hope to move from co-design to co-creation, by giving communities the skills to create technology for themselves. This may seem fanciful, but initiatives in end-user technology creation, such as Arduino, Scratch and littleBits are starting to democratise the creation process.

Our work will be done when we can teach communities to run these iterative design processes for themselves, and give them the tools to turn those designs into functioning pieces of technology. ■



Organisations Addressing Needs through Digital Healthcare Solutions

These organisations were selected for the Health Innovators Review for their inclusive use of digital technology to address health needs in education, adherence, and support

MOBENZI

THE NEED:

Like many developing countries, South Africa faces challenges in providing equitable primary healthcare. Community Health Workers (CHWs) are central to improving access and reducing the disease burden. But the Community Health Worker Programme has proved troublesome. Monitoring, supervision and reporting by Community Health Workers, using pen and paper, has not produced sufficient, accurate or timely insight for stakeholders and decision-makers.

THE SOLUTION:

MOBENZI RESEARCHER is a mobile field research and data collection solution which allows sophisticated forms and surveys to be designed online and deployed to Community Health Workers.

MOBENZI OUTREACH adds functionality to the Mobenzi Researcher field research and mobile data collection platform. It links Community Health Workers, supervisors, clinics and patients. This supports patient enrolment, visit scheduling, record-keeping, referrals, reporting, workflow and messaging. ■

CELL-LIFE, iDART & JUST-TESTED

THE NEED:

South Africa has the largest number of HIV infections in the world, with over 2-million people on anti-retroviral treatment. There is a big emphasis on HIV testing, but pre- and post-counselling sessions can be of low quality and quantity. Clinic visits and adherence rates to medication are also sub-optimal.

THE SOLUTION:

Cell-Life has developed two services:

iDART, developed in collaboration with the Desmond Tutu HIV foundation and the Canadian International Development Agency, is an open source antiretroviral pharmacy management and dispensing system. It includes daily positive-living SMSes and monthly clinic appointment reminders. The system has helped to change patient behaviour, improve drug-supply management, and reduce waiting times.

JUST-TESTED aims to supplement HIV testing and counselling by giving support and information to people who have just tested, whether positive or negative. It consists of free SMSes in Afrikaans, English and isiXhosa. The SMS's are sent to subscribers over four months, in line with the Health Belief Model. Most subscribers report that the SMS's are informative and help to improve their outlook on life. ■

WESTERN CAPE DEPARTMENT OF HEALTH

Electronic Continuity of Care Record

THE NEED:

Because of poor continuity of patient care between health centres, patients often do not receive the follow-up care they need after being discharged from hospital. Another problem is the low level of compliance with ICD (International Classification of Disease) coding for uninsured patients. This coding is imperative for morbidity and mortality surveillance, health financing, policy and research.

THE SOLUTION:

ELECTRONIC CONTINUITY OF CARE RECORD is a computer application used to create electronic patient discharge summaries for hospital in-patients. It provides a standardised, auditable source document for ICD coding, and improves the continuity of care for patients being discharged from hospital. (For more information, see the full profile on the Electronic Continuity of Care Record) ■

WESTERN CAPE DEPARTMENT OF HEALTH

Datacentrix Electronic Patient Record

THE NEED:

Most health institutions in South Africa maintain paper Patient Records. Physical movement of these records puts them at risk of being lost, misfiled or damaged. Lost patient medical information is a risk to the patient and the medical team. In addition, medical information cannot be easily shared between facilities. Collaboration on patient care is difficult, with clinicians having to access the physical patient file or make costly copies.

THE SOLUTION:

THE DATACENTRIX ELECTRONIC PATIENT RECORD (EPR) at Khayelitsha District Hospital in Cape Town, provides a central repository to capture and convert paper patient records to electronic medical records. The system is secure and allows medical staff to access patient records quickly and easily. The system has been integrated in the hospital's primary information system (Clinicom), preventing duplication of patient records.

An 'Episode Folder' streamlines the patient procedure and cuts waiting times. Although clinicians still create documents on paper, for regulatory compliance, these are scanned and captured electronically at the end of the visit, ensuring a complete electronic patient record. ■

THE SOUTHERN AFRICAN REGIONAL PROGRAMME ON ACCESS TO MEDICINES

Tendai project

THE NEED:

Inefficient procurement and supply systems, weak regulatory and quality assurance mechanisms and high medicine costs continue to be hamper access to quality essential medicines. Too many people in Southern Africa suffer from disease without medical relief.

THE SOLUTION:

Through the Tendai Project, Community Health Workers use mobile phones to collect data on the availability of medicines in South Africa, Lesotho, Zimbabwe, Mozambique, Malawi, Zambia, Namibia, Botswana, Swaziland, Angola and Tanzania. SARPAM coordinates the data using customised open-source survey software. Trained individuals from local communities collect information on medicine. This data is shared via mobile on the Medicines InfoHub, social networks and mailing lists. This helps to identify problems, monitor interventions, and promote advocacy. ■

HELLO DOCTOR

THE NEED:

More and more people in Africa are now able to access the Internet on their mobile phones. But when it comes to healthcare, it is more important than ever for users to be able to distinguish between trustworthy and false information.

THE SOLUTION:

The Hello Doctor platform connects medical doctors to individuals. Users receive personal advice from a doctor via website, mobile app, radio, and television, and a call center of registered doctors. Users can view free searchable health and lifestyle information, moderated by doctors. Access to doctors for individualised and confidential advice is on a subscription basis, from 95c per day to text a doctor a question, to R65 per month for a family membership, with unlimited telephonic access to a doctor. ■

(For more information see the full profile on HelloDoctor)

THE MXIT REACH TRUST

BabyInfo

THE NEED:

The infant mortality rate in South Africa is 43 deaths per 1,000 live births. This is 10 times more than in developed countries. There is poor access to good health information, and low awareness of the importance of antenatal care.

THE SOLUTION:

BABYINFO is an application on the Mxit mobile platform, equipping prospective mothers with high quality and relevant information. Mothers-to-be subscribe to the service for free and receive daily educational messages timed to the stage of their pregnancy. This service enables informed decisions regarding their health and the health of their child. The service also helps to ensure people are utilising the national health infrastructure at the appropriate times. ■

PRAEKLFT FOUNDATION

THE NEED:

1/ There is a shortage of appropriate health information for young people and mothers-to-be in developing countries. Youth behaviour can increase the risk of HIV and sexually transmitted infections, while pregnancy can pose a risk to mothers and unborn babies.

2/ South Africa has the most extensive antiretroviral treatment programme in the world. To ensure this life-saving treatment works best, adherence to treatment is paramount. The control of the spread of other infectious diseases such as TB tuberculosis also depends on adherence to treatment.

THE SOLUTION:

The Praekelt Foundation builds open-source, scalable mobile technologies and solutions to improve the health and well-being of people living in poverty.

YoungAfricaLive - is a mobile social network that engages young people on the topics of love, sex and relationships. The platform reaches 1.28-million users. Hosted on Vodafone Live, in partnership with Vodacom, the portal provides free access to stories, live chats, and other content.

MAMA South Africa - is a mobile application developed in partnership with Cell Life and the WITS Reproductive Health & HIV Institute.. It provides antenatal care education and information to pregnant women, encouraging breastfeeding and helping prevent mother-to-child HIV infection.

txtAlert - sends automated, personalised SMS reminders to patients on ARV treatment, reducing loss of follow up at clinics. Patients can receive messages with their CD4 count results. A service tailored to pregnant women provides support and encourages adherence to treatment during pregnancy. ■

(For more information see the full profile on the Praekelt Foundation)

Praekelt Foundation

- **Health Innovator**

Gustav Praekelt

Johannesburg

"A phone is a personal, individual device, but it also connects people. If you put the right kind of content on it, you can really make a difference."

A Mobile Revolution

More than a device for chatting and messaging, the cellular handset has become a powerful tool for changing behaviours and changing lives, as proved by the far-reaching initiatives of the Praekelt Foundation

The innovation:

The Praekelt Foundation is a non-profit organisation that focuses on ways of fighting poverty and improving health and well-being, through services, portals, social networks and applications on mobile devices.

The lesson learned:

Look for African solutions to African problems. The sophistication of modern technology can sometimes blind the innovator to the simplest, best, and most appropriate solutions. You don't need the latest smartphone to send a Please Call Me or receive an SMS.

The revolution arrived in 1994, ushered in by waves of change that swept the nation. At the ballot box, millions were making their mark for freedom, bridging the great divide between history and the future.

But here and there in the long, winding line, you could see the symbol of an even greater force of liberation, an instrument of democracy that would forever transform the way people went about their lives. The cellular phone.

Back then, it was a hefty tool, the size of a brick, with a narrow, oblong screen and an antenna that stuck out above your head. All you could do with it was talk. But that was enough. A few years later, Gustav Praekelt, a computer technologist, specialising in website development and motion-capture video, was wandering around Dar es Salaam, when he noticed two things. One, everybody had a mobile phone. Two, hardly anyone was using their phone to talk.

It was the beginning of the Second Wave of the Cellular Revolution: the mobile as a device for short messaging and instant access to information. Put these together, give people information they really need, and you have a tool that can not just change lives, but help to save them.

Today the Praekelt Foundation, a non-profit organisation founded by Gustav in 2007, harnesses the power of mobile technology to improve health and well-being and fight poverty in Africa. It's a bold, far-reaching ideal, and it begins with a simple premise. Ubiquity.

"A phone is a personal, individual device, but it also connects people. If you put the right kind of content on it, you can really make a difference."

The first proof of concept was a service called TxtAlert, which sends text messages to people with chronic conditions, reminding them to take their medication and keep their clinic appointments. The results have been heartening.

In the initial trial at the Themba Lethu Clinic in Johannesburg, the largest HIV antiretroviral treatment site in the country, missed appointments fell from 30 per cent to 4 per cent when patients began receiving txtAlert reminders. The service, free to use, has since been extended to include TB treatment

reminders and messages of support and advice to pregnant women, with the focus on preventing mother-to-child transmission of HIV.

The success of this initiative led logically to MAMA: Mobile Alliance for Maternal Action, which uses three mobile channels to "inform and empower mothers". The service sends weekly SMS messages, from a mother's fifth week of pregnancy to her baby's first birthday, with advice on nutrition, child safety and vaccination, and developmental milestones.

But the power of mobile is also the power to reach out and connect, and MAMA includes a community portal, askmama.mobi, that features polls, articles, life-guides, and stories from mothers. The service has been well accepted, says Gustav. "Mothers report feeling informed, validated and empowered, and have changed their behaviour as a result of mobile messaging."

Then there is YoungAfricaLive, a mobile social network, developed in partnership with Vodacom South Africa that engages young people in a bid to prevent and combat HIV/AIDS. The focus is on love, sex, and healthy relationships, with lifestyle and celebrity articles, blogs, surveys, and live chats hosted by young people themselves.

Inclusive, easy to use, and affordable, the Praekelt Foundation's initiatives are proof that mobile technology can make the connections that can change behaviours and lives.

"Mobile has become the primary means by which people want to access information," says Gustav. "But you need to begin by looking at real-world problems, and asking how you can use mobile to solve them. You need to ask people, how can we help you? How can we make your life easier or better? People will only change their behaviour if they're connected to people they trust."

In information, lies education; in education lies the prospect of positive change. And it's all on a mobile device in the palm of your hand. That is the real revolution. ■

Hello Doctor

- Health Innovator

Craig Townsend

Cape Town

Your doorbell rings in the middle of the night. You answer, and there stands your friendly family doctor, black bag in hand, ready to attend to your medical concern. The house call, once a staple of clinical practice, is now largely a relic of a simpler, different age. And yet, in the 21st Century, doctors and their patients are more mobile, more connected, than ever before.



A Doctor In Your Pocket

Opening new horizons for mobile technology, the Hello Doctor service is putting preventative healthcare and lifestyle management on the line

So imagine this updated scenario: your cellphone rings in the middle of the night. You answer. It's a fully qualified and experienced doctor on the line, ready to offer advice, give you guidance, and put your mind at ease.

Welcome to Hello Doctor, a South African mobile health portal that connects the public to a network of General Practitioners and Emergency Medicine specialists, who dispense information on preventative care and lifestyle management by text message or voice call.

As Craig Townsend, founder and director of Hello Doctor explains, the service is not intended as a replacement for face-to-face consultation, nor does it offer medical diagnosis or decisions on treatment. Rather, it takes a modern approach to an age-old healthcare dictum. Know thyself.

"Our goal is to help educate people to live a better, healthier life," says Craig, who traces the idea for Hello Doctor back to a busy day at the Red Cross War Memorial Children's Hospital in Cape Town, where his young daughter, who has systemic juvenile arthritis, was being treated.

Looking at a long queue outside the outpatients clinic, waiting their turn to be treated, Craig thought to himself: every one of these people probably has a phone in their pocket. A marketing consultant by background, he had been involved in setting up call centres for banks, and he wondered if the same approach - the mobile phone as a tool for cutting queues and accessing information - could work in the healthcare arena.

There was only one way to find out. Craig teamed up with fellow entrepreneur Andrew Milne and doctors Steve Holt and Michael

"Doctors are intent on pulling people out of the river. We get to go upstream and stop them from jumping in the river. We want to move away from sickness, and towards health."

Mol, to conceptualise and launch Hello Doctor. Today, with MMI owning a majority stake, and in partnership with MTN and Vodacom, Hello Doctor is a thriving commercial enterprise with about 600,000 registered users.

Subscribers pay for direct access to doctors via a "Digital Doctor" text message or a telephone "House Call", but there is also plentiful free and interactive health content on the online portal (www.hellodoctor.co.za), and the mobile app, Mxit, social media, radio and television platforms. Here, once a week on SABC2, the affable Michael Mol is the star, shining a light on healthcare issues in an upbeat, easily accessible manner.

Once again, the focus is on prevention, rather than cure. "Doctors are so intent on pulling people out of the river," says Michael. "We get to go upstream and stop them from jumping in the river. We want to move away from sickness, and towards health."

As a GP himself, Michael stresses that the Hello Doctor service, particularly the House Call component, does not equate to telemedicine, or diagnosis by distance. "Patients are not expecting a diagnosis or a prescription," he explains. "A lot of the calls we get are just for reassurance."

The company's partnership with MTN and Vodacom allows users to pay for subscriptions with airtime, and the mobile app is free to download. All calls on the service are recorded, and doctor-patient confidentiality is guaranteed, says Michael.

Where there is any doubt or concern, the doctors on the network, who work on a rotating basis using call-centre technology, will advise subscribers to consult with a clinician. Even so, Hello Doctor has faced criticism from regulatory bodies, such as the Health Professions Council of

The innovation:

Hello Doctor uses the power of mobile technology to connect the public to General Practitioners and Emergency Medicine specialists, who offer valuable information on preventative healthcare and lifestyle management.

The lesson learned:

Technology enables knowledge, and knowledge can enable health. Tap into the vast potential of cellphones as tools for learning, and you can build a network that connects people who need information and advice, to those who best equipped to provide it.



Andrew Milne & Craig Townsend

Image Credit: Peter Maltbie

South Africa (HPCSA), which has expressed concerns over confidentiality and informed consent.

But in a country where the estimated out-of-pocket expenditure on private healthcare was R37-billion in 2012, the need for expert, authoritative advice on prevention and wellness cannot be ignored, says Craig.

"What we are, in essence, is a technology enabler. There will never not be a need for people to go and see a doctor face-to-face. But at the same time, there are masses of people out there with a hunger for information on healthcare issues. We believe the delivery system has to change to include new ways of addressing the need for a broader health consciousness."

Already, Hello Doctor is expanding into other African markets with MTN, and it has a contract to provide mobile health services for the largest cellular operator in Indonesia. This is innovation on a global scale, and while the issues of regulation still need to be resolved, it's clear that the mobile revolution has found a new platform. It's not just the doctor calling. It's the future. ■

Beyond Product Design: The importance of the use case and how human-centered design can get you there

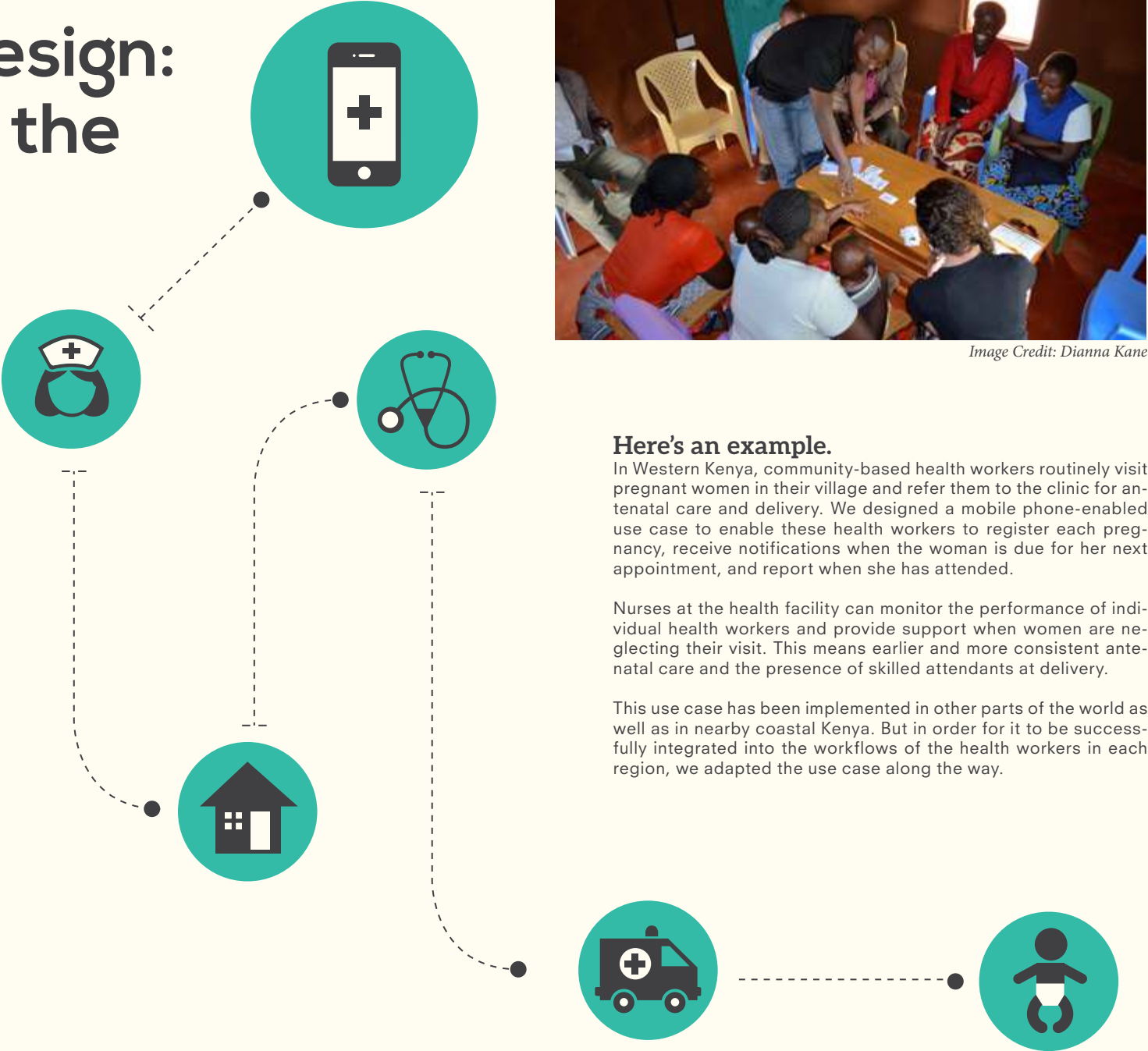
- *Opinion of*
Dianna Kane

The rise of human-centered design has yielded more locally-relevant products and services than ever before. But many of these products fail to gain traction and scale in the communities they are meant to serve.

At Medic Mobile, human-centered design inspires us to look beyond the product to understand daily work practices, home life, and other contextual factors that may affect or be affected by a new technology.

We call our technology products tools rather than solutions, and we refer to the actions or workflows they enable as “use cases”, because we believe technology is only as good as what someone does with it.

The design of the use case is as important as the design of the technology. It is critical that we understand a user’s thought process and decision-making patterns, the relationship health workers have with patients, families, and community members, and what resources, such as transportation, they have at their disposal. This helps us refine the concept for our product design, but also to explore use cases that can be enabled by the tools at our disposal.



Here’s an example.
In Western Kenya, community-based health workers routinely visit pregnant women in their village and refer them to the clinic for antenatal care and delivery. We designed a mobile phone-enabled use case to enable these health workers to register each pregnancy, receive notifications when the woman is due for her next appointment, and report when she has attended.

Nurses at the health facility can monitor the performance of individual health workers and provide support when women are neglecting their visit. This means earlier and more consistent antenatal care and the presence of skilled attendants at delivery.

This use case has been implemented in other parts of the world as well as in nearby coastal Kenya. But in order for it to be successfully integrated into the workflows of the health workers in each region, we adapted the use case along the way.



Image Credit: Dianna Kane

Using participatory methods, such as sketching and role playing, we take time to understand the work practices of community health workers and the cultural norms surrounding pregnancy, identifying unique aspects that must be incorporated for the use case to achieve its intended impact.

In Western Kenya, we learned that many community health workers are men, and this affects the kinds of information they are culturally permitted to ask of women. We therefore adapted the antenatal care use case to remove the last menstrual period as a required piece of data.

If we had left this question in, as we had done in other regions including coastal Kenya, we may have witnessed a decline in the use of our tools or the existence of false data. We might have incorrectly blamed this failure on the usability of the technology, hence initiating another product design cycle. Instead, by understanding upfront that gestational age is best reported by the clinic nurse and not the community health worker, we could adapt the use case to work with the existing system instead of against it.

Some of the most fun we have with this approach is observing the use cases people invent for themselves. In Western Kenya, nurses began using their mobile phones to refer pregnant women to their local community health worker if they were not already connected to one. Community health workers are using their phones to communicate with traditional birth attendants, who are often the first point of contact when a mother goes into labour, and to coordinate emergency transportation during delivery.

If we had narrowly focused on evaluating our technology tool or specific use case on implementation, we could have missed these valuable insights into other high-priority use cases. The effect of approaching technology projects through this lens is therefore greater than having a more successful technology project; is it an opportunity to validate a community’s priorities, by taking the time to notice and prioritize the problems that people solve first when you put a tool in their hand. ■

**Dianna is the Senior Designer
at Medic Mobile in San Francisco**

Shonaquip

- **Health Innovator**
Shona McDonald
Cape Town



Shona McDonald *Image Credit: Peter Maltbie*

To mould clay with your hands, to imbue it with the shape and essence of life, to cast emotion in stone. That is the gift of the artist, and Shona McDonald is one. Her sculptures of the human form are tactile and classical, showcasing an artistic spirit that is in sync with the way people move.

But today Shona deploys that spirit in pursuit of a greater goal: to design a better way of living for people with disabilities.

As a social entrepreneur, based in Cape Town, Shona founded Shonaquip, a company that designs, manufactures, and distributes wheelchairs and other devices that can improve the posture and mobility of children with disabilities.

The heart of the company, and its associated non-profit organisation, the Uhambo Foundation, lies very close to home.

In 1982, Shona’s second daughter, Shelly, was born. “I knew from the start that something was wrong,” recalls Shona. “It took us six

Going Mobile
When her daughter was diagnosed with cerebral palsy, Shona McDonald started a journey that would transform her life and the lives of many others

months to get the diagnosis. The only advice we were given was to put her in a home, and have another baby. I was so angry. I was determined to prove that she could lead a quality life.”

Shelly had cerebral palsy, and by the time she was 18 months old, she was getting too heavy for Shona to carry. But the only mobility chairs available, in an era of sanctions against South Africa, were hospital folding-chairs for adults, or prams with wooden or cardboard inserts.

Then a cousin visited from England, bringing a set of wheels and motors in a rucksack. Shona took them, along with a picture of an electric wheelchair with customisable seating, to the biomedical engineering department at the University of Cape Town.

There is a saying in South Africa that nicely sums up the nature of innovation as a process of tinkering, re-tooling, and adapting. “’n Boer maak ’n plan.”

In this case, the plan turned out to be a battery-powered, multi-terrain buggy that gave Shelly her freedom, and steered the way to an enterprise that has made a difference to the lives of over 70,000 children.

For Shona, that is not enough, in a country where more than one-million people need wheelchairs. “It is a sad statistic,” she says. But it is a start. Shonaquip makes a range of mobility and body support devices, from beach buggies to upright wheelers and full body support power chairs, designed with rural environments and tough terrains in mind.

Clinically, says Shona, their primary purpose is to improve each user’s function and prevent or delay the onset of secondary health complications, such as spinal deformities and aspirating pneumonia, in children with disabilities. But there’s more to it than that. They are vehicles that can empower independence.



The innovation:
Shonaquip designs, manufactures, and distributes customisable wheelchairs and other devices that can improve the posture and mobility of children with disabilities.

The lesson learned:
There are no “ideal conditions” and situations that allow innovation to take place. Start with what you have, even if it’s just the thought that things can and should get better. Then turn the thought into a blueprint, and surround yourself with people who have the knowledge and expertise to bring the blueprint to life.

“If independence is just the ability to swallow without choking, that’s enough for me,” says Shona. “But if it’s the ability to push yourself to school, that’s even cooler.”

Frustrated by the barriers to accessing mainstream education, Shona schooled Shelly at home for the first few years, and helped start a network for other parents of children with disabilities.

“The thinking back then was that the medical fraternity knew everything, and that treatment was something you did to children, rather than with them.”

Later, applying her natural design skills to the challenge, she “dug in” to the science behind posture management and seating, drawing a line between art and biomechanics.

While those versatile buggies have proved their worth at conquering severe deformities and the obstacles of rough, hilly ground, the longer ride for Shonaquip is towards a future where people in wheelchairs can start their own businesses, earn their own incomes, and uplift their own lives.

Shelly is now the “face of Shonaquip”, smiling proof of her mother’s stubborn refusal to take no for an answer, and to fashion for herself the simple, affordable, back-to-basics solutions that can help people with disabilities lead a life of quality, independence, and inclusion.

As for Shona, what she has learned is that you can’t sit back and wait for other people to make a difference.

“If something feels right, just do it,” she advises. “The minute you have the thought, you have the opportunity. You can’t wait for the right time, the ideal environment. You have to create it, and you have to surround yourself with smart people who can help to make it happen.”

She tells the tale of a little two-year-old from Namibia, brought to Shonaquip for an assessment. He could only leopard-crawl his way around, and he could do little more than cry.

“We made him a tiny little chair and an upright wheeler, so he could stand with support. Within seconds, he turned from being a miserable, disempowered kid, into an awesome little terror.”

The power of technology lies not just in the tools we use, but in the solutions we design. As Shona McDonald has discovered for herself, that is the real art of innovation. ■

“If something feels right, just do it. You can’t wait for the right time, the ideal environment. You have to create it, and you have to surround yourself with smart people who can help to make it happen.”

Local Medical Device Organisations Innovating Inclusively



POWERFREE EDUCATION AND TECHNOLOGY

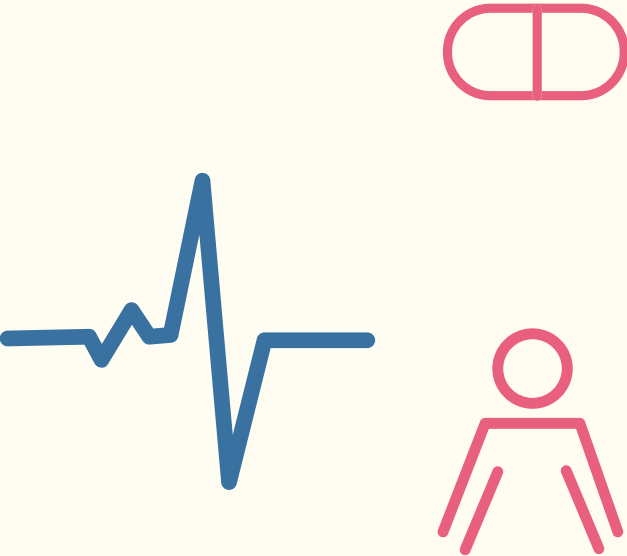
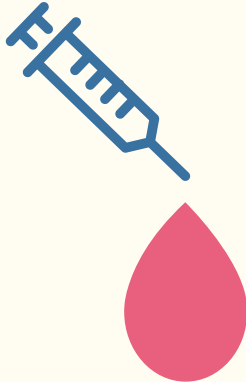
is a not-for-profit humanitarian organisation, established by a group of academic clinicians with expertise in paediatric and obstetric care. These clinicians identified a lack of appropriate non-electric powered monitoring devices as a major obstacle to improving the care of mothers and infants in under-resourced countries. They approached Freeplay, leaders in designing wind-up radios and flashlights, to develop prototypes of a wind-up doppler fetal heart rate monitor and a wind-up pulse oximeter. Safe, effective, and affordable, these devices operate independently of electricity or replaceable batteries. The devices have been able to empower hundreds of nurses and midwives to deliver appropriate care to their patients. The Fetal Heart Rate Monitor was awarded the INDEX Design for Life award in 2009. ■



Medical Technology is developing in leaps and bounds, but often the most basic devices are inaccessible and unaffordable to the 84% of South Africans who depend on public-health care. We take a look at some other organisations that stood out for developing products which are inclusive, accessible, and affordable

MEDICAL DIAGNOSTECH

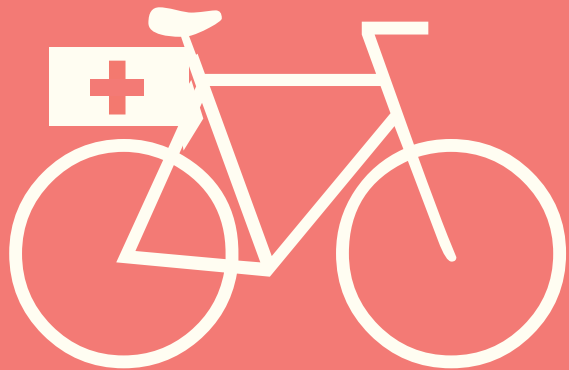
produces rapid point of care diagnostic tests which require no expensive equipment or experienced lab staff. The tests function on a simple 1-2-3-step procedure, generating results within 30 minutes. The technology addresses two pressing African health challenges: malaria and HIV. In 2012, malaria claimed 627 000 lives, 90% of which occurred in Africa. In that same span, 1.2 million deaths occurred in Africa due to HIV. The diagnostics of this company, founded by biotechnologist and entrepreneur Ashley Uys, are well-suited for rural health facilities and cost as low as R4 for a malaria test and R5 for an HIV test. These diagnostics are also able to distinguish between different strains of disease, enabling doctors to choose the most fitting treatment. ■



STRAIT ACCESS TECHNOLOGIES (SAT)

was co-founded by Prof Peter Zilla, a cardio-thoracic surgeon and Director of the University of Cape Town's Cardiovascular Research Unit. The company works to reduce the 1.4 million deaths caused annually due to Rheumatic Heart Disease (RHD). This condition, most prevalent in sub-saharan africa, is caused by a bacterial infection in children age 5 to 14, leading to deterioration of the heart valves. The majority of deaths attributed to RHD are preventable through valve replacement surgery. Only seven African countries have access to independent cardiac surgical programmes that can perform this surgery. SAT has developed durable, low-cost synthetic heart valves that can be easily deployed. This cost-effective solution was designed exclusively for use by low-skilled health care workers in low resource settings. In this way, it is addressing the unique challenges of treating younger patients in the developing world. ■

PIONEERING APPROACHES TO DELIVERING VALUE



Africa is in need of a revolution in care. So often the care in ‘healthcare’ is neglected. When we think of delivering healthcare on a grand scale, as is required on our continent, our default action is to mechanise it.

Improving productivity and achieving greater efficiency amidst resource constraints is paramount in any business. But we are not in the business of producing cars. We are in the people-business.

The essence of healthcare lies in caring for our fellow human beings in the way each of us would want to be cared for. With respect, dignity, and compassion, in a manner that not just takes away disease, but restores wellness.

Care is achieved when we transcend the types of services delivered, and we start focusing on experience. Caring approaches to delivering health services have one factor in common. They are developed out of a deep empathy and understanding of the needs of the users of the service.

So how do we care for an entire continent? This section features pioneering innovators who have adopted novel approaches to delivering care. North Star Alliance has changed the place of care delivery to the roadside, to be able to meet the needs of truck-drivers who spend their days on the road across 13 African countries.

Kheth’Impilo has challenged the notion that only health workers can deliver care, finding great effectiveness in training an army of patient advocates to walk the journey with people affected by HIV. Peer support and encouragement can carry the same value as a prescription.

Lastly, OCSACare has been able to provide blue-collar workers with access to a well-managed care network offering unlimited and affordable insurance cover.

Innovations such as these prove that it is possible to design caring and pioneering approaches to serve Africa and its people. All we really need to do, for a start, is listen to the people we serve, and draw them in to a co-created tomorrow.

Delivering Value at the Doorstep



It's not always easy, in a country as huge as South Africa, for people in outlying areas to access the healthcare they need. Travelling to hospitals and clinics isn't always a simple task. And that's why a handful of innovators have made moves to distribute these much-needed services.

The **Transnet Phelophepa Health Trains** use South Africa's rail-way network to take mobile clinics into the country's heartland, attending to 200 000 patients a year.

The Red Cross War Memorial Children's Hospital has established an **Paediatric Cardiology Outreach Programme** that takes treatment to young patients at the level 2 regional referral hospital in George.

And then the **Iyeza Express** sees enterprising entrepreneur Sizwe Nzima getting on his bicycle and delivering medication to patients in Khayelitsha.

In each case, healthcare innovators are going out of their way to bridge the gap between patient and healthcare facility. But Professor Jannie Hugo, Head of the Department of Family Medicine at University of Pretoria, sees a different solution to the problem. "We need a different understanding of health care and well-being," he says, illustrating his argument with a metaphor.

In the quest to link patients with healthcare facilities, two schools of thought are emerging: one that takes the service to the patient, and another that makes the patient part of the service

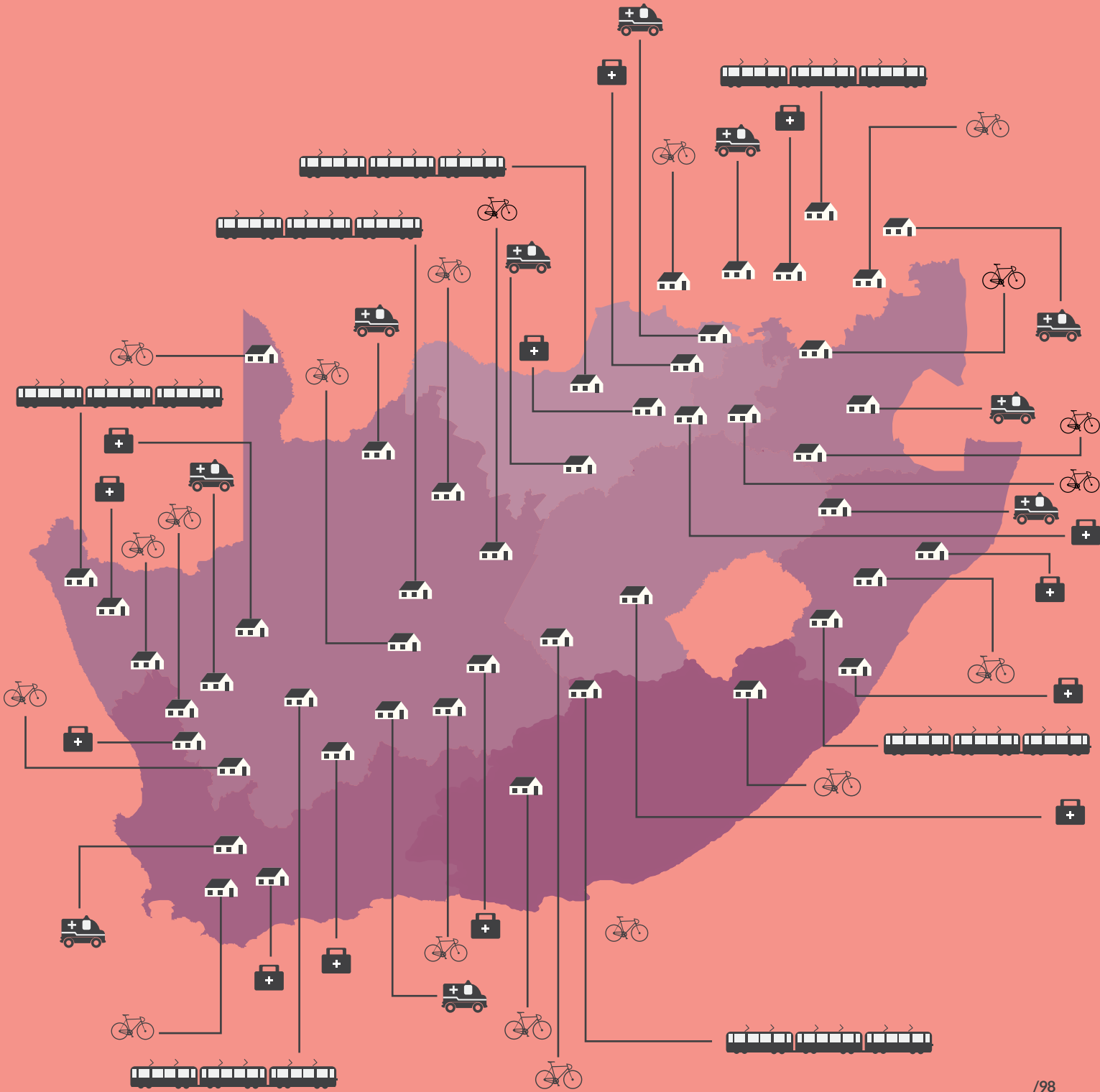
"Imagine a water system where you take a five-litre bottle, get into a taxi, and go to a central place, fill the bottle up with water and then come back home, with the water half spilled and the bottle half empty. Now the alternative to that is the distribution of water via pump, or – even better – a harvesting of rainwater."

For Professor Hugo, the solution to decentralising the place of care is not simply a matter of distributing what you have in institutions to places closer to the patient's home. "Obviously a network would help, but that's not the issue," he says. "The issue is to have an understanding of what needs to happen to turn around the health of people at a large scale, and to design a way of doing and a way of thinking that can feed into that."

He draws inspiration from the impact changes in communication technology have had on the lives of poor people. "If you just take that as an analogy, then in the same way you can democratise the understanding of health and practices on the same level."

"When we teach medical students, it is to help them develop that capability. In the same way, community health workers must develop that capability in the community, and the mother must develop that capability in the family. People need to be enabled to understand and make choices, and implement those choices. They must have access to the knowledge, but in a way that they can really access it – so it's not just a poster on a wall."

The way Professor Hugo sees it the solution doesn't lie in distributing an existing service. "There is value in that," he says, "but it's more about democratising the capabilities of health – and that has to go further than messaging and billboards." ■



North Star Alliance

- **Health Innovator**
Paul Matthew



Image Credit: North Star Alliance

They travel a long and lonely road, from harbour to border post and beyond, hauling the goods that keep a nation on the move. Their job holds many hazards, from fatigue induced by distance to tarmac slick with rain. But when it comes to taking care of their health, the long-distance truckers of sub-Saharan Africa have an ally as they follow the north star to their destination.

The sight of a “Blue Box, a mobile clinic fashioned from a converted freight container, is a reminder that here, people care about the wellness of those who spend long days and nights behind the wheel. These are the Roadside Wellness Centres, run by North Star Alliance, a non-profit organisation born from a partnership between the United Nations World Food Programme (WFP) and the TNT courier company.

The original aim of the partnership was to alleviate hunger in Southern Africa, but the focus soon expanded to include the drivers who were ferrying food to stricken communities. Some transport companies had lost more than half of their truck driving workforce to HIV/AIDS, explains Paul Matthew, Regional Director, Southern Africa of North Star Alliance, and an entire generation of truck drivers was at risk. “Long distance truck drivers in Sub-Saharan Africa have an HIV infection rate which is almost twice as that of the general population,” says Paul.

The Road to Wellness

Long-distance truckers keep the economy on the move, but they face many hazards to their health. Now a bold initiative is helping them to look after themselves on the journey to a better, healthier life

The innovation:

The North Star Alliance is a non-profit organisation that sets up Roadside Wellness Centres along major trucking routes in Africa, to care for the health needs of transport workers and the surrounding communities.

The lesson learned:

Get a good, solid, workable strategy in place before you take your idea on the road. Innovation in healthcare depends on the power of partnership, and potential partners in the public, private, and donor sectors will need convincing not just of the sincerity of your intentions, but on your ability to put proposed solutions to work.

ROADSIDE WELLNESS CENTRE

The sight of a “Blue Box” is a reminder that people care about the wellness of those who spend long days and nights behind the wheel.

With a background in healthcare education and training in the transport sector, Paul helped to set up the first Roadside Wellness Centre in Harrismith in the Free State in 2000. Set up at a junction, it consisted of an ambulance and a nurse from the Department of Health. “The truckers started queuing,” recalls Paul, “and most of them were found with an STI infection of one kind or another.”

Clearly, there was a need for a bigger, broader prevention and treatment programme, in a region where healthcare facilities are often located far from trucking routes, and are open at far from convenient times. Today, the Blue Boxes have expanded into a network of 32 Roadside Wellness Centres that reaches more than 260,000 people in 13 African countries, a number that North Star Alliance hopes to double by 2015.

Each “containerised” clinic is staffed by clinical and outreach teams, recruited from the local community. The sites, identified after feasibility studies and surveys, are typically located near border posts, transit towns, and ports.

As Paul explains, these are “critical hotspots”, where trucks stop en route and where sex work and other informal trades flourish, exposing truckers and the community to sexually transmitted infections and other infectious diseases. The clinics, designed to World Health Organisation (WHO) standards, provide treatment and screening for STIs, tuberculosis, malaria, and HIV, as well as for maternal, perinatal and nutritional conditions and non-communicable diseases.

All the healthcare is provided for free to the truckers and the surrounding communities, says

Paul. “In effect, we become an extension of the Health Department’s services in an area.”

But putting a Blue Box in place isn’t simply a matter of converting a shipping container, painting it blue, and equipping it with facilities at a carefully-selected roadside spot. The logistical and bureaucratic challenges are huge, and each Blue Box takes about four months to set up, in tandem with some 70 partners from the private, public, and humanitarian sectors. Given the nomadic nature of the transport business, tracking of patients is also vital.

That’s why North Star Alliance developed a software system called COMETS (Corridor Medical Transfer System), which captures and stores data and acts as an electronic health passport.

“We know that a Blue Box can’t solve all the health challenges facing our clients,” says Paul, “but we’ve been amazed to discover just how much of a difference they can make.” While the prevalence of HIV/AIDS in the road freight transport industry remains a big concern, Paul has been gratified to see a reduction in STIs, and an increase in awareness and the use of condoms.

He recalls the man who walked up to him at the border post at Beit Bridge, en route to Zimbabwe, and shook his hand in a warm greeting. Paul didn’t recognise him at first, because he had last seen him a while back at a Roadside Wellness Centre in Harrismith, looking ill and emaciated. Now he was feeling fit, strong, healthy, and ready to drive the long route. To follow the north star, on the road to wellness. ■

Kheth'Impilo

– Health Innovator

Dr Ashraf Grimwood



Image Credit: Kheth'Impilo

Time and time again, Dr Ashraf Grimwood has witnessed the transformation to positive living. He has seen them slouching in, cloaked in quiet despair, the weight of the world pressing down on their shoulders. And then, just a few sessions later, they would be striding out, back straight, head held high, happy to be alive. They would have learned the most important thing, the key to catharsis: that they were not alone. And in turn, they would be ready to help and support others whose destinies were bound up in their own.

HIV/AIDS affects families, communities, economies and nations. But even as the ripples spread out, they can be drawn back in, into circles of caring that embrace and empower, with a bold and simple choice at their core. Life itself.

Kheth'Impilo means “Choose Life” in the Nguni group of languages, and it is the name of a not for profit organisation that seeks to fulfil a grand ideal in primary healthcare in South Africa.

Choosing Life

In the battle against a virus that that holds the power to destroy lives and wreak havoc in communities, Kheth'Impilo is making a positive difference through its unique model of training, mentoring, and patient advocacy

“We want to see an AIDS-free generation in our time,” says Dr Grimwood, CEO of Kheth'Impilo and a veteran of the struggle against the virus.

It's a war that will not easily be won, but every day brings a small victory in the field. More than 6-million South Africans are living with HIV, but the country has come a long way since the days of official AIDS denialism, and treatment with antiretrovirals now allows many to lead lives of quality and good health.

“The overall goal is complete virological suppression,” says Dr Grimwood. “That means people have to be treated, and they have to stay on treatment, and we have to have continuous monitoring of their viral count.”

A frontline warrior in the war against HIV/AIDS since the late 1980s, when he worked with Aboriginal communities in the small town of Walgett in New South Wales, Australia, Dr Grimwood has seen a dynamic shift in the way people cope with their diagnosis and learn to manage their condition.

But the real revolution has been in the realm of care, and it is here that Kheth'Impilo rolls up its sleeves and puts the proposition in its name to work. The scale of the AIDS pandemic, along with the increasing risk of TB as an opportunistic co-infection, puts a heavy burden on healthcare professionals in the public system, potentially compromising access to prevention, treatment, care, and support.

Ashraf Grimwood — Image Credit: Kheth'Impilo



The innovation:

Kheth'Impilo is a not for profit organisation that provides specialised training and mentoring for community healthcare workers, in the quest for an AIDS-free generation in our time.

The lesson learned:

Innovation in healthcare depends on people who are themselves fit and healthy enough to take on the magnitude of the task. Don't neglect your own health and wellness in the quest to improve the well-being of others.

Kheth'Impilo is helping to fill the gap, by providing specialised education on HIV and TB management for clinical staff, and by training, mentoring, and deploying “cadres” of healthcare workers from within affected communities.

These innovative learnership programmes support transformation in the public health sector, by creating employment and mobilising funding.

Matriculants are carefully selected for training as pharmacist assistants, social auxiliary workers, community adherence workers, quality nurse mentors, and phlebotomists, who are attached to community clinics once qualified. Much of the work focusses on the needs of mothers and caregivers, and of children orphaned or made vulnerable by the epidemic.

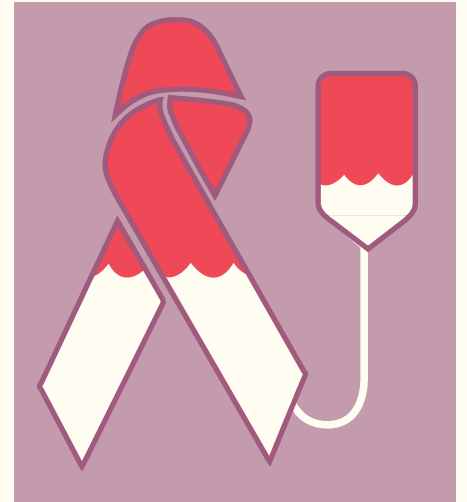
But the axis of the Kheth'Impilo programme is an innovative model of patient advocacy, which brings one-on-one counselling and support to people who are grappling with the challenges of living with HIV and AIDS. Many of these patient advocates are themselves HIV-positive, adding an extra degree of empathy to their work in the field.

They are shoulders to lean on, bearers of useful knowledge and information, facilitators of treatment regimens and healthy lifestyle management. But more than that, they are friends in troubled times, agents of personal change and transformation.

“They stand up for the rights of patients,” says Dr Grimwood. “A lot of people with HIV/AIDS are able to cope very well, to get on with their lives and careers. But they're still vulnerable. They need someone to give them support, to help them in their darkest moments.”

Today Kheth'Impilo employs more than 900 staff, including 450 patient advocates, and reaches over 200,000 patients and their families in districts with a high prevalence of HIV in the Eastern Cape, KwaZulu-Natal, Mpumalanga and the Western Cape.

The programme is unique in its approach to the management of HIV and TB, and the data show that 79 per cent of patients supported



The real revolution has been in the realm of care, and it is here that Kheth'Impilo rolls up its sleeves and puts the proposition in its name to work. Choose Life.

by a patient advocate remain in care and virologically suppressed at 60 months after treatment initiation. That gives good cause for hope, in the war against a foe that can never be taken for granted.

“The virus is incredibly dynamic,” says Dr Grimwood. “It destroys on a daily basis. If we let our guard down, if we become complacent, it's going to continue to wreak havoc in our communities.” At the same time, after almost three decades in the frontline, he remains energised and inspired by the very people who live with the virus.

“I meet new patients, I give people diagnoses every day, and I'm amazed by the resilience of humanity,” he says. “People say, Ashraf, how do you cope? And I say, my patients cope very well.” It helps that they are not alone, and in choosing life, they can learn once again to walk tall. ■

OCSACare

- Health Innovator

Cape Town



In factories and shops and offices, in the engine-rooms of industry and commerce, the workers of South Africa keep the economy on the move. But workers are not machines; they're only human, susceptible to ailments, illnesses, and injuries that can compromise lives and livelihoods and put a spoke in the wheel of productivity.

Health, as the old saying goes, is wealth, and the healthier the nation, the better off we all will be. According to Stats SA, absent workers cost the country more than R12-billion a year, with a third of public sector workers absent for health reasons, compared to just over 9 per cent in the private sector.

The prescription for making things better? Unlimited, affordable private healthcare for low-income earners. That sounds like a distant ideal, in a country where less than 20 per cent of the population has access to private medical cover. But a Managed Healthcare company called OCSACare is helping to bridge the gap, by offering "premium, private, day-to-day healthcare" to its mainly blue-collar members.

A joint venture between Occupational Care South Africa (OCSA) and the CareCross Health Group, OCSACare utilises a contracted network of General Practitioners, dentists, optometrists, radiologists, and pathologists in private practice.

That eases the burden on the State health sector, and on companies that have to contend with workers taking hours or even days off to attend to their health concerns at government facilities. It's not unusual, for example, for a worker to wait from 8am to 4pm just to get a chronic prescription filled at a clinic.

Blue-Collar Benefits

Bringing the benefits of quality, affordable private medical cover to its mostly blue-collar members, a South African managed healthcare company is helping to build a healthier, more productive workforce

The innovation:

OCSACare is a managed healthcare company that offers "premium, private, day-to-day healthcare" to its mainly blue-collar, minimum-wage-earning members.

The lesson learned:

In every inequality, lies an opportunity to explore a solution that will help to narrow the gap and make a meaningful difference, not just to individuals but to the economy as a whole.

"Health, as the old saying goes, is wealth, and the healthier the nation, the better off we all will be."



With OCSACare, explains the company's Key Account Manager, Sean Johnson, that chronic medication can be delivered personally to the worker, on schedule, at the workplace. Likewise, a worker with a minor medical problem can slot an appointment with a contracted private GP into the workday, minimising disruption and easing the anguish of a long wait for treatment.

These are privileges that white-collar workers, covered by private medical care, have long taken for granted. OCSACare offers similar benefits for a modest premium of R214 (ZAR) a month, with no co-payments and no cash changing hands for a provided service.

Most of OCSACare's members earn a minimum wage, and would not be able to afford the typical fees for a cash consultation: up to R250 (ZAR) for a visit to a GP, R300 (ZAR) for a visit to a dentist, and R895 (ZAR) for a visit to an optometrist.

With its clearly identified niche in occupational health, OSCACare currently covers the healthcare needs of about 22,600 members, but the company has a strong preventative focus too.

"One of our core values is to ensure that members are healthy, productive and able to enjoy a good quality of life," says Sean. That holistic approach includes education and treatment programmes to tackle the two most common chronic conditions, hypertension and diabetes. The company also provides regular management reports on illness in the workplace, allowing companies to track the most common health complaints and take positive measures to prevent and address them.

For all the challenges facing public healthcare in South Africa, life expectancy is improving, from an average age of 53 in 2005, to 60 in 2013, according to a report by the Statistician General. "This is in part due to government intervention in healthcare as well as a growing economy," says Sean, "but the problem remains. A burgeoning population relying on diminishing government resources."

As OCSACare's CEO, Annie Radmanovic, sees it, the onus for providing quality healthcare, in line with the Bill of Rights, cannot lie with Government alone.

"It also resides with private industry. We've been able to prove that bringing affordable private healthcare to all in South Africa is possible."

The growth and success of OCSAcare, with it well-managed service provider network and its efficient delivery of healthcare, could serve as a model for the implementation of National Health Insurance in South Africa, says Sean. But there is more to the scheme than medical cover alone.



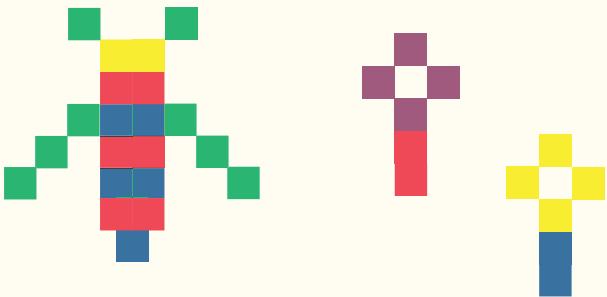
"We also bring hope to people," says Annie. "They no longer need to fear illness, and they don't need to fear that they're going to be absent from work. They can visit our doctors, get treated, become healthy, and have quality of life. And that's in the best interests of us all." ■



The Role of Service-Design in Healthcare Transformation

– Opinion of
Richard Perez

The public sector, specifically the healthcare sector, is populated with many a wicked problem. The systems that embody these sectors exhibit complex, dynamic and ambiguous characteristics. Improving or changing them requires a tool that embraces these characteristics head-on, yet at the same time is able to deliver better efficiency, user value and innovation.



The process of design thinking embraces such complexity. Relying predominantly on abductive logic, it embodies three main activities: creative thinking, user-centricity and collaboration.

1\

In the creative thinking processes, new ideas are generated. These processes offer a place of exploration, a place of safety that fosters experimentation and discovery. Creative thinking is a reflective process that builds on lessons learnt from earlier work, from a success and failure perspective.

2\

The principle of user-centricity puts the user at the core of the thinking process. It identifies the empathetic values of the humans in the systems, the critical stakeholders who, without the system, would cease to exist.

3\

Finally, collaboration encourages diversity in the process, sweeping in different perspectives and world views to ensure solutions are balanced. ■

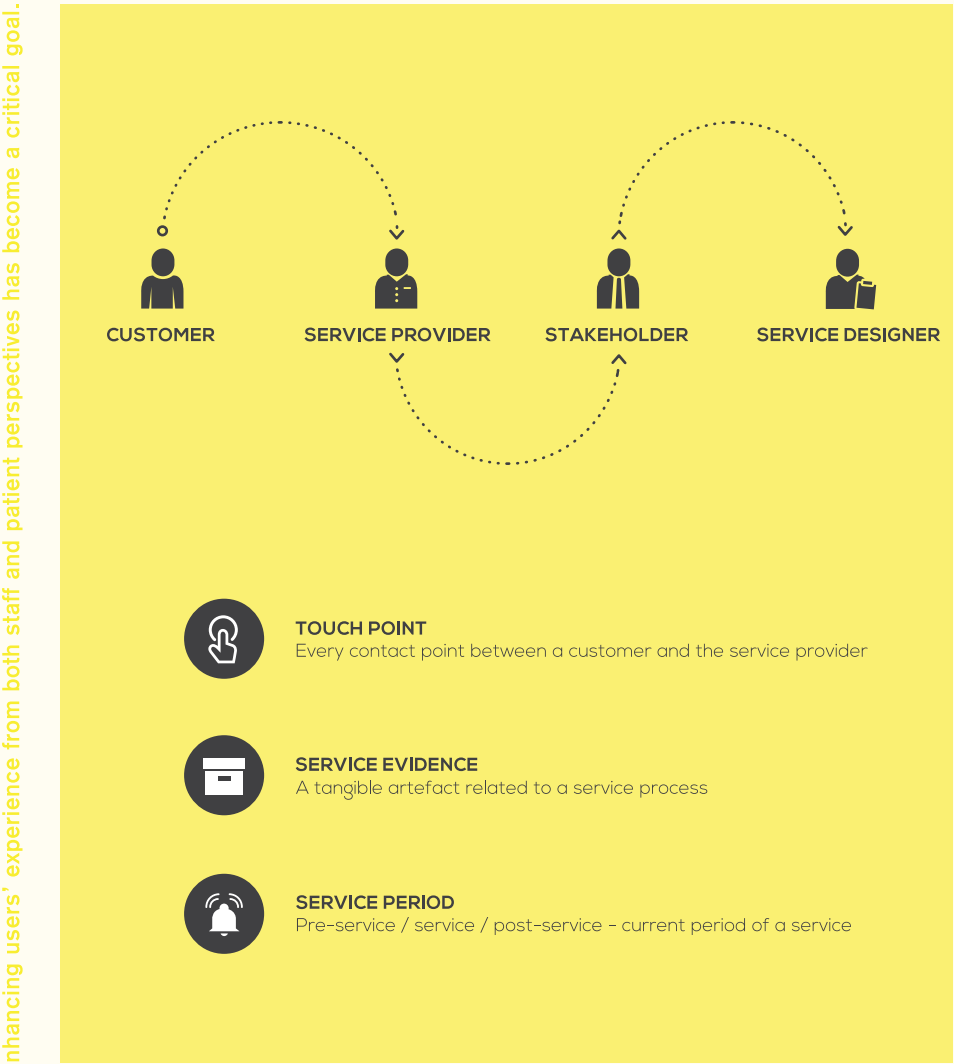
Richard is the Director at the City of Cape Town for World Design Capital 2014

A systematic service design commitment enables such platforms. Within the domain of healthcare, there is a design revolution happening that will change the South African healthcare landscape forever.

A user-centred approach, together with traditional tools such as business process reengineering and lean methodologies, are the new metrics to monitor. However, the sustainability of this new paradigm demands both

START Within the public service, and specifically in the healthcare field, simply being more productive and efficient is no longer enough. In the delivery of healthcare services, there is an ever-increasing demand and need for an improved experience for all users who interact with the system.

Uniques. Only then are users of the system able to become the designers of the system.



a design thinking process and systems thinking tools that embody co-discovery and co-creation techniques. Enhancing users' experience from both staff and patient perspectives has become a critical goal.

Design For Life Perspectives



With Cape Town being designated the World Design Capital for 2014, we have the opportunity to highlight how design and innovation can contribute to creatively solving tough challenges – including those faced in healthcare.

Across the Mother City, and across South Africa, innovators are bringing creative new ways of problem-solving to the discussion. And it's in the design process, after all, where every idea gets sketched out, tested, refined, vetted and fostered.

"During World Design Capital Cape Town 2014, we're to show how design can improve lives," says Jenni Kruger, Programme Manager at Cape Town Design, NPC. "And it's worth remembering that just a well-designed space is not enough to make a health facility work."

Whether it's a new space, a new system or a new way of thinking, it is the design of an idea that drives the innovation. Healthcare innovation is no different – and the layers of design bring interesting challenges with fascinating solutions.

Design That Assists Service Delivery

Take, for example, the Aweza mobile app. It's designed to ease the flow of information in healthcare environments by serving as an in-your-pocket South African language translator. It combines a sleek, user-friendly interface design with streamlined back-end software design, supporting all 11 official South African languages and contains a text-to-speech synthesis engine that provides audio support with a focus on scalability. "Strong focus has also been put on user interface and user experience design in order to ensure a high level of visual appeal and usability, says Aweza director Glenn Stein.

mTriage similarly uses technology to assist service delivery in the healthcare environment. Using the South African Triage Scale, this robust, mobile-assisted medical device measures the basic vital signs of patients, and then connects with a mobile computing device to calculate a score indicating illness severity. "By means of situated innovation, the project leverages local perspectives of participating users that represents a multi-disciplinary team of emergency medical doctors, bio-mechatronics engineer, product designer and software developers," says Professor Retha de la Harpe, Associate Professor of Information Technology and IT Program Coordinator at CPUT. "Each user contributes their own design experience relevant to their field to the co-design sessions, therefore adding different dimensions of design and expectations to the design of the final product."

Design That Works On Multiple Levels

"There are many, many levels of design," says Ulrike Kuschke, Manager of Architectural Services for the Western Cape Provincial Government. "I often say to people that a hospital is at least as complicated as an airport. An airport has different modes of transport feeding into it, it has security layers, supplies, staff,

maintenance, luggage... And a hospital is very similar to that. Everything wants to claim the top priority. Everything wants to be in the middle with the best views and the best access. So from a design point of view, it's an exercise in trying to get the best out of everything."

Here Kuschke points to the example of the New Grassy Park Clinic. "It's open and transparent, and it faces the street, so it forms part of the streetscape. But it's also screened off, so it's safe and private."

When it comes to the design of healthcare facilities, Kuschke says that there are several levels to consider: "There's a bricks and mortar level, a spatial quality level, a technical level, a reliability level, a systems level, maintainability, cost effectiveness... It's a fascinating design challenge."

Then there's also a level of ownership, of bringing a civic amenity to communities that, in some cases, are under-served. "How," asks Kuschke, "do you design a facility in an area like Mitchells Plain, with all its challenges, to be friendly and welcoming, and to make people feel safe – yet at the same time making it robust enough to withstand those challenges?"

Design That Everyone Can Own

Carolyn Whale, a Research Clinician and Outreach Programme Project Manager at the UCT Lung Institute, collaborated with CPUT's Design Faculty in the redesign of the Chapel Street Clinic in inner-city Woodstock. "In any healthcare space, you're dealing with a diverse set of needs and a diverse set of people," she says. "You have the doctors on one hand, and the patients on the other; you have different age groups and different cultures."

You also have different needs from a healthcare perspective: some are sick, some are not; some are assisting patients, others are parents bringing their small children. Speaking from a personal point of view, a big part of the Chapel Street project involved being conscious of those different needs and how to balance them in a way that didn't favour one above the other."

Whale found great value in speaking to the staff at the facility ("They're users and providers too - so they had a dual role to play," she says), and she found that throughout the process, consultation with all parties brought the best results. This principle is at the centre of human-centred or user-centric design. "As an outsider you don't have an historical perspective on the space. Your eyes are fresh, but you also overlook things. So I had to get out of 'Doctor Mode', and into 'Collaborative Mode'. We included community members, and took in their input, and in the process we realised that the building in Chapel Street had an important place in the community, with stories and meaning attached to it going back generations. That helped to inform my thoughts, in terms of being sensitive to what we were doing, and why we were doing it. There was that element of preserving this space for the next generation."



Design That Shows The Way Ahead

Ulrike Kuschke has had similar experiences across the city. "On the ownership level, it's about the staff, but also about the community – so what we're trying to do is to involve the communities as much as possible. In the actual construction, we do our utmost to create short-term employment opportunities for unskilled people and to engage local businesses. We also look for local artists, and in that way, every person who has contributed a small piece of art or craft to the hospital feels that they own a little bit of it. That helps to lift the facility back into the community."

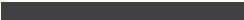
Another challenging aspect of design lies in what's known as Wayfinding. "A question we always ask is: How do I read this building?," says Kuschke, referring to the complex relationship between the structure, internal layout, signage and organisation of a facility. (Anybody who's ever gotten lost down a dark corridor in a hospital will know exactly what she's talking about!)

"We've been developing standard terminologies for Wayfinding," she says. "As an example, there's a treatment room where you go to get your dressings changed. Some people call it a Dressing Room, others call it a Wound Care Room or a Bandage Room... but there wasn't a general agreement on what that room should be called. Then when the name was translated into a second or third or fourth language, it all went haywire. We've had great fun settling on a standard system."

Parallel to that came the design of appropriate pictograms to offer another level of Wayfinding. "This was an important consideration for foreign people, but also for illiterate people, or people who are simply preoccupied or distressed when they visit a health facility, and who need a clear system to help them find their way." Kuschke's next major project will surely incorporate design lessons learned at facilities across the city, from the revitalization of Valkenberg Hospital to the new Community Health Centre in Du Noon. "One of my interesting challenges now is to look for new ways of helping people find their way at places where we're not starting the building from scratch – and by this I mean old, established buildings like Groote Schuur."

At Groote Schuur, as at any healthcare facility – and as with any new system, whether it's a mobile app or simply a standardized method of Wayfinding – the planning will start with an idea. Whether that innovative idea dies in development, or grows and develops into a solution that can be understood and implemented, will largely depend on the efficacy of its design. ■

Supporters



We asked our supporters how their organisations envision the role of innovation in improving healthcare in South Africa.

The Strategic Health Innovation Partnership

The Strategic Health Innovation Partnerships (SHIP) at the South African Medical Research Council seeks to manage and fund multi-disciplinary, multi-institutional product research, development and innovation projects from discovery to proof-of-concept in order to enhance the capacity of South African science in the research and development of novel or improved drugs, vaccines and other biologicals, diagnostics and medical devices in the identified priority diseases. It aims to facilitate, through partnerships with local universities, science councils and the private sector, the transfer of research outputs into improved health outcomes and social benefits.

The Technology Innovation Agency

TIA’s Health Biotechnology unit is a catalyst to support and enable technological innovation of healthcare products and services. As a financial driving force within the national innovation system, TIA seeks to enable innovations that address the needs of the South African people and ensure TIA contributes to the development of a better healthcare system. TIA mobilises both financial and non-financial interventions, by leveraging strategic partnerships. TIA’s efforts convey the realistic view of the health biotechnology landscape and strategically build strong linkages through investment, to help grow South Africa’s knowledge based bio-economy, and create a competitive economic and social landscape in the country.



Vodacom

It is often through the example of others that we draw inspiration and are able to see more clearly what is possible. The showcasing in this review of projects where passion, skill and ingenuity have come together to address some of the region’s most pressing health problems, serves to plant seeds of creativity in others and further encourage the development of current innovative projects.

Mobility, and the ubiquitous nature of mobile phones in Africa, is a key enabler for the transition to new models of care. There are estimated to be over 735 million mobile subscriptions in Africa and according to a recent GSMA report, mobile user numbers in Sub-Saharan Africa has grown by 18% a year over the past five years, more than in any other region globally. SIM cards outnumber people in South Africa, with SIM penetration of over 130%. At Vodacom our vision is to use the power of mobility and ICT to enable increased access to quality health services in emerging markets. To support this, Vodacom has a specialist focus on healthcare, working to co-create & deliver mobile health solutions as a managed service. Our solutions support the shift in focus from treatment to prevention, by enabling transformations such as the move from service-based payments to performance -based models. It remains important to ensure that programmes such as those highlighted in this review have sustainable impact with the ability to scale where necessary. To achieve this inclusivity is vital - not only from a social and economic perspective, but in crossing technological boundaries, breaking down information silos and opening possibilities for collaboration. When we look at health as an integrated ecosystem where all players and systems are interconnected, and apply inclusive innovations to the ecosystem, can we achieve real changes in health outcomes.



Southern African Regional Programme on Access to Medicines

The Southern Africa Regional Programme on Access to Medicines and Diagnostics (SARPAM) is funded by the UK Government through the Department for International Development’s (DFID) UKAid, to promote a more efficient and competitive market for essential medicines in the Southern African region to meet the health needs of poor people. SARPAM recognises the important role that innovations plays in increasing access to medicines and the Africa Medicines Impact Investment Fund has been designed to deploy capital to innovative private sector business models to scale up and maximise their positive health impacts in the region.



Bertha Foundation

Bertha Foundation dreams of a more just world and supports forms of activism that aim to bring about change. We champion those using media, law and enterprise as tools to achieve their vision. We envision a society where stories come from many different voices, where law is used as a tool for justice and where business delivers positive social impact. We work with a network of people who we believe can change the world - activists working with storytellers and lawyers. While powerful on their own, we also look for opportunities for leaders to collaborate across portfolios. Four pillars support Bertha Foundation’s mission to create more progressive and just societies; Activism, Media, Law and Enterprise.

The intention of this Health Innovators Review was to share the stories of inspirational innovators who have developed solutions that are transforming healthcare in South Africa.

And just like them, we believe you can do the same, wherever you may be.

What will your one next step be?

Take a few moments to reflect on these questions:

1/ What is your vision for healthcare in Africa?

2/ What is the one thing you can do to make a positive change in healthcare?

3/ What is your one crazy, big and bold idea?

4/ What do you need to do next to put your idea into action?

A parting thought:

“World leaders, heads of state, politicians, and rock stars all have a role to play in moving the world closer to justice and health for all – but so do you and I. Change is not the responsibility of the few, but the obligation of each of us.

Ordinary people like you and me are the ones who could create new ways to provide health and care to those in need.

We are the change makers.

We are the front line soldiers.

We are the innovators.

Each of us has an invaluable role to play in transforming healthcare and our society.

There is no idea too small or insignificant.

If the world is to realise peace and justice for all, you and I must share our ideas and use our voices.

As Madiba said, “to be free is not merely to cast off one’s chains, but to live in a way that respects and enhances the freedom of others.”

In that spirit let us come together and enhance the health of our country, our continent, and our world.”

- By Kate Long



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Editors: van Niekerk, L; Bonnici, FGE.

Assistant Editors: Silber, G; Charter, R; Hanekom, DP.

Contributors: Surka, S; Conway, S and Kane, D; Arnold, SA; Laubscher, N.

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