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# Africa HEALTH

**JOURNAL**

**Kidney Disease in Africa; Current Insights into the Diagnosis and Management.**

**Cimate Change and Heath in Africa**

**The Success and Impact of College of Surgeons of East Central and Southern Africa, (COSECSA) Surgical Training in the East, Central and Southern Africa**



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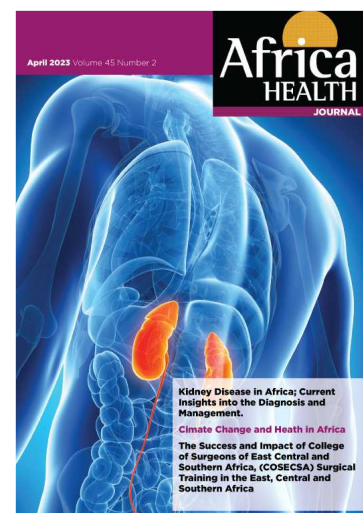
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# Health Challenges in Africa

## Africa's looming challenges and successes

This issue highlights two important looming challenges for the African region, one on kidney diseases and another on climate change. Both these issues need urgent attention. They demonstrate the fact that Africa is facing multiple challenges from different fronts which may affect its ability to attain the Sustainable Development Goals. While Africa is still contending with the infectious diseases like HIV/AIDS and TB, it is also increasingly being affected by Non-Communicable Diseases and the effects of Climate change. However, the issue also highlights some successes like the elimination of Onchocerciasis in Nigeria and the role of communities in combatting COVID 19.

The opinion focuses on an urgent issue that needs to be addressed in Africa, which is the need to coordinate African Health leadership. Francis Omaswa makes a call for cohesion, inclusivity and synergy in moving the African health agenda forward as a global public health good.

Two successful global conferences are summarized in this issue, the 5th Global Human resources for Health Conference that took place in Geneva, Switzerland 3-5 April 2023 with the theme "Protecting, safeguarding, and investing in the health and care workforce". It coincided with the World Health Worker Week. Francis Omaswa describes its objectives and outcomes.

The second conference was the Consortium of Universities of Global Health (CUGH) conference, 16 -19 April in Washington DC, USA with the theme "Global Health at a Crossroads: Equity, Climate Change and Microbial Threats". It was a very well attended conference addressing a wide variety of contemporary global health, environmental and development challenges, delivered in an interactive environment. A superb array of speakers from across disciplines and around the world was in attendance. There were 230 speakers, 50 sessions, 8 plenaries, 560 abstracts, the Great Debate, keynotes, awards, networking events, the Pulitzer Film Festival, Communications Workshop, student focused sessions, a Satellite Day, and more. It was a great success.

The next two articles highlight the burden of kidney disease in Africa. Both articles are a follow up on the World Kidney Disease Day of 6th March 2023 intended to bring awareness to kidney disease. Viraj Rajadhyaksha informs us that chronic kidney disease is too often undetected and undertreated, without sufficient public health policies in place to address its rapid spread in Africa, it has become a silent killer. There is therefore a need for Africa to look into this.

The Human Resources for Health deficit is global, however most of the worst hit countries are in Africa. Therefore, this is a subject of great concern for the region. Abebe Bekele et al narrate the success and impact of the College of Surgeons of East Central and Southern Africa, (COSECSA) Surgical Training in East, Central and Southern Africa. COSECSA has graduated 758 surgeons across 21 countries in Africa with a retention rate of 88.8% in the region and mainly in areas where they are most needed.

This goes to show that training health workers in settings where they are likely to work increases their chances of being retained in underserved areas.

Another success story comes from Nigeria written by Prof. B. E. B. Nweke. He provides an overview of onchocerciasis control and elimination efforts in Nigeria from the 1950s to date; showing how the country is progressively on track of the elimination drive using mass drug administration with ivermectin. This brings a breath of fresh air considering that many tropical diseases are re-emerging in Africa.

Yogan Pillay et al noted that amongst the long list of challenges impacting the daily lives of people living in Africa, and elsewhere, four, in particular stand out: inequities, conflicts, pandemics and climate change, all of which have significant impacts on population health. The article shows how climate change will affect the health of the African population despite the fact that Africa has contributed the list to the causes of climate change. It also suggest ways of how this could be mitigated.

The next two articles are on technology in Africa; Roy Mubuuque et al describe how training of midwives on ultrasound in hard-to-reach areas could improve reproductive health. Ultrasound is now available in remote areas in form of portable machines, some as small as laptops and is increasingly being used as a diagnostic tool for the rural areas. This links in well with the next article, which shows that Africa is now seeing impressive levels of growth in terms of innovation and investment in medical technology.

Omaswa et al summarize their experience in implementing a Community Engagement Strategy for COVID-19 Response and Health in Uganda. The key results of the work done demonstrated that empowered and organized communities have the capacity to own and take charge of their own health. Sometimes projects fail because the communities are not involved in their planning and implementation. This is an example of a successful project that highlights the importance of community engagement.

The East, Central and Southern Africa Health Community (ECSA-HC) held its 13th Best Practices Forum and 71st Health Ministers Conference, February 2023, in Maseru, Lesotho. The outcomes of this meeting are summarized here.

There is our usual medicine digest and quiz, plenty of news and advertisements.

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**Elsie Kiguli-Malwadde**

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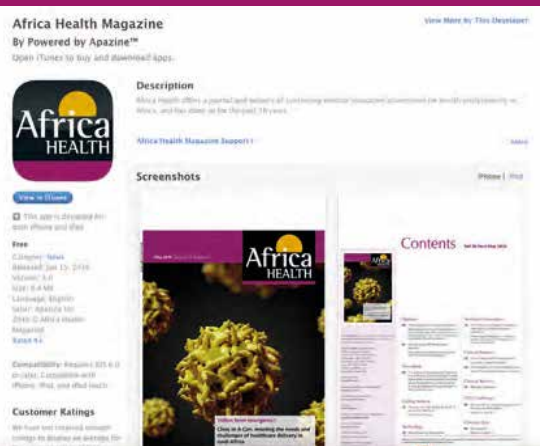
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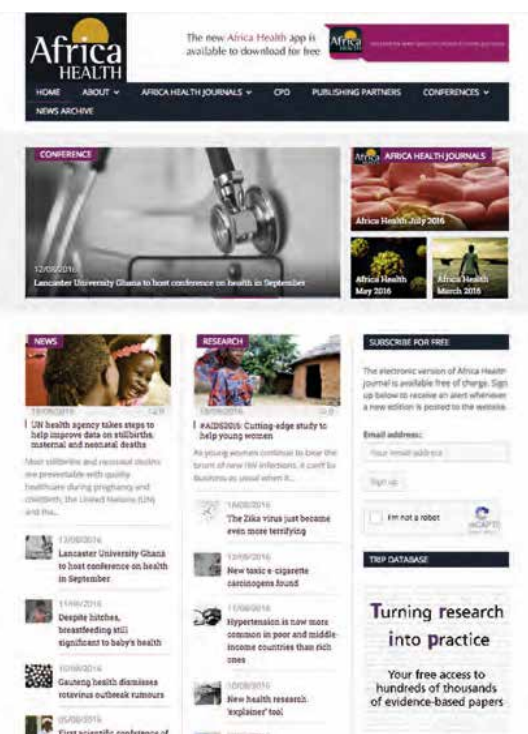
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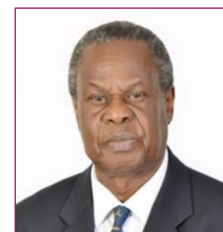
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# Coordinating African Health Leadership

Francis Omaswa makes a call for cohesion, inclusivity and synergy in moving the African health agenda forward as a global public health good.

I participated at the 5th Global Forum on Human Resources for Health (HRH) convened by the World Health Organization (WHO) in Geneva, 3th to 5th April 2023. This is the top global HRH event that takes place every two to three years; hosted by different countries round the world. At this Geneva meeting, the African Regional Office of WHO (WHO Afro) presented a draft of the African Health Workforce Investment Charter that is being developed by that office. The following day, The African Centers for Disease Control (Africa CDC) presented another draft of the African Health Workforce Strategy being developed by the Africa CDC. Upon making inquiries, it became evident that these two African Health institutions efforts to develop Health Workforce plans for Africa are in parallel and not coordinated. This is the reason I am moved to write about the urgent need for coordination and harmony between the WHO Afro and the Africa CDC. There are likely to be other areas of work where parallel, uncoordinated and conflicted pieces of work in Africa are being undertaken by these two institutions that will result in duplication of efforts, undesirable competition and create more problems than solutions to Africa's health agenda.

According to the websites of the two organizations, "Africa CDC is a continental autonomous health agency of the African Union established to support public health initiatives of Member States and strengthen the capacity of their public health institutions to detect, prevent, control and respond quickly and effectively to disease threats. Africa CDC supports African Union Member States in providing coordinated and integrated solutions to the inadequacies in their public health infrastructure, human resource capacity, disease surveillance, laboratory diagnostics, and preparedness and response to health emergencies and disasters. It was established in January 2016 by the 26th Ordinary Assembly of Heads of State and Government and officially launched in January 2017. The institution serves as a platform for Member States to share and exchange knowledge and lessons from public health interventions".

On the other hand, "the mission of the WHO Afro is to enhance AFRO's technical support to countries for scaling up proven public health interventions; and strengthen partnerships with UN agencies, regional economic communities and other stakeholders". The World Health Organization (WHO) and its Member States have committed, within the framework of the International Health Regulations (2005) (IHR), to detect,

verify, assess and report events that may pose a risk to international public health.

I raised the matter of parallel efforts between Africa CDC and WHO Afro with Dr. Tedros Adhanom Ghebreyesus, the Director General of WHO. He confirmed his support for the Africa CDC and showed me a news item from Aljazeera in which Dr. Tedros, in 2013 as Ethiopian Minister of Foreign Affairs at the African Union Executive Council meeting in Abuja, Nigeria is quoted as follows "Ghebreyesus said Ethiopia is proposing to establish an African Center for Diseases Control and Prevention (Africa CDC) or Health Commission for Africa under the umbrella of the African Union." Dr. Tedros believes that WHO Afro and Africa CDC can work well side by side synergistically provided there is clear guidance and clarity of roles provided by the African Union and that there are leaders in these institutions who are willing to work collaboratively and in partnership.

I have personally been active in the African health space for some time and I remember how WHO and the African Union worked well together to adopt the first African HRH Strategy by Health Ministers, coordinated by NEPAD. I also remember Bience Gawanas, then Commissioner for Social Affairs at the African Union, co-chairing a WHO Task Force on Education and Training of Human Resources for Health (HRH).

It is critically important for the newly created Africa CDC to work harmoniously with the 75-year old WHO Afro. If this does not happen, the health of the people of Africa is in danger. Both organizations are overseen by the same Health Ministers who meet regularly and the structures for harmonization are available. The two organizations should also take note of the fact that there are other structures in Africa that have been created by the same authorities on health. Examples are the Health bodies of the Regional Economic Communities such as the West African Health Organization and the East, Central and Southern African Health Community. I have seen these two organizations effectively move many health programs in the countries. Along with these, are Civil Society organizations that have knowledge and expertise on various health topics. For example, we have the African Platform on HRH that has convened a number of consultations and has capacity to support the African HRH agenda.

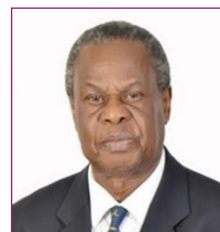
This is a call for cohesion, inclusivity and synergy in moving the African health agenda forward as a global public health good. The development partners also known as donors and funders should keep this in mind as they support Africa's health development including the HRH programs.

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Francis Omaswa. Founding CEO, African Center for Global Health and Social Transformation (Kampala, Uganda). Founding Executive Director of the Global Health Workforce Alliance, WHO and publisher Africa Health Journal



# The Fifth Global Forum on Human Resources for Health



Francis Omaswa describes the objectives and outcomes of the Fifth Global Forum on Human Resources for Health Group Satellite at the CUGH 2023 Conference.

The Fifth Global Forum on Human Resources for Health took place 3 to 5 April 2023, at WHO, Geneva. It coincided with the World Health Worker Week. The theme of the forum were *protecting, safeguarding, and investing in the health and care workforce*.

The Forum took place nearly four years after the previous Forum in Dublin and over five years since the adoption of the Global Strategy on Human Resources for Health: Workforce 2030. The Forum provided updates on progress in its implementation and shared evidence and experiences on workforce development, as well as opportunities for a post COVID-19 era that will inform the implementation of the Working for Health 2022-2030 Action Plan. Forum participants examined the required policy solutions, investments, and multi-sectoral partnerships to address health and care workforce challenges and advance health systems towards universal health coverage and health security. The outcomes of the Forum will inform the United Nations General Assembly's High-Level Meeting on UHC in September 2023.

The Forum was intersectoral and engaged participation from over four thousand participants both physical and virtual. These included Ministers of Health, Non-State Actors and Civil Society, Financing institutions and other UN agencies.

The Forum objectives were to share progress on the implementation of the Global Strategy on HRH: workforce 2030, and the SDG agenda, to examine the required policy options, opportunities and investments to address global health and care workforce challenges and build capacities and capabilities to advance health systems towards UHC and global health security.

Key issues that were addressed included the impact of COVID-19 pandemic on HRH on integrated health service delivery and the essential public health functions in countries. Overcoming market failures between education and employment of health and care workers and how governments can work across sectors to address Health Workforce (HWF) challenges at country regional and global levels.

Francis Omaswa. Founding CEO, African Center for Global Health and Social Transformation (Kampala, Uganda). Founding Executive Director of the Global Health Workforce Alliance, WHO and publisher Africa Health Journal



**Prof. Omaswa with the Director General, WHO at the Fifth Global HRH Conference**

The following challenges noted at the Forum were complex but not insurmountable:

- i. The Challenges we face manifest at the local level, but they have global and multisectoral causes that can only be addressed with a global and multisectoral response.
- ii. Migration is not a standalone issue: it results from labour market conditions and requires labour market solutions, and market failures should be addressed head on.
- iii. Likewise, education and training for health and care workers cannot be addressed in isolation from wider education and training strategies.
- iv. Improving gender equity, addressing gender-based violence and engaging youth are not issues for the health sector alone, and can only be properly addressed as part of a whole-of-society response.

Expected Forum outcomes were to:

- Drive national multi-sectoral political engagement to address workforce challenges for UHC and the essential public health functions, including Emergency preparedness and response
- Develop consensus on priority workforce solutions to inform preparations for United Nations High-Level Meeting on Universal Health Coverage (September 2023)
- Inform and influence domestic and international investments in education and jobs
- Launch of the Multi-sectoral advisory group of experts (MSAGE)

# Building Global Health Capacity in the African Region: Leveraging the AFREhealth-CUGH Partnership



Elsie Kiguli-Malwadde reports on the AFREhealth CUGH Working Group Satellite at the CUGH 2023 Conference.

CUGH held its first in-person conference since 2019, in Washington DC, USA April 14-16, 2023. It was a unique and exciting event. The theme was “Global Health at a Crossroads: Equity, Climate Change and Microbial Threats”. There were 7 subthemes. The program included an outstanding list of sessions, addressing a wide variety of contemporary global health, environmental and development challenges, delivered in an interactive environment. It was attended by over 2,000 scientists, students and implementers from academia, Non-Governmental Organisations (NGOs), government and the private sector ready to learn and collaborate to address some of the pressing challenges our world faces. A wide range of medical and non-medical disciplines were represented throughout the virtual and in-person pre-conference satellite sessions and the conference itself. There was a superb array of speakers from across disciplines and around the world in attendance. (<https://www.cugh2023.org/>)

A virtual satellite session organized by the AFREhealth CUGH Working group (ACWG) was held on April 5 2023, 9-12am EST, the title was “Building Global Health Capacity in the African Region: Leveraging the AFREhealth-CUGH Partnership. AFREhealth is an interdisciplinary health professional group that works with CUGH and other stakeholders to improve the quality of health care in Africa through research, education, and capacity building. This interactive session was given as a series of short talks followed by a moderated panel discussion. The role of AFREHealth in promotion of global health curriculum in Africa was explored and specific examples of Global North-South collaboration and South-South collaborations were shared. The session was moderated by Kathryn Chu, Director for the Centre for Global Surgery, Stellenbosch University, South Africa. Elsie Kiguli-Malwadde, the President of AFREhealth spoke about the history of the ACWG partnership giving a narrative of when it started and the activities that it had conducted over the years. At the end of her presentation, she asked member to discuss how African institutions can leverage this partnership to improve global health training in Africa?

David Muganzi Jolly, President of the AFREhealth Student Community presented on the role of students in promoting global health in African institutions including how African students could participate and improve global health capacity in Africa.

Francis Omaswa, Former Executive Director for the African Centre for Global Health and Social Transformation gave a presentation on “Mutual Learning

in Global Health: Leveraging our Strengths” . He noted that in Africa using clinical acumen, that is using your hands and senses to examine patients was still the main way of making a diagnosis and he noted that those in a high-tech world could learn a lot from the African clinical techniques. He also highlighted the need to advance and share the advances in digital health. He urged Africans to take ownership and responsibility for their own global health agenda.

Abebe Bekele, Dean of University of Global Health Equity, Rwanda talked about “African Collaborative Training Initiatives: The College of Surgeons of East & Central and Southern Africa (COSECSA) example”. He expounded on how COSECSA had developed into a successful Africa led-Africa surgical education/ training collaborative that had trained over 790 surgeons in the East, Central and south African region. He also said that 88.85% of these were retained in areas where they were most needed and that this has contributed to the advancement of Global surgery. He pointed out that this was through a South-South and North collaboration. Indicating that these collaborations were important for improving population health.

Quentin Eichbaum, the Director of Pathology Global Health Programs, Vanderbilt University Medical Center presented work on a “Global Health survey, what does global health mean in a postcolonial world?” He noted that knowledge generated in HICs defines practices and informs thinking to the detriment of knowledge systems in LMICs. He discussed how often research partnerships benefit the better-resourced partner. He then talked about colonialism, medicine, and global health education. Lastly Andrew Dykens, an Associate Professor of Family and Community Medicine at the University of Illinois, Chicago gave a practical demonstration of a capacity building platform that has been developed by CUGH in collaboration with AFREhealth. The platform has four primary functions: (1) to make it easy for universities, institutions, governments, other development actors, and individuals (especially in low-income nations) to post and connect to the trainers and curricula they need across biomedical and non-biomedical disciplines; (2) to enable organizations with these training and mentoring assets to share them with institutions, universities, governments, and individuals that may need them; (3) facilitate connections between research partners in many fields, and (4) strengthen the translation of research and the field of translation and implementation research.

These presentations were followed by a discussion that was moderated by Kathryn Chu. It was a successful interactive session.

Elsie Kiguli-Malwadde is the President of the African Forum for Research and Education in Health (AFREhealth).

# Chronic Kidney Disease: Africa's Silent Killer

Chronic Kidney Disease is too often undetected and undertreated, without sufficient public health policies in place to address its rapid spread in Africa

There is a silent killer in our midst. It affects 850 million people worldwide and is a leading cause of death globally<sup>(1)</sup>. Despite its deadly profile and rising prevalence, low public awareness means Chronic Kidney Disease is too often undetected and undertreated, without sufficient public health policies in place to address its rapid spread in Africa<sup>(2)</sup>.

World Kidney Day on March 9th presents an opportunity to expose this silent killer and strengthen efforts against Chronic Kidney Disease (CKD). An estimated 15% of people in Africa have the condition, rising to 30% in high-risk populations like people with diabetes<sup>(3)</sup>. This is significantly higher than the global average and presents a real challenge for the region. It is perhaps unsurprising that when a panel of experts in kidney health from across the Africa and the Middle East was convened last year, they identified significant gaps in the care given to people with CKD. In a paper due to be published later this month, they make the case for renewed action to stem the rise in the disease, emphasising that early intervention is essential.

CKD has no cure, and treatments like dialysis and transplantation which are required in the final stages of the disease are both invasive for patients and hugely expensive, placing a significant financial burden on health systems. The pandemic has only exacerbated this challenge, with CKD being one of the most prevalent risk factors for severe COVID-19<sup>(4)</sup>. Governments, NGOs, health care providers and the private sector must come together to end the neglect, with a focus on prevention, early detection and education.

Firstly, efforts to manage, diagnose and treat the underlying causes of CKD can stop the disease from ever developing. Obesity, diabetes and high blood pressure are among the main drivers of CKD, and as such it is no surprise that they have also increased in prevalence in Africa in recent decades<sup>(5)</sup>. Increased support with integrated care approaches for patients with these conditions will not only improve general health outcomes but also help to avert instances of CKD and help countries to build sustainable, more resilient health systems. After all, prevention is always better than a cure.

Secondly, early detection of CKD allows patients who have already developed the disease to continue to live long and healthy lives. To achieve this, policymakers should implement routine screening for CKD among high-risk groups as a priority, which is possible, thanks to the rapid and inexpensive tests that are available to hunt it down. Advances in medical technology in the past decade including biomarkers, advanced imaging and the use of artificial intelligence make this easier than before,

but these innovations are still not widely available in Africa.

AstraZeneca is working with governments and health providers across the region to boost capacities and capabilities for early diagnosis, including the development of a programme known as SEARCH to drive early detection in at risk patients. SEARCH has enabled the screening of approximately 500,000 patients for CKD to date, specifically targeting those with pre-existing conditions such as diabetes, high blood pressure or cardiovascular disease which all put patients at a higher risk of developing CKD.

Finally, education is essential to empower health workers and patients with the knowledge, the skills, and the confidence to live and control this disease. Patients should be able to understand their risks based on pre-existing conditions, how they can catch CKD early and the treatment options available to them to improve their prognosis. Peer to peer support can also help build confidence around healthy lifestyle changes, exercise, and adherence to treatment. Even tools as simple as this ISN 'Are your kidneys healthy?' quiz (<https://apo-opa.info/3F9w6E6>) can help start a conversation, which could be enough to save a life.

World Kidney Day is a chance to shine a light on CKD and help to stop this silent killer in its tracks. Through prevention, early detection, and education, we can work to limit the dreadful burden of this disease on our families and communities and create healthier and more sustainable health systems in our region and across the world.

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# Kidney Disease in Africa; Current Insights into the Diagnosis and Management

A team of experts expound on the background, epidemiology, risk factors, diagnosis and management of kidney diseases in Africa.

## Introduction

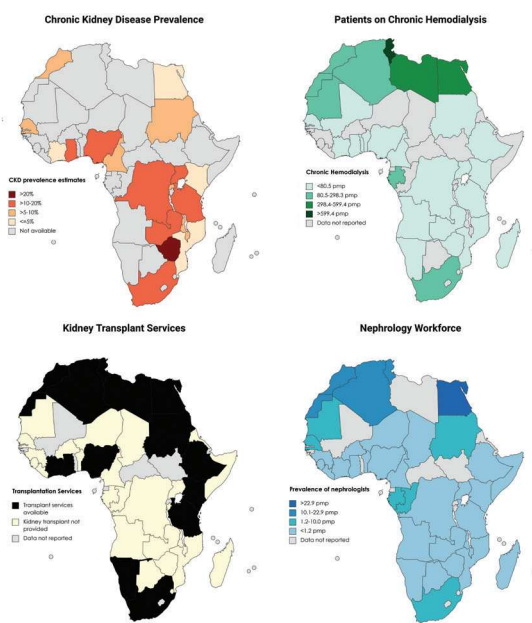
Kidney disease is one of the fastest growing chronic diseases and projected to be the 5th leading cause of years of life lost by the year 2040. Unfortunately, most people are not aware that they have kidney disease until it is advanced. Although much easier to manage in the earlier stages, kidney disease care is costly in the late stages requiring dialysis or a kidney transplant. In this article we discuss the epidemiology, screening and key aspects of management of kidney disease in Africa where resources are limited.

Kidney disease is the 10th leading cause of morbidity and mortality globally with an estimated prevalence of chronic kidney disease (CKD) of 13.4% in the adults population<sup>1</sup>. CKD is projected to be the 5th leading cause of years of life lost (YLL) by year 2040<sup>2</sup>. The costs associated with treating kidney disease are astronomical and few countries in Africa offer publicly funded chronic hemodialysis and transplant services. Many people are not aware that they have kidney disease early when lower cost interventions are available, particularly in Africa where the burden of kidney disease is high, the availability of specialized nephrology care is low, and the average age of end-stage kidney disease is substantially younger than in Western countries<sup>3</sup>. Increased awareness of kidney disease in Africa is needed to identify unique risk factors associated with kidney disease, expand screening tools for early diagnosis and treatment, and halt the epidemic of kidney disease impacting people during their most economically productive years<sup>3</sup>.

## Epidemiology of kidney disease in Africa

The epidemiology of kidney disease in Africa varies depending on the population and methods used to define kidney disease. CKD prevalence in Africa ranges from 2% in Cote d'Ivoire to 30% in Zimbabwe with an overall prevalence of 13.9%<sup>4</sup> (Figure 1). Screening programs focusing on early diagnosis of CKD may help mitigate this, but data are lacking. Susceptibility and age of kidney disease onset is affected by several factors including poor maternal health in pregnancy that can impact nephron development and premature birth that decreases nephron endowment. The early age of CKD onset in Africa is driven by the intersection of communicable and non-communicable diseases with HIV being a significant

contributor to the burden of CKD<sup>5</sup>.



**Figure 1. Maps of CKD prevalence and services for management of CKD in Africa.** Maps presenting the prevalence of CKD based on systematic reviews and meta-analysis focusing on Africa<sup>7</sup>, the prevalence of chronic hemodialysis per million population (pmp), countries that offer kidney transplantation, and the prevalence of nephrologists pmp based on the Global Kidney Health Atlas<sup>8</sup>.

## Risk factors for kidney disease in Africa

Individuals from Africa have both traditional risk factors (hypertension, diabetes, smoking, diet) as well as unique risk factors such as pregnancy related complications, low birth weight, endemic infections, and genetics (such as APOL1, sickle cell disease) which require special attention. Many of these have been detailed in a 2023 review along with the people who should be screened and how this could be best done<sup>6</sup>. One key concern is the lack of accuracy in using creatinine as a marker of eGFR in this population compared to cystatin C which is better but more expensive. Cost effective studies are needed to find the best way for us to understand the true burden of CKD in Africa.

## Acute and Chronic Kidney Disease

Kidney disease is defined based on functional or structural changes to the kidney. Acute kidney injury (AKI) is characterized by an abrupt loss of kidney function and defined based on an increase in serum creatinine or reduction in urine output using the Kidney Disease: Improving Global Outcomes (KDIGO) criteria<sup>9</sup>. AKI is a time delimited event and is followed by acute kidney

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disease (AKD). AKD can occur in the context of subclinical AKI where there is a gradual worsening in kidney function over time and can also occur following AKI when there is incomplete recovery of kidney function. CKD represents a loss of kidney function or structural damage that persists for more than 90 days<sup>5</sup> (Figure 2).

As a patient progresses from acute to chronic kidney

disease, definitions incorporate measures of structural damage (i.e., proteinuria or albuminuria). Established risk factors for CKD progression following AKI include prolonged or severe AKI and markers of structural injury during AKI/AKD that can lead to maladaptive repair and renal fibrosis<sup>10</sup>. Additional studies are needed to define the most important risk factors in Africa.

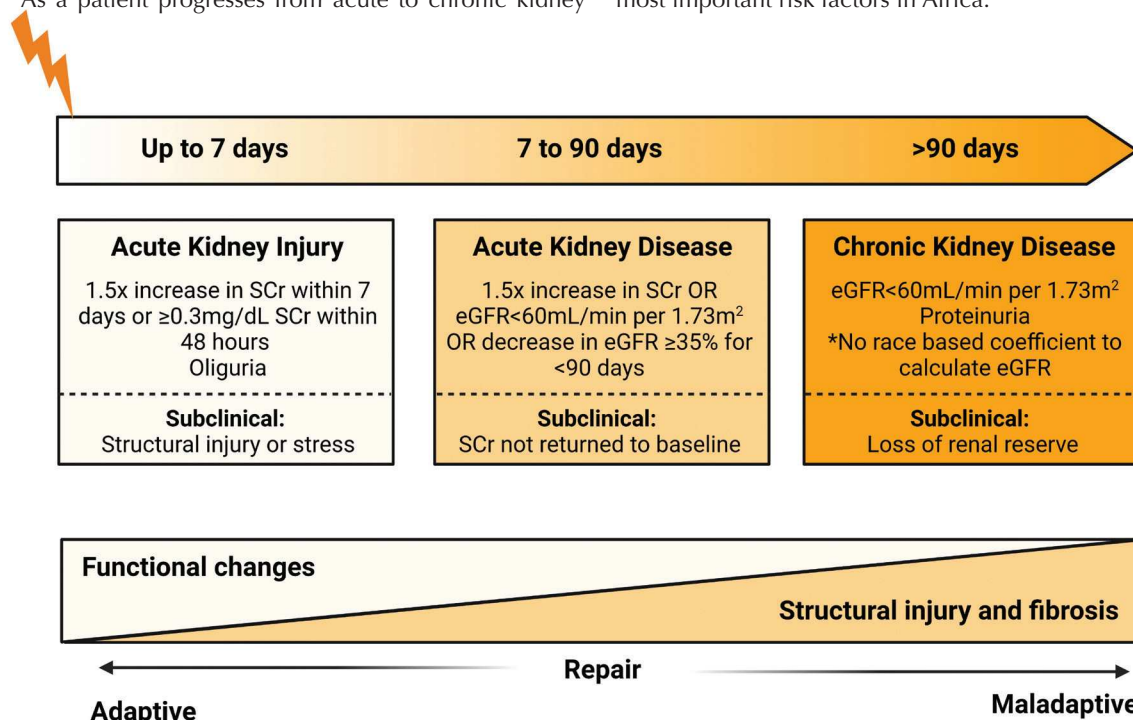


Figure 2. Definitions of acute and chronic kidney disease using the Kidney Disease: Improving Global Outcomes (KDIGO) criteria.

## Diagnosis of Kidney Disease

Kidney disease is often asymptomatic until advanced stages of disease. Diagnosis relies on estimating the glomerular filtration rate and/or assessing urine for protein<sup>5</sup>. When detected early, kidney disease is often an incidental finding as part of routine investigations for other illnesses. Patients with kidney disease may present with diverse signs and symptoms including edema, hypertension, weakness, easy fatigability, anorexia, vomiting, pruritus, and, in advanced stages, encephalopathy or seizures. Radiological findings by ultrasound of small and echogenic kidneys supports a chronic cause, while multiple bilateral renal cysts can point to polycystic kidney disease depending on age. Other laboratory investigations in patients with kidney disease include urinalysis, complete blood counts to assess anemia, and serum chemistries to evaluate hyperkalemia, metabolic acidosis, hyperphosphatemia, hypocalcemia and elevated parathyroid hormones levels<sup>5</sup>.

In patients with proteinuria of unknown cause, additional screening for systemic lupus erythematosus (SLE) and hypocomplementemia associated nephropathies may be warranted. By and large the diagnosis of glomerular disease will depend on a kidney biopsy which should be done safely under ultrasound guidance.

Diagnosis of kidney disease can follow the algorithm proposed in Figure 3.

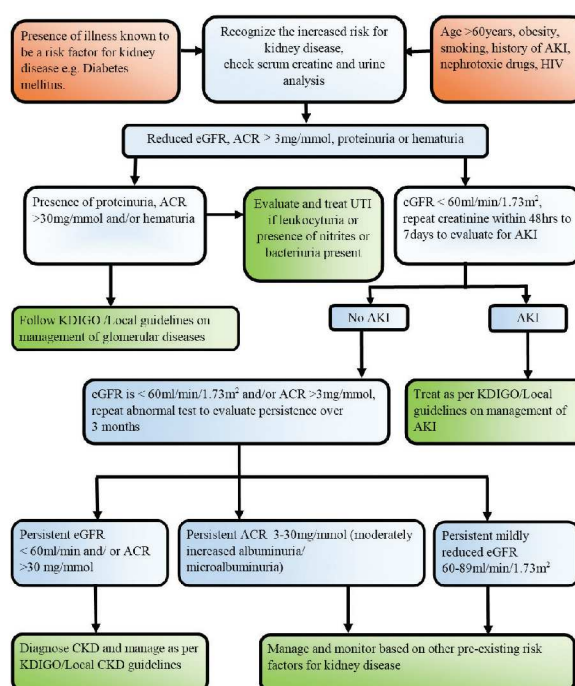


Figure 3: Proposed Algorithm for diagnosis of kidney disease

*Abbreviations: ACR-Albumin creatinine ratio; AKI-acute kidney injury; CKD-Chronic kidney disease; eGFR-estimated glomerular filtration rate; HIV-Human Immunodeficiency Virus; KDIGO-Kidney Disease: Improving Global Outcomes; UTI-Urinary tract infection.*

### Key Concerns for Adults and Children

Delayed recognition of congenital abnormalities of the kidneys and urinary tract (CAKUT) can lead to progressive kidney injury that could be mitigated with early recognition and surgical correction. In addition, the burden of infections in children in Africa is high, particularly in malaria-endemic areas, where repeated infections leading to AKI or glomerulonephritis can lead to progressive loss of kidney function and earlier CKD onset. Common infectious causes of AKI include gastroenteritis, sepsis, malaria, pneumonia, and leptospirosis.

Among adults, the most well recognized risk factors for kidney disease include hypertension, diabetes, and obesity<sup>5</sup>. This can be further complicated by chronic infections including HIV, tuberculosis as well as obstetric complications. Although there have been gains in initiating antiretroviral therapy (ARVs) in people living with HIV<sup>11</sup>, a significant proportion of people living with HIV lack access to ARVs and remain at risk of HIV-associated nephropathy.

In patients with established end stage kidney disease, the need for kidney replacement therapy is still a challenge. Access to dialysis is limited with dialysis available only in a few urban centers at a cost as this is not usually supported entirely by the public health system (Figure 1). Further, only 14 African countries conduct kidney transplants (Figure 1). Many countries do not have established kidney transplant programs and thus patients in need of transplant must travel to other countries to seek transplant services, making it not only expensive but limited access. For countries with existing transplant programs, most of these countries depend on living donors and lack programs for cadaveric kidneys, limiting the number of people who receive kidney transplants.

### What is new and how has it affected practice and care of kidney disease

Over the past decade, there has been an increase in the number of nephrologists and dialysis centres across Africa (Figure 1). However, due to the concurrent rise in the population and increasing number of adults and children with kidney disease, access to nephrology care and services remains limited. Increasing industrialization of Africa is also increasing the exposures to environmental nephrotoxins and global changes in the climate are further impacting Africa through increased heat stress and climate disasters including landslides and flooding.

Early identification of kidney disease remains a key challenge in Africa due to limitations in diagnostics. Creatinine based diagnostics are affected by malnutrition and questions remain about the most appropriate eGFR equations among diverse African populations. Novel filtration biomarkers and point-of-care tests to identify structural injury to the kidney are promising but require validation in African populations and government investment will be needed to increase access<sup>12</sup>.

Unlike AKI, CKD is not reversible, and all interventions are geared towards delaying disease progression to end-

stage kidney disease (Table 1). Management is focused on appropriate control of causes of CKD such as good blood pressure control in patients with hypertension and blood sugar control in patients with diabetes mellitus<sup>5</sup>. The angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs) play a key role in controlling proteinuria and delaying progression of CKD, these drugs are available and relatively accessible even in low-income countries and thus need to be utilized in management of patients with kidney disease whenever required.

There is evidence that glycemic control as well as blood pressure control delay CKD progression and improve clinical outcomes. Newer medications for delaying CKD include sodium-glucose cotransporter-2 inhibitors (SGLT2i) and nonsteroidal mineralocorticoid receptor antagonists (MRA). SGLT2i have been found to delay CKD progression in type 2 diabetes<sup>13</sup> with evidence that they may be helpful even in those without diabetes mellitus<sup>14</sup>. MRA drugs even though novel in controlling progression of CKD in patients with diabetes mellitus, they require regular monitoring of hyperkalaemia<sup>15,16</sup>. The availability of MRA drugs in Africa and their need for regular and routine blood monitoring may be a challenge in low resource settings, however, they are important in instances where adequate monitoring is possible and when additional benefit is anticipated. As these are new drugs, their costs are still high and not affordable for most of the population in need.

### Current management of kidney disease in Africa

Thus, conservative management of kidney disease will be the cornerstone of clinical management for most patients in Africa where a diet low in potassium and sodium, moderate protein intake, and regulated fluid intake is critical. There is no need to give up on our patients. Further, it is important to replace calcium levels with calcium supplements as well as replacement of 1,25 hydroxyvitamin D (calcitriol). Try to maintain a hemoglobin level of close to 11.5g/dl using iron supplements and erythropoiesis stimulating agents such as erythropoietin. If the patient is not a candidate for a kidney transplant, please ensure that the patient gets well matched blood transfusion when this is required. Among transplant candidates with evidence of heart failure or with a hemoglobin < 6g/dl, lymphocyte depleted blood transfusions may be lifesaving.

Always remember to manage patients holistically and in a multidisciplinary manner catering to their physical, social and spiritual wellbeing. If there is an opportunity to have a nutritionist, counsellor, social worker, psychologist, or other experts, please involve them in patient care.



**Table 1. Summary of management of chronic kidney disease complications**

Complication	Treatment	Rationale
<b>Pediatric-specific considerations</b>		
Failure to thrive	Recombinant human growth hormone (rhGH)	This can be initiated in children when food intake has been optimized and growth impairment persists. Other causes of growth impairment need to be addressed before initiation of rhGH such as CKD MBD, acidosis, anemia
<b>Management of CKD complications</b>		
Anemia	Iron supplements such as Iron sucrose	Oral iron is poorly absorbed and patients with CKD often have nausea, lack of appetite and a high pill burden. There are several forms of iron, please take note. Ensure that iron is infused slowly and also note that there is a risk of iron overload
	Erythropoietin	Replacement of low levels from the poorly functioning kidneys. Erythropoietin can be initiated when the hemoglobin level is <10g/dl with a target of 11-12g/dL
<b>CKD mineral bone disorder</b>		
Hypocalcemia	Calcium carbonate	Given orally on an empty stomach to raise calcium levels
	1, 25 dihydroxycholecalciferol (calcitriol) or 1 $\alpha$ hydroxycholecalciferol (Alfacalcidol)	To increase absorption of calcium in the gut. May cause increased phosphate re-absorption; an unwanted effect
Hyperphosphatemia	Calcium carbonate, Calcium acetate	Given with meals to limit phosphate re-absorption Calcium based phosphate binders are best for patients with hypocalcemia
	Sevelamar	These phosphate binders are best for patients with hypercalcemia, as they do not alter serum calcium levels
Hyperparathyroidism	<ul style="list-style-type: none"> <li>1, 25 dihydroxycholecalciferol (calcitriol)</li> <li>Cinacalcet</li> </ul>	This may be given in cases of uncontrolled secondary hyperparathyroidism or tertiary hyperparathyroidism
Acidosis	Sodium bicarbonate	This can be given as oral supplements to maintain normal levels in patients with serum bicarbonate levels <22mmol/L
Fluid overload	Diuretics including loop diuretics, thiazides	These are beneficial in management of fluid overload
<b>General considerations</b>		
Delaying CKD Progression	<ul style="list-style-type: none"> <li>RAAS Blockade</li> <li>ARBs/ ACE-I such as Losartan, Enalapril, Lisinopril</li> </ul>	<ul style="list-style-type: none"> <li>Slows progression of kidney disease. Controls blood pressure and slows proteinuria</li> <li>Watch out for hyperkalemia and never combine ARB with ACE-I.</li> </ul>
	SGL-2 inhibitors such as Dapagliflozin, Canagliflozin, Empagliflozin	
	MRAs such as finerenone,	
	These drugs slow CKD progression especially in those with diabetes nephropathy	
	Statins	These may be important in patients with Dyslipidemia
	Lifestyle	Encourage physical exercise and avoid smoking
	Others- specific to primary/ comorbidity	Manage the underlying disease that may be contributing to CKD or increasing the risk of progression
Dietary advice	Lowering protein intake to 0.8 g/kg/day in adults with diabetes or those with eGFR <30 ml/min/ 1.73 m <sup>2</sup> . Optimize both protein and calorie intake in children to attain adequate growth Limit high potassium and high phosphate containing diet	

*Abbreviations: ACE-I Angiotensin converting enzyme inhibitors; ARBs-Aldosterone receptor blockers; CKD-MBD-Chronic Kidney Disease Mineral Bone Disease; eGFR- estimated glomerular filtration rate; MRAs- mineralocorticoid receptor antagonist; RAAS-Renin Angiotensin-Aldosterone System and SGL-2i-Sodium-glucose co-transporter-2 inhibitors.*

## Recommendations

Given the rising burden of kidney disease in Africa, its relative early age of onset and late presentation, there is an urgent need for tools to facilitate early recognition of kidney disease through expanded access to established and novel diagnostics.

There is need for concerted efforts to improve access to care for kidney disease through advocacy and political commitment while enhancing holistic approaches in care provision and support to those with kidney disease.

Newer treatments that slow progression of kidney disease are now available and these should be embraced by the African community.

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## Kidney disease and women's health

8 March  
2018



**FACT 1**

**Kidney disease is common, affecting more women than men, and there is no cure**

**FACT 2**

**An estimated 60,000 people in the UK die prematurely due to kidney disease**

**FACT 3**

**Uncontrolled diabetes or high blood pressure are the biggest causes of kidney failure**

**FACT 4**

**Right now, around 64,000 people in the UK are being treated for kidney failure; without dialysis or a transplant, it is fatal**

**FACT 5**

**One in three women get a urinary tract infection (UTI) in their lifetime. UTIs can spread to the kidneys causing damage**

**FACT 6**

**5,200 people are waiting for a kidney, yet only around 3,300 transplants are carried out each year**

**FACT 7**

**Acute kidney injury (AKI) affects one in five people admitted to hospital as an emergency. It is a sudden drop in kidney function due to serious illness and may be more deadly than a heart attack**

**FACT 8**

**Women with kidney disease face additional risks in pregnancy but with planning and careful monitoring, the majority have successful pregnancies, even when on dialysis**

[www.worldkidneyday.co.uk](http://www.worldkidneyday.co.uk)

# The Success and Impact of College of Surgeons of East Central and Southern Africa, (COSECSA) Surgical Training in the East, Central and Southern Africa

## Background of COSECSA

COSECSA is the brainchild of the Association of Surgeons of East Africa (ASEA). One of the early objectives of the Association was to enhance surgical training. COSECSA was formally inaugurated at the historical meeting of the 50th Anniversary of ASEA in Nairobi on 1st December 1999. Although the College started in 1999, the reference to a Surgical College in the region is as early as the formation of ASEA.

COSECSA is a non-profit organization dedicated to improving surgical care in the region through education and training, research, and advocacy. COSECSA aims to strengthen the surgical field by providing opportunities for surgeons and other healthcare professionals to enhance their skills, knowledge, and expertise.

Sub-Saharan Africa has 3-4 percent of the health workforce, 24% of the global burden of disease with a shortage of 7.2 million health workers, this figure is likely rise to 12.9 million by 2035. COSECSA was established in response to the lack of access to safe, high-quality surgical care and training opportunities for surgeons in East, Central, and Southern Africa. The main aim of the College was to harmonize surgical training in the region of East, Central and Southern Africa, and to raise the standards of surgery by organising modular training programmes in Basic Surgical Training leading to the Membership (MCS-ECSA) and Higher Surgical Training leading to Fellowship (FCS-ECSA). With this objective achieved, COSECSA has become the largest surgical training institution in Africa. The College consists of 14 constituent member countries but trains in 21 countries in Sub-Saharan Africa. Membership in COSECSA is open to qualified surgeons who have completed their surgical training and passed the college's fellowship examination. COSECSA has so far been instrumental in improving surgical care in the region by providing training opportunities and promoting best practices in surgery.

Through its initiatives, COSECSA aims to improve surgical outcomes, increase access to quality surgical care, and reduce the burden of disease in East, Central, and Southern Africa. COSECSA's mission is to promote excellence in surgical care and to support the professional growth of surgeons, anesthesia providers, and other healthcare professionals in the region. COSECSA's main objective is to create a sustainable network of skilled and

competent surgical professionals who are capable of providing high-quality care across the region.

All the efforts are in line with Sustainable Development Goal 3 (SDG 3). Scaling up surgical care, particularly in LMICs, is imperative to accelerate progress towards attaining SDG 3. In particular, quality surgical care is required to address these targets: specifically, Target 3.c: *Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States*

Fig 1: COSECSA Coverage;



COSECSA Key achievements to date are summarized in the facts and figures below; -

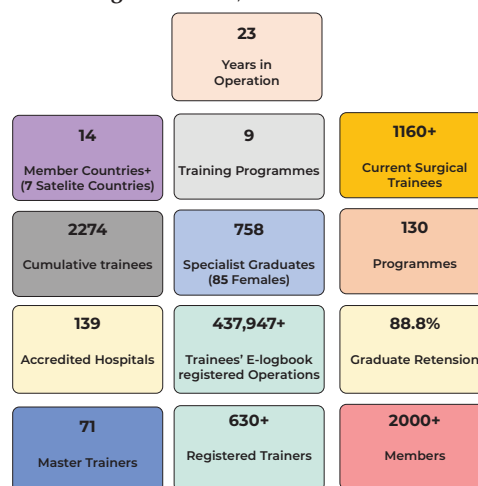


Fig 2: COSECSA Facts and Figures

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## Promotion of excellence in surgical education and training to increase accessibility to Surgical care in the Sub-Saharan Africa;

5 billion people lack access to surgical care when needed. The situation is worse in Low and Low-Middle Income Countries where 90% of patients cannot access this care. Main factors to the inequity are a low specialist surgical workforce density and the skewed distribution of skilled providers. In 2004, the COSECSA region had a surgeon-to-population ratio of 0.53 per 100,000 population with 1,690 surgeons serving a population of more than 320 million. Against this background, COSECSA has grown in stature and currently boasts of having graduated 758 surgeons across 21 countries and spread in both rural and urban areas in the sub-Saharan region. In addition, COSECSA is currently training more than 1160 surgeons in 139 hospitals in the region.

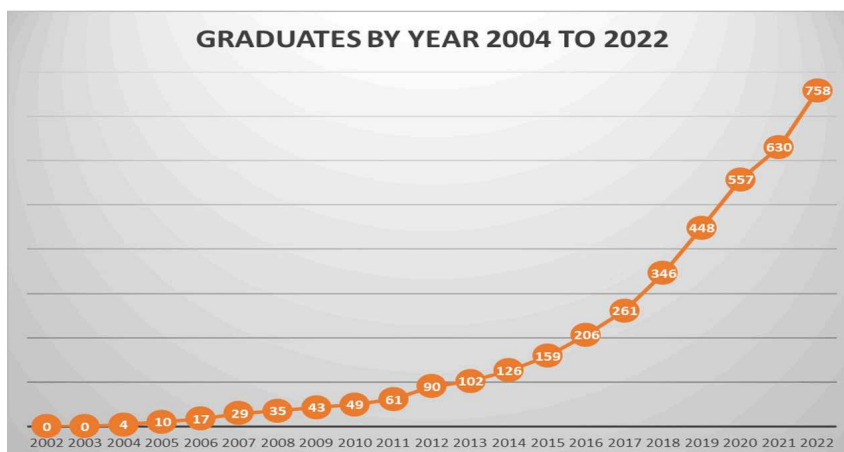
## Surgeon Retention following Specialist Training in the COSECSA Region;

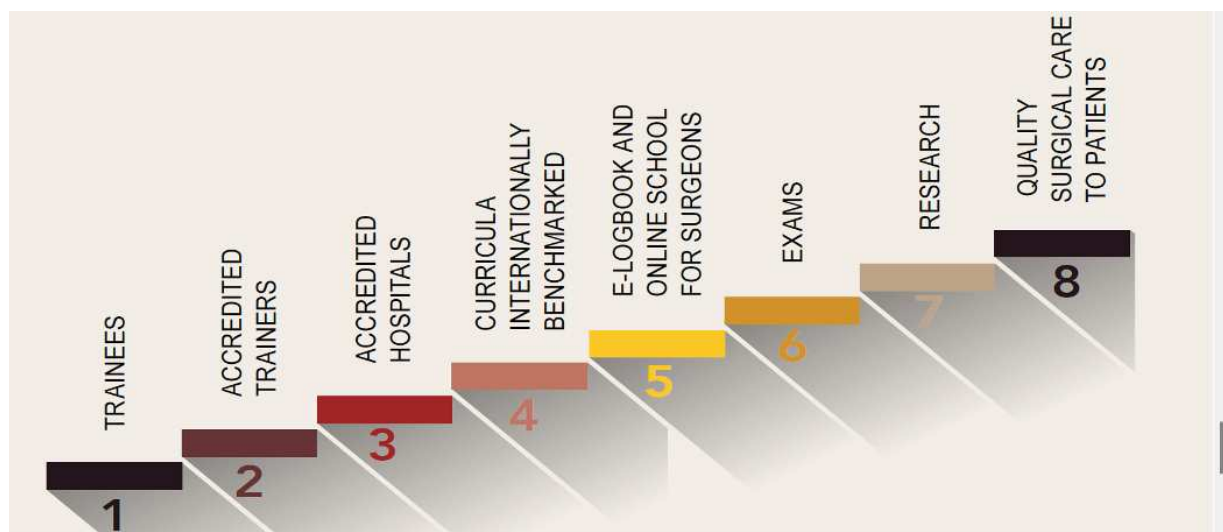
Although the surgeon density has increased, COSECSA aims to graduate 1000 surgeons by 2025 as part of its strategic plan. This target is likely to be surpassed considering the current graduated number of 758 surgeons and the current COSECSA exponential annual growth of graduates. A COSECSA study (1973 to 2013) found retention rates of 85.1% in their country, 88.3% in their region and 93.4% in Africa. The collegiate model of training is an in-service, apprenticeship-style model. Training is undertaken in hospitals accredited by COSECSA, satisfying all prerequisites for training. These hospitals include public and private hospitals, located in urban, non-metropolitan, and rural areas. Of the eighty-seven accredited training sites 63% are public hospitals and 37% are private. Seventy-five are located in urban areas (54%) and 64 (46%) are in non-metropolitan or rural areas. This model of training and distribution of training sites has promoted the retention levels of the

Fig 3: Surgical Training Enrolment Trend (2002-2023)



Fig 4: Exponential Growth of Graduates





**COSECSA: From Training to Impact**

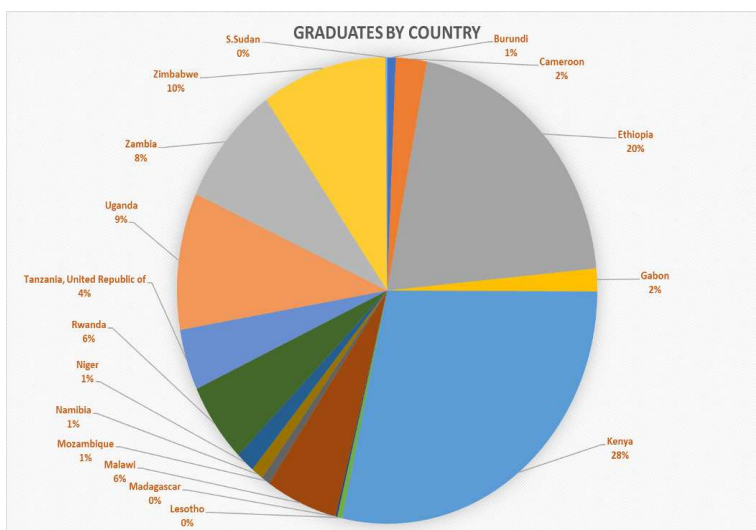
COSECSA trained surgeons. It has also increased access to surgical care.

### Strategic Partnerships and Collaborations; Collaboration between COSECSA and RCSI

The Royal College of Surgeons in Ireland (RCSI) & COSECSA entered into a Memorandum of Understanding in July 2007 to “improve the standards of surgical care, education, training and examinations in the East, Central and Southern Africa Region”. The two commenced the implementation of the collaboration programme in April 2008. The Irish Aid has since through the Collaboration Programme provided a Grant to cover essential programme costs ranging from Operational Costs to Surgical Education/ Training development costs and this has yielded tremendous achievements and strengthened the Collaboration between RCSI and COSECSA. The above-mentioned collaboration was as a result of the idea that was mooted by the then COSECSA President (Prof K.Erzingatsian, an RCSI graduate & Fellow) and RCSI President (Prof G C O’Sullivan).

COSECSA has also established partnerships with various organizations and institutions to support surgical training programs, research, and advocacy initiatives aimed at improving the quality of surgical care and reducing the burden of surgical diseases in Africa. Since its inception, COSECSA has been actively involved in advancing surgical care in Africa through various programs. These include the development of surgical training curricula, accreditation and certification of training institutions, establishment of a robust network for continuing professional development, support for research in surgical care, and the promotion of collaborative partnerships within and outside Africa. Further, the College works closely with local governments,

healthcare institutions, and other stakeholders to develop and implement programs that address the unique challenges faced by surgical teams in the region. These programs include hands-on surgical skills training, professional development courses, and continuing



**Fig 5: Distribution of Graduates across 21 Countries**

education opportunities for practicing surgeons.

Some of COSECSA's notable partnerships include collaborations with national surgical societies – these are affiliate bodies of COSECSA at National Level and in all Member Countries, international NGOs, academic institutions and government agencies to advance surgical education, research and clinical care, and to support capacity-building initiatives. These partnerships have played a critical role in promoting access to quality surgical care, improving patient outcomes and strengthening healthcare systems in East, Central and Southern Africa. Through these partnerships, COSECSA has been able to leverage the expertise and resources of a diverse range of stakeholders, including surgeons, academics, policymakers, and community leaders, to

make significant progress towards its goal of improving surgical care in the region. Overall, partnerships have been instrumental in advancing COSECSA's mission and enhancing the quality of surgical care in the region by promoting collaboration, resource sharing, and mutual learning among members of the surgical community.

The organization's efforts have made a significant impact on surgical care in the region, with over 1,000 surgeons and other healthcare professionals receiving training through COSECSA's programs, and over 700 surgeons completing the organization's rigorous fellowship exams. The organization's commitment to improving surgical care in East, Central, and Southern Africa through training and education programs has been crucial in supporting the professional growth of surgeons and other healthcare professionals in the region.

### **Establishment of Women in Surgery Africa (WiSA)**

In a bid to increase the number of women surgeons, COSECSA established WiSA (Women in Surgery Africa). WiSA supports women who are pursuing careers in surgery through mentorship, networking and scholarship opportunities. COSECSA has purposed, through its Strategic Plan (2021-2025) to increase the number of COSECSA trainees who are women to 20% through training and in leadership roles in surgical practice. To date, WiSA has a full and independent governance structure with representatives of national chapters in each COSECSA Member Country. In the same regard, COSECSA has dedicated financial support through Scholarships from various partners, American Colleges of Surgeons, Association of Women Surgeons and AO Alliance that have enabled women to meet the cost of training and ultimately finish the programme by examination. COSECSA has also advanced gender equity by having the top Council position (President) occupied by a woman, Dr. Jane Fualal who is the current President of College and WiSA Patron.

The sustainability of the College of Surgeons of East, Central and Southern Africa (COSECSA) is crucial in ensuring the provision of quality surgical education and training across the region. To ensure the sustainability of COSECSA, it is important to establish strong partnerships with governments, educational institutions, and international organizations that share a common goal of improving surgical care in the region. Additionally, COSECSA also focuses on developing sustainable funding strategies that would enable it to continue providing quality surgical education and training programs in the region.

COSECSA endeavors to engage in fundraising activities, establishing collaborations with private and public sectors, and exploring alternative revenue generation streams. COSECSA also prioritizes the recruitment and retention of highly qualified and experienced faculty to ensure that its programs continue to meet the changing needs of surgical practice. Furthermore, COSECSA enhances its sustainability by investing in research to identify and address the challenges facing surgical practice in the region.

### **Challenges faced and measures taken to address them;**

However, like any other institution, COSECSA faces a number of challenges. Some of the challenges that COSECSA faces include: limited resources for training, insufficient financial support from governments and development partners, inadequate infrastructure in some training institutions, shortage of experienced trainers and mentors, and difficulty in absorbing the trained surgeons in the region through respective country recruitments which may lead to brain-drain. Despite these challenges, COSECSA remains committed to its mission of improving surgical care in East, Central and Southern Africa.

The institution has implemented various strategies to address some of these challenges, including seeking alternative sources of funding, strengthening partnerships with stakeholders and investing in technology to enhance distance learning. Moreover, COSECSA continues to explore new avenues for training and educating surgeons, and is actively engaging with governments in the region to address key challenges such as retention of trained surgeons and improving the working conditions for surgical professionals. Through these efforts, COSECSA continues to make significant strides in improving the quality of surgical care and training across East, Central and Southern Africa.

In summary, sustainability of COSECSA has been achieved through strong partnerships with governments, educational institutions and international organizations that share a common goal of improving surgical care, developing sustainable funding strategies, prioritizing the recruitment and retention of highly qualified faculty members, investing in research to address surgical practice challenges in the region, and continuously adapting its programs to meet the evolving needs of surgical practice.

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# Nigerian Onchocerciasis: from Control to Elimination

Prof. B. E. B. Nwoke of Imo State University Owerri, Nigeria provides an overview of onchocerciasis control and elimination efforts in Nigeria from the 1950s to date; showing how the country is progressively on track of the elimination drive using mass drug administration with ivermectin.

## Introduction

Human onchocerciasis, commonly called River blindness is a chronic parasitic disease caused by filarial worm, *Onchocerca volvulus*. It is endemic in Nigeria, where it is transmitted by female black flies of the genus *Simulium*, particularly, *Simulium damnosum* group. These vector flies breed in fast flowing, well oxygenated rivers/streams with nutrients. The communities severely affected by onchocerciasis are almost located within 15-20 km radius of the breeding sites, which is an effective flight range of blood fed female flies. Onchocerciasis leads to the development of onchocercal skin disease (OSD) (onchodermatitis), lymphadenitis (resulting in hanging groin), ocular lesions (impaired vision and blindness) and systemic manifestations like itching, skin rash and visual impairment.

Of the 20-40 million people globally infected by onchocerciasis in 37 endemic countries in tropical Africa south of Sahara, Central and South America and Yemen, Nigeria is the most endemic, accounting for about 40% of the global prevalence<sup>1</sup>. About 32 million Nigerians living in 36,000 communities in 413 Local Government Areas (LGAs) of 32 States and the Federal Capital Territory (FCT) are estimated to be at risk of the disease<sup>2</sup>.

Onchocerciasis in Nigeria has been recognized as a communicable disease that is not only a social problem but also a major threat to productivity and the economy of the country. "It impedes national and individual development, it makes fertile land inhospitable, impairs intellectual and physical growth and exacts a huge cost in treatment and control. It robs affected people of their dignity, independence and hope, especially often among the poorest people", which are at the end of the road and poor rural farmers who produce the bulk of our food and industrial raw materials<sup>3</sup>. It is therefore not a disease that should be taken for granted, hence the drive for control<sup>2</sup>.

## Control efforts in Nigeria

Initial control efforts started with larviciding of breeding sites in the 1950s at Oji River<sup>5</sup> tributary of River Niger at Lokoja, Kaduna River and river systems in the Abuja Emirate in the 1960s as well as at Hawa River Valley and Kainji Dam site<sup>5</sup>.

A National Onchocerciasis Control Programme (NOCP) was established in 1982 to coordinate the control programme. The discovery of ivermectin and its acceptance as a drug of choice for the mass treatment of onchocerciasis, registration of the drug in 1987 and the announcement by Merck & Co., Inc (MSD) that it would donate Mectizan® free for the treatment of onchocerciasis encouraged NOCP to commence mass ivermectin distribution in Nigeria. At this stage, with the support of the Non-Governmental Development Organisation (NGDO) partners, ivermectin was distributed first to those communities whose members were at risk of developing severe and disabling ocular or dermal complications<sup>2</sup>.

The first strategy adopted by Nigeria was mobile strategy in ivermectin distribution programme (IDP), which experienced a lot of operational and logistic limitations because it was not community owned. The launching of the African Programme for Onchocerciasis Control (APOC) by WHO in 1995 brought a new impetus to the control programme. "The mandate of APOC was to establish within 12-15 years effective and self-sustaining community-directed treatment with ivermectin (CDTI) through collaborative partnership, within the framework of primary health care activities in the remaining endemic areas in Africa and, if possible, eliminate the vector and hence the disease by using environmentally safe method in selected foci". APOC partnership involved 19 participating African countries (including Nigeria) with WHO was the executing agency.

Nigeria adopted the CDTI strategy; and with the support of APOC and NGDO partners, onchocerciasis control was extended to all the endemic areas in the country. In this strategy, communities were encouraged to take responsibility for organizing their own distribution of Mectizan® and Community Directed Distributors were responsible for the mass ivermectin distribution. This approach assured greater community participation and improved geographical and chemotherapeutic coverage. Epidemiological and entomological impact assessment of APOC activities in Nigeria (Taraba, Cross River, Kaduna and Kogi States) showed reduction in skin and eye lesions as well as significant decrease in the entomological indices, which had fallen below acceptable thresholds<sup>4</sup>.

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## Elimination of Onchocerciasis Transmission

The first evidence that elimination of transmission of onchocerciasis is feasible with repeated ivermectin treatment was published on July 21, 2009 by Diawara et al<sup>5</sup>. Their study in Mali and Senegal showed that treatment with ivermectin stopped further infections and transmission in endemic areas where the disease had existed continuously. This evidence encouraged Nigeria, and with the support of APOC, it conducted multi-site evaluation studies in endemic foci in Zamfara, Ebonyi, Kaduna, Taraba, Cross River, Edo and Delta States between 2008 and 2010<sup>6</sup>. As observed by Diawara et al<sup>(5)</sup>, the results from Nigeria also showed that large-scale treatment with ivermectin stopped further infections in both man and blackfly vectors, especially in areas where there were high percentage of treatment coverage<sup>6</sup>.

These results encouraged Nigeria Federal Ministry of Health (FMOH) to embark on the elimination of onchocerciasis. The Minister of Health inaugurated the National Onchocerciasis Elimination Committee (NOEC) on May 23, 2015 to provide technical support and advice in line with the WHO (2016)<sup>7</sup> guideline in the elimination of onchocerciasis. "The goal of the onchocerciasis elimination agenda is to push transmission of *Onchocerca volvulus* infection to the point where the parasite population is irreversibly moving to its extinction in all onchocerciasis transmission zones by 2030, at which point all Mass Administration of Mectizan (MAM) can be halted".

The Honourable Minister of Health gave the following Terms of Reference (ToR) to the NOEC:

- Provide technical advice on onchocerciasis elimination to the Federal Ministry of Health;
- Support the Government of Nigeria to develop a national guideline and road map for onchocerciasis elimination in Nigeria;
- Assess where and when breakpoint has been reached and recommend to the Hon. Minister of Health the localities where ivermectin treatment can be safely stopped; and
- Support the government in the preparation of the country's dossier for verification of Nigeria as having interrupted the transmission of onchocerciasis infection nationwide.

Update of onchocerciasis elimination programme in Nigeria (May 2015 – Dec. 2022) (Figure 1)

- In 2015, no state had eliminated transmission in Nigeria, but as at December 2022 two States (Plateau and Nasarawa) had eliminated transmission to the extent that about 2.0 million people are out of MDA. Currently, post elimination surveillance (PES) is ongoing in these States.
- No State had interrupted transmission of onchocerciasis in 2015 but at the end of 2022, eight States (Kaduna, Zamfara, Kebbi, Delta, Imo, Abia, Enugu and Anambra) had interrupted transmission of onchocerciasis. About 27.0 million persons in these States are no longer in need of MDA for onchocerciasis. These eight States are conducting post transmission surveillance (PTS).
- The number of States where onchocerciasis transmission was suspected to be interrupted in 2015 was only five, by 2022, it had increased to 11. Entomological evaluation is ongoing in these States.
- Available result in 2025 showed that in 12 States and Federal Capital Territory (FCT) elimination of transmission onchocerciasis was on track. At the end of 2022, 9 States were on track and epidemiological evaluation is ongoing to determine the elimination Status.
- Transmission was ongoing in 8 States in 2015 and by end of 2022, transmission was ongoing only in one State. Twice a year treatment is currently been implemented in the State. Thereafter, epidemiological evaluation has been planned in the State.
- At the beginning of the elimination programme in 2015, there was limited or no information on the Status of onchocerciasis in 11 States in Nigeria. At the end of 2022, we had only 6 States where there was limited or no information about onchocerciasis. Currently, Onchocerciasis Mapping is ongoing

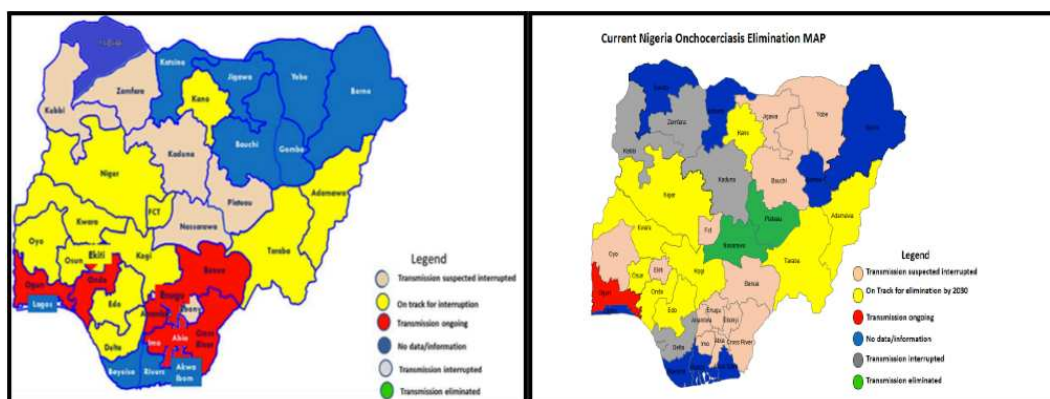


Figure 1: Showing colour status of onchocerciasis in Nigeria in May 2015 (left) and December 2022 (right) (NOEC, 2015; NOEC, 2022)

**Table 1: States where breakpoint have been reached and where ivermectin treatment have safely been stopped (where people no longer have need MDA for onchocerciasis) in Nigeria, December 2022**

S/N	State	No of LGA	Number of persons who are no longer in need of MDA for onchocerciasis
1.	Plateau	5	2.0 million
2.	Nasarawa	7	
3.	Kaduna	16	2.2 million
4.	Zamfara	5	4.0 million
5.	Kebbi	9	
6.	Delta	15	2.0 million
7.	Imo	50	18.8 million
8.	Abia		
9.	Enugu		
10.	Anambra		
<b>TOTAL</b>		<b>108 LGAs</b>	<b>29.0 million persons who are no longer in need of MDA for onchocerciasis</b>

## Summary

With the evidence that elimination of transmission of onchocerciasis was feasible with repeated ivermectin treatment, Nigeria was encouraged to embark on the elimination of onchocerciasis. National Onchocerciasis Elimination Committee (NOEC) was inaugurated on May 23, 2015 by the Hon. Minister of health to provide technical support and advice in line with the WHO (2016) guideline. The support of the UN Agencies and in partnership with NGDO Collation gave the boost. The effort in the elimination of the transmission of onchocerciasis in Nigerian (May 2015-December 2022) has produced impressive results. During this past seven and half years, transmission of onchocerciasis has been interrupted or eliminated in 10 States and a total of 29.0 million persons from 108 Local Government Areas are no longer in need of MDA for onchocerciasis. These 29.0 million people are no longer at risk of developing onchocercal skin disease (OSD) (onchodermatitis), lymphadenitis (resulting in hanging groin), ocular lesions (impaired vision and blindness) and systemic manifestations. The strategic plan and activities lined up to meet up with 2021-2030 Road Map to eliminate the transmission of onchocerciasis in Nigeria is on track - to be one of the 16 countries to stop MDA in more than 50% of the population. It is the aim of Nigeria to be one of the 12 countries to stop MDA in the entire endemic population.

**Appreciation:** The support and encouragement of the Minister of Health, Nigeria, WHO Nigeria; UNICEF Nigeria, WHO/ African Programme for Onchocerciasis Control (APOC); MSD, MEC, ESPEN, and NGDO coalition as well as distinguished scientists and administrators are immensely appreciated. The States, LGAs and endemic communities have continued to play very important role in the elimination of onchocerciasis.

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# Climate Change and Health in Africa

Amongst the long list of challenges impacting the daily lives of people living in Africa, and elsewhere, four, in particular stand out: inequities, conflicts, pandemics and climate change – all of which have significant impacts on population health. Inevitably it is often low income or otherwise marginalized populations who are among those most vulnerable to these challenges, but ultimately, we are all affected. As we are frequently reminded – there is no planet B<sup>1</sup> – which means that we need to do everything possible to address these challenges and find ways of making it possible for everyone on planet Earth to live long and healthy lives and for everyone to have the social and economic conditions to reach their potential.

It may be argued that the four challenges listed above are interrelated and feed off each other, with climate change shown to exacerbate the other three challenges; thus, in this essay, we will focus on climate change and its impact on health in Africa. All evidence shows that, over the next two to three decades, climate change will intensify existing health challenges that many people living on the African continent experience and further strain the already over-burdened health systems.

The unresolved question is not whether this will occur, it is instead what degree of impact will climate change have on health and how can this be mitigated? All estimates show that the earth is heating up at a significantly accelerated rate. According to the Intergovernmental Panel on Climate Change (IPCC)<sup>2</sup>, greenhouse gases have already caused at least 1.1°C in warming and that there are already adverse impacts on food and water security, human health and on the economies of various countries and that vulnerable communities which have contributed least to global warming are disproportionately affected. The IPCC notes that the world must do everything possible to ensure that global warming does not exceed 1.5 °Celsius above pre-industrial levels; exceeding 1.5°C could have long-lasting and even irreversible consequences.

Climate change affect all aspects of planetary health, affecting the environment, humans and animals. The environmental impact includes rising sea levels, changes in the extremes of extreme weather events (e.g., heatwaves, droughts, storms, floods, wildfires), and the compounding of these weather events. As the globe heats up, there are impacts on both animal and human health<sup>3</sup>. Climate change has exposed humans to food and water insecurity, has resulted in the loss of livelihoods and culture, has driven displacement, and have increased human mortality and morbidity. Apart from human health being negatively impacted, climate change also impacts the economy<sup>4,5</sup>. Furthermore, climate change has led to the loss and damage of

ecosystems and extreme weather events, such as extreme heat, have led to species losses and mass mortality events in animals. Principal contributors to global warming are the emissions of greenhouse gases, which include carbon dioxide and methane emissions. According to the World Population Review in 2020, the country emitting the highest levels of carbon dioxide emissions was China, followed by the USA, India, Russia and Japan<sup>6</sup>. In contrast, African countries account for less than 4% of greenhouse gas emissions.<sup>7</sup>



**Flooding in Uganda** (Courtesy of Ronald Musoke)

Although Africa's carbon footprint will likely increase in the coming years as African countries develop economically, there is a familiar unfairness with people living in Africa being amongst those bearing some of the greatest brunt of climate change. The ten countries most vulnerable to the adverse impacts of climate change, according to the International Rescue Committee, are all low-income or lower-middle-income countries: Somalia; Syria; the Democratic Republic of Congo; Afghanistan; Yemen; Chad; South Sudan; Central African Republic; Nigeria; and Ethiopia<sup>8</sup>. Seven of the 10 countries are in Africa, this is of great concern and requires urgent global action.

## Current status of health in Africa

Before we review the specific impact of climate change on health in Africa, it will be useful to understand the current health status of the continent. Unfortunately, even before the COVID-19 pandemic, which undoubtedly negatively impacted African countries<sup>9</sup>, the historically weak health and economic systems have contributed to poor health outcomes.

The World Health Organization estimates that of the 295 000 maternal deaths in 2017 globally, 196 000 or 66.4% were in sub-Saharan Africa<sup>10</sup>. The worst performing countries in the region per 100 000 live births are: South Sudan (1 150); Chad (1140); Sierra Leone (1120); Nigeria (917); and Central African Republic and Somalia (829)<sup>11</sup>. Pregnant women in the region fare very poorly when compared to their European and North American counterparts. A women's lifetime risk of maternal death is

Yogan Pillay (Department of Global Health, Stellenbosch University & Clinton Health Access Initiative), Elizabeth Leonard (Clinton Health Access Initiative) & Andrew Storey (Clinton Health Access Initiative)

1:37 in our region but 1: 4800 in countries in the north<sup>12</sup>.

Similarly, 43% of all neonatal deaths globally were in the region with the countries with the worst neonatal mortality rates per 1000 live births being: South Sudan (40.2); Central African Republic (38.8); Somalia (36.8); Nigeria (25.5); Chad (32.8); and Sierra Leone (31.4)<sup>13</sup>. With a poor start in life, it is therefore not surprising that life expectancy in sub-Saharan Africa is significantly lower in the region (59.7 years) compared to 77.2 years in Europe and North America<sup>12</sup>.

That the majority of countries with the poorest health outcomes in the region (South Sudan, Chad, Nigeria, Central African Republic, Somalia) are also the countries most vulnerable to the impacts of climate change should be a concern to everyone. This implies that the people living in these countries can only expect worsening health outcomes over the next few decades and therefore should be the countries that receive the most help to mitigate the impact of climate change.

## Human health impacts of climate change

The figure below illustrates the range of health conditions that could be affected by climate change and include the health impacts resulting from (i) severe weather, (ii) air pollution, (iii) changes in vector ecology, (iv) increasing allergens, (v) water quality impacts, (vi) water and food supply impacts, (vii) environmental degradation, and (viii) extreme heat<sup>14</sup>. Similarly, Haines and Ebi illustrate how a range of exposure pathways impact health<sup>15</sup>, outlining seven exposure pathways resulting in poor health outcomes (i) extreme weather events, (ii) heat stress, (iii) air quality, (iv) water quality and quantity, (v) food supply and safety, (vi) vector distribution and ecology, and (v) social factors.

In the IPCC Sixth Assessment Report, the observed changes and impacts that climate change has already caused are described. The specific health impacts described include mortality from floods, droughts and storms which are substantially higher in countries that are more vulnerable to climate change; increases in the mortality and morbidity during extreme heat events;

increases in climate change-related food- and water-borne diseases; increases in vector-borne disease incidence; increases in mental health conditions associated with rising temperatures; and increases in trauma resulting from extreme weather events.

According to the World Health Organization – African Region (AFRO)<sup>16</sup>, between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths globally per year, from malnutrition, malaria, diarrhea and heat stress. The direct costs to health are estimated at between US\$ 2-4 billion/year by 2030. Of concern, AFRO suggests that areas with weak health infrastructure – mostly in low-middle-income countries – will be the least able to cope with the health impacts of climate change without assistance to prepare and respond.

Similarly, the World Bank<sup>17</sup> suggests that 88% (42 of 48) of sub-Saharan countries rank amongst the most at-risk for negative health outcomes associated with climate change. The impact of heat and air pollution<sup>18</sup> on maternal health is becoming increasingly established<sup>19</sup> and includes higher rates of miscarriage, preterm birth, and stillbirth. Pregnant women<sup>20</sup> are more vulnerable to heat-related illnesses, while newborns are especially heat-sensitive. Climate change can also affect women and infants in other ways. Gender inequality<sup>21</sup> and food insecurity are just two ways that the climate crisis intersects with other social, economic, and environmental determinants of health to put the lives of women at risk. Those Africans lucky to reach an old age will be similarly highly vulnerable to heat related illnesses and food insecurity.

## What can be done about it: mitigation and adaptation

Concepts like ‘mitigation’ and ‘adaptation’ have been used in the context of climate change and what can be done to turn the tide. According to the UN Environment Programme (UNEP)<sup>22</sup> the definition of mitigation refers to: “...efforts to reduce or prevent emission of greenhouse gases” They also suggest that mitigation means “using

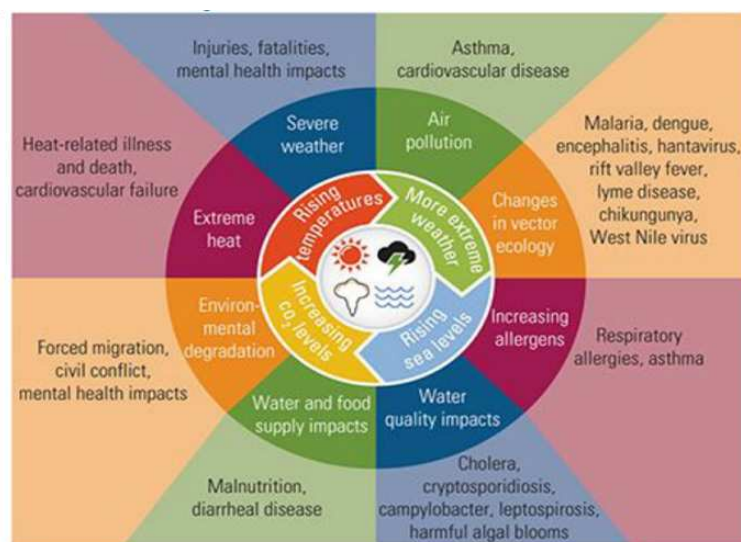


Figure 1: Impact of climate change on health (Evans & Munslow, 2021)



new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behavior”.

The health sector globally is estimated to contribute about 4% of greenhouse gas emissions and there are a wide range of mitigation interventions possible including reducing energy consumption by transitioning to renewable energy use and being more energy efficient; reducing emissions through changes to the supply chain; recycling health commodities, including those used in surgical operations; and increasing use of digital technology and reducing transporting patients<sup>23</sup>.

Adaptation, on the other hand, means “adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects.”<sup>24</sup> Given the significant impact of excessive heat (which has already begun to result from climate change) there are a number of other interventions that the health sector should implement to protect patients, especially pregnant women and newborns<sup>25</sup>.

These interventions include: policies on the needs of pregnant women and newborns which prioritise mitigation and adaptation to climate change; provision of guidance from health workers on the impact of extreme heat, and sharing prevention methods like staying out of the sun during the hottest parts of the day and the importance of hydration; making health services available during cooler parts of the day and providing shelter and water during visits to health facilities; facilitating multisectoral collaboration to ensure the homes are insulated against heat and cold and provision of potable water. In addition, health systems should strengthen climate surveillance and be able to inform patients and communities of increases in temperatures and other weather conditions that impact on health.

## Conclusions

Climate changes impact on human existence. This means that it impacts on a vast array of health conditions and outcomes sometimes in ways we cannot fully anticipate currently. Climate mitigation and adaptation is clearly everyone's business, but the health sector has a particular responsibility to ensure that it is geared to reducing the impact of climate change, including excessive heat, droughts, wildfires and storms on health outcomes. What the health sector cannot afford to do, what nobody can afford to do, is to wait and just hope for the best. All evidence shows that future years will be harder, not easier. Even as we continue to learn about the impact of climate change on health, much is already known and action is imperative to mitigate and adapt if we are to protect.

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# Into Africa – is this the future of MedTech?

Medlab Middle East, one of the world's big showcase events for the medical technology industry, returned to the United Arab Emirates in March and, for me at least, it was the first opportunity since COVID 19 to meet existing and future clients and colleagues, face-to-face in one place.

As I wandered among the 20,000 visitors and 700 exhibition stands at the Dubai World Trade Centre, it struck me how much things have changed since the global pandemic forced us all behind closed doors.

The sheer volume of people and organisations represented at the trade event – up by more than 100% on last year – demonstrated how the industry has grown since, and partly as a result of, COVID 19, with significant advances in telemedicine, big data analytics, wearables, and information management.

It also served as a reminder of the growing diversity of the sector and as a gauge of where future trading opportunities might lie.

An admittedly unscientific, survey of delegates' headgear confirmed the growing influence of African companies.

The wonderfully vibrant and colourful range of hats on display served as a useful guide to where in Africa many of the latest visitors hailed from, with Ghana, Kenya, South Africa, Nigeria and Rwanda all strongly represented.

Pigeon-holed thinking about African healthcare inevitably focuses on underdevelopment and lack of healthcare.

It remains the case that the continent employs just three per cent of the global health workforce, while sub-Saharan Africa bears around a quarter of the global disease burden. On average, there are still only three doctors for every 10,000 patients across the region.

Yet in terms of innovation and investment in MedTech, Africa is now seeing impressive levels of growth. In 2021, some 479 health-related start-ups received \$4.77billion in investment, compared with \$379.6million invested in 180 early-stage companies the previous year.

MedTech companies have shown impressive versatility in using the resources available to them to the greatest benefit. While online connectivity was not widespread until relatively recently, SMS messaging has been used extensively since the mid-2000s, allowing community health workers and hospital staff to communicate with patients.

Notable commercial success stories include Wisepill, a South African company founded in 2007, whose software reminds patients, via their mobile phones, when to take medication, while also alerting doctors when a pill has been taken.

Ghana-based mPharma is establishing 100 virtual

centres across Africa, while Digital Afrique Telecom (DAT) and Ever Medical Technologies are jointly modernising the healthcare industry through technology and improving, facilitating, and disseminating digital medical solutions across the continent.

However, the impact of the pandemic upon the global diagnostics industry, and the way it changed popular perceptions of mass testing, has also presented the continent with new opportunities.

Better communications and travel and a general commitment to improved professional development have combined to make doing business in Africa easier and more productive.

At an anecdotal level, I spoke with a MedTech professional in Dubai who had a trademark issue and the court in Nigeria solved it in a matter of weeks.

Companies seeking to sell diagnostic tests into the continent a decade ago might have struggled to find a route-to-market outside of Oxfam or Médecins Sans Frontiers. Now they are better able to deal directly with commercial actors on the ground, who will do what they promise and pay, in full and on time.

These are benefits to doing business there, not yet guaranteed in some other jurisdictions and territories, notably in South Asia where some countries have not yet restored or moved to electronic visas and so, travelling to them for trade purposes still requires you to visit their embassy or consulate in your home country to get your passport stamped.

The European and American delegates whom I spoke with in Dubai generally saw Africa as a more promising territory than either India or China.

That is not to say Africa is trouble free. Companies can face significant disruptions in supply chains and product and service delivery as well as inadequate medicine data storage and analysis, and poor financing. Corruption and lack of resources remain problematic in some African countries.

And yet many more companies now see Africa as an important market, particularly for the testing and treatment of infectious diseases. They are increasingly joining stakeholders, decision-makers, and the World Health Organisation (WHO) in raising funds and working to improve Africa's healthcare system, particularly through technology.

Innovation and confidence hold the key to future development of the MedTech industry in Africa. Growing investment in new medical technologies can facilitate more and better opportunities for investors, scientists, product developers and manufacturers across the continent.

By the time of the next Medlab Middle East trade event we may see an even greater and more diverse range of hats, reflecting a stronger influence of African companies in the industry.

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# Community Engagement for COVID-19 Response and Health: Lessons from Uganda

Francis Omaswa, David Okello, Enos Paul Emulu and Robert Odedo summarizes their experience in implementing Community Engagement Strategy for COVID-19 Response and Health in Uganda.

## Introduction

Japan International Cooperation Agency (JICA) worked with the African Center for Global Health and Social Transformation (ACHEST) as a Technical Partner to test and model approaches for the engagement of communities in the prevention and control of COVID-19 in Uganda from April 2021 to March 2023. Four districts of Uganda, namely, Amuru, Busia, Mukono and Ngora were selected for the intervention. The objective of this intervention was to ensure that all people were aware, empowered and were participating actively in the prevention and control of the outbreak of COVID-19 as both a duty and a right, using existing structures, systems and resources as much as possible.

The COVID-19 outbreak was seen as an opportunity to implement to scale the existing multi-sectoral Community Health Strategy which was first articulated in the National Health Policy and Strategic Plan launched in the year 2000. This approach is expected to accelerate the achievement of SDGs and UHC in Uganda through enhanced ownership of the health and development agenda by the communities themselves. The approach would also ensure that COVID-19 infections are minimized or do not occur in the community; and if they occur, it would enable prompt identification, testing, treatment and rehabilitation as needed.

## Methodology used

The strategy adopted for this intervention was to strengthen the existing Community Health Systems for Integrated People Centered Primary Health Care as the National COVID-19 response transitioned to Phase 4, manifested by widespread community transmission in most of the districts of Uganda. Village COVID Task Forces (VCTFs) were established in all districts in the country, aligned to existing governance structures. The VCTFs were led by elected leaders and membership included; Community Health Workers known as Village Health Teams (VHTs), cultural and religious leaders, extension workers from community development, civil society organizations (CSOs), agriculture, schools, women groups and opinion leaders.

The VHTs were supported and supervised by the Health Assistants and health facility staff at the nearest Health Center. They were linked to the District health

system and reported to the District COVID Task Force and shared data with the District Health Biostatistician. The VHTs received additional training and were provided with a tool kit for 160 VHTs per district, including a back pack, a reflector jacket, bicycle, smart phone, first aid box, temperature gun, umbrella, rain coat and gum boots. They also received an allowance of UGX 100,000 (one hundred thousand only) per month which motivated them to do their work optimally.

The four project districts of Amuru, Busia, Mukono and Ngora were followed up closely by ACHEST teams as learning sites with the support of JICA and the Government of Uganda. The VHTs in the project sites were trained and acquired skills to handle the following activities: i). Community based surveillance and case detection including deaths, ii). Community case management including supporting self-isolation, community-based drug distribution and referrals as appropriate, iii). Community contact tracing and reporting, iv). Community shielding of vulnerable members, v). Strategic Communication, creating awareness, information and education to gain and hold trust of the communities as well as promoting household hygiene and sanitation, vi). Maintaining the Village Health Register on households, data management and reporting, and vii). Responding to other health needs as appropriate including Water, Sanitation and Hygiene issues; as well as maternal and child health conditions.

The VCTFs met regularly for community dialogue where they discussed local issues for roll out of the Community Engagement Strategy and identified problems and agreed on local solutions. ACHEST staff visited each district initially every month and later every two months to receive progress reports and provide support supervision and encouragement.

## Results

The key result of the intervention demonstrated that empowered and organized communities have the capacity to own and take charge of their own health. The project helped to revitalise and enhance the capacity of the VHTs, as well as raise their visibility within the health system. The role they play has been highly appreciated by Government, development partners and members of the communities. They were very effective in supporting COVID-19 control measures, including creating public awareness COVID-19 vaccination and Standard Operating Procedures. The VHTs gained skills in home visits, how to relate to households and obtain the trust of

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the community.

The structures put in place to support the COVID-19 response have been adapted in the handling of other health conditions such as the recent Ebola virus disease outbreaks in Mubende District and its neighbouring districts; as well as Crimean–Congo Haemorrhagic Fever (CCHF) outbreak in Amuru district. The VHTs played a key role in creating awareness towards Ebola and CCHF and other health and hygiene awareness campaigns, contact tracing, alerts, and directing health officials to hot spots.

The recently launched National Community Health Strategy for Uganda has benefitted immensely from the CES, and it is a direct output of the application of lessons learned from the implementation of the CES. ACHEST played a key role in influencing this major policy direction in the country. ACHEST also influenced policy direction for the utilization of VHTs trained under this project who are now widely utilized in the implementation of community health programs by partners and the Government.



**Figure 1. A VHT interacting with a community member in one of the Model homes during routine home visit**

ACHEST obtained data from the DHO Teams during regular interactions with them and from the stakeholders' meeting in March 2022, which showed general improvements in the Results Based Financing (RBF) indicators over the project period as shown in Figures 2 and 3 of Ngora district.

Almost all monitored RBF indicators improved since this project started; hygiene and sanitation improved,

open defecation no longer observed, handwashing facilities at more than 90% and practical handwashing observed in the households. It was also reported from the ground level; increased child births in health facilities, reduction in hygiene associated diseases like diarrheal illness, eye diseases and intestinal worms; as well as increased antenatal care attendance over the project period.

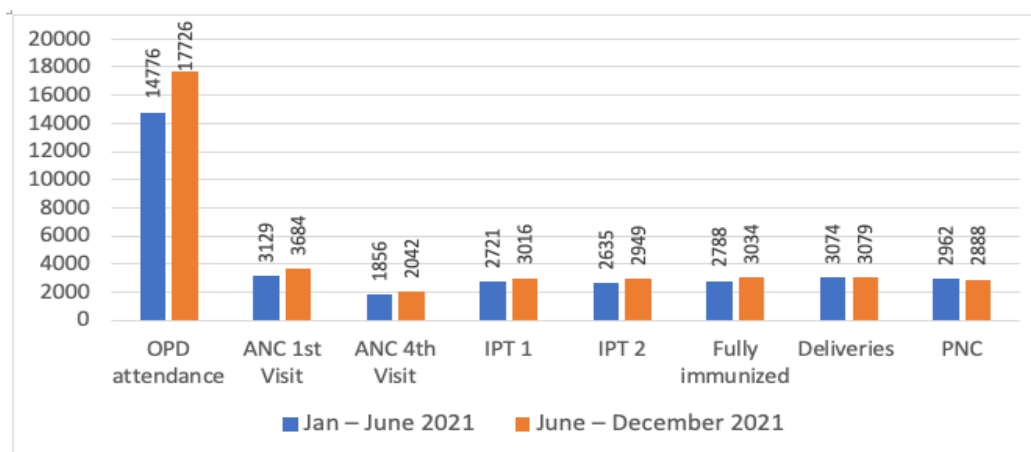
There was also an increase in the number of women taking the use of modern family planning services; and many households achieved minimum standards for model homes. These improvements were a result of the efforts of Village Health Committees and VHTs in mobilizing the populations in their community.



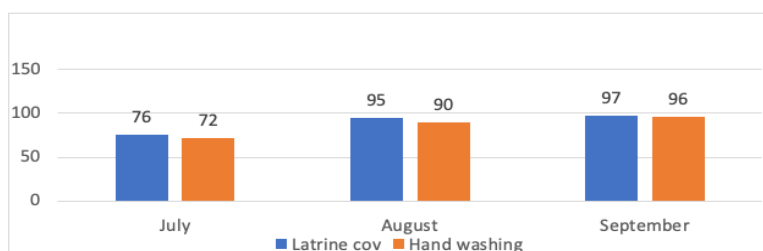
**Figure 4: VHTs receiving bicycles and kits**

### Sustainability of Efforts

VHTs are present in all parts of the health systems in Uganda. Their work, however, has been by and large treated as voluntary, despite their enormous time commitment for the work. Nowadays, most incentives for the VHTs are donor-driven, in-kind, inconsistent, and non-monetary. Indeed, lack of incentives and support to VHTs has been a major challenge to sustain the system since its inception more than 20 years ago. It is against this background that the JICA supported Project in Uganda decided to pay a facilitation of UGX 100,000 (US\$25-30) per month from September 2021 to the end of the project in March 2022. The reason of this decision was to facilitate the VHTs' activities further so that the impact of the intervention could be realized and on the realisation of how important the incentive and motivation to VHTs is for the sustainable community health system.



**Figure 2: Comparison of RBF Indicators for 6-month period before**



**Figure 3: Improvements in Hand washing and Latrine Coverages (%) in Ngora District from July to September 2021**

The facilitation apparently led to the stunning achievement. The number of home visits by VHTs drastically increased during the time they were incentivized; namely, the VHTs' activities seemingly became more active after the introduction of the facilitation. The change might be affected by the procurement of equipment and the technical inputs and empowerment through the project. On the other hand, it was also observed that some VHTs have been apparently discouraged to continue their activities after the end of the Project when the facilitation was terminated.

In addition, the experience with the COVID-19 response has brought to light the potential of the communities to take charge of challenges facing them. Sustainability of these efforts rests in embedding community engagement activities into the district plans, and ensuring that the partners follow the '3 ONES'; namely, One district plan, One implementation arrangement, and One monitoring and evaluation mechanism. Such efforts are already underway, but implementation is hampered by low funding support from the Government and partners. On the other hand, a few health development partners are supporting the district plans and utilizing the VHTs who have become key players at the community level. Such efforts are commendable and should be encouraged.

The legacy of this project is illustrated by the progress made in the 4 districts of Amuru, Busia, Mukono, and Ngora. These districts can be nurtured to become demonstration sites and Centres of Excellence in Integrated People-Centred Primary Health Care, where routine governance of communities is inseparable from the work of VHTs, community development workers, cultural and religious leaders, and civil society. The project has created a strong sense of ownership, self-determination, and social cohesion in the project villages; and has greatly helped to address people's needs for good health. It has also succeeded in raising awareness on the importance of community dialogue to gain consensus over critical matters confronting them. All these lessons and experiences are important lessons that can be utilized for implementation of the existing Community Health Systems in Uganda and elsewhere.

### Challenges

The youth particularly boys in the communities were engaged in idleness and consumption of alcohol and illicit drugs. Payment of allowances for VHTs was implemented by Government for one quarter of FY201/22 and then stopped. JICA was able to sustain VHT payments through the remaining period of the project. There is a strong call to have at least one VHT per village to get paid allowances to allow them devote more time to their work. Male participation in supporting their spouses to attend antenatal and delivery services is too low. This leaves the women to struggle on their own without male support. VHTs also need regular supply of Village health registers,

Referral forms and support supervision from the Health Assistants.

Training and capacity building of VHTs have been pointed out as another challenging area for achieving resilient and sustainable community health systems. Unfortunately, most government-supported VHTs have quite limited access to regular in-service training, and have never got opportunities to update their knowledge and skills on community health. Moreover, the estimated cost of regular training for VHTs could be overwhelming due to the existence of the quite large number of VHTs throughout the country. Apparently, the Government does not have enough budget and resources to give refresher training to all the VHTs; and this situation is in fact one of the reasons why the VHTs system has been deteriorating.

In the JICA supported Project areas, ACHEST made special efforts to train all the VHTs recruited into the Project. Nevertheless, strong demands were made by the District Health Offices and the District COVID Task Forces for training for other VHTs who were not benefitting from the Project as they are as well invaluable human resources in the communities. In addition, the districts also pointed out that some VHTs have been dedicating themselves for decades and have aged; and new VHTs should now be recruited to sustain the community health system. Above all, however, the costs and resources for regularly providing training to VHTs could hinder the expansion of community health programs in the country. In Oyam district, the Development Partners combined efforts and resources to ensure that VHTs got refresher training in Integrated Community Case Management (iCCM) and other Maternal, Newborn and Children Health (MNCH) areas. This cost sharing arrangement eases the burden on the funders whilst ensuring VHTs are well equipped to serve their communities more effectively.

### Recommendations

Based on our experience implementing this project, we recommend as follows:

1. The lessons learnt from this project should be incorporated and used during the implementation of the new National Community Health Strategy;
2. Village COVID-19 Task forces should become the Village Health Committees and meet regularly for Community Dialogue; and
3. There is need to continue with modelling the successful practices in the current project districts and to expand to new districts.
4. The paper-based Village Health Registers as used in the project should be transformed into an electronic Community Health Information system (e-CHIs).

# The East, Central and Southern Africa Health Community (ECSA-HC) 13<sup>th</sup> Best Practices Forum (BPF) and 71<sup>st</sup> Health Ministers Conference (HMC), February 2023.

Walter D Odoch and Yoswa M Dambisya give a summary report of the 13<sup>th</sup> BPF and 71<sup>st</sup> HMC held in Maseru in February 2023

## Introduction

The East, Central and Southern Africa Health Community (ECSA-HC) held its 71st Health Ministers Conference (HMC) in Maseru, Kingdom of Lesotho, on 8th and 9th February 2023. The HMC was preceded by the 29th Directors Joint Consultative Committee (DJCC) meeting and 13th ECSA-HC Best Practices Forum (BPF) which were held from 5th to 7th February 2023. This series of meetings brought together more than 150 participants, and presented an opportunity for senior officials from ministries of health, heads of health training and research institutions from the nine ECSA Member States, the leadership of the ECSA College of Health Sciences and its constituent Colleges, United Nations Agencies dealing with health matters, development partners such as the World Bank and Global Fund, civil society and non-state actors, programme implementers, and diverse collaborating partners from the region and beyond, to interact with the various layers of policy and decision makers within the ECSA-HC governance framework.

ECSA-HC is a regional nine-member intergovernmental health organisation whose mandate is to foster regional cooperation in all matters of health. Its programming and implementation footprint currently covers more than 20 countries. The organisation has over the years institutionalised the BPF as a regional evidence-to-use platform for fostering evidence informed health programming and policy development. The BPF brings together ministries of health and other government sectors/agencies, researchers, health implementing organizations, and a wide range of other stakeholders to share lessons and experiences towards influencing policy. The theme and sub-themes for the BPF are set out by the HMC, which is the highest organ of ECSA-HC.

In February 2023, the meetings (BPF, DJCC and HMC) were held under the overall theme of “Stronger Health Systems Post COVID-19 for the attainment of Universal Health Coverage in the ECSA region”, while the sub-themes focused on:

- Country and Regional Response to COVID-19: Challenges, lessons and opportunities

- Strengthening health systems for prevention, preparedness, detection of and response to emerging and re-emerging infectious diseases.
- Consolidating sustainable local solutions for Human Resources for Health
- Accelerating interventions and gender inclusiveness towards better health outcomes
- Innovative approaches towards sustainable financing of health care

## The 13th Best Practices Forum

The 13th Best Practices Forum was held from 5th to 7th February, 2023, and was attended by a wide range of stakeholders as outlined above. At the opening session of the BPF, the ECSA-HC Director General, Prof Yoswa Dambisya, drew participants attention to the critical importance of the theme and sub-themes for the Forum, noting that weaknesses in health systems in the region had been markedly exposed by recent disease outbreaks, particularly the COVID-19 pandemic. However, he noted that the ongoing collaboration(s) amongst key partners including member state government institutions, development partners, researchers, civil society and other stakeholders, provided hope that the health systems shall be strengthened to effectively respond to future threats. He also emphasized that effective health systems strengthening approaches, including focussing on the six building blocks, needed to incorporate values and principles such as gender inclusivity, transparency, accountability, community engagement and people-centeredness.

The BPF was officially opened by the Principal Secretary (PS), Ministry of Health, Lesotho, Ms Maneo Ntene. In her opening remarks the PS noted that the recent COVID-19 pandemic had negatively affected individuals, communities as well as organizations in the region and worldwide. She noted that the Forum provided a platform to take stock of recent challenges and responses, and to propose policies that may enable the member states and the region respond better to similar outbreaks. She acknowledged the efforts of member states, and appreciated the contributions of partners and ECSA Health Community in tackling COVID 19 outbreak and other health challenges, and urged all to maintain the spirit of cooperation and collective action in the face

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of a common enemy.

The BPF proceeded with plenary and breakout sessions where best practices were presented and deliberated upon by the participants. Highlights of the experiences shared included a presentation by the African Centre for Global Health and Social Transformation (ACHEST) on the successful response to COVID-19 in Uganda through a Community Engagement approach, which involved the creation of village task forces in districts, led by local civic leaders, cultural and religious leaders, women groups and other opinion leaders. These stakeholders met regularly to discuss health matters affecting the community, and the results showed increased coverage of home-based care during the pandemic, reduced incidence of hygiene-related diseases and improved utilization of healthcare services by the communities. The ongoing efforts to strengthen the human capacity development in the region were presented by the Constituent Colleges of the ECSA College of Health Sciences giving a snapshot of their approach, progress and challenges, and there was a submission for the establishment of the ECSA College of Paediatrics and Child Health which received resounding support. The WHO-AFRO made a presentation on the Draft Health Workforce Investment which was very well received and recommended for further consideration by the Ministers.

At the end of the two and half days, the Forum built consensus around a number of recommendations related to the theme and subtheme of the 71st HMC. The BPF requested the 29th DJCC to review and present the recommendations to the 71st HMC for their deliberations and provision of policy guidance to the ECSA-HC member states.

### Deliberations of the 71st HMC

The HMC was opened by the Deputy Prime Minister (DPM), Hon Justice Nthomeng Majara, on behalf of the Right Honourable Sam Matekane MP, Prime Minister of the Kingdom of Lesotho. In her address, the Guest of Honour reiterated that the theme of the Conference, was timely and appropriate.

She stated that the COVID-19 pandemic challenged health systems globally, regardless of economic status, and that it demonstrated the need to strengthen health systems in the face of any unforeseen health threats. She further emphasized the imperative for countries in the ECSA region to increasingly rely on domestic resources since external funding was uncertain and not sustainable in the long term. Her key message was that the region needed to be on high alert, "... because it was not a question of if, but when the next outbreak would happen...."

The Guest of Honour also made an appeal to all partners to support the Kingdom of Lesotho in her efforts to establish its own medical school, a vision that was previously articulated by the late Right Honourable Prime Minister Leabua Jonathan in his address to the Health Ministers Conference held in the Kingdom of Lesotho in 1976.

### Some of the Key outcomes of the 13th Best Practices Forum, as endorsed by the Resolutions, Decisions and Directives of the 71st ECSA Health Ministers Conference

Based on the Recommendations from the BPF, five (5) Resolutions were passed, namely:

- **ECSA/HMC71/R1:** Strengthening health systems for prevention, preparedness, detection of and response to emerging and re-emerging infectious diseases including COVID-19.
- **ECSA/HMC71/R2:** Consolidating Sustainable Local Solutions for Human Resources for Health (HRH)
- **ECSA/HMC71/R3:** Accelerating Interventions and Gender Inclusiveness Towards Better Health Outcomes in RMNCAH
- **ECSA/HMC71/R4:** Innovate Approaches Towards Sustainable Financing of Healthcare
- **ECSA/HMC71/R5:** Application of y implementation research to inform policy and practice in ECSA-Region

The full text of the Resolutions is available at [www.ecsahc.org](http://www.ecsahc.org); while Box 1 presents Resolution 2 in full, as an exemplar.

The 71st HMC also established the ECSA College of Pediatrics and Child Health (ECSAPACH).

The ESCA-HC unanimously resolved to support the draft WHO AFRO Health Workforce Investment Charter. Through pronouncement made, the Ministers of the ECSA region were the first regional block to express their support for the draft Charter.

### Lessons from the Maseru meetings

ECSA-HC continues to provide an open platform to researchers, civil society and advocacy actors, implementing partners and experts in various fields to freely interact with the decision and policy makers at the highest level. Both the BPF and DJCC were held just prior to the HMC, and the recommendations adopted were largely evidence driven. These Resolutions will influence the focus of activities in the member states and the Secretariat in the near future, and should guide the discussions for partnerships towards implementation of the various priority areas. ECSA-HC was able to demonstrate the bridge between evidence and policy formulation, by fast-tracking evidence informed positions to policy pronouncements and commitments. Political will to support the recommendations was expressed variously during the meetings by the commitment and engagement of the government of the Kingdom of Lesotho, through the participation of Ministers of Health and through the involvement of other government sectors and agencies. The presence of multi-lateral agencies and civil society at the meeting provided hope for a multi-pronged response to the priorities identified during the 13th BPF and 71st HMC.

## **Box 1: ECSA/HMC71/R2: Consolidating Sustainable Local Solutions for Human Resources for Health (HRH)**

### **The 71st Conference of Health Ministers:**

Cognizant of the critical role of Human Resources for Health (HRH) in ensuring resilient, sustainable and responsive health systems including in pandemic preparedness and response;

Aware of disturbing phenomenon where qualified health workers are not absorbed into the national health systems (both public and private sectors) after completion of training yet the numbers of health workers at the health facilities remain below the WHO recommended standards;

Further aware that trainings in most of the ECSA member states are under the mandate of Ministries responsible for Education and that education services are also undertaken by the private sector who may be driven primarily by the profit motive;

Encouraged that approaches and strategies for sustainable solutions for HRH quality and numbers such as the ECSA collegiate model have been tested and found to work for the region;

Noting with concern the limited Member States' recognition of the ECSA CHS affiliate professional colleges' trainees which delays their registration and practice;

Further aware of the need to improve the quality of paediatric and child health services;

Noting the efforts made by Paediatricians towards establishing the ECSA College of Paediatrics and Child Health;

Concerned about limited responsiveness of the health systems and health care workers to citizens legitimate expectations;

Aware of the limited support provided to health workers wishing to undertake specialization in Dermatology;

Recognizing the ongoing efforts of WHO AFRO in developing the African Health workforce Investment Charter;

Aware that the custodians of medical services and practices are the National health regulatory bodies.

#### Recalling

- Past resolutions urging the establishment of regional professional colleges for training of specialist health care workers, harmonization of training curricula, mutual intercountry recognition of qualifications (HMC25/R4, HMC26/R8 and HMC62/R5)
- Past resolutions urging the defining of human resource needs and standards of staffing per health service delivery level; development of context specific HRH policies and strategies; incentivizing and motivation of health workers, and human resources information system (HMC40/R3, HMC67/R1 and HMC42/R4)

Noting that progress has been made on the past resolutions, however gaps remain;

Aware that addressing these gaps requires full and accelerated implementation of past resolution.

Now therefore

Approve for the establishment of the ECSA College of Paediatrics and Child Health to operate under the auspices of ECSA College of Health Sciences.

#### Urges Member States to: -

1. Strengthen the HRH planning and policy by working closely with the respective ministries responsible for education and employment so that respective member states produce optimal numbers of health workers that can be absorbed into established streams, including public health service, private health services, other relevant sectors and labour export as may be appropriate.
2. Support the draft WHO AFRO African Health workforce Investment Charter.
3. Introduce Values Clarification and Attitudes Transformation (VCAT) modules in all health workers pre-service training curricula and in-services training programs to improve health systems responsiveness.
4. Support qualified health workers, including providing scholarships to undertake specialist dermatological training at Regional Centres of Excellence on dermatology and facilitate their proper placement up on completion.
5. Promote co-existence of the collegiate model of training and the traditional academic programmes at universities or similar institutions.
6. Increase investment in paediatrics surgical services including supporting the establishment of Centres of Excellence for paediatric surgery as feasible.

#### Directs the Secretariat to: -

1. Accelerate the process of facilitating the harmonization of standards for different health professions in the region
2. Facilitate collaboration of ECSA colleges with other professional, regional and national regulatory bodies

# Point of Care Obstetric Ultrasound Training for Midwives and Nurses to Improve Obstetric Care in Rural Settings: Experiences, Challenges and Lessons Learned from Uganda

## Introduction

Low and moderate-income countries (LMICs) face numerous challenges in the provision of healthcare services to their populations including imaging services. Ultrasonography has demonstrated unique potential for developing health services in LMICs. It is affordable, accessible, portable and non-invasive. Several outcome studies have demonstrated the diagnostic utility of ultrasound in medical, surgical, and obstetric care settings.<sup>(1,2)</sup> Recognizing this powerful clinical role of ultrasound, health care leaders have developed Point-of-Care Ultrasound (PoCUS) training programs that have become specifically useful in LMICs.<sup>(3)</sup> These programs serve healthcare workers in diverse settings including district hospitals<sup>(4)</sup>, rural hospitals<sup>(5)</sup>, and refugee camps. (6) Newer approaches address the issue of limited equipment and experts by creating local experts who in turn train their peers. This ensures both sustainability and program expansion. Results from these programs have shown that non-traditional sonographers, e.g. generalist physicians, nurses/mid-wives, and mid-level healthcare providers, can demonstrate excellent diagnostic accuracy after short, focused training sessions combined with follow-up evaluation and re-training. Despite the fact that Uganda has started advocating for similar POCUS training programs to be introduced especially for rural-based nurses, mid-wives and clinical officers, there is a dearth of published literature from our settings reporting the design and implementation of such training programs.

## The problem that was addressed

Maternal mortality due to pregnancy-related complications remains high in Uganda especially in rural communities despite the efforts by the Ugandan government to provide antenatal care services closer to rural communities. Many of these pregnancy-related complications can be detected early through the use of obstetric ultrasound. Indeed, the government of Uganda and her partners have tried to equip rural health facilities with ultrasound equipment to detect some of the life-threatening pregnancy-related complications that are not

easily physically detected by health workers. However, despite these efforts, the lack of skilled workers to utilize this equipment and provide the much-needed basic service is frustrating government's efforts, thus women still die due to undetected, but avoidable pregnancy-related complications. There are few professionally trained health workers (radiologists and sonographers) that can ably perform obstetric ultrasound however these are mainly based in private hospitals and large public hospitals in the urban centres. Thus, women in rural communities are not served. There is also no evidence of how focused training and role-extension of obstetric ultrasound services to other health workers can address this challenge in the setting of limited human resource.

## The Intervention

In light of the above problem, a point of care obstetric ultrasound (POCUS) training package was designed targeting already in-service mid-wives and nurses at Kiwoko Hospital in rural Uganda. The obstetric ultrasound competencies targeted included:

- Identification of the number of fetuses
- Identification of a fetal heart beat
- Assessment of placenta position
- Assessment of adequacy of liquor
- Assessment of the presentation and lie of the fetus
- Evaluation of the maternal cervix

The midwives and nurses were trained for 4 weeks using both didactic lectures for the theoretical aspects as well as real practical demonstration and performing of the ultrasound scans on pregnant women. At the end of the training, a study was conducted to assess knowledge acquisition and retention among the trained midwives and nurses. Findings from this study have been published (7). The trainees demonstrated acceptable ability to perform the ultrasound on pregnant women in relation to the targeted competencies. They also reported that they would ably utilize the knowledge and skills gained to inform their routine work in the ANC clinics. Training midwives in POCUS may offer an opportunity to transfer some basic skills in obstetric ultrasound to them and eventually improve the management of pregnant women. This presents a great opportunity of scaling up some of the obstetric ultrasound services to other cadres of health workers to inform their management decision.

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This does not imply that the trained midwives/nurses displace radiologists and sonographers who do more extensive ultrasound examinations.

**Challenges:** The major challenge with POCUS training is likely to remain regulation and adequate supervision so as to minimize cases of abuse of the service. The midwives and other health workers who take on POCUS training might not be easily supervised due to lack of enough supervisors, but also due to a lack of a legal framework within which they should operate. Second, practicing beyond the scope of one's training is another potential challenge as people try to work beyond their competency.

**Lessons learned:** From this POCUS training, we draw valuable lessons. First, the need to start POCUS training across all areas is perhaps an urgent need. From this pilot study, it was realized that if other health workers are trained with well-defined competencies, they can ably practice these skills as part of their routine work. Subsequently, this aids in faster patient management. We also note that all people that undergo POCUS training need supervision and regulation and this is key to all countries planning to take on POCUS. A lack of a proper supervision mechanism may put patients at risk when people trained for only a few weeks take on more advanced ultrasound examinations.

**Conclusion:** Point of care Ultrasound (POCUS) is greatly needed in our settings where there are low numbers of imaging professionals especially in rural areas. Extending key basic obstetric ultrasound skills to midwives and nurses is likely to play a crucial role in the management of pregnant women.

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## Guidelines for authors and contributors

Africa Health Journal (AHJ) is a review journal that does not publish original articles with some exceptions. The target audience is frontline health practitioners and policy makers in governments. Teachers and students in academic institutions will also find the content of the AHJ of interest. Online and print editions are published quarterly. There are also dedicated social media platforms with a big following from a global audience.

The journal seeks to cover a wide range of subjects from clinical care topics to health services management, education, and has a section on CPD related to the content in the current issue. The AHJ covers anything of relevance to a busy physician or senior health professional practising in Africa.

Articles of 1800-2100 words are most commonly published. Illustrations and photographs are important, (we deliberately try not to be too text intensive) and these are best sent as JPEG or PDF files (please submit high resolution (300dpi) CMYK illustrations and photographs. Images taken from websites are of a low resolution and not suitable for print.

Please send the article by email to [africahealth@achest.org](mailto:africahealth@achest.org). Articles should be saved as a Microsoft Word document. Illustrations and photographs should be sent as additional attachments to the Word document.

Referencing should be numerical and in the Vancouver style. If you prefer, it is acceptable to simply append a list of 'For further reading' rather than adopting the more formal referencing style.

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# I need you here...

Taking your HIV medication EVERY DAY can help you be here when I grow up. I heard there's a "Triple Pill" that can make it easier.



**Take a Triple a Day.  
Every Day.**

**Ask your Doctor if there is a Triple Pill for YOU.**

The 2014 Namibian Guidelines for Antiretroviral Therapy and The World Health Organization recommend Fixed-Dose Combination Therapy Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection, Geneva, World Health Organization, 2013, (<http://www.who.int/hiv/pub/guidelines/arv2013/en>)



# Data-Driven Healthcare Comes to the Fore

Jaap Scholten highlights how the growth in technology has generated massive amounts of data and goes on to give a narration on how it has affected

Every major technological innovation in healthcare has brought with it rapid growth in medical knowledge, but also the growing generation of massive amounts of data. And while computers have become more affordable over time, and information systems geared specifically for the healthcare environment introduced, these technology gains have brought with them the usual traps of the information age: security, privacy, interoperability and standards, and storage requirements.

Harking back to the invention of the stethoscope and X-rays in the 1800s, the healthcare sector has seen a steady increase in technological innovation, accelerating through the 20th century to the arrival of the pacemaker, CAT scans and ultrasound in the 1960s.

It was here that the computerisation of electronic health record keeping (EHR) was considered for the first time. However, at that point, computers were expensive, complex and unreliable, and it was only during the following decade – the 1970s – which brought us MRI machines, that EHR gained greater acceptance. Electronic records stored in databases became more mainstream in the 1990s, albeit in tandem with a huge volume of paper-based documentation.

## Fast forward to today

The future is here. The first robotic surgery took place in 1997, followed four years later by remote robotic surgery. And then in 2019, we saw the first remote robotic surgery over 5G. The following year, Google Cloud launched its healthcare interoperability readiness programme, alongside 5G-enabled Internet of Medical Things (IoMT) devices, nanomedicine, rapid drug development, and more.

## So where are we now?

Data-driven healthcare – or the smart analysis of de-identified healthcare data – is set to be worth \$70bn by 2025, according to Bain & Company research.

Faster network speeds and the Internet have provided the kinetic energy to drive the advances in the medical sector. These include remote patient monitoring, Artificial Intelligence (AI), IoMT, and digital therapeutics (monitoring via wearables).

The concept of data-driven healthcare could be described as industry players generating and analysing data for improved patient care and better business outcomes. However, there are three technology pillars that must be considered in order for this to become a reality, namely data hosting, data transportation, and

data security.

## Data hosting

There's no question that data needs to be hosted in the right place, but this in itself can become a complex process.

For instance, it is critical that a hospital's heating, ventilation and air conditioning (HVAC) information is retained on-site, but the same institution's financial information would probably need to be hosted at its head office, which would most likely be kilometres away from the medical facilities.

The medical staff, who want to analyse results, need tools to find trends within masses of unstructured data, so here it would make the most sense to host this information in the cloud where the tools exist to perform the analysis.

## Let's stop there for a moment.

Fossil fuel cars require a lot of maintenance requirements, from spark plugs to gearboxes, oil changes and timing belts, brake pads and filters. However, electric cars do not require the same level of upkeep, as even the brake pads are hardly used due to regenerative braking, and software updates are received via the Internet.

Therefore, you could say that hybrid cars seem to be the worst choice possible – all the maintenance of a fossil fuel car, plus a small amount of the electric benefit. Yet, hybrid cars are an essential stepping stone to get to pure electrical vehicles, for reasons such as erratic electricity supplies, or continuously emerging battery technologies.

When it comes to technology, hybrid IT – or a combination of cloud and on-premises technology – provides the same stepping stone needed to get to a pure-cloud world (which is realistically still many years away).

Hybrid IT offers the benefits of affordable mass storage, through hyperscaler clouds such as Amazon Web Services or Microsoft Azure, as well as a place for huge amounts of unstructured data – so-called data lakes – to be analysed using Machine Learning (ML) tools to find patterns or trends in your data.

## Data transport: networking

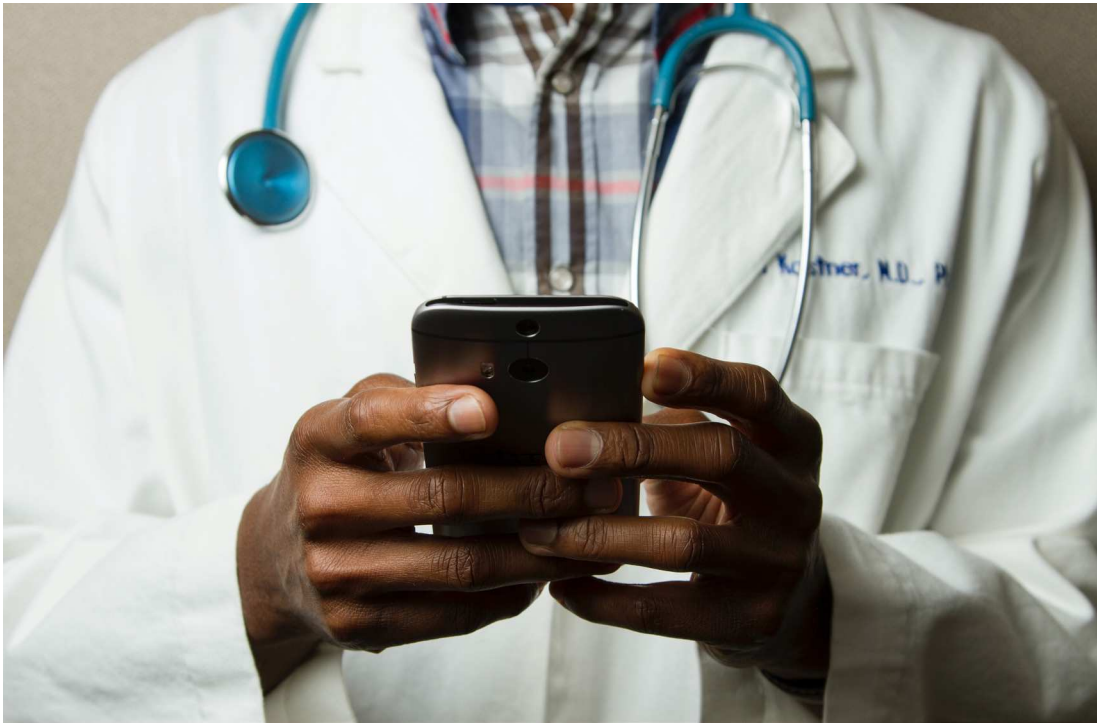
Networks always seem to have simple beginnings, yet sooner rather than later they become more complex than envisioned. Initially, networking was all about computer data, but quickly moved to voice and video, and it now incorporates IoT and of course IoMT devices as well. And each of these network services ultimately need to execute one goal: moving data between humans. There are numerous steps in between, from databases and web servers, to financial systems, operational systems, and of course the cloud.

The networks inevitably need to connect local

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*A health worker using his phone to retrieve data.*

systems inside a hospital as much as they need to link up hospitals to administrative offices. This means that where we have become used to using cables and data points, we now need Wi-Fi and 5G connectivity.

Thus, the network, in whichever form you use it, becomes the measure of your data experience. Your cloud experience is as good as your network connection to the cloud, and users' experience is as good as the Wi-Fi, 5G, or LTE signal to which they are connected.

### **Pervasive security**

Gone are the days of a central firewall at the head office, or employing a network security specialist, who holds the keys to the front door. Data has moved out of the head office and off the hospital premises, out to the far corners of people's homes, their notebooks and USB drives, to the cloud, and to the odd hotel where an executive overnights while travelling.

Data is on the move, and there is no stopping it. At the same time, many people want access to your data, be it IoT data, financial data, or patient data, and therefore no strategy is complete without addressing data security.

Security now lives on your network, as well as in the cloud. It has become about identity management, where all correctly identified users may have access, based on their security profile and privileges.

The term used currently is SASE (Secure Access Service Edge), which means your network service indirectly reaches as far as people's homes and overseas hotels. This is the edge of your network, and the only way that it can be secured is by giving users access by means of their identity. Practically, this means that network access to your services are based on Zero Trust – no access unless the users can correctly identify themselves.

### **Making the case for hybrid IT**

I think it is poignant to note that Sherlock Holmes had already verbalised the importance of data back in 1900, saying that 'It is a capital mistake to theorise before one has data'.

By accessing and understanding data in real-time, the healthcare sector will be able to improve user experience, increase revenue, decrease costs, and drive efficiencies. This is why a hybrid IT approach, one that begins with a data-first strategy and provides an 'as a service' experience, is so critical.

The right hybrid IT partner will be able to assist with a data-centric strategy that includes the fundamental pillars of the ideal data hosting environment, reliable data transport and connectivity, and far-reaching data security.

### **About Datacentrix:**

Datacentrix provides leading ICT integration services and solutions to South African organisations, ensuring their success and sustainability into the digital age. The company's approach is to partner with its customers, equipping them with valuable insight and helping to align their ICT undertakings with their business strategy.

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## General

### Metformin Compared to Sulfonylurea Reduced the Development of Osteoarthritis in Patients with Type 2 Diabetes

Preclinical studies and some observational studies suggest a protective role of metformin in the development of osteoarthritis (OA). Researchers, through this nationwide retrospective study enrolled patients with type 2 diabetes aged 40 years and older and determined the risk of OA and joint replacement with metformin or sulfonylurea. After matching, the metformin and sulfonylurea group each included 20937 individuals. The researchers found that metformin reduced the risk of OA development by 24% compared to the control (sulfonylurea) but with no statistical difference in joint replacements. The researchers hence concluded that metformin use is associated with reduced risk of OA development and suggested further intervention studies to confirm this finding.

#### Reference

Baker, M.C. et al. (2023) 'Development of Osteoarthritis in Adults With Type 2 Diabetes Treated With Metformin vs a Sulfonylurea', *JAMA Network Open*, 6(3), pp. e233646–e233646. Available at: <https://doi.org/10.1001/JAMANETWORKOPEN.2023.3646>.

### Hydrocortisone in Severe Community-Acquired Pneumonia

The benefit of glucocorticoids in severe infections for instance severe pneumonia has long been controversial. Researchers, through this multi-center, double-blind, randomized controlled trial compared 28-day mortality among patients admitted to the intensive care unit with severe pneumonia who received intravenous hydrocortisone with those who received a placebo. At analysis, the researchers found that death by 28 days was less frequent in the intervention group (6.2%) compared to the placebo group (11.9%). They also found that endotracheal intubation and vasopressor use was higher in the placebo group, with no difference in hospital-acquired infections or gastrointestinal bleeding. They concluded that in ICU patients admitted with severe pneumonia, hydrocortisone was associated with a lower risk of death compared to placebo.

#### Reference

Dequin, P.-F. et al. (2023) 'Hydrocortisone in Severe Community-Acquired Pneumonia', *The New England journal of medicine* [Preprint].

### Acute effects of Coffee consumption on health among ambulatory adults

The acute health effects of coffee, one of the most consumed beverages in the world, are uncertain. It has been suggested that it should be avoided owing to its associated proarrhythmic effects but evidence for this is lacking. In a prospective study involving 100 adults, researchers examined the effects of caffeinated coffee on cardiac ectopy and arrhythmias, daily step counts, sleep minutes, and serum glucose levels. The primary outcome was the mean number of premature atrial contractions (PACs). The researchers found that caffeinated coffee

consumption was associated with a mean PACs of 58 versus 53 when caffeine was avoided. They thus concluded that consumption of caffeinated coffee didn't result in significantly more PACs than caffeine avoidance.

#### Reference

Lingani, M. et al. (2023) 'Effects of maternal antenatal treatment with two doses of azithromycin added to monthly sulfadoxine-pyrimethamine for the prevention of low birth weight in Burkina Faso: an open-label randomized controlled trial', *Malaria Journal*, 22(1), pp. 1–9

### Long-term outcomes of monitoring, surgery, or radiotherapy for localized prostatic cancer

Researchers evaluated the effectiveness of different treatment strategies for localized prostatic cancer, including active monitoring, prostatectomy, and radiotherapy through this long-term follow-up of patients in a randomized controlled trial. A total of 1610 patients were randomized: 545 to receive active monitoring, 553 to undergo a prostatectomy, and 545 to undergo radiotherapy. The primary outcome measure was death from prostatic cancer; with death from any cause, metastases, disease progression, and initiation of long-term deprivation therapy as secondary outcomes. After 15 years of follow-up, overall prostatic-specific death was found to be low (2.7%) and didn't vary between treatment groups. The researchers recommended based on this observation that the choice of therapy for localized prostatic cancer, be determined by weighing the benefits and harms of the strategy.

#### Reference

Hamdy, F.C. et al. (2023) 'Fifteen-Year Outcomes after Monitoring, Surgery, or Radiotherapy for Prostate Cancer', <https://doi.org/10.1056/NEJMoa2214122> [Preprint]. Available at: <https://doi.org/10.1056/NEJMoa2214122>.

### Sepsis-Induced Hypotension: Restrictive or Liberal Fluid Management?

Patients with sepsis-induced hypotension are commonly treated with intravenous fluids and/or vasopressors, but data on prioritizing between these two is lacking. A recently published trial compared a restrictive fluid strategy (prioritizing vasopressors) to a liberal fluid strategy (prioritizing higher volumes of fluids) over a 24-hour resuscitation period. A total of 1563 patients were enrolled and equally randomized to either group. The primary outcome measure was all-cause mortality before discharge home by day 90. The primary outcome was similar in both groups occurring in 14.0% in the restrictive fluid strategy, and 14.9% in the liberal fluid group. The authors hence concluded that the restrictive fluid strategy wasn't superior to the liberal strategy in patients with sepsis-induced hypotension.

#### Reference

Early Restrictive or Liberal Fluid Management for Sepsis-Induced Hypotension' (2023) *New England Journal of Medicine* [Preprint]. Available at: <https://doi.org/10.1056/NEJMoa2212663>.

### An Intervention to Improve Acute Heart Failure Outcomes

Acute heart failure presents a challenge in clinical practice. It's not known if a strategy to support clinicians

to make decisions on whom to admit or discharge would affect outcomes. A new study in Canada employed a stepped-wedge cluster-randomized approach involving 10 hospitals to compare usual care to intervention (a point-of-care algorithm to stratify patients according to the risk of death). In the intervention, low-risk patients were discharged early while high-risk patients were admitted. The primary outcome was a composite of all-cause death or cardiovascular-related hospitalization within 30 days after presentation. Researchers found that the primary outcome occurred less during the intervention than in the control phase (12.1% versus 14.5%). They hence concluded that the use of a hospital-based decision-support strategy lowers the risk of death or hospitalization compared to usual care.

### Reference

Lee, D.S. et al. (2023) 'Trial of an Intervention to Improve Acute Heart Failure Outcomes', *New England Journal of Medicine*, 388(1), pp. 22–32. Available at: <https://doi.org/10.1056/NEJMOA2211680>

### Empagliflozin in Patients with Chronic Kidney Disease

There has been much excitement about sodium-glucose co-transporters (SGLTs) including empagliflozin in the management of diabetes and heart failure. Its role in chronic kidney disease (CKD) is, however, uncertain. Researchers in this trial enrolled 6609 CKD patients (54.0% of whom had diabetes), with estimated glomerular-filtration-rate (eGFR) of 20 to <45 or eGFR 40 to <90 ml/min per 1.73m<sup>2</sup> with a urinary albumin-to-creatinine ratio ≥200mg/g. They were randomized to receive empagliflozin 10mg or placebo. The outcome measure was kidney disease progression or death from cardiovascular causes. During a median follow-up of 2 years, the outcome occurred in fewer patients in the empagliflozin group (13.1%) than in the placebo (16.9%) as with the rate of hospitalization. The authors thus concluded that in CKD patients at risk of progression, empagliflozin lowers progression risk more than placebo.

### Reference

Empagliflozin in Patients with Chronic Kidney Disease (2023) *New England Journal of Medicine*, 388(2), pp. 117–127. Available at: <https://doi.org/10.1056/NEJMOA2204233>

### Risk Factors and Outcomes of Sepsis-Associated Acute Kidney Injury in Intensive Care Units in Johannesburg, South Africa

Although acute kidney injury is an important cause of morbidity and mortality among patients admitted to the intensive care unit (ICU) with sepsis, there is paucity of information on predictors and outcomes of sepsis-associated acute kidney injury (SA-AKI) among patients admitted to ICUs in sub-Saharan Africa. Researchers studied the rate of SA-AKI, factors associated with its onset and predictors of mortality at 90days among sepsis patients admitted to the ICUs at two teaching hospitals in South Africa. Of 327 patients prospectively observed, 185 (56.6%) developed SA-AKI. Common comorbidities included HIV/AIDS (19.3%), hypertension (14.2%) and diabetes mellitus (10.1%). Older men with cardiovascular disease, malignancies, hypotension and a low serum albumin level were more likely to develop SA-AKI. At

multivariate analysis, predictors of SA-AKI were age ≥55 years (odds ratio (OR) 2.43; 95% CI 1.27 - 4.65), inotropic support (OR 3.61; 95% CI 2.18 - 5.96) and a low serum albumin level (OR 2.93; 95% CI 1.40 - 6.13). SA-AKI and the need for inotropic support were associated with 1.9-fold and 1.7-fold increase in mortality at 90 days after ICU admission, respectively.

### Reference

Mweene MD, Richards GA, et. al. Risk factors and outcomes of sepsis-associated acute kidney injury in intensive care units in Johannesburg, South Africa. *S Afr Med J*. 2022 Dec 1;112(12):919-923. doi: 10.7196/SAMJ.2022.v112i12.16410. PMID: 36472316.

### Prevalence and Predictors of Peripheral Artery Disease among Hypertensive Patients in a Tertiary Hospital in North-Central Nigeria

Peripheral artery disease (PAD) is associated with a high cardiovascular morbidity and mortality. Even though hypertension is a known risk factor for PAD, the burden and predictors of PAD among patients attending hypertension clinics in Africa is not well studied. Researchers, through a hospital-based cross sectional study at a teaching hospital in Nigeria, compared 150 hypertensive patients and 150 normotensive patients. They found a prevalence of peripheral artery disease among the hypertensive patients and normotensive patients of 20% and 3.3% respectively. The patient's age, duration of hypertension, abnormal body mass index, low-density lipoprotein cholesterol and total cholesterol were important predictors of PAD. They concluded that PAD was a common complication among the hypertensive patients studied. The highlighted predictors could be important factors in prioritizing patients for screening in a busy hypertension clinic.

### Reference

A. I. Yusuf, O. M. Akinlade. et. al, Prevalence and predictors of peripheral artery disease among hypertensive patients in a tertiary hospital in north - central Nigeria <https://www.ajol.info/index.php/eamj/article/view/242640>

## MCH

### Higher Incidence of Preeclampsia in In-Vitro Fertilization after few Sperm Exposures.

The prevalence of preeclampsia in the setting of assisted reproductive technology (ART) after various cycles of sperm donation are uncertain. Researchers in this retrospective study compared the prevalence of preeclampsia amongst 228 participants who conceived via ART from the same sperm donor after 0-1 cycles compared to those who conceived after 2 or more cycles. The researchers found that preeclampsia occurred more in the group conceiving after one cycle (8.2%) compared to those conceiving after 2 or more cycles (1.7%). There was also no difference in preeclampsia prevalence between those conceiving after 2 or more cycles by ART and individuals conceiving spontaneously. The authors concluded that there is a correlation between pre-eclampsia when conception follows fewer sperm exposures.



## Reference

Hendin, N. et al. (2023) 'Higher incidence of preeclampsia among participants undergoing in-vitro fertilization after fewer sperm exposures', *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 0(0). Available at: <https://doi.org/10.1016/J.EJOGRB.2023.03.028>.

## Factors Associated with Positive Blood Cultures in Neonatal Sepsis in an African Neonatal Unit.

Neonatal sepsis is still an important cause of morbidity and mortality in low-income countries. This retrospective study conducted in Kenya used data from neonates admitted at a neonatal care unit over 7 years. All neonates fitting the WHO criteria of sepsis were enrolled. The researchers found that positive blood cultures in neonatal sepsis were associated with place of birth, maternal level of education, maternal vaginal discharge, birth weight less than 2500 grams, presence of severe abdominal distension, inability to breastfeed, tachypnea, and severe chest wall in-drawing. The authors concluded that positive blood cultures were associated with early onset neonatal sepsis and higher mortality and that knowledge of ante- and peripartum factors help in averting neonatal morbidity and mortality.

## Reference

Murila, F. et al. (2023) 'A retrospective study on the factors associated with positive blood cultures in neonates with neonatal sepsis at mater hospital newborn unit', *East African Medical Journal*, 100(1), pp. 5500–5509

## Malaria Prevention Regimens and Pregnancy Outcomes in East Africa

Intermittent preventive therapy of malaria in pregnancy with sulfadoxine-pyrimethamine (SP) is important for reducing malaria-associated adverse birth outcomes. Dihydroartemisinin-piperaquine (DP) could be important in the setting of SP resistance. Researchers through this trial conducted in East Africa involved over 4700 pregnant women without HIV. These were randomized to either receive SP only, DP only, or DP with azithromycin. The researchers found that DP resulted in a 41 percent reduction in clinical malaria but a higher composite rate of adverse pregnancy outcomes (low birth weight, small for gestational age, preterm birth, death). The authors concluded that despite DP having superior antimalarial effects, SP may have other benefits on pregnancy outcomes, and recommended more research into malaria prevention in the setting of SP resistance.

## Reference

Lingani, M. et al. (2023) 'Effects of maternal antenatal treatment with two doses of azithromycin added to monthly sulfadoxine-pyrimethamine for the prevention of low birth weight in Burkina Faso: an open-label randomized controlled trial', *Malaria Journal*, 22(1), pp. 1–9

## Cerebral Palsy and Maternal Injury During Pregnancy

Maternal unintentional injury during pregnancy has been shown to have negative impacts on the mother and fetus, but its long-term effects on children's neurodevelopment in unknown. Researchers in Canada through a population-based, longitudinal cohort study with data from over 2,110,177 children examined the association

between maternal unintentional injury and cerebral palsy (CP) in the offspring. The authors found maternal unintentional injury had a modest increase in the risk of CP, compared with those unexposed, with mean incidence rates of 4.36 and 2.93 per 10 000 child-years respectively. An even higher risk was noted for severe injuries resulting in hospitalization and delivery within one week of the injury. The authors hence recommended a need for emphasis on safety during pregnancy and early assessment of children exposed to maternal injury.

## Reference

Ahmed, A. et al. (2023) 'In Utero Exposure to Maternal Injury and the Associated Risk of Cerebral Palsy', *JAMA Pediatrics*, 177(1), pp. 53–61.

## What are the Outcomes of Maximum Oxytocin Dosing in Labor?

There is lack of evidence for a safety threshold of oxytocin dose rate. Many labor and delivery units limit the maximum oxytocin infusion dose to no more than 40 milliunits per minute during labor with a live fetus in the third trimester. In this trial doses as high as 90 milliunits per minute were used without adverse maternal or fetal effects. Based on this and previous data of the variability in uterine response to the medication, the authors recommended titration of oxytocin dose according to the oxytocin responsiveness of the individual patient, this being based on their contraction and fetal heart rate patterns, without regard to an arbitrary maximum dose.

## Reference

Son, M. et al. (2023) 'Maximum Dose Rate of Intrapartum Oxytocin Infusion and Associated Obstetric and Perinatal Outcomes', *Obstetrics & Gynecology*, 141(2), pp. 379–386. Available at: <https://doi.org/10.1097>

## Tamoxifen Treatment in Premenopausal Women with Breast Cancer

Tamoxifen, a selective estrogen-receptor modulator, is used as adjuvant therapy in some patients with hormone-sensitive breast cancer or at increased risk for breast cancer. It's however, associated with an increased risk for uterine pathology. Researchers in Korea, through a large retrospective study followed up over 78,000 premenopausal patients (mean age 42 years) with breast cancer for an average of six years. Those treated with versus without tamoxifen had higher rates of uterine disease (32 versus 7 per 1000 person-years), including (in descending order of frequency) endometrial polyps, endometrial hyperplasia, endometrial cancer, and other uterine cancers (rare). The authors recommended a discussion of these risks with all patients being counseled about the use of tamoxifen.

## Reference

Ryu, K.J. et al. (2022) Risk of Endometrial Polyps, Hyperplasia, Carcinoma, and Uterine Cancer After Tamoxifen Treatment in Premenopausal Women With Breast Cancer', *JAMA Network Open*, 5(11), p. E2243951. Available at: <https://doi.org/10.1001>

## Azithromycin in the Prevention of Sepsis or Death in Planned Vaginal Deliveries.

Azithromycin is known to reduce maternal infection in women with unplanned cesarean delivery. Whether its intrapartum use in planned vaginal deliveries would reduce maternal and neonatal sepsis or death is

uncertain. Researchers in this trial randomized 29,278 women at  $\geq 28$  weeks of gestation planning a vaginal delivery to receive a 2g dose of azithromycin or placebo. The primary outcomes were composites of maternal sepsis or death and stillbirth, and neonatal sepsis or death. Researchers found that maternal sepsis or death was lower in the azithromycin group compared to placebo, but with no differences in fetal and neonatal outcomes. The authors concluded that a single oral dose of azithromycin in women planning vaginal delivery reduced the risk of maternal sepsis and death more than a placebo with little effect on neonatal outcomes.

#### Reference

Tita, A.T.N., et al. (2023) 'Azithromycin to Prevent Sepsis or Death in Women Planning a Vaginal Birth.', *The New England Journal of Medicine* [Preprint]. Available at: <https://doi.org/10.1056/NEJMOA2212111>

### Expectant Management or Early Ibuprofen in Patent Ductus Arteriosus

Cyclooxygenase inhibitors have traditionally been used in infants with patent ductus arteriosus (PDA) to induce closure but we're not certain of their benefit. Expectant management is being recommended but evidence to support it is lacking. Researchers through this non-inferiority randomized control trial compared expectant management to early ibuprofen use. A total of 273 extremely preterm infants with echocardiographically-confirmed PDA underwent randomization to either expectant management or ibuprofen use. The primary outcome measure was a composite of necrotizing enterocolitis, bronchopulmonary dysplasia, or death at 36 weeks postmenstrual age. Overall the outcome occurred in 46.3% of the expectant group, and 63.5% in the early ibuprofen group meeting the study's criteria for non-inferiority. The researchers hence concluded that expectant management was non-inferior to early ibuprofen in regard to the above outcomes.

#### Reference

Hundscheid, T. et al. (2022) 'Expectant Management or Early Ibuprofen for Patent Ductus Arteriosus', *New England Journal of Medicine* [Preprint]. Available at: <https://doi.org/10.1056>

## General Surgery

### Surgical Apgar Score as a Predictor of Outcomes in Patients Following Laparotomy at Mulago National Referral Hospital.

Laparotomy is associated with a high risk of postoperative complications and mortality. Stratifying patients by their risk may improve outcomes. Researchers at Mulago hospital, through a prospective observational study, evaluated the performance of the surgical Apgar score (SAS), a simple and objective bedside tool, in predicting outcomes in 151 patients undergoing laparotomy at the hospital. They classified patients into 3 SAS groups: low (8–10), medium (5–7), and high (0–4). Postoperative in-hospital major complications and mortality rates of 24.2% and 10.6% were recorded, respectively. Patients with a high SAS category were 18.4 times more likely to develop major complications, while those in medium SAS category had 3.9 times risk of dying. The

found a sensitivity and specificity of  $SAS \leq 6$  for major complications of 60.5% and 81.14% respectively, and for death at 54.8% and 81.3%, respectively. In conclusion, a SAS of  $\leq 6$  was associated with increased risk of major complications and/or mortality. SAS was highly specific with a fair discriminatory ability for predicting the risk of developing in-hospital major complications and/or death following laparotomy.

#### Reference

Onen, B.C., Semulimi, A.W. et al. Surgical Apgar score as a predictor of outcomes in patients following laparotomy at Mulago National Referral Hospital, Uganda: a prospective cohort study. *BMC Surg* 22, 433 (2022). <https://doi.org/10.1186/s12893-022-01883-7>

### Breast-Conserving Surgery with or without Irradiation in Early Breast Cancer

Evidence for the omission of radiotherapy following breast conservation surgery in older women with localized breast cancer is lacking. In a new study involving 1326 women  $\geq 65$  years with receptor-positive, node-negative, T1 or T2 primary breast cancer who underwent breast-conservation surgery and adjuvant endocrine therapy, outcomes were compared in whole breast-irradiation and no irradiation. The primary outcome was local breast cancer recurrence. Distant recurrence, and survival, were also determined. After 10 years, the researchers found that the cumulative incidence of local recurrence of breast cancer was higher in the non-irradiation group than in the irradiation group (9.5 versus 0.9%). No difference in the rate of distant recurrence or survival was noted. The authors concluded that the omission of radiotherapy in this patient group increased the risk of local recurrence but didn't affect survival or distant recurrence as the first event.

#### Reference

Kunkler, I.H. et al. (2023) 'Breast-Conserving Surgery with or without Irradiation in Early Breast Cancer.', *The New England Journal of Medicine*, 388(7), pp. 585–594. Available at: <https://doi.org/10.1056/NEJMOA2207586>

### Aspirin or Low-Molecular-Weight Heparin for Thromboprophylaxis after a Fracture

Several guidelines recommend low-molecular-weight heparin (LMWH) to prevent thrombosis in patients with fractures. Studies to compare LMWH to aspirin, a cheaper and easy-to-administer option are lacking. Researchers in this large trial involving 12,211 patients with traumatic extremity fractures were randomized to receive thromboprophylaxis with either LMWH 30mg or aspirin 81mg twice daily while in the hospital and continued after discharge as per the hospital protocols. The primary outcome was all-cause mortality at 90 days. The researchers found that the primary outcome occurred in 0.78% of the aspirin group and 0.73% in the LMWH group. Non-fatal pulmonary embolism and bleeding complications were similar in both groups. The authors thus concluded that in patients with fractures, aspirin wasn't inferior to LMWH in preventing death from any cause.

#### Reference

Aspirin or Low-Molecular-Weight Heparin for Thromboprophylaxis after a Fracture (2023) *New England Journal of Medicine*, 388(3), pp. 203–213. Available at: <https://doi.org/10.1056/NEJMOA2205973>

## CPD Challenge

## Questions

**Q1 Please indicate TRUE or FALSE statements concerning the management of sepsis-induced hypotension**

- a. Patients with sepsis-induced hypotension are commonly treated with intravenous fluids and/or vasopressors.
- b. Restrictive fluid strategy (prioritizing vasopressors) is superior to a liberal fluid strategy (prioritizing higher volumes of fluids)
- c. Restrictive fluid strategy isn't superior to the liberal fluid strategy in patients with sepsis-induced hypotension.
- d. Prioritizing vasopressors gives better treatment outcome.
- e. Prioritizing higher volume of fluids gives better treatment outcome.

**Q2 Please indicate TRUE or FALSE statements regarding malaria prevention regimens in pregnancy:**

- a. Intermittent preventive therapy of malaria in pregnancy with sulfadoxine-pyrimethamine (SP) reduces malaria-associated adverse birth outcomes.
- b. Dihydroartemisinin-piperaquine (DP) is an alternative therapy in the setting of SP resistance.
- c. Although Dihydroartemisinin-piperaquine has superior antimalarial effects, its use is associated with a higher composite rate of adverse pregnancy outcomes (low birth weight, small for gestational age, preterm birth, death).
- d. SP may have other benefits on pregnancy outcomes, making it a preferred therapy than DP.
- e. ALL TRUE

**Q3 Which of the following statements are TRUE or FALSE in maternity care?**

- a. Appropriate oxytocin infusion dose during labor should be determined through the response of individual patient, based on their uterine contraction and fetal heart rate patterns, without regard to an arbitrary maximum dose.
- b. A single oral dose of azithromycin in women planning vaginal delivery reduces the risk of maternal sepsis and death.
- c. The prevalence of preeclampsia in the setting of assisted reproductive technology (ART) after various cycles of sperm donation are higher after one cycle compared to those conceiving after 2 or more cycles.

- d. There is no difference in preeclampsia prevalence between those conceiving after 2 or more cycles by ART and individuals conceiving spontaneously.
- e. Positive blood cultures in neonatal sepsis are associated with place of birth, maternal level of education, maternal vaginal discharge, birth weight less than 2500 grams, presence of severe abdominal distension, inability to breastfeed, tachypnea, and severe chest wall in-drawing; and knowledge of these factors help in averting neonatal morbidity and mortality.

**Q4 Which of the following interventions are TRUE or FALSE for prevention of thrombosis in patients with fractures?**

- a. Thromboprophylaxis with either low-molecular-weight heparin (LMWH) 30mg or aspirin 81mg twice daily can be used.
- b. Non-fatal pulmonary embolism and bleeding complications can occur in both groups.
- c. In patients with fractures, aspirin is not inferior to LMWH in preventing death from any cause.
- d. LMWH is superior in preventing death from any cause.
- e. ALL TRUE

**Q5 Please indicate TRUE or FALSE statements with respect to various scenario below in clinical practice:**

- a. Omission of radiotherapy following breast conservation surgery in older women  $\geq 65$  years with localized breast cancer increases the risk of local recurrence, but does not affect survival or distant recurrence.
- b. Use of hydrocortisone in patients admitted with severe pneumonia lowers the risk of death.
- c. Patients with a high Surgical Apgar score (SAS) are more likely to develop major complications, while those in medium SAS category are in less risk of dying.
- d. Ibuprofen can be used to induce closure in preterm infants with echocardiographically-confirmed patent ductus arteriosus.
- e. Although Tamoxifen, a selective estrogen-receptor modulator, is used as adjuvant therapy in patients with hormone-sensitive breast cancer or at increased risk for breast cancer, it is nevertheless associated with an increased risk for uterine pathology.

## Answers

- 1). a T, b F, c T, d F, e F  
 2). a T, b T, c T, d T, e T  
 3). a T, b T, c T, d T, e T  
 4). a T, b T, c T, d F, e F  
 5). a T, b F, c T, d T, e T



# XN-31

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