January 2022 Volume 44 Number 1

Africa HEALTH

JOURNAL

Going global, acting local: towards an international pandemic convention

Using innovative technology to combat malaria

Unsafe abortion changing the narrative in Africa

Breast imaging in Uganda

Africa HEALTH JOURNAL

Africa Health is a journal of continuing medical education information for health professionals, health managers and political leaders in Africa and globally

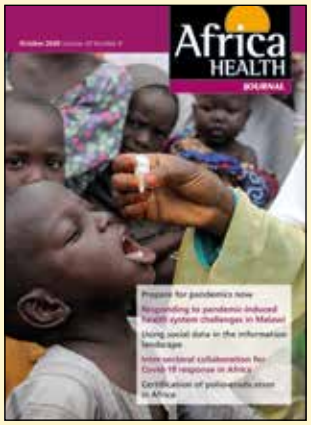
ACHEST

Published four times a year by the

African Centre for Global Health and Social Transformation

Plot 13B, Acacia Avenue, Kololo
P.O. Box 9974, Kampala, Uganda
Tel: +256 414237225/414250022
Fax: +256 414237226
Email: africahealth@achest.org

www.africa-health.com



Africa Centre for Global Health and Social Transformation

ISSN 0141-9536 (print)
ISSN 2053-4760 (online)

Contents

Vol 44 No 1 January 2022

Below are our Publishing Partners. Each organisation has demonstrated its commitment to health in Africa by supporting this publication throughout the year.

Africa HEALTH Subscription information

For those who wish to guarantee receipt of each issue of the journal, there is a two-tier subscription price structure:

1. For Africa-based readers, and
2. For readers outside the continent of Africa

As digital technology develops so payment methods have become much easier than the now rather old-fashioned option of sending a cheque or making a formal (and expensive) bank transfer.

For those in the first category, copies will be airmailed to you from the ACHEST headquarters in Kampala.

The price is $40 a year. Email: AHJsubs@achest.org for payment options. ACHEST is in the process of building a network of agents who can handle subscriptions in each country, thus making payments even simpler. Indicate what method of payment would be easiest for you and the ACHEST staff can respond accordingly.

For international readers the price will be $60 per annum (airmail). Again, please email: AHJsubs@achest.org for payment details, which will be sent by return.

We look forward to receiving your support! Thank you.

Acclimatising to COVID-19

The AHJ January issue comes at a time when the world is starting to acclimatise to the long-term effects of the pandemic. All sectors have been affected by the pandemic with health top on the list.

The opinion focuses on women's health, highlighting the important role women play in the continuity of humanity while facing the challenges of conception, pregnancy and childbirth. At the same time, women also have unique pathologies like tumours affecting the uterus and cervix, ovaries and breasts, while ageing in women comes with post-menopausal disorders and decalcified, fragile bones.

The issue tackles safe abortion, reproductive decision-making and breast imaging. Dr Kihara Anne discusses abortions and recommends a holistic approach to health and well-being by addressing girls' and women's public and social health with sexual reproductive health and rights commencing even before puberty. This is followed by an article by Saheed Akinmayowa Lawal et al on Reproductive Decision Making (RDM). They argue that the RDM process in sub-Saharan Africa during the pandemic may differ significantly from before considering the limited supply of and access to sexual and reproductive health (SRH) services, and the possibility of a largescale reproductive health crisis in the region. They advocate more studies to explore the changing nature of SRH decision-making. A feature on Uganda is presented by Zeridah Muyinda et al describing the progress made in breast imaging. Breast cancer is the third commonest cancer in women in Uganda and the leading cancer in women globally. The team highlights the progress made in early diagnosis and how teams are working together to make diagnosis better.

Three conferences are reported, including the International Inter-Ministerial Conference on South-South Cooperation in Population and Development. The conference deliberated on the relevance of South-to-South and triangular Cooperation in a post-COVID context and made important recommendations. The second conference is the World Health Assembly, which agreed to start drafting a global pandemic agreement in a bid to protect the world from future infectious diseases crises. The third is the World AIDS day with the theme, 'End inequalities. End AIDS. End pandemics'. The meeting noted that the world is not on track to meet the global commitment to end AIDS by 2030 and that progress is under even greater strain as the COVID-19 crisis disrupts HIV prevention and treatment services, schooling, violence prevention programmes and more. All these conferences have a virtual component bringing closer the effect COVID-19 has had on how the world operates.

In another article, Kevin A. Klock et al highlight the importance of an improved worldwide health security strategy that puts global mechanisms in place to complement effective regional, national and sub-national approaches. This links well with the World AIDs Day theme on ending inequities showing the importance of all these global, regional and national bodies working together. This is supplemented by Oyewale Tomori's article on global health security.

Malaria is still a challenge in many tropical areas of the world. Colleagues from Symex Ltd, a global leader in the design and development of clinical diagnostics, writes about the malaria cycle, including the global arena cycle, its actual parasitic cycle, and proposes strategies to combat it using new technologies that are a promising and positive step in the right direction. 42 Technology Partnership reports on how it has helped inform WHO review its guidelines on diagnosing childhood TB using stool as the primary sample for initial diagnostic TB tests in children up to 10 years old.

The Infectious Diseases Institute follows up its article in the October issue by further reflecting on the first 20 years of IDI in Uganda, highlighting its governance, systems and approach to sustainability, as well as the energy, drive and dedication of IDI staff and how this has led to strengthened trust in the institution. This is an important article that highlights that African institutions have the capability to gain trust and carry out programmes to support communities.

The AHJ is available online as an open access web-based publication (africa-health.com). This website is active daily with current affairs, social media such as Twitter and Facebook and is visited by a large audience. Those wishing to advertise are welcome to use the print and electronic channels of the AHJ using guidelines that are in the journal.

Elsie Kiguli-Malwadde
(kigulimalwadde@achest.org)

The Africa Health website

The website includes:

- The latest issue, and the back issues of Africa Health
- Latest news
- The TRIP searchable database for evidence based articles and guidelines
- Continuing Professional Development courses
- Conference and meetings calendar
- An insight into African scientific publishing
- Subscription information
- Banner advertisements

Search the TRIP database for free

Here is a free database which gives you access to millions of articles, all indexed and uniquely ranked.

Content is entirely evidence-based and peer-reviewed, and in addition to the scientific articles on every medical subject you can imagine; the database also includes a host of guidelines on treatment and management protocols.

Crucial in the use of the database is the need to understand the filtering options (see image to the right) or you will find yourself

Africa HEALTH

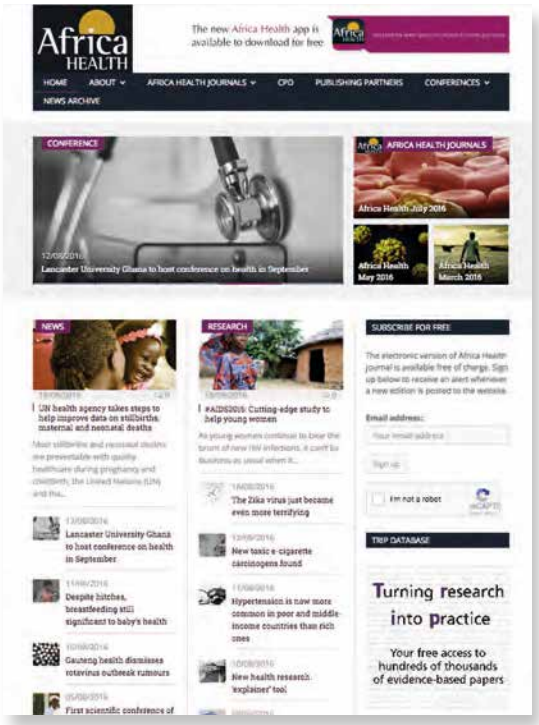
Get Africa Health on the go

The Africa Health app is available to download. You can now read the latest edition and archived editions of Africa Health on the go.

You can find the Africa Health app is available for both iPhone and Android via the app stores.

The app and it's content is completely free to download from the app store.

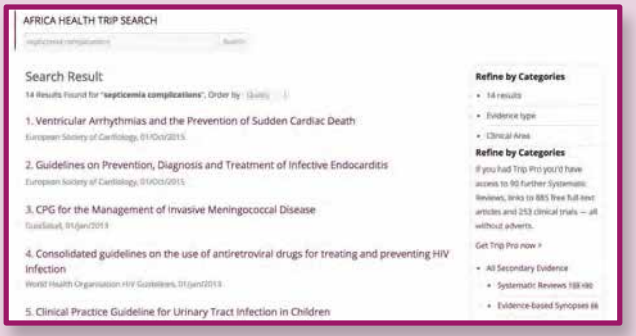
Please note that the app currently shows a couple of years worth of journals. More of the archive will be added in due course.



View the latest edition and back issues of the Africa Health journal

Subscribe for free to the Africa Health e-alerts. This enables you to read every edition online as soon as they are available

with a 'selection' of several thousand papers. Having carefully chosen the search words (be as specific as you can) you will then see (down the right hand side) a number of refinements that you can make to your search. You'll then have a much more manageable and relevant search outcome.



www.africa-health.com

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)

erongomed
making a difference

PEPFAR

USAID
FROM THE AMERICAN PEOPLE

SHOPS
Strengthening Health Outcomes through the Private Sector

Mylan
Seeing is believing

Women's health at centre stage

Women and men are inseparable partners in ensuring the continuity of humanity. Women as mothers have unique roles from conception, pregnancy and child birth. They are the pillars of families, providing newly born children with critical nutrition and support. Women also provide men and children with homes, where the characters and values of people are shaped and communities are built. It is evident that giving priority to the health of women must take centre stage in all societies and health systems.

Reproductive health is defined by WHO as "a responsible, satisfying, and safe sex life with capability to reproduce and the freedom to decide if, when and how often to do so". There are health risks at every stage of the cascade in this definition which call for support from the health system and society. These risks include infections, fistula, infertility and unwanted pregnancies with related mental health implications that impact women's wellbeing and power dynamics in society.

Women also have cancers and tumours affecting the uterus and cervix, ovaries and breasts, while ageing in women comes with post-menopausal disorders and decalcified fragile bones.

Sub-Saharan Africa (SSA) made significant progress in women's health indices during the MDG period, when maternal mortality (MMR) and morbidity declined by 45%. However, this still leaves Africa far behind other regions of the world. The current MMR figures for SSA average 1000 deaths per 100,000 births compared with 25/100,000 in other regions. This is a matter for concern and shame.

Annually, half a million women die as a result of complications of pregnancy and childbirth: 99% of these deaths occur in developing countries, where preventable pregnancy-related complications remain the leading causes of death for women during reproductive years. These include haemorrhage, infections, preeclampsia and obstructed labour resulting in obstetric fistula afflicting mostly teenage mothers with devastating health and social consequences.

The WHO definition of reproductive health makes no reference to the menstrual cycle, an important component of women's health. This is a cyclical physiological phenomenon when the uterus prepares for pregnancy. Proper management of periods is an important subject in women's health, having both financial costs for accessing period products and opportunity costs when women and girls cannot attend school or other activities due to period-related issues. Period management and access to period products should become a national issue so that facilities are made available for women and girls as needed. In 2021, Scotland became the first country in the world to make period products free for anyone who needs them, and some countries, including some in Africa, have eliminated the tax on period products. There should be a global campaign to destigmatise menstruation and increase easy and free access to period products.

Taking the first step

What should SSA countries do to achieve SDGs related to women's health? The first step is to raise the place and value of women in African societies. African communities should know that maternal deaths are preventable – not acts of God. They should cause their governments to prioritise women's health and fully implement to scale Safe Motherhood practices. Each death in every health facility and every village should be fully investigated and lessons learnt shared with communities.

It is well known that the acid test of a well-functioning health system is one that can mount a safe maternal delivery including and an obstetric emergency in the middle of the might. It is also known that countries with the highest maternal mortality rates are also those with the lowest use of family planning methods. Therefore, access to these services through effective Community Health programmes is a high priority. Family planning prevents adverse outcomes and maternal and newborn deaths by reducing women's exposure to high-risk pregnancies and unintended and closely spaced pregnancies. Family planning will also support the achievement of the demographic dividend in countries by lowering the high population growth rates.

There are important interventions in other sectors that contribute to improving women's health, including ensuring that all girls are supported to go to school for as long as possible. The whole-of-society approaches should also be employed to engage cultural and religious leaders. The media are an important player in getting messages out to the population and keeping the visibility of women's health high at all times so that it becomes an issue over which political elections are won and lost and the quality of leadership is judged. Healthy women make healthy and happy communities.

Francis Omaswa, CEO, African Centre for Global Health and Social Transformation (Kampala), Founding Executive Director of the Global Health Workforce Alliance; and Publisher of Africa Health

South-to-South and triangular cooperation in a post-COVID context

Robert Odedo and Patrick Kadama report on the International Inter-Ministerial Conference of November 2021

The International Inter-Ministerial Conference on South-South Cooperation in Population and Development is an annual fixture that serves as a global platform for member countries and development stakeholders to peer review, exchange knowledge and experience, networking, policy dialogues, bilateral commitments and to contribute towards the achievement of the unfinished agenda of the International Conference on Population and Development and Sustainable Development Goals through South-South and triangular cooperation (SSTC).

The conference, jointly organised by the Partners in Population and Development (PPD) and the United Nations Population Fund, was held virtually through two panel sessions and one plenary session in November 2021. The conference deliberated on the relevance of SSTC in a post-COVID context.

Conference objectives were to provide renewed commitments for: (1) strong national leadership and ownership for the improvement of adolescents' access to sexual, reproductive health and family planning services; (2) the mobilisation of resources at all levels; and (3) partnership-building for global solidarity, multilateralism and SSTC for the post-COVID era. The conference was organised under the following three themes.

1. Accelerating unfinished agendas

The discussions centred on challenges faced due to COVID-19 in achieving the International Conference on Population and Development (ICPD), SDGs and 2030 Agenda response in light of the COVID-19 crisis and on ways to strengthen the capacity and knowledge management systems through partnership.

2. Triangular cooperation post-BAPA+40

This session built on the discussion on the same topic at an earlier meeting of the High-Level Committee on South-South Cooperation. The panel composed of experts from the Global South and Global North. It deliberated on how to expand the PPD's network of partners, including considerations of working with like-minded partners from the North, towards a triangular cooperation that includes the Global North in working on shared goals. Panelists shared knowledge and lessons learned on successful triangular cooperation in relevant thematic areas to demonstrate the importance of Triangular Cooperation in working towards the ICPD and SDG goals.

Robert Odedo Coordinates the Consulting Division at ACHEST and Dr Patrick Kadama is the Executive Director of the African Platform for Human Resources for Health.

3. Promoting South-South Cooperation

This ministerial session reaffirmed the commitment of the PPD member countries to implement the ICPD and SDGs through SSTC. Discussions in this session included: national-level COVID-19 crisis and its implication to the investment in the achievement of the SDG 3 and ICPD; analysis of gaps and needs and domestic investments in the response to the COVID-19 crisis; integrating ICPD unfinished agenda into national development plans to achieve 2030 agenda; high-level political support and support from partnerships towards addressing COVID-19 challenges and, SSTC as an accelerator in advocacy, knowledge exchange, technical cooperation and capacity development towards achieving ICPD and SDGs.

Call to action for country leaders

1. To speed-up the process of strengthening and building-back-better, resilient networks of health services outlet systems, based upon existing capacities of indigenous institutions.
2. To invest in and advocate for member country experiences, knowledge, and innovation, as a meaningful vehicle for bilateral entrance.
3. To allocate fixed funding streams for the promotion of services and cooperation in productive health, youth and population development regionally and globally.
4. To establish a national task force as an entry point toward the institutionalisation and integration of SSTC into national development programmes.
5. To identify or nominate a national focal person to coordinate the institutionalisation and integration of SSTC initiatives and programmes.

Call to action for capacity development

1. To build and strengthen centres of excellence on SSTC as an immediate priority. This requires medium- to long-term joint research programmes.
2. To invest in population and system data modalities of SSTC to generate data for decision making and for tracking of progress of SSTC on accelerating performance on moving towards ICPD and SDGs.
3. To conduct as priority research for explicit evidence, to guide the range of skilled cadres required at the very minimum, to deliver SRHR, adolescents and youth health services.

Call to action for strengthening PPD

1. To facilitate the mapping and establishment of centres of excellence and networks for SSTC and to promote health professional and exchange.

Does the world need a pandemic treaty?

Carol Natukunda and Patrick Kadama report on the World Health Assembly as it agrees to start drafting a global pandemic agreement

In a bid to protect the world from future infectious diseases crises, the World Health Assembly (WHA) on 1 December 2021 unanimously agreed to kickstart a global process to draft and negotiate a convention, agreement or other international instrument to strengthen pandemic prevention, preparedness and response.[1]

This historic decision is in line with Article 19 of the Constitution of the World Health Organization (WHO) which gives authority to the WHA to adopt conventions or agreements on any matter within WHO's competence. The sole instrument established under Article 19 to date is the WHO Framework Convention on Tobacco Control, which has made a significant and rapid contribution to protecting people from tobacco since its entry into force in 2005.

Dr Tedros Adhanom Ghebreyesus, WHO Director-General, said the new decision by WHA was historic in nature, vital in its mission, and represented a once-in-a-generation opportunity to strengthen the global health architecture to protect and promote the well-being of all people.

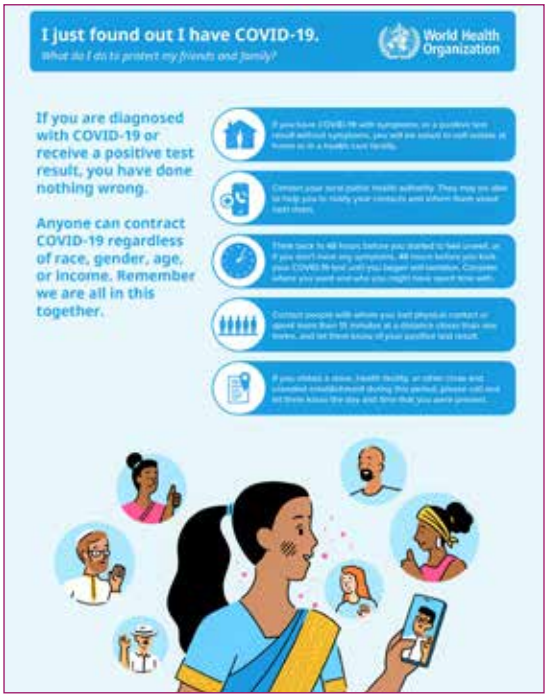
"The COVID-19 pandemic has shone a light on the many flaws in the global system to protect people from pandemics: the most vulnerable people going without vaccines; health workers without needed equipment to perform their life-saving work; and 'me-first' approaches that stymie the global solidarity needed to deal with a global threat," Dr Tedros said.

He added: "But at the same time, we have seen inspiring demonstrations of scientific and political collaboration, from the rapid development of vaccines, to today's commitment by countries to negotiate a global accord that will help to keep future generations safer from the impacts of pandemics."

The WHO Assembly met in a Special Session on 29 November 29 to 1 December 2021. The Assembly normally meets every year in May.

But does the world need a "pandemic treaty"? Is it the right thing, at the right time? Civil society organisations have raised concerns. A report released ahead of the WHA by Geneva Global Health Hub (G2H2), an independent platform of civil society organisations committed to advancing the right to health, conveyed the geopolitical complexities behind the treaty proposal and the drivers of this diplomatic initiative.[2]

The research report titled 'The Politics of a WHO Pandemic Treaty in a Disenchanted World' includes



interviews with international policymakers, health diplomats, civil society actors, academic representatives and public health professionals from across the globe. It gives context to the concerns raised by many developing countries around the diplomatic process and motivations of negotiating new rules for future health emergencies. The report also highlights that this a pandemic of 'inequalities and inequities' between and within countries and genders.

In a press statement posted on the G2H2 website on 30 November 2021, Nicoletta Dentico, Head of Global Health Justice Program, Society for International Development (SID) and G2H2 co-chair, said, "The treaty discussion is full of good intentions, but lacks evidence. The mechanics of the current treaty proposal have been enacted at full speed without a serious assessment of the reasons why the implementation of the current binding arrangement on health emergencies – the 2005 International Health Regulations – have been so broadly neglected and disregarded by all countries in the world. What's the real advantage of starting a negotiation on the same topic again?"

Carol Natukunda is a communication specialist at the African Centre for Global Health and Social Transformation and Dr Patrick Kadama is the Executive Director of the African Platform for Human Resources for Health.

References

1. https://www.who.int/news/item/01-12-2021-world-health-assembly-agrees-to-launch-process-to-develop-historic-global-accord-on-pandemic-prevention-preparedness-and-response
2. https://g2h2.org/posts/whypandemictreaty

End inequalities. End AIDS. End pandemics

Carol Natukunda reports on the key messages from the World AIDS Day 2021

The world is not on track to meet the global commitment to end AIDS by 2030, the Joint United Nations Programme on HIV/AIDS (UNAIDS) has warned.

As of 2020, global estimates show that there were 37.7 million people living with HIV, 1.5 million new HIV infections and 680,000 AIDS-related deaths.

Although Africa has made significant progress against HIV over the past decade, reducing new infections by 43% and nearly halving AIDS-related deaths, the continent is unlikely to end AIDS as a public health threat by 2030.

To achieve the 2030 global development goal of ending AIDS, countries should ensure that by 2025, 95% of people living with HIV know their status (target 1), 95% of those who know their status are on treatment (target 2) and 95% of those receiving treatment have their viral load suppressed (target 3). The Fast-Track strategy to end AIDS was initiated in December 2015 by UNAIDS and then in December 2020, the new 95-95-95 five-year plan replaced the previous 90-90-90 targets.

The World Health Organization (WHO) is tracking progress toward the 95-95-95 targets with a scorecard which was released in recently at the International Conference on AIDS and Sexually Transmitted Infections in Africa in Durban, South Africa. The scorecard found that as of December 2021, only nine countries – Botswana, Cabo Verde, Kenya, Lesotho, Malawi, Nigeria, Rwanda, Uganda and Zimbabwe – are on track to reach the 95-95-95 targets by 2025; and many countries are falling behind key elimination milestones, with COVID-19 aggravating challenges.

The World AIDS Day 2021 theme 'End inequalities. End AIDS. End pandemics' shed light on the structural economic, social, cultural and legal inequalities that obstruct proven solutions to HIV prevention.

Winnie Byanyima, the UNAIDS Executive Director said progress in AIDS, which was already off track, is now under even greater strain as the COVID-19 crisis continues to rage, disrupting HIV prevention and treatment services, schooling, violence prevention programmes and more.

Without bold action against inequalities, the world risks missing the targets to end AIDS by 2030, as well as a prolonged COVID-19 pandemic and a spiraling social and economic crisis.

'We urgently need sufficient community-led and community-based infrastructure as part of a strong public health system, underpinned by robust civil society accountability. We need policies to ensure fair and affordable access to science. Every new technology should reach each and every one who needs it without delay,' Byanyima stated in a message posted on the UNAIDS website. She also called for the need to health workers and expand their numbers, as well protecting human rights and building trust in health systems.

'Even before the COVID-19 pandemic hit, many of the populations most at risk were not being reached with HIV testing, prevention and care services,' said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. 'The pandemic has made things worse, with the disruption of essential health services, and the increased vulnerability of people with HIV to COVID-19. Like COVID-19, we have all the tools to end the AIDS epidemic, if we use them well.'

Whole of Society approach

Professor Francis Omaswa, the Executive Director of the African Centre for Global Health and Social Transformation, speaking on a television talk show, said the most practical way to end AIDS by 2030 is to take the whole of society and whole-of-government approach already being implemented under the National Community Engagement Strategy for COVID-19 response in Uganda. 'The intersectionality needs to go all the way to the communities with the help of Village health teams. Communities find local solutions to issues affecting them. It has worked well for COVID-19, it will work well for HIV,' said Prof Omaswa.

Prof Omaswa also noted that it was important to celebrate the gains made so far. 'There was a time when HIV/AIDS was a death sentence. Not anymore,' he said.

WHO says the key steps to accelerate the momentum against the disease include improving access to HIV treatment and care, notably by decentralising services to the grassroots and eliminating user fees for key services, increasing domestic funding by governments for HIV programmes as well as boosting the fight against stigma and discrimination so that those who need care have no fear seeking it.

Carol Natukunda is a communication specialist at the African Centre for Global Health and Social Transformation

References

1. https://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2021/december/20211201_UNAIDS-WHO-World-AIDS-Day-event
2. Africa cuts HIV infections, deaths but key targets still elusive | WHO | Regional Office for Africa
3. http://icasa2021.saafrica.org/
4. https://achest.org/index.php?option=com_zoo&view=frontpage&layout=frontpage&Itemid=524

Going global, acting local: the international pandemic convention

Kevin A. Klock et al highlight the importance of global mechanisms in place to complement effective regional, national and sub-national approaches

On 1 December 2021, the World Health Assembly (WHA) decided to establish an intergovernmental negotiating body (INB) to draft and negotiate a WHO pandemic convention or other instrument which could set in place 'a comprehensive and coherent approach to strengthen the global health architecture'.[1] Meanwhile, a critically important regional instrument – the Treaty for the Establishment of the African Medicines Agency (AMA Treaty) – entered into force on 5 November.[2] The new agency will, among other things, ensure there is a 'common framework' for addressing 'emerging issues and pandemics in the event of a public health emergency on the continent with cross border or regional implications'.[3]

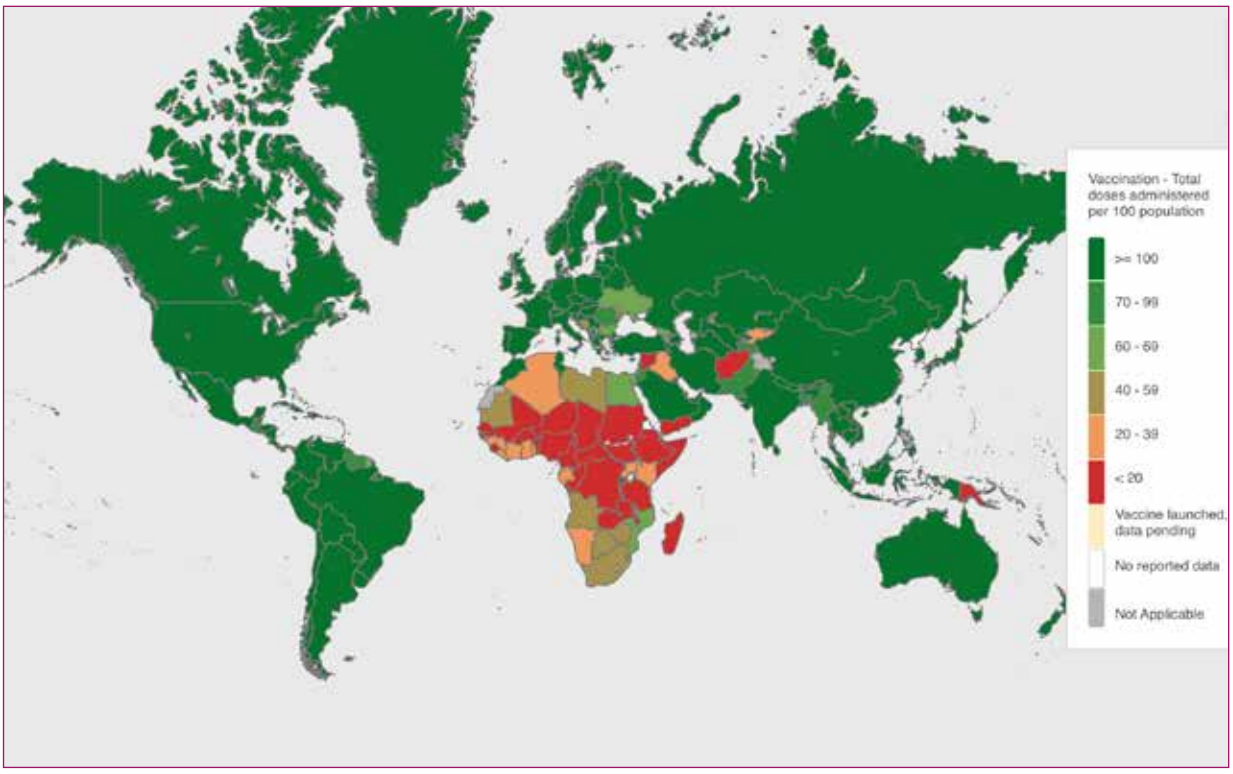
An improved worldwide health security strategy is essential, but global mechanisms should complement without undermining effective regional, national, and sub-national approaches. Consequently, the INB should carefully consider the scope of a potential global convention and make deliberate choices as to the content that requires truly worldwide coordination while incorporating and enhancing fit for purpose regional, national, and local strategies.

Legitimacy and the case for local input

State actors have a responsibility to promote 'deliberative governance', meaning that the persons and institutions affected by policy should have the opportunity to genuinely input into its design.[4] Given the inequities experienced in low and lower-middle-income countries (LMICs), and the many marginalised communities within them, deliberative governance requires that these perspectives sit at the core of a revised preparedness and response framework. Moreover, the most successful global health initiatives of the 21st century have put LIMC voices front and center of their strategies and methods.[5,6]

This is one reason why in October-November 2021, the O'Neill Institute for National and Global Health Law and the Foundation for the National Institutes of Health (FNIH) convened a series of meetings of leaders from

Kevin A. Klock, JD (corresponding author) Foundation for the National Institutes of Health, O'Neill Institute for National and Global Health Law, Georgetown University Law Center, 11400 Rockville Pike, Suite 600, North Bethesda, Maryland 20852, USA. kklock@fnih.org . Lawrence O. Gostin, JD, O'Neill Institute for National and Global Health Law, Georgetown University Law Center. Sam F. Halabi, JD, MPhil, Colorado School of Public Health, Colorado State University, O'Neill Institute for National Global Health Law, Georgetown University Law Center



Coronavirus vaccine doses administred. Source: World Health Organization COVID-19 Dashboard. Available online: https://covid19.who.int (4 February 2022).

Asia, Africa, and Latin America representing academia, science, civil society, and regional institutions to explore the pandemic-related gaps experienced in their communities and to seek recommendations for better preparedness, improved response, and a more equitable future.[7]

Regional themes

Calibrating the optimal mix of global, regional and local response was a recurrent theme across regions, disciplines and perspectives. Success was not defined by the ratification of a convention but improved outcomes for the populations they serve. Coupled with an optimism that a global treaty could result in a more intentional, less chaotic and better harmonised approach was a scepticism that an instrument crafted far away from affected communities would have a meaningful effect. A palpable desire to 'do no harm' emerged.

Many experts highlighted regional initiatives that had bubbled up to fill gaps in governance. For instance, 'the lack of availability of medicines and vaccines during public health emergencies of international concern' served as one justification for the AMA Treaty.[3] In addition, the Inter-American Health Task Force chaired by Julio Frenk and Helene Gayle reported that 'Advantage should be taken of regional or subregional integration mechanisms to join forces and share experiences in epidemic prevention and control of future or existing diseases that could threaten people's security, particularly the most economically marginalized'.[8]

The regional and local leaders in our meetings provided compelling justifications for these approaches, while also supporting a global instrument. A pathogen will not affect all areas of the world equally, either because of socio-economic factors (such as the sophistication of a health system to cope with a particular threat) or scientific ones (such as how a specific disease spreads). They argued that neighbouring countries are likely to experience a similar set of issues and thus might wish to deploy a similar and scaled response. Administrative, cultural and public health leaders within a given region often develop rapport nurtured through working together on a variety of issues. Also, informal transnational networks frequently develop through common regional ties.

The balance between global and regional is not the only one to consider. Many experts pointed to the challenges that exist within their own countries, particularly the disconnect experienced between policy-making at the national level and implementation on the front lines. Moreover, local community and faith leaders often have more messaging credibility within certain communities than do distant or obscure public health authorities.

Even as regional leaders remain focused on COVID-19 response, they directed most of their commentary during our consultations on preparedness for the next pandemic. Health systems capacity remains a vexing issue from procuring adequate tools for disease surveillance and retaining sufficiently-experienced health staff to improving public health communication strategies and maintaining the political will between

pandemics to plan and invest. Flexibility in approach that is context-conscious is crucial and a global convention should be crafted to enhance and share bespoke strategies.

Enabling local response

The capabilities and resources required to enable local response will vary from region to region. Nevertheless, the following approaches will augment deliberative governance and, consequently, the efficacy of a global instrument:

Make deliberate choices. Attempting to incorporate every aspect of pandemic preparedness and response into a single global instrument is untenable, meaning member states will invariably need to make choices on what to legislate. Content selection criteria must be 'altitude' appropriate, by analysing a potential area and evaluating whether the matter is ripe for consensus and alignment at the global level or reserved for more localised decision-making. For example, vaccine hesitancy is a challenge all over the world, but the methods for mitigating it may vary from place to place.

In addition, policy-making might be ideally placed at one level of response but operationalised at another. A convention should consider how the policy-makers and the implementors symbiotically provide and incorporate feedback to one another. Further, if a global treaty locates policy-making of certain issues at the global level, tangible and clear enacting provisions must be present to allow the WHO Secretariat and regional actors to effectively implement them, apply learning, make changes where warranted, and transmit learning up the chain.

Create room for flexible protocols. Supporting the diversity of effective regional and local responses will require sophisticated framing of the instrument. Treaties that go beyond mere declarations must have provisions that will ignite positive change, understanding that they are extraordinarily difficult to update as scientific understanding improves and new circumstances arise.[9]

Local and regional leaders are often in a better position than global officials to evaluate what works and what does not in their areas. Thus, policymakers could set up a framework for regional institutions to develop protocols that address a defined constellation of issues. Each region could determine its protocol's provisions for entry into force (and revision) under harmonisation procedures set by the global convention.

Enhancing communications and coordination. While improved access, compliance, and financing are part of the content debate, improved communication and coordination networks are ripe for supporting regional and national responses. The Inter-American Health Task Force stated that the 'pandemic has shown that much stronger and better coordinated global action is needed to improve preparedness and response.'[8] The European Council echoed this sentiment.[10]

Moreover, WHO has comparative advantages for serving as a global coordinator where in other areas, its advantages are less clear. There are several ways to make tangible contributions to regional coordination from shoring up communication networks between and among WHO and regional institutions to maintaining an open-access repository of effective public health interventions and methods. It is critically important to position WHO to deploy its strengths rather than lever up this under-resourced institution with unfamiliar new responsibilities.

The path to an effective, game-changing global convention is uncertain, despite a compelling justification for improved global health governance. The voice of those deeply engaged in their regions and localities and trusted by the people they serve, are essential to getting this right. A global regime that enhances these voices and their strategies could meaningfully affect the lives of the many people counting on the success of this initiative.

The views in this article are those of the authors and do not necessarily reflect the views of the FNIH.

Conflict of Interest Disclosures: The authors are leading the O'Neill Institute/Foundation for the National Institutes of Health (FNIH) project on an international instrument for pandemic prevention and preparedness. The FNIH provided funding to the O'Neill Institute for the project. As faculty director of the O'Neill Institute, Professor Gostin is director of the World Health Organization's Collaborating Center on National and Global Health Law.

References

1. The World Together: Establishment of an intergovernmental negotiating body to strengthen pandemic prevention, preparedness and response 2021 (World Health Organization). Available from: https://apps.who.int/gb/ebwha/pdf_files/WHASSA2/SSA2(5)-en.pdf
2. African Union. Treaty for the establishment of the African Medicines Agency (AMA) enters into force [Internet]. Addis Ababa: African Union; 2021 Nov 9 [cited 2021 Nov 16]. Available from: https://au.int/en/pressreleases/20211109/treaty-establishment-african-medicines-agency-ama-enters-force
3. Treaty for the Establishment of the African Medicines Agency 2019 (Afr.) 1-2 p., s 6(a). Available from: https://au.int/en/treaties/treaty-establishment-african-medicines-agency
4. Gostin LO. Global Health Law. Cambridge: Harvard University Press; 2014. 26 p.
5. Gavi, the Vaccine Alliance. Gavi's partnership model: developing country governments [Internet]. Geneva: Gavi, the Vaccine Alliance; [updated 2020 Feb 12, cited 2021 Nov 16]. Available from: https://www.gavi.org/operating-model/gavis-partnership-model/developing-country-governments
6. The Global Fund to Fight AIDS, Tuberculosis and Malaria. Country coordinating mechanism [Internet]. Geneva: The Global Fund; [cited 2021 Nov 16]. Available from: https://www.theglobalfund.org/en/country-coordinating-mechanism
7. O'Neill Institute for National and Global Health Law and the Foundation for the National Institutes of Health. Legal tools for pandemic preparedness: WHO collaborating center support for new coordinating mechanisms. Washington: O'Neill Institute for National and Global Health Law and the Foundation for the National Institutes of Health; 2021 Nov [cited 2021 Nov 16]. Available from: https://oneill.law.georgetown.edu/wp-content/uploads/2021/11/ONL_Pandemic_Prep_D1_P5.pdf
8. Inter-American Health Task Force. Deepening cooperating and coordination on health policy in the Americas: a new approach to health emergencies. Washington: The Dialogue; 2021 Jul [cited 2021 Nov 16]. p. 4, 19. Available from: https://www.thedialogue.org/wp-content/uploads/2021/07/Health-Task-Force-White-Paper-Final-version.pdf
9. Klock KA. The soft law alternative to the WHO's treaty powers. Geo. J. Int'l L.. 2012;44:826.
10. European Council. An international treaty on pandemic prevention and preparedness [Internet]. Brussels: European Council; [updated 2021 Jun 23, cited 2021 Nov 16]. Available from: https://www.consilium.europa.eu/en/policies/coronavirus/pandemic-treaty

Innovative technology to combat malaria

Angela Harrison et al describe the burden of a global health problem and how to tackle it

Malaria is a detectable, preventable and curable disease, but the burden on global health is still unacceptably high. Understanding the need for a coordinated effort to combat malaria, the World Health Organization (WHO) initiated the first global effort to eradicate the disease in 1955. Although initially successful, the programme faced numerous setbacks, especially in Africa, and was abandoned in 1972. The integrated fight against malaria was re-ignited at the beginning of the new millennium and substantial gains were made from 2005 in reducing malaria morbidity and mortality (Figure 1). This prompted the WHO to launch the Global Technical Strategy for Malaria 2016–2030, with the ambitious goal of a 90% reduction in the global malaria burden by 2030. However, progress has slowed over the past few years (Figure 1) and the 2020 milestones have not been met. The COVID-19 pandemic and other humanitarian crises have exacerbated the situation and disrupted malaria prevention programmes, as well as diagnosis and treatment of cases, resulting in an estimated increase of 14 million malaria infections and 69,000 deaths in 2020 compared to 2019.

According to the annual WHO World Malaria Report of 2021, there were an estimated 241 million global cases and 627,000 deaths in 2020, with the African region accounting for 95% of the disease burden. The most vulnerable populations are pregnant women and children under the age of five, as the immune system is potentially compromised or still relatively naïve, respectively. The death toll in children under five accounted for 77% of global malaria mortality.

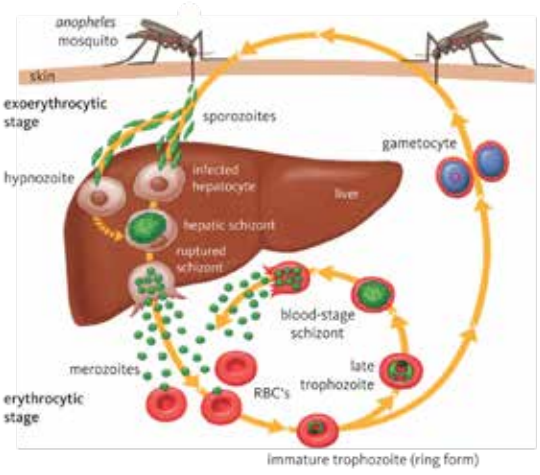
The Plasmodium parasite

Five species of Plasmodium parasites are currently known to cause malaria in humans, but two of them, P. *falciparum* and P. *vivax*, account for most of the disease burden. P. *falciparum* is the most lethal parasite and is responsible for >99% of cases in Africa. P. *vivax* is the predominant parasite in South-East Asia and the Americas.

The life cycle of the malaria parasite involves stages in the mosquito vector, as well as in the liver and red blood cells (RBC) of the human host (Figure 2). The clinical symptoms of malaria are manifested during

Angela Harrison Sysmex South Africa (Pty) Ltd (Corresponding author) harrison.angelatheresa@sysmex.co.za, Konstantinos Mintzas Sysmex Europe GmbH, Roger Assemien Sysmex West and Central Africa Ltd

Figure 2. Life cycle of Plasmodium parasites. Source for image: Hill A (2011). 'Vaccines against malaria'. Philosophical Transactions of the Royal Society B.



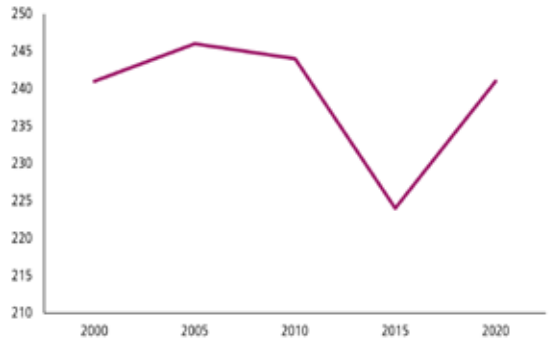
the intraerythrocytic cycle when parasites multiply asexually and new parasites are released when infected RBC lyse, every 48 hours in the case of a P. *falciparum* infection. Some parasites develop into male and female gametocytes, which are the sexual transmissible stages that enable continuation of the parasite lifecycle in the mosquito.

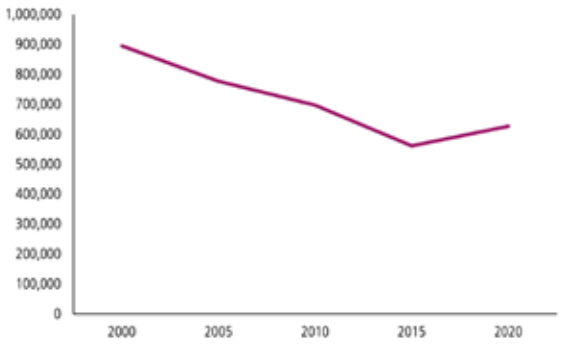
Global strategies to combat malaria

The WHO Global Malaria Programme launched the 'T3: Test. Treat. Track' initiative in 2012 to support malaria endemic countries in achieving universal coverage with testing and treatment and strengthening their surveillance systems. The initiative states that: (1) every suspected case of malaria should be tested, and the diagnosis must be confirmed before treatment commences; (2) every confirmed case must be treated with quality-assured antimalarial medicine depending on the severity of the disease; (3) every confirmed case must be tracked and recorded in a surveillance system to identify populations at risk and assign resources accordingly.

In addition, the WHO Global Technical Strategy for Malaria 2016-2030 (Figure 3), outlines three pillars of an integrated approach to eliminate malaria, with diagnosis and surveillance playing key roles.

Figure 1. Annual estimated malaria cases and deaths from 2000 to 2020 (WHO Malaria report 2021)





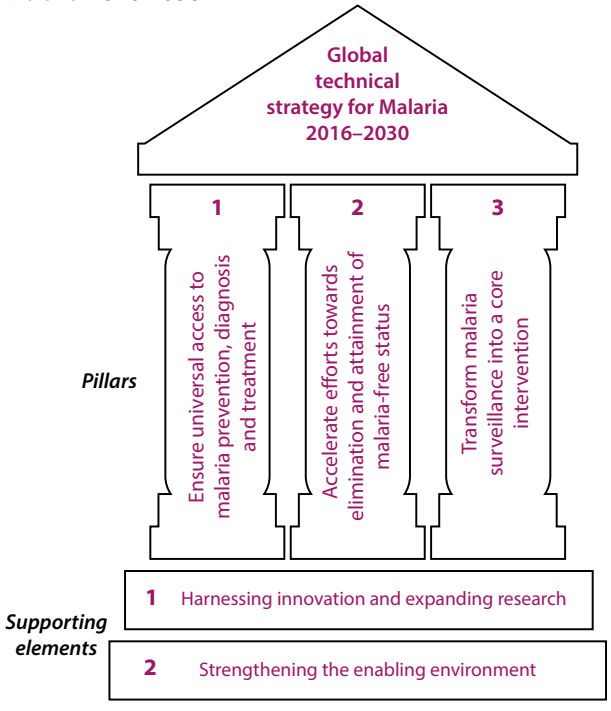
Diagnostic tests for the detection of malaria

The symptoms of malaria are non-specific and clinical suspicion is based primarily on the presence of fever. Therefore, the WHO requires prompt parasitological diagnosis of malaria to confirm the suspected case before treatment commences to ensure rational and appropriate use of antimalarial drugs. The tests recommended by the WHO are microscopy or a rapid diagnostic test (RDT). Apart from these methods, other tests are also used for the detection of an infection, including automated diagnosis (Figure 4 and Table 1). Some of the strengths and weaknesses of current diagnostic tests, especially in the African context, are briefly discussed below.

Microscopy

This is still regarded as the gold standard of malaria diagnostic tests using Giemsa-stained blood smears and oil-immersion light microscopy (Figure 4A). The test has many advantages as outlined in Table 1, however, accurate results depend on the competency and training of the microscopist, quality of the stain and smear, and adequate maintenance of the microscope. In addition, it is time consuming and labour-intensive, and under a high workload it is difficult for a microscopist to maintain accuracy and consistency, especially when the parasitaemia is low.

Figure 3. The WHO Global Technical Strategy for Malaria 2016-2030



Rapid diagnostic test (RDT)

This is a simple and easy immunochromatographic test to detect malaria parasite antigens in a finger-prick blood sample (Figure 4B, Table 1). RDTs can be used in remote rural settings with no electricity and minimal training of personnel is required. RDTs typically detect parasite histidine-rich protein-2 (HRP-2), or in some cases, lactate dehydrogenase (pLDH) or aldolase. Disadvantages include false positive results due to persistence of the HRP-2 antigen after treatment and false negative results due to HRP-2 gene mutations/deletions. The quality of the commercially available kits is variable and lot-to-lot variation is also a concern.

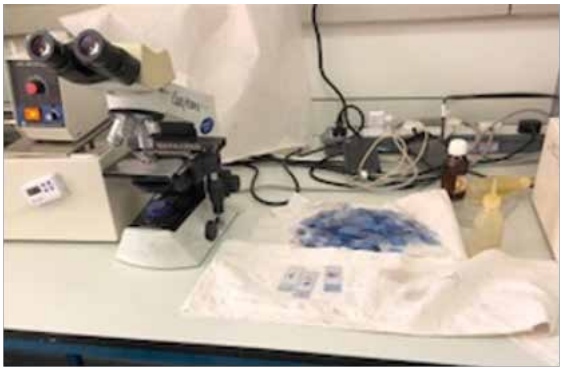
Molecular tests

Nucleic acid-based tests, such as polymerase chain reaction (PCR) and to a lesser extent, loop-mediated isothermal amplification, are used to detect *Plasmodium* genes in blood samples. PCR is highly sensitive and useful at very low parasite densities, and species-specific primers enable speciation. However, highly skilled personnel are required, and specialised equipment and expensive reagents limit the availability of these tests in a routine African setting.

Quantitative buffy coat fluorescence microscopy

QBC is a commercial kit, where the blood sample is stained with a fluorescent dye, acridine orange, and then centrifuged in a capillary tube. The different cell populations in the blood form distinct layers in the capillary and a fluorescence microscope is used to detect malaria parasites in the RBC layer. Similar expertise to conventional microscopy is required, and this labour-intensive method does not allow identification of the *Plasmodium* species.

Figure 4. Diagnostic tests for malaria. Top left: Microscopy. Bottom left: Rapid diagnostic test. Right: Automated detection.



Automated detection of malaria-infected RBC

Several manufacturers of automated haematology analysers have introduced malaria flagging on some of their models, with variable sensitivity and specificity. Algorithms are used to detect the presence of parasitised RBC or haemozoin pigment in white blood cells, which disturb the measurement in certain channels of the analyser.

The Sysmex XN-31 (Figure 4C) is a user-friendly automated haematology analyser where a new laser and innovative reagent have been incorporated, enabling the detection and quantitation of malaria-infected RBC (MI-RBC). The XN-31 reports parasitaemia not only as an absolute number (MI-RBC#) but also as a ratio of the infected RBC to the total RBC (MI-RBC%), and the resulting scattergram provides a visual image of the parasitised RBC clusters (Figure 5). Every measurement generates a concurrent full blood count (FBC), which provides clinicians with important information for clinical correlation, since anaemia is a major contributor to mortality in malaria, and the degree of thrombocytopenia provides an indication of the severity of malaria.

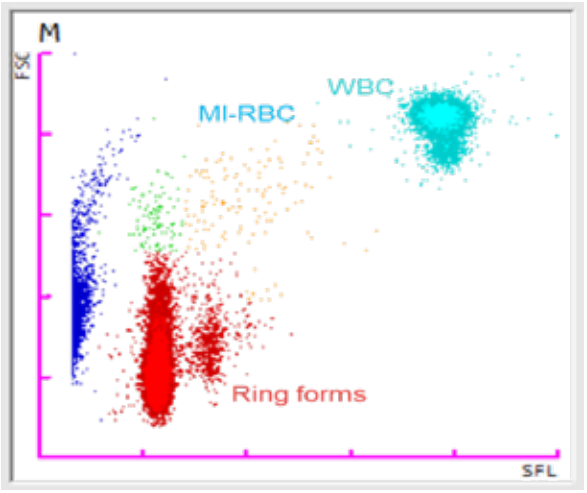
The XN-31 may be used by healthcare professionals in laboratories as an alternative to smear microscopy for rapid and objective diagnosis of malaria in individuals with a clinical suspicion of malaria (Table 1). When patients present with a fever of unknown origin, an FBC is typically requested as part of the diagnostic work-up, and the XN-31 can thus also

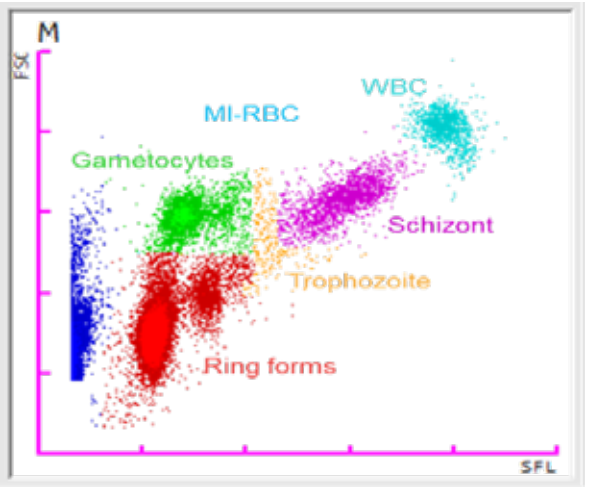
Table 1. Characteristics of diagnostic tests for malaria

	Microscopy	RDT	Sysmex XN-31 analyser
Parasite detection	Direct	Indirect, antigen	Direct
Gametocyte detection	Yes	No	Yes
Species detection	All	Some	All
Subjective	Yes	Yes	No
Quantitative	Yes	No	Yes
Point of Care	No	Yes	No
Automated	No	No	Yes
Time per test	up to 15 minutes	15 minutes	1 minute
LoD parasites/µl	100 - 500 *	100 - 200 **	20
FBC	No	No	Yes
Clinical suspicion	Yes	Yes	No ***

*LoD = Limit of Detection. FBC = Full Blood Count. * An expert microscopist can detect 10 parasites/ul. ** Sensitivity varies depending on the kit manufacturer. *** If the XN-31 is also used for FBC testing*

Figure 5. XN scattergrams from a P. falciparum (left) and a P. vivax (right) blood sample, showing both asexual and sexual life stages of the parasite.





detect unsuspected cases of malaria. This is an important advantage in African countries in the pre-elimination phase; for tourists returning home to non-endemic countries; and for the detection of imported malaria. The analyser provides accurate enumeration and direct detection of the parasites and has excellent sensitivity and specificity as demonstrated in several independent studies conducted in South Africa, Burkina Faso and Colombia.

The XN-31 provides reliable counts even in low parasitaemia (Table 1), which enables clinicians to evaluate the haematological response of the patient during treatment and is independent of operator expertise. This monitoring capability may facilitate the early clinical detection of artemisinin resistance in patients and will also be valuable in malaria drug discovery efforts and clinical trials where monitoring of efficacy is required. The analyser shows excellent suitability in real-life situations within African healthcare centres with high patient numbers, since the automated system generates rapid objective results and minimises human errors.

The role of XN-31 technology

In addition to its role in pillar 1 of the Global Technical Strategy for malaria as an innovative, novel diagnostic tool, the Sysmex XN-31 analyser can also contribute to pillar 2 (elimination) and 3 (surveillance) (Figure 3B).

A key aspect in malaria elimination efforts is to block the lifecycle of the parasite. Semi-immune individuals in Africa serve as a reservoir of sexual gametocytes of P. *falciparum* that are infectious when transmitted to the mosquito and thus ensure continuation of the parasite lifecycle in the vector. The XN-31 can detect gametocytes as a separate cluster and thus identify individuals that should be treated with transmission-blocking drugs to facilitate elimination of malaria.

In terms of malaria surveillance, a recent study at the Malawi Blood Transfusion Services showed the superior utility of the XN-31 in screening blood from asymptomatic donors for malaria parasites compared to microscopy. In addition to improving blood safety and reducing the risk of transfusion transmitted malaria (TTM), the XN-31 results can be used to generate surveillance data. Current surveillance strategies rely mainly on passive case detection and periodic population-based surveys, which are costly and logistically challenging. Continuous data from a readily available asymptomatic blood donor pool could strengthen and complement existing surveillance mechanisms.

Outlook

The global malaria burden has recently escalated and the alarming emergence of partial resistance to artemisinin in some African countries highlights one of the threats hindering malaria elimination efforts. However, the approval of the first malaria RTS,S vaccine in October 2021 is a major advance in protecting vulnerable children living in moderate to high transmission regions from contracting malaria. The use of innovative XN-31 technology as part of an integrated strategy to combat malaria is a promising and positive step in the right direction.

Suggested further reading

1. WHO Global Technical Strategy for Malaria 2016-2030, 2021 update
2. WHO World Malaria Report, 2021
3. WHO Scaling up diagnostics, treatment and surveillance for malaria, 2012
4. WHO Guidelines for malaria, 2021
5. Pillay E, Khodaiji S, Bezuidenhout BC, Litshie M, Coetzer TL. Evaluation of automated malaria diagnosis using the Sysmex XN-30 analyser in a clinical setting. Malar J 2019;18(1),15
6. Post A, Kaboré B, Reuling IJ, Bognini J, van der Heijden W, Diallo S, et al. The XN-30 hematology analyzer for rapid sensitive detection of malaria: a diagnostic accuracy study. BMC Med 2019 May 31;17(1),103
7. Zuluaga Idárraga L, Rios A, Sierra Cifuentes V, Garzón E, Tobón Castaño A, Takehara I, et al. Performance of the hematology analyzer XN 31 prototype in the detection of Plasmodium infections in an endemic region of Colombia. Sci Rep 2021;11,5268
8. M'baya B, Mfune T, Samon A, Hwandih T, Münster M. Evaluation of the Sysmex XN-31 automated analyser for blood donor malaria screening at Malawi Blood Transfusion Services. Vox Sang 2021; doi 10.1111/vox.13208

sysmex | Lighting the way with diagnostics

XN-31

Be confident fighting malaria

- Results you can rely on – reliable and objective malaria information using the technology of fluorescence flow cytometry
- Results from 1 mL blood or less without sample pretreatment
- Enhance and standardise your malaria testing
  - ✔ Fast with 24/7 availability
  - ✔ Quality of result independent of the skills of the operator

IDI: Building trust through governance, systems, and sustainability

A further reflection on the first 20 years of the Infectious Diseases Institute in Uganda

The Infectious Diseases Institute (IDI) is a largely autonomous, self-reliant, non-profit institution wholly owned by Makerere University in Kampala, Uganda that marks 20 years of existence in 2021. The vision of IDI is a 'healthy Africa, free from the burden of infectious disease' with IDI aiming to 'strengthen health systems in Africa, with a strong emphasis on infectious diseases, through research and capacity development'.[1]

Following a previous reflection on building trust through programme results at IDI,[2] this paper considers how IDI's governance, systems, and approach to sustainability, as well as the energy, drive and dedication of IDI staff, strengthened trust in the institution. IDI aspires to be trusted by: the people IDI serves, the government at national and local levels, Makerere University, national and international project partners, funders and others; as well as its own staff.

We summarise the evolution of IDI's governance structures, and the development of a range of critical management functions and systems, and the achievement of sustainable self-sufficiency after generous initial startup funding from the private sector (Pfizer Inc) which commenced in 2001 and had phased out by 2012. We highlight some of the key drivers of IDI's development and successes and share some lessons learned.

As with the first paper, our review is grounded in the concept of 'trust' and how institutional arrangements can strengthen trust and enhance sustainability (which itself can further bolster trust as the organisation is perceived as likely to endure). Also, as before, the authors include, among others, the current IDI Executive Director (ED) and all three previous EDs.

Key institutional achievements

Governance

Evolution of governance: IDI startup activities began in 2001, catalysed by a group of highly committed individuals from Uganda and North America, and funded by Pfizer Inc, but with important contributions in terms of land and other facilities from Makerere University – essentially a public–private partnership. A US-based agency (Pangaea Global AIDS Foundation) provided initial management focused on development of HIV-related services, but with invaluable leadership and support from an informal alliance of prominent Ugandan and North American medical academics (the Academic Alliance for AIDS Care and Prevention in Africa). This group evolved into Accordia Global Health Foundation and up to 2016, helped make vital supportive connections with the Government of Uganda, Makerere University and other partners, and mobilise funding for IDI programmes swiftly from major US private sector entities.[3] IDI was eventually registered in 2005 as a non-profit company limited by guarantee and owned by Makerere University, a public university. The University is represented by the Vice-Chancellor and the University Secretary who appoint the IDI Board members whom they hold accountable at an Annual General Meeting based on an Annual Report (since 2005). Ownership by the University means that there is mutual support, and integration, between the strategies of IDI, Makerere University and government. The University provides no core funding to IDI but does provide land and the benefit of the University reputation as well as linkages with other entities within the University. In turn, all publications by IDI contribute to the output and standing of Makerere University. This balance provides the autonomy necessary for IDI to responsibly pursue its programmatic and business goals and to thrive. The complex progression in IDI governance evolved on the basis of trust and common vision – from a multifaceted global partnership to a sustainable Ugandan institution of integrity, relevance and high quality.

IDI Board: The IDI Board meets three times a year and has 13 members (11 from Africa) who are not appointed by virtue of an office they hold but for the contribution they can make to achieving the IDI mission. It provides strategy and policy oversight, reviews progress against the IDI Strategic Plan, provides recommendations for progressing IDI's mission, considers internal audit reports, and approves the annual budget and periodically reviews IDI's financial position, among other things. It appoints and regularly evaluates the ED, but does not appoint any other senior managers (although Board members may be invited to participate in the recruitment process). Trust in IDI

Tom Kakaire is Head of Strategy and Development at IDI. Keith McAdam is Emeritus Professor of Clinical Tropical Medicine at London School of Hygiene & Tropical Medicine and was founding Executive Director at IDI, Alex Coutinho is a global health leader and was second Executive Director at IDI. Richard Brough is an institutional development specialist and was third Executive Director at IDI. Anna Kalbarczyk is an implementation scientist and gender specialist and is the Assistant Director of the Johns Hopkins Center for Global Health. Malvikha Manoj is a health systems researcher and practitioner. Andrew Kambugu is an infectious diseases physician and researcher and current Executive Director at IDI. Corresponding Author: Tom Kakaire tkakaire@idi.co.ug.

has been enhanced by a strong internal audit team primarily accountable to the Board (administratively to the ED) which randomly samples and analyses IDI activities with the aim of continuous systems quality improvement. The IDI 'whistle blowing' policy has proved valuable with the results of all investigations being considered by the IDI Board Audit Committee. IDI has always received a clean ('unqualified') external annual audit report.

Management, infrastructure and systems

IDI values its staff as the key resource for its success. This section focuses on factors that have enabled staff to optimise sustainable individual and organisational performance.

Resources and time to develop systems: The founders of IDI had a profound long-term vision. They established the systems that underpin efficient and effective programmes and enable sustainability and, equally importantly, were willing to give them sufficient time to work. Such funded 'learning' time enabled the IDI leadership and teams to develop self-belief (especially relating to winning competitive grants), to gain experience in responsible risk-taking, to introduce and refine systems for effective resource mobilisation, and to develop a culture of meeting financial sustainability targets alongside programme objectives. The provision of large startup funds and the development of enduring international partnerships was a major statement of trust in IDI's potential capacities and commitment. Internally, the trust by the Board in a succession of IDI EDs and their teams resulted in the agile leadership critical for seizing opportunities to develop and sustain the organisation.

Quality of leadership, management and succession planning: The IDI ED has, since inception, held unusually wide-ranging powers; and the post has benefited from a generous recurring annual grant that exclusively supports hiring a competent person to fill it. The ED leads IDI with the support of a senior management team comprising the heads and deputies for each programme and support function who are given genuine decision-making powers and the opportunity to gain experience that minimises the risk of a serious leadership gap due to the departure of the ED or a department head. Smooth transitions are also fostered by the robust IDI strategic plans, so that even if individuals change, the strategy continues to give direction. Staff turnover (especially among senior staff) is relatively low at IDI, which gives stability and strengthens confidence and solidarity among staff.

Policies and systems documentation: Documentation of IDI policies, guidelines and systems has been critical for consistency, equity, and efficiency; and reassures potential funders. It also helps to avoid potential litigation. Apart from the typical organisational manuals, IDI uses its own experience to document specific aspects of its operations and business processes. For example, the IDI Grants Manual, unique among IDI peer organisations and quite separate from the Finance and Operations Manual, strengthens sustainability by guiding IDI staff through the full grants and contracts cycle from identifying opportunities to project close out. Other policies ensure compliance, for example, with research regulations, HR obligations and minimum standards of behaviour (e.g. relating to bullying and sexual harassment) in keeping with national laws and funder expectations. This body of documentation, periodically reviewed to ensure continuing relevance and compliance with the law, contributes to IDI stability and bolsters funder confidence.

Strong Information Technology & Telecommunications (ITT) backbone: IDI opened in 2004 with state-of-the-art ITT (including satellite dish connectivity with the US National Library of Medicine) which (with upgrades) performed well right up until a complete overhaul began in 2021. Such high quality, reliable ITT has been central to the efficiency of IDI's operations and enabled many applications to be developed to meet IDI's needs – including a clinic and patient management system which has been licensed for use outside IDI. Many of these systems (such as the telephones and copiers) have inbuilt billing capability in order to efficiently allocate and recover the costs of their use – reinforcing sustainability.

Infrastructure: While a resource rather than a system, adequate and well-maintained physical infrastructure and equipment is essential for a high quality institution and makes for the safety of staff and clients, and for the efficient and effective provision of services. IDI rapidly outgrew the original space and, with generous external support, opened a major new building in 2015 which enabled the development of whole new programmes, such as Global Health Security (GHS), as well as accommodating major new units such as the African Centre of Excellence in Bioinformatics & Data Sciences and the Secretariat for the East, Central and Southern Africa College of Physicians (ECSACOP). IDI also developed various satellite sites (e.g. an HIV prevention research unit in periurban Kampala). The costs of infrastructure are monitored and recovered through billing out space to users by applying an audited rate.

Efficient billing for staff time and other distinct services: Costs of staff comprise most of IDI's costs. With over 1,500 staff and many funders (typically around 30 at any particular time), a 'staff cost recovery' process that meets multiple funders' requirements is complex. Paper-based in the early years, IDI developed the 'Clocktime' billing system, which significantly decreased staff cost recovery 'leakage', saved significant admin costs, and subtly changed the culture through staff more fully grasping the part each plays in sustaining the institution.

Within IDI programmes, 'business units' have developed to optimise billing for specific services (e.g., training courses, lab tests, data sets for analysis, among others). IDI has become more adept at precisely defining the billable item, documenting and auditing the associated unit costs, and charging them as a fee whenever possible/allowable, in order to minimise the related administrative burden. IDI also generates an externally audited 'general overhead' rate to be applied to project budgets which significantly facilitates negotiations with funders.

Adaptability to change as a constant: IDI as an institution embraces change as a constant – and expects management, infrastructure and systems to be continuously adapting and evolving to meet changing internal and external conditions. Policies may need updating, more processes may be automated, infrastructure may be re-purposed, staff training needs may change, and governance and management systems may be modified in response to strategic opportunities. For example, when IDI assumed full ownership of the main lab, creative institutional mechanisms were devised to integrate it without disrupting its sense of identity, business values and important related partnerships.

Progression and impact of IDI institutional development and sustainability

Sustainability

IDI was established within Makerere University with substantial unrestricted funding from Pfizer plus ongoing support from the Ugandan Government. IDI receives no core funding from Makerere University – indeed, IDI is formally committed to using a limited share of any annual IDI savings to contribute to causes identified by the University.

Annual IDI grant revenue grew from $3.8m in 2005 (95% Pfizer support) to $58.7m in 2020. Given funder policies on charging indirect costs,[4,5] the challenge has been to fund the core functions (like the finance team) from income from projects and other sources such as tuition fees, rental income, interest on reserves, and fees for services. Key factors in achieving sustainability include the following.

Leaders responsible for programmes and business objectives: Leaders of IDI programmes (e.g. training or research) were, from the start, held accountable not only for implementing programme activities efficiently and effectively, but also for identifying and pursuing opportunities to further develop their programmes within the bounds set by successive IDI strategic plans. IDI did not employ external 'grant writers', but looked to inhouse teams to write proposals (albeit often with support from partners). This approach fostered team culture, strategic thinking, writing skills, and awareness of the financial constraints to be accommodated by projects no matter how laudable the project objectives.

Strong independent business development and grants management team: Crucially for the sustainability of IDI, the business development function was, despite the substantial startup funding, prioritised early on with the appointment of senior leadership and the rapid establishment of a grants management team capable of not only supporting grants implementation, but proactively seeking resources through establishing partnerships and supporting IDI staff to apply for grants. The team was (critically) given time to develop systems/materials and to gain experience in grant applications so that when the startup funding diminished and ended they had the capacity to play a key role in mobilising resources for IDI. Another important decision was to separate the grants team from the finance team which enabled the grants team to support IDI to accomplish that vital, but problematical, balance between the achievement of programmatic and business objectives.

All income from projects is received by IDI and not by individuals: Income from projects is generally treated as income to the institution – individuals who bill time to a project do not receive that income personally, but simply receive their IDI salary. In this way, all

projects support the IDI core functions on which they all depend, and equity in terms of remuneration is maintained across the organisation.

Business/resource integration: IDI projects are designed so that they use as many of the products and services of other IDI programmes as possible and so that they maximise income to IDI and strengthen IDI sustainability.

Maintaining programme/business balance:[6] IDI has largely resisted undertaking attractive projects which do not contribute enough to funding the core functions of the institution (e.g. finance team; building maintenance; security; ITT) which underpin all the programmes. Without such discipline the institution may be endangered – although there may be exceptions for well-articulated strategic reasons.

Team culture[7] and mutually supportive programmes: IDI core values emphasise team culture which extends to supportive connections across IDI programmes. For example, the clinic provides a platform for research, and an outreach initiative may be supported by the training programme.

Range of IDI programmes: Financially, the range of IDI programmes has enabled IDI to respond to evolving funder priorities with specific IDI programmes making particularly strong contributions to IDI's sustainability at different times. For example, fixed fee research, high volume HIV-related training, and specialised reliable accredited lab testing have all made crucial contributions to IDI sustainability at different times. The range continues to expand, most recently with IDI investing core resources in growth areas such as a new GHS programme and a major data intensive science initiative.

Key drivers of IDI's institutional development

We suggest that the following have been critical drivers of IDI's institutional development.

- High degree of institutional autonomy within a university: IDI's positioning as a non-profit company/NGO thriving within a public university has proved a sound strategic governance context for IDI's institutional development.
- Sufficient startup funds to develop management, infrastructure and systems and gain experience: Discussed above.
- Quality of adaptable leadership: The initial provisional management of IDI decided that compensation packages should be competitive enough to attract competent individuals from Uganda or anywhere else in the world with the requisite skill sets to build an outstanding institution. This decision had far-reaching consequences as leaders across IDI mentored their successors and established enduring high standards of management. In addition, many IDI staff have moved around the organisation as their careers have unfolded (e.g. the current ED was a former head of two programmes). Staff are given the opportunity to develop their careers within IDI, which has helped to retain talent, prevent institutional sclerosis, and maintain a vibrant climate of flexibility and constant renewal.
- Programme heads responsible for business matters as well as programme activities: This double responsibility reduces the risk of programme leaders making programmatic commitments which jeopardise the institution as a business. It also makes for greater cohesion between the support functions (such as Finance) and the programme leaders – based on an appreciation of mutual dependency.
- Continuous Quality Improvement (CQI): IDI functions in a climate of CQI; with all staff encouraged to look for, and draw attention to, potential institutional improvements in a constructive spirit with no sense of tacit criticism implied; and to approach audits, not in a spirit of defensiveness, but rather as opportunities to learn and improve.
- Transparency and uncompromising integrity: The default for IDI has been transparency with all stakeholders (while ensuring confidentiality in appropriate clinical areas) in the belief that this strengthens both the integrity of the institution and its external relationships.
- Willingness to take risks: IDI leadership has recognised that sustainability is heavily dependent on innovation and that the biggest risk is to take no risks at all. IDI leadership has shown a responsible appetite for risk by, for instance: interpreting the IDI Strategic Plan and Mission to include a huge increase in outreach activities; constructing major infrastructure; and rapidly developing a new Global Health Security programme.

Conclusion

The first 20 years of IDI have shown how a largely autonomous, self-sufficient, African-owned and African-led non-profit health organisation can develop into a high quality institution generating a high level of trust among its various stakeholders.

The first paper in this series focused on achieving trust through enduring programmatic impact. This paper has explored how robust governance, strong systems, and financial sustainability contribute to building trust. The challenge and responsibility for IDI over the next 20 years is to maintain and deepen that trust and also to support other African institutions seeking to be trusted. The next paper will examine how the values of IDI have been critical to establishing trust and will put forward a practical approach which can be adopted by other institutions seeking to benefit from the IDI experience.

References

1. https://idi.mak.ac.ug
2. Kakaire T, McAdam K, Coutinho A, Brough R, Kambugu A. Infectious Diseases Institute: Building trust through strong programme results. Africa Health 2021; September pp12-15.
3. Ronald A, Kamya M, Katabira E, Scheld M, Sewankambo N. The Infectious Diseases Institute at Makerere University, Kampala, Uganda. Infectious disease clinics. 2011 Jun 1;25(2):369.
4. Crane JT, Andia Biraro I, Fouad TM, Boum Y, Bangsberg DR (2018). The 'indirect costs' of underfunding foreign partners in global health research: A case study. Global public health, 13(10), 1422-1429.
5. Crane JT. Unequal 'partners'. AIDS, academia, and the rise of global health. BEHEMOTH-A Journal on Civilization, 2010, 3(3), 78-97.
6. Mook L. An integrated social accounting model for nonprofit organizations. In Accountability and Social Accounting for Social and Non-Profit Organizations 2014 Nov 27. Emerald Group Publishing Limited.
7. Kalbarczyk A, Davis W, Kalibala S, Geibel S, Yansaneh A, Martin NA, et al. Research Capacity Strengthening in Sub-Saharan Africa: Recognizing the Importance of Local Partnerships in Designing and Disseminating HIV Implementation Science to Reach the 90–90–90 Goals. AIDS Behav 2019;23(S2):206-213.

Achieving resilient global health security

Professor Tomori describes how Africa can build back better using cultural values to ensure individual health security that eventually leads to national and global health security

Global health security is built on the foundation of national health security, which in turn, is laid on the foundation of individual health security, as individuals make the nation, and the nations make the world. Therefore, a resilient global health security must be built on this foundation. We do remember of course that the WHO sees health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Therefore, in building back better health security, the state of health of the individual as defined by WHO (physical, mental, and social aspects) must be considered.

The slogan 'build back better' predates US President Joe Biden. It was in Sendai in 2015, that the Prime Minister of Japan, Shinzo ABE, stated: ''Build Back Better' sounds like a new concept, but this is common sense to the Japanese people, coming from our historical experiences in recovering from disaster and preparing for the future, and it has become an important part of the CULTURE of Japan.'

It was at that same Sendai meeting that the Japanese delegation proposed building back better as a holistic concept which uses disaster as a trigger to create more resilient nations and societies than before, through the implementation of well-balanced disaster risk reduction measures, including physical restoration of infrastructure, revitalisation of livelihoods and economy/industry, and the restoration of local culture and environment.

When we discuss building back better in terms of disasters and pandemics, we often tend to forget that disasters and pandemics can seriously affect our environment and most especially our culture. No matter what plans we formulate to respond to pandemics and disasters, we will surely fail if we do not seriously address the role and the impact of the individual on the restoration of culture and environment. It will be like taking the 'public' out of public health.

In the efforts to prevent disease outbreaks, or respond to outbreaks and pandemics, the disease is a minor enemy. The opponent that is more formidable and perhaps more difficult to control is the individual person who is vulnerable to infection by the pathogens of diseases. What the individual does, and how he or she acts plays a major role in the spread of the disease, and whether we end with sporadic cases, an outbreak, or a pandemic. Consider the mobile telephone. On itself, the telephone is not mobile. It is the owner of the telephone who makes it so. So also with a disease pathogen: the individual is the agent of mobility and spread of the pathogen

In many African countries, the state of underdevelopment rest on four pillars. These are

1. Lack of patriotism, the main destroyer of our nation
2. Self-interest, the burial ground of our national interest
3. Corruption, the executor of our orderly development
4. Shamelessness, the destruction of our national pride

Over the last sixty or more years, since many African countries have been independent of colonial rule, these four 'diseases', all affecting our culture, have become the combined endemic destroyer of the foundation of our individual health security which has shaken the foundation of our national health security and in turn, determined our near national irrelevance as meaningful contributors to global health security.

Let me use my country as an example. Anytime, Nigeria is on my mind I become deeply emotional. There is a fever in my body, as pain wracks my whole frame, needing to hold on to something to steady my stand. I have wept for this country on several occasions. Many may wonder why I feel so passionate about my country. I owe my country much more than I can ever pay back. I grew up between the 1950s and the early years after 1960 in what I refer to as Utopia Nigeria. It would be an insult to call my father polygamous; he was 'MULTIGAMOUS'. The number of his wives that I know, number in the tens. I came in as number thirty-nine, in order of birth of his children. We were being bred as hands for his farm. Then, we had good governance just before the colonial administration left. The government of the day introduced free primary education in my region. Primary education was not only free but also compulsory, giving my father the choice of sending me to school or going to prison. He took the simpler way out and sent me to school. From that singular act, began my journey of indebtedness to my country. After the free primary education in my village, close to Ilesha, Osun State of Nigeria, I took an entrance examination and got admitted on a partial scholarship to the Government College Ughelli, in Nigeria's current Delta State, about 400 km from my town. Nobody accompanied me to the examination hall or to the interview which followed my success at the examination. After my secondary education, which was on a partial scholarship, I moved to the Ahmadu Bello University in Zaria, in the northern part of Nigeria, some 700 km from my town in the opposite direction from Ughelli. At that time, university education was on a full federal government scholarship to

Oyewale Tomori is a Nigerian professor of virology, educational administrator, and former vice chancellor of Redeemer's University, oyewaletomori@gmail.com..

read Veterinary Medicine. Every stage of my education was in Nigeria. The country was so safe at that time that going to the secondary school at a young age, from my town, was a two-day journey taken without any escort. Our parents handed us over to the driver of the transport company, with money for food on the journey. If there was any left-over change, the driver would hand it to our parents on his return journey through our town. I left the University in Zaria, at 12 noon on Wednesday 30 June 1971 and started work as a Research Fellow at the University of Ibadan at 8 am the following Monday.

I am what I am today, because Nigeria provided an enabling environment for me to thrive and excel. I give glory to GOD who gave us political leaders committed to good governance and thank the great citizens and parents of our nation who loved our country more than they loved themselves. But soon an outbreak occurred, which later became endemic. It came on us surreptitiously, killing our nation slowly. It was a disease that affected the three pillars of our nation, touching every stratum, damaging every fibre of our nation. The disease slew good governance, murdered societal sanctity, and eradicated individual integrity. The disease annihilated the good in our culture and elevated to prominence the ugly in our culture. The disease, of bad governance and misrule, was characterised by three major symptoms: greedy self-interest, blatant lack of patriotism, and unabashed shamelessness. Today, we lie to each other. The government lies to us, and we reciprocate with bigger lies, telling the government it is doing well, when we know it is not. We clap with the loudest ovation for a non-performing leader. We acclaim, in pretended joyous ecstasy, those we should condemn, even when we know they are not telling the truth. We pray that our kings and rulers live forever, and they say AMEN to our fake prayers, when we all know that we shall all die, and none of us will live forever. What I have described above for my country and generation is not strange to many other African countries. The similarities are all too familiar, with minor differences in the details.

During the covid-19 era, we wake up daily to see us treated with contempt, disdain, and disrespect by virtually every country outside of Africa. The results of our laboratory tests are accepted with a pinch of salt. Our vaccination certificates are classified as counterfeits. Many African countries, to function, must depend on supplies and donations of basic materials – like swabs, virus transport media, wooden spatula, etc. We often have to check foreign websites to know exactly the COVID-19 situation in our countries: how many cases detected, what covid virus variant is responsible, and the number of deaths recorded. Any surprise, we are treated with scorn and little or no respect. The sorest point about the COVID-19 pandemic, is our helplessness in getting vaccines for our population. So dependent are we on vaccine donations, that we cannot plan effectively as we do not know the number of vaccine doses we will get, when we will get them and what type of vaccines will be available for our populations. We are banned from travelling to mostly European countries, and placed on the red end of the Red, Amber, and Green travel 'passport'. In all these, we, in pretended justification, describe the actions of the western countries as inequitable and perhaps racist. We descend into self-pity and clothe ourselves with the toga of poverty and underdevelopment. However, I think it is more of paying for years of condoning errors of commission and overlooking the errors of omission in our developmental programmes. Of course, some of the action of the western world do not support and indeed hamper efforts to ensure global health security. It is a huge surprise that the western countries do not see their action of starving Africa of much-needed vaccines as counterproductive.

The continuing waves of COVID-19 cases in many European countries, and the unending need for booster doses, despite high vaccine coverage, are related to the generation of variants of concern (Delta, Omicron) in parts of the world that are starved of vaccines with low vaccination coverage and where there is a high level of non-compliance with the non-pharmaceutical interventions. It is indeed a lucky break that the impact of COVID-19 pandemic in these vaccine-deprived parts of the world is not as severe as in the vaccine-saturated parts of the world.

However, if we are not to remain as beggar consumer nations, and if we must contribute meaningfully to improving global health security, we must reposition our countries to end disease pandemics and we must start building back better those aspects of our culture

- that revered honour
- that treasured integrity
- that prized probity
- that appreciated accountability
- that valued transparency
- that embraced honesty
- that practised fairness
- that ensured equity
- that dispensed justice fairly and
- that cherished patriotism.

The current generation of Africans is much smarter than my own, and if given one-tenth of the enabling opportunity and environment which good governance gave my generation, African nations will be contributing meaningfully to world development and not consumers of products of global development. African nations will be making positive contribution to a resilient global health security through sustainable national health security. We will be making progress towards reversing the current dependency status of many African countries.

The first epidemic we must address is the one adversely affecting our culture and decency as human beings. We must have nations where national interest buries self-interest. Now is the time to build the future of our response to the next epidemic, Otherwise, come the next epidemic, African countries will remain consumers of products of, and not contributors to human development. Time enough for African countries to appreciate that the world owes them nothing and that the desired positive change must come from within and be built on our self-esteem and self-respect. Africa must contribute the product of her investment in science research and innovation, and not her raw materials. To achieve this, we must build better on those aspects of our culture that value respect, self-esteem, and pride in our ability.

Unsafe abortion: changing the narrative in Africa

Dr Kihara Anne looks at how to save more lives and move towards sustainable development

Courtesy of hrw.org

Unsafe abortion prohibits development. All girls and women should have only wanted pregnancies, fulfilled sexual relationships and the right to choose when to become pregnant. Unfortunately, unplanned pregnancies, legislative restrictions and unmet needs for family planning mean that many women end up having unsafe abortions. Mothers need to be safe throughout pregnancy, childbirth and the postpartum period so as to optimise their potential to participate in development.

Globally, between 2015 and 2019, an average of 73 million abortions occurred annually. Of these, approximately 30% ended in induced abortion. In developed regions, it is estimated that 30 women die for every 100,000 unsafe abortions and the highest risk is in sub-Saharan Africa, at 520 deaths per 100,000. Each year, between 5% and 13% of maternal deaths are attributed to unsafe abortion, making it a public health and social concern. Unplanned pregnancies are associated with psycho-social, cultural, religious, political and economic factors and with related consequences such as violence against women, sexually transmitted infections including HIV, post-abortion complications and long-term social delinquency impacting future fecundity and even death. The cost to the health system of unsafe abortion arises from the 'three delays' (the delay in the decision to seek care, delay in reaching an appropriate health facility, and delay once the patient reaches the health facility); unmet need or failed contraception; associated complications; management of infertility; household drawbacks from out-of-pocket expenditure and the unwarranted morbidity/mortality.

Dr Kihara Anne is the President – Elect for International Federation for Gynaecology and Obstetrics (FIGO) 2021-2023 and President of African Federation of Obstetricians and Gynaecologists (AFOG) since 2020. She is a Consultant Obstetrician and Gynaecologist from Kenya. ruby2medical@gmail.com.

Unsafe abortion today

We are in the 21st Century but many paradoxes still prevail making the 'womb as her tomb'. Some of these include: struggles with the nomenclature used; failure to provide health promotion and preventive strategies such as comprehensive sexuality education; lack of access to premarital contraception; abortion related to marital rape; pervasive harmful cultural practices such as female genital mutilation (FGM); early marriage; gender-based violence (GBV) increasing women's vulnerability to unplanned pregnancy; failure to ratify, domesticate and implement abortion-relevant legislature. Among health care providers, ill-defined scope of practice; weak/unsupportive health systems; conflict of legislature and the penal codes; absence of guidelines and training curricula; untrained heath care professionals particularly with emergent technologies and products; bureaucratic protocols before services can be rendered; conscientious objection; addressing of

Courtesy of Julia James

care for minors; conflict associated with social values and norms and provision of the services; safe abortion versus the astronomical costs when unsafe practices prevail; and the provision of rights-based delivery of services. Unfortunately, the result of all this is that girls and women continue to be maimed or die. Unsafe abortion remains an unacceptable cause of maternal morbidity and death.

Abortion services and development

Population demographics, health and well-being; gender equality and empowerment; education both formal and informal; harmful cultural practices and social livelihoods are instrumental facets associated with reducing unsafe abortion services. The right to the highest attainable standard of care, inclusive of reproductive health gives the functions and processes associated with sexuality and reproduction as an area that must be discussed if girls and women are to be healthy, socially included, able to attain demographic dividends and to participate in gender development. The root causes of why girls and women seek abortion services include: lack of knowledge on rights-based care; unplanned/mistimed/unwanted pregnancies; social determinants; failure of partner to assume responsibilities of fatherhood; fatal foetal anomalies; stigma and mental illness; lack or failed contraception; environment and climate stressors that hamper access to basic needs; humanitarian crises and gender disempowerment and inequalities that affect relationships and power; unemployment; school drop out cases; lack of self-efficacy and unsupportive socio-ecological environments. This weaves a complex web that hampers girls and women from thriving to exude the fullest potential in their lives.

Addressing unsafe abortion holistically

The roadmap to preventing unsafe abortion has various programmatic interventions that we can leverage and at different entry points in the continuum of care during a woman's reproductive life span (Box 1).

Girls and women need a holistic approach to health and well-being addressing both their public and social health and sexual reproductive health and rights commencing even before puberty.

More must be done in health promotion and prevention strategies at the forefront averting unplanned pregnancy and thereby increasing risks for unsafe abortion. Global standards of health promoting schools and their implantation, context and standardised frameworks in age-appropriate comprehensive sexuality education impacts on values and norms. Furthermore, these standards provide for life skills, gender rights-based care with informed choices for decision-making that ultimately directs behaviour and related consequences. Education programmes that harness hobbies, talent, entrepreneurship, offer mentorship or apprenticeship and uphold healthy recreation can have a ripple effect that cascades to households and the community. The ongoing blame-and-shame of who is responsible for providing sex education is outmoded. The interrelationship between SRHR, gender equality and equity, social inclusivity and social livelihoods with family planning programmes is certain to have a bearing on the individual but cascades into her social-ecological environment.

There is need for leadership and governance with formation of communities of practice and interest to address coordination, partnerships, relay of information, sharing of expertise, experiences, conduct of research and establishment of technical groups offering evidence best practices, amicus curiae and alternatives to conscientious objection, thus keeping alive the evolving legislative and policy environments. Countries have ratified treaties and covenants such as the Maputo Protocol, rights of the child, AU gender equality and empowerment, but unfortunately the tracking scorecards and index correlations to health and development are rarely undertaken, especially in lower and middle-income countries where the need is most. Advocacy based on evidence and communication strategies critical for voice and agency should target different audiences and pay attention to this continuing vice. Furthermore, social accountability demanded by communities of duty bearers and service providers needs to be sharpened. Elimination of unnecessary maternal deaths and SRHR must be at centre stage, but with ensuing tangible actions. In operational planning, results frameworks and harmonised matrices both within ministries of health and sector-wide should track our nations priorities and performance regularly.

Cost-effective and cost-beneficial health economics need to be intertwined in our health systems. Unsafe abortion is an extremely costly medical emergency

The abortion roadmap	Intervention
Unplanned pregnancy	• Age, Appropriate, Comprehensive Sexuality Education (AACSE) • Life skills / self-care • Safe sexual practices • Safeguarding • Eliminating harmful traditional practices • Peace and conflict resolution • FP/ contraception • Male engagement
Unsafe abortion	• Value Clarification Tool for Global Audiences (VCAT) • Pregnancy crisis: safe motherhood (kiotas) • Gender empowerment: education, employment, social livelihoods; living standards • Legislature and adoption policies • Safe abortion practices related to gestation and decriminalization • Men with positive masculinity /supportive parenting / champions
Abortion related complications	• Post-abortion care • Family Planning (FP)/ contraception • Linkage to other Sexual Reproductive Health SRHR services • Reintegration in society • Psycho-social-sexual support
Legislature, policy and guidelines	• Human rights • Gender mainstreaming: equity and equality • Social inclusivity • Multi-stakeholder engagement • Multi-sectoral engagement • Voices and agency • Social accountability: oversight / coordination; policy; budget and expenditure; services • Evidence informed decision-making • Evidence-based policy and advocacy with communication strategy • Public health: competencies • VCAT/ handling conscientious objection • Scope of practice • Referral and linkages
Cross-cutting issue	• Local country context upheld • Woman-centred rights • Conduct implementation science • Quality and safe services • Communication strategy with media engagement recognizing the target audience and channels of communication • Leveraging at any point in the roadmap to curtail unsafe abortion • Monitoring, evaluation, accountability, learning (MEAL) • Programmatic impact evaluation

for both the individual and the nation. In most African nations we provide post-abortion care, which is at the tail end of the care pathway. We must be bold enough to seek alternative care pathways (Box 1) that introduce value and investment propositions unapologetically.

An abstract from Mahatma Ghandi quotes: 'Habits become your values and your values your destiny'. There is need for all of us to scrutinise our social and gender values and norms. They influence our priority agendas and behaviours. Self-efficacy, self-advocacy and self-care stem from an individual's value system and vision of one's destiny. We need to embrace self-care and telemedicine all the more. The COVID-19 pandemic unmasked sinister problems with valuing and norming but has also given us an opportunity to re-frame and take charge towards having healthier habits and also be able to provide life-lines that drive towards saving more lives.

Resources

1. FIGO welcomes Benin's new law to address preventable maternal deaths and disability by improving access to safe abortion https://www.figo.org/resources/figo-statements/figo-welcomes-benins-new-law-address-preventable-maternal-deaths-and-disability-improving-access
2. Addressing barriers to safe abortion https://www.figo.org/resources/figo-statements/addressing-barriers-safe-abortion (cited 8/12/22021 18.45pm)
3. Conscientious objection: a barrier to care https://www.figo.org/resources/figo-statements/conscientious-objection-barrier-care (cited 8/12/2021 19.00pm)
4. Post abortion contraception including LARC https://www.figo.org/resources/figo-statements/post-abortion-contraception-including-long-acting-reversible-contraceptives (cited 8/12/2021 9.05pm)
5. WHO Global standard of health promoting schools and their implementation www.who.int/publications/i/item/9789240011069
6. Margery Kabuya. Our values and our destiny: A conversation of values in Kenya
7. FIGO embraces the permanent adoption of telemedicine in abortion services www.figo.org/FIGO-endorses-telemedicine-abortion-services
8. Kihara Anne B. Lessons learnt from "We are all women human rights defenders": Strengthening reproductive Justice in West Africa FIGO-webinar held on 29th November 2021

The need for research on reproductive decision-making in Africa

Saheed Akinmayowa Lawal and colleagues argue that RDM during COVID-19 may differ significantly to what it was before

The spread of COVID-19 globally has caused significant socio-economic, health, and technological disruptions. It is estimated that there will be a 10% decline over 12 months in the proportion of women receiving Sexual and Reproductive Health (SRH) services in low and middle-income countries, and these women are likely to have unintended pregnancies, with another 49 million women with an unmet need for contraception. Already, countries in sub-Saharan Africa are working to reduce a high maternal mortality. The reproductive decision-making (RDM) process during COVID-19 in SSA may differ significantly from what it was pre-COVID considering the limited supply of and access to SRH services, and the possibility of a largescale reproductive health crisis in the region. Hence, a case is made for an urgent need for research funding and studies on the dynamics of RDM in the time of COVID-19 in SSA.

There is a need for more studies to explore the changing nature of SRH decision-making among individuals in the time of COVID-19 in SSA which is inhabited by a high population of vulnerable and poor people.

Across the globe, the emergence and spread of coronavirus disease (COVID-19) has caused significant socio-economic, demographic and technological disruptions, especially in the global health domain. This fatal disease was first diagnosed in the city of Wuhan, China in December 2019,[1] as an epidemic. By March 2020, however, it had become a pandemic and was declared a pandemic and a matter of global emergency by the World Health Organization (WHO) due to its rapid spread through the developed and developing countries with about 118,000 cases in 114 countries and 4,291 deaths.[2] COVID-19 has spread to more than 100 countries with over a cumulative total of 195 million cases and over 4 million deaths across the globe.[3] Initially, the spread of the virus was slow to hit SSA as the first case was recorded in Nigeria in late January 2020;4 as of 8 September 2020, the cumulative numbers of confirmed cases and deaths were over 1.3 million and 31,000 respectively in SSA,[1] and there was high expectation that the infection rate would skyrocket.[5]

Saheed Akinmayowa Lawal, B.Sc., M.Sc., PhD (Corresponding author) Department of Sociology,Olabisi Onabanjo University, Ago-Iwoye, Nigeria akinmayowa.lawal@oouagoiwoye.edu.ng and David Aduragbemi Okunlola, B.Sc., M.Sc. Department of Demography and Social Statistics, Obafemi Awolowo University, Ile-Ife, Nigeria

Due to the pandemic, many countries have been forced into implementing various strict measures which included enforcing social and physical distancing, mandatory use of facemasks, ensuring movement restrictions and lockdown/closure of schools, businesses, restaurants, religious houses, markets, and borders to contain the spread of the virus.[6] The rising cases of COVID-19 have plunged the health sectors in the less developed countries and sent many of them into panic mode due to the deplorable state of their health systems.[7] This has affected the provision of essential reproductive health services,[8] which may be because many of them have redirected their efforts towards combating the spread of COVID-19 in their domains.[1]

SRH in a time of COVID-19

The COVID-19 pandemic caused a major disruption in the value and supply chain of SRH commodities;[9,10] for instance, Marie Stopes International – one of the biggest suppliers of SRH commodities worldwide – was forced to discontinue their services at some of their clinics in some countries where they operated.[11] In South Africa, the rate of family planning use declined in the thick of the pandemic and few months before the outbreak of the virus.[12] On the other hand, many women's access to maternal and child care at health facilities has been restricted,[13] while an increase in the costs of health services in some countries in SSA have been documented.[14,15] These challenging situations might have negatively affected many women who may be in urgent need of SRH care.

According to estimates, the proportion of women accessing sexual and reproductive health care in low and middle-income countries (LMICs) will drop by 10% due to the pandemic, resulting in 49 million unwanted pregnancies, with these women being more likely to have unintended pregnancies in the next 12 months.16 This suggests that many sexually active young and adult women are at a high risk of unprotected sexual intercourse, non-use of contraceptives (for limiting and birth spacing), sexually transmitted infections (STIs) and above all unwanted pregnancies which may lead to unsafe abortion which in turn may lead to maternal morbidity and mortality.

Already, Africa accounts for about two-thirds of the world's pregnancy-related deaths.[17] Many countries in this region are still working assiduously to stem the tide of maternal mortality (and child mortality) by devising ways to tackle some of the contributing factors, among which are gender equities and shortage of health professions.[17] Also, during the first wave of the

Courtesy of Margaret Fahnestock

virus in South Africa and since movement restriction in the Country, there was a 30% increase in maternal mortality.[18] Thus, a lingering pandemic situation presents may interact with existing reproductive health challenges or generate new (different from those before the pandemic) that will wreak more havoc to the reproductive health of millions of women and people in SSA.

Studies in other non-SSA countries have observed the desire to postpone pregnancy among women due to fears, worries and the socio-economic challenges triggered by the pandemic,[9,19] but the situation is still unclear in many SSA countries despite recent (but few) studies in Ethiopia,[20] Kenya and Burkina Faso[21] on the topsy-turvy situation caused by the COVID-19 in health sectors and its effect on contraceptive and other SRH areas. The pandemic in SSA may promote the uptake of unsafe abortion methods and procurement of unsafe abortion service providers by women. Considering the limited access to antenatal care at health facilities, many pregnant women may decide to deliver their babies at home or in other places in unsafe environments or patronise quack doctors and nurses, and many of those who survive the delivery process may lose out on important post-natal care. If these go on, more life-threatening medical conditions may emerge which may overburden and weaken the already weak health systems in SSA. This may threaten many African governments' efforts to achieve the health-related among other sustainable development goals (SDG).[22]

On the other hand, the COVID-19 pandemic has contributed to spousal violence, as observed in Nigeria.[23] A prolonged occurrence of this may affect women's pregnancy wantedness, the need for contraceptives as well as abortion decisions. Yet, there is a need to further understand the magnitude of spousal and gender violence and how it has shaped couples' reproductive intentions and decisions.

Again, there is a paucity of studies on the SRH issues in SSA prominent among which is the socio-behavioural and economic issues,[24] it is highly necessary to examine the reproductive decision-making pathways among adolescents, girls, women and couples during COVID-19. Also, there is already a clarion call for intervention in the SRH domain in SSA[24,25] while a recent study has outlined emerging areas of focus.[24] This suggests that there is consensus among scholars in SSA concerning the urgent need to generate empirical evidence on SRH in SSA to forestall a possible future (large-scale) outbreak of SRH problems in the region. This will go a long way to ensure that the achievements in SRH for many years is not completely reversed[26] because the achievements are being reversed by the pandemic.[27] In light of this, more studies in reproductive health (in SSA) should prioritise the following areas that will shed more light on the reproductive decision-making of individuals (especially women) during COVID-19:

- Availability, accessibility, cost and affordability of sexual and reproductive health commodities and services
- Sexual, pregnancy and fertility desire and decision
- Demand for contraception, unmet need and improvised contraceptive methods
- Sources of information of contraceptive and abortion services among women and their effects on their contraceptive and abortion decision
- Dynamics in the abortion decision-making
- Prevalence of induced abortion and unsafe abortion
- Demand for post-abortion care needs and access
- Barriers to health facilities and their effects on access to pre-natal, care during delivery and post-natal care
- Prevalence of spousal violence against women and its influence on pregnancy desire, contraceptive uptake and abortion decision-making.

Conclusion

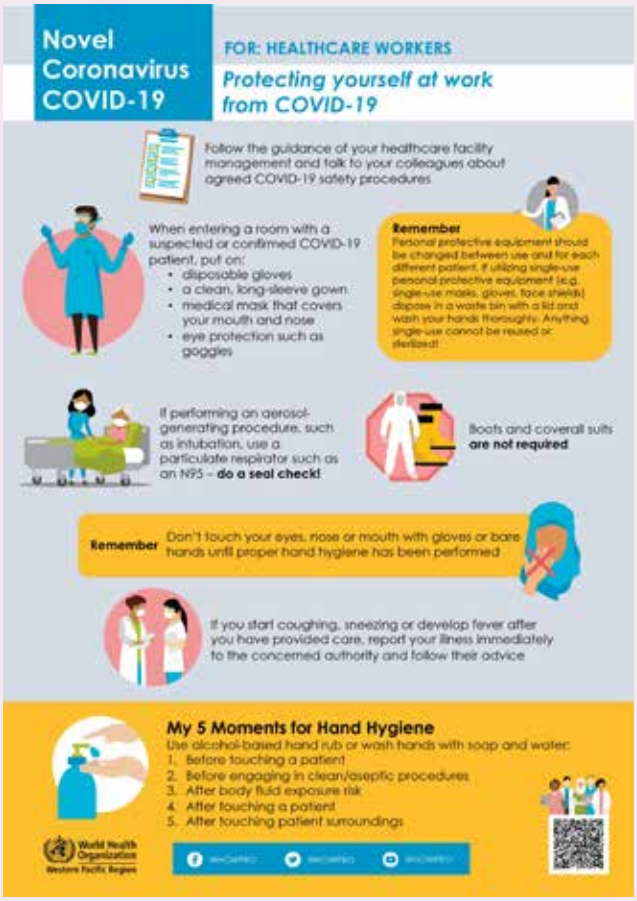
Amid the ongoing COVID-19 pandemic, there is a need to explore the changing nature of sexual and reproductive health decision-making among individuals, especially in SSA where a high population of vulnerable and poor people reside. This period of pandemics offers the opportunity to explore the social and behavioural dynamics and complexities that shape reproductive decision-making. This will be needed to forecast and strategically plan for the possible short- and long-term reproductive health problems in SSA countries.

Acknowledgements

The research reported in this publication was supported by the Fogarty International Center and National Institute of Mental Health, of the National Institutes of Health under Award Number D43 TW010543. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health.

References

1. Charles C, Amoah E, Kourouma K, Bahamondes L, Cecatti J, Osman N, et al. The SARS-CoV-2 pandemic scenario in Africa-What should be done to address pregnant women needs? A commentary. Authorea Prepr. 2020;
2. WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020 [Internet]. [cited 2021 Jul 29]. Available from: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020
3. WHO Coronavirus Disease (COVID-19) Dashboard | WHO Coronavirus Disease (COVID-19) Dashboard [Internet]. [cited 2020 Oct 30]. Available from: https://covid19.who.int/
4. Adepoju P. Nigeria responds to COVID-19; first case detected in sub-Saharan Africa. Nat Med. 2020;NA-NA.
5. Lancet T. COVID-19: learning from experience. Lancet Lond Engl. 2020;395(10229):1011.
6. Andersen KG, Rambaut A, Lipkin WI, Holmes EC, Garry RF. The proximal origin of SARS-CoV-2. Nat Med. 2020;26(4):450–2.
7. Cousins S. COVID-19 has "devastating" effect on women and girls. The Lancet. 2020;396(10247):301–2.
8. Bolarinwa OA, Ahinkorah BO, Seidu A-A, Ameyaw EK, Saeed BQ, Hagan JE, et al. Mapping Evidence of Impacts of COVID-19 Outbreak on Sexual and Reproductive Health: A Scoping Review. In: Healthcare. Multidisciplinary Digital Publishing Institute; 2021. p. 436.
9. Li G, Tang D, Song B, Wang C, Qunshan S, Xu C, et al. Impact of the COVID-19 Pandemic on Partner Relationships and Sexual and Reproductive Health: Cross-Sectional, Online Survey Study. J Med Internet Res. 2020 Aug 6;22(8):e20961.
10. Naurin E, Markstedt E, Stolle D, Enström D, Wallin A, Andreasson I, et al. Pregnant under the pressure of a pandemic: a large-scale longitudinal survey before and during the COVID-19 outbreak. Eur J Public Health. 2021;31(1):7–13.
11. Emma S. Pandemic puts reproductive health care out of reach for millions, new data shows [Internet]. Pandemic puts reproductive health care out of reach for millions, new data shows. 2020 [cited 2021 May 25]. Available from: https://www.devex.com/news/sponsored/pandemic-puts-reproductive-health-care-out-of-reach-for-millions-new-data-shows-97954
12. Adelekan T, Mihretu B, Mapanga W, Nqeketo S, Chauke L, Dwane Z, et al. Early effects of the COVID-19 pandemic on family planning utilisation and termination of pregnancy services in Gauteng, South Africa: March–April 2020. Wits J Clin Med. 2020;2(2):145–52.
13. Mongbo Y, Sombié I, Dao B, Johnson EA, Ouédraogo L, Tall F, et al. Maintaining continuity of essential reproductive, maternal, neonatal, child and adolescent health services during the COVID-19 pandemic in Francophone West Africa. Afr J Reprod Health. 2021;25(2):76–85.
14. Adesunkanmi AO, Ubom AE, Olasehinde O, Fasubaa OB, Ijarotimi OA, Adesunkanmi ARK, et al. Impact of COVID-19 on the cost of surgical and obstetric care: experience from a Nigerian teaching hospital and a review of the Nigerian situation. Pan Afr Med J. 2020;37(Suppl 1):15.
15. Banke-Thomas A, Makwe CC, Balogun M, Afolabi BB, Alex-Nwangwu TA, Ameh CA. Utilization cost of maternity services for childbirth among pregnant women with coronavirus disease 2019 in Nigeria's epicenter. Int J Gynaecol Obstet Off Organ Int Fed Gynaecol Obstet. 2021 Feb;152(2):242–8.
16. Riley T, Sully E, Ahmed Z, Biddlecom A. Estimates of the potential impact of the COVID-19 pandemic on sexual and reproductive health in low-and middle-income countries. Int Perspect Sex Reprod Health. 2020;46:46.
17. Yaya S, Anjorin SS, Adedini SA. Disparities in pregnancy-related deaths: spatial and Bayesian network analyses of maternal mortality ratio in 54 African countries. BMJ Glob Health. 2021;6(2):e004233.
18. Soma-Pillay P, Moodley J, Pattinson R, Fawcus S, Gebhardt S, Niit R. The effect of the first wave of Covid-19 on use of maternal and reproductive health services and maternal deaths in South Africa. In: Obstetrics and Gynaecology Forum. In House Publications; 2020. p. 38–46.
19. Lindberg LD, VandeVusse A, Mueller J, Kirstein M. Early impacts of the COVID-19 pandemic: Findings from the 2020 Guttmacher Survey of Reproductive Health Experiences. N Y NY Guttmacher Inst. 2020;10(2020.31482).
20. Tolu: Effect of Covid-19 pandemic on safe abortion... - Google Scholar [Internet]. [cited 2021 Jul 29]. Available from: https://scholar.google.com/scholar_lookup?author=L+Belay&author=T+Hurisa&author=F+Abbas&title=Effect+of+Covid-19+pandemic+on+safe+abortion+and+contraceptive+services+and+mitigation+measures%3A+a+case+study+from+a+tertiary+facility+in+Ethiopia&publication_year=2020&journal=Ethiop+J+Reprod+Heal&volume=12
21. Karp C, Wood SN, Guiella G, Gichangi P, Bell SO, Anglewicz P, et al. Contraceptive dynamics during COVID-19 in sub-Saharan Africa: longitudinal evidence from Burkina Faso and Kenya. BMJ Sex Reprod Health. 2021;
22. Govender D, Naidoo S, Taylor M. Don't Let Sexual and Reproductive Health become Collateral Damage in the Face of the COVID-19 Pandemic: A Public Health Perspective. Afr J Reprod Health. 2020;24(2):56–63.
23. Oguntayo R, O. Popoola A, S. Opayemi R, R. Faworaja O, O. Olaseni A. SPOUSAL VIOLENCE IN THE ERA OF COVID-19 LOCKDOWN: THE IMPLICATION OF SOCIOECONOMIC DISTRESS AND CONTEXTUAL FACTORS. Ilorin J Econ Policy [Internet]. 2020;7(3):51–60. Available from: https://EconPapers.repec.org/RePEc:ris:ilojep:0036
24. Ahonsi B. A Research Agenda on the Sexual and Reproductive Health Dimensions of the COVID-19 Pandemic in Africa. Afr J Reprod Health. 2020 Mar;24(1):22–5.
25. Addae EA. COVID-19 pandemic and adolescent health and well-being in sub-Saharan Africa: Who cares? Int J Health Plann Manage. 2020;
26. Oyediran KA, Makinde OA, Adelakin O. The role of telemedicine in addressing access to sexual and reproductive health services in sub-Saharan Africa during the COVID-19 pandemic. Afr J Reprod Health. 2020;24(2):49–55.
27. Eghtessadi R, Mukandavire Z, Mutenherwa F, Cuadros D, Musuka G. Safeguarding gains in the sexual and reproductive health and AIDS response amidst COVID-19: The role of African civil society. Int J Infect Dis. 2020;100:286–91.



WHO COVID-19 infographics for health workers and administrators

See more at www.who.int/teams/risk-communication/health-workers-and-administrators

A structured approach to breast imaging in Uganda

Zeridah Muyinda and colleagues describe the relevance, status and shortcomings of breast imaging in Uganda

Radiology and imaging in Uganda has been growing steadily. The first x-ray unit was constructed at Mulago Hospital from 1950 to 1952; 10 years later a well-equipped Department of Radiology was opened in New Mulago.[1] Breast imaging has advanced over the years, but Uganda still lags behind as it has no screening programme, unlike many developed countries.

Unfortunately, there is an increase in breast disease including the most widely feared: breast cancer. The incidence of breast cancer in Uganda tripled from 11 per 100,000 in 1962 to 31 per 100,000 in 2006.[2] Breast cancer is now the third commonest cancer in women in Uganda.[3,4] This is also true for Asia, where breast cancer is one of the most frequent cancers in women.[5]

In 2003, the Uganda breast cancer working group comprising of surgeons, radiologists, radio-oncologists and radiotherapists compiled breast cancer guidelines. Updated in 2008, their aim was to improve the quality of life for breast cancer patients and their families, harmonise treatment and referral of patients and develop a reference document for health workers managing breast cancer. They also aimed at improving the awareness of breast cancer among health workers and the community and have a National Cancer Society.[6]

Training

There have been efforts to improve the expertise of the radiology workforce of radiologists, radiographers and sonographers through education and training. The discipline of Radiology and Imaging has several professional bodies through which it trains and disseminates updated radiology information. From 2013-2018, 3 conferences were held under the theme; breast imaging. Lectures and hands on sessions were given by international visiting professors to improve the skills of Ugandans in Breast Imaging. In November 2016, during the annual scientific conference the Breast Imaging and Reporting System BIRADS was launched. Since then a lot of training on the BIRADS system has been undertaken. Many articles on breast imaging have been published. This has provided an opportunity to prepare well placed interventions to improve breast imaging in Uganda.

Authors: Zeridah Muyinda is a Consultant Radiologist at Mulago Hospital, Kampala Uganda, Elsie Kiguli-Malwadde is a former Associate Professor of Radiology at Makerere University, Kampala, Uganda and John R Scheel is a physician at the Seattle Cancer Care Alliance and an Assistant Professor of Radiology University of Washington, Seattle, USA.

Research

The authors searched for papers on breast imaging in Uganda published between 2014 and 2020. Further: literature on breast imaging and related data were reviewed; the curricula for Master of Medicine (M.Med) Radiology 2010 to 2019 of the College of Health Sciences Makerere University were retrieved; the course content for Clinical Radiology and Imaging of Women's health was reviewed; course objectives related to breast imaging were extracted; M.Med Radiology theses from Makerere University between 2010 and 2020 were also retrieved from the library of the Radiology Department; research theses on breast imaging were extracted, listed and reviewed; registers and records of the annual scientific conferences of Uganda Society for Advancement of Radiology and Imaging USOFARI, Association of Radiologists of Uganda ARU, Uganda Society for sonography UGASON; information of the preconference workshops, conference themes, sub themes, conference objectives, scientific talks and hands on session were looked at.

The search revealed that there were 13 papers published on breast imaging from 2014 to 2020. The authors spanned a wide range of affiliations, with their collaboration important for the advancement of breast imaging in Uganda.

The M.Med Radiology Curriculum 2010–2020 review revealed that breast imaging was taught under the course on Clinical Radiology and Imaging of Women's Health done by second-year radiology residents in their second semester. The extracts on breast imaging revealed the course objectives included discussion of breast imaging examinations and description of breast imaging pathology using BIRADS. The course outline requirements for the radiology resident included performing 40 mammograms, 20 breast ultrasound scans, 2 Galactograms, and radiological interpretation of breast lesions using BIRADS. Among the publications were three theses of M.Med Radiology on research related to breast imaging.

Three out of six annual scientific conferences for Radiology and Imaging professional societies/associations were related to breast imaging. The Association of Radiologists (ARU), Uganda Society for Advancement of Radiology and imaging (USOFARI) and Uganda Association of Sonography had conferences on Breast Imaging in 2013, 2016 and 2018 respectively.

Breast medical imaging equipment

Breast imaging in Uganda is currently performed with ultrasound and mammography equipment. There is only one private imaging centre that does MRI mammography examination. An audit done on registered radiology equipment resources in 2020 showed that Uganda has 20 registered mammography machines, of which 75% are in the central region and 60% are in private health units. The authors compared the distribution of mammography equipment per million population and found the distribution to be 0.5 for Uganda, 0.8 for Tanzania, 5.0 for South Africa and 0.8 for Zimbabwe. The National Medical Equipment policy dictates that ultrasound and general radiography equipment should be available from the level of Health Centre IV. This is a health unit which serves approximately 100,000 people.[8] Ultrasound services are fairly accessible both in public and private health units as well urban and rural areas. Ultrasound is the dominant imaging service for breast health care. Magnetic resonance imaging is rarely used for breast health diagnostics in Uganda.

This reflects the situation of low access of mammography services in the country. Most sub-Saharan countries have an overwhelming shortage of mammography services. Though mammography screening is known to reduce mortality of breast cancer, Uganda does not have it. In its absence, alternative screening tests should be sought from the available resources, in line with evidence-based breast health guidelines.

Currently there is a change in practice, using ultrasound as a primary screening tool in women with breast dense tissue.[9] This is also true for Uganda, where Okello et al found supplementary breast ultrasound scans detected 27% more malignant mass lesions which otherwise had been missed by mammography, among these symptomatic women with mammographically dense breasts.[10] There is a mounting evidence that ultrasound is an important tool for diagnosis and screening breast disease.

In a low-income country like Uganda where ultrasound is widely available and relatively inexpensive, it has been recommended for use as a screening tool.[11] It is time to plan for innovations in ultrasound technology and procurement of ultrasound equipment with software like computer-aided detection (CAD), elastography and the use of contrast agents to improve on diagnostic accuracy in breast disease. There should be other readily available and acceptable options in the absence mammography and ultrasound screening. In South Africa, clinical breast examination is used for index screening.[14] This is what is also recommended for Uganda.[6]

Human resources for breast imaging

Breast imaging practitioners include radiologists, radiographers and sonographers. In 2012, radiologists numbered 38, radiographers 150 and sonographers 300; 78% percent of the radiologists and 50% of the radiographers were based in the capital, Kampala, while 76% of the sonographers were in rural areas.[12]

Source: Adoscam CC BYSA 4.0

Mammography machine in Benin

This study on training for rural radiology and imaging in Sub-Saharan Africa highlights a mismatch between services and population and revealed disparities of rural radiology which need to be addressed.

Mammograms are exclusively interpreted by radiologists while breast ultrasounds are interpreted by radiologists, radiographers and sonographers. Both services are predominantly diagnostic.

For breast imaging to have a meaningful impact, the breast imaging practitioners must have knowledge, skills and competences and the number must be adequate. This was further highlighted by an article that reported a radiologist-to-patient ratio of 1:300,000 and sonographer-to-patient ratio of 1:150,000.[11] Another pilot study at Nawanyago HCIII, found that breast ultrasound done by certified sonographers reduced the number of referrals by 75% and was appropriate resource in downstaging breast cancer.[12]

Scheel et al in 2020 reported that in order to improve the diagnostic capacity for early detection of breast cancer, task shifting of specialists to non-specialist for basic interpretation (abnormal vs normal) would go a long way to improving breast imaging coverage in the country.[13]

Radiology professional bodies have been effective platforms to train, upskill and disseminate updated radiology information through annual scientific conferences. The adoption of BIRADS by breast-imaging practitioners in Uganda is meant to improve breast-imaging reporting. BIRADS report forms and templates have been introduced in a number of health facilities and are widely used.

Although there is an increase in the numbers of medical imaging practitioners there is still room for training and ensuring equitable coverage of the urban and rural health facilities. Where there is inequitable human work force coverage, especially for specialised expertise, teleradiology could be an option.

BI-RADS ® and Management

- **BI-RADS 0 (BR0):** Incomplete. Needs additional imaging (e.g. mammogram).
- **BI-RADS 1 (BR1):** Negative. This is a normal examination. Clinical follow-up.
- **BI-RADS 2 (BR2):** Benign finding (e.g. cyst, normal lymph node). Clinical follow-up.
- **BI-RADS 3 (BR3):** Probably benign finding (e.g. fibroadenoma). Short-interval follow-up.
- **BI-RADS 4 (BR4):** Suspicious finding. Needle aspiration/biopsy.
- **BI-RADS 5 (BR5):** Highly suspicious finding. Needle aspiration/biopsy.
- **BI-RADS 6 (BR6):** Known malignancy. Surgical excision when appropriate.

Structured approach to breast imaging

A structured approach to breast imaging itemises the components which contribute to it. These include medical equipment, human resource, breast imaging service delivery, health information on breast imaging, finances, governance and leadership. This approach provides in-depth knowledge of imaging and how each component affects it.

The Uganda Breast Cancer Working Group guidelines recommend diagnostic mammography for symptomatic patients over 25 years. The BISM system was used for reporting mammography images. Normal mammogram was scored 1, benign lesion 2, Indeterminate 3, suspicious 4 and malignant 5.6 For all those years, breast images were interpreted based on the BISM system.[6] Later there was adoption and adaption of BIRADS for interpretation of mammography and breast ultrasound by the breast imaging practitioners of Uganda after its launch during USOFARI 2016 annual scientific conference. Since then, the use BIRADS report forms or template has become popular in health facilities. Several published studies have tested BIRADS for interpretation. In 2019 a non-published study done on 'Inter-observer agreement in BIRADS classification of breast masses among ultrasonography performers at Mulago National Referral Hospital' revealed that the radiologists and radiographers had fair to good agreement for terminology descriptors and final categorisation. In 2020, another thesis (unpublished) entitled 'Utilization of BIRADS Ultrasound Lexicon Among Ultrasound Practitioners and Clinicians', showed more than 50% utilisation of BIRADS US lexicon in Mulago hospital. It also revealed that the concordance of BIRADS descriptors with BIRADS classification was poor with a moderate agreement, while the concordance of clinicians' management with BIRADS recommendation was substantial with a moderate agreement. The two studies show that the BIRADS is fairly well used for interpretation. This was crucial for the breast imaging practitioners to assess their consistency and reliability in classifying breast masses on ultrasound. There is still a need to train the breast imaging practitioners on the terminology descriptors and final categorisation. Interdisciplinary CME would also increase the concordance of clinician's management with BIRADS recommendation. Standardising of the report language is a right step towards quality breast imaging. Several authors have reported the role of screening breast ultrasound in mammographically dense breasts.[9]

Governance, leadership and finances

There is little emphasis on governance and leadership or finances for breast imaging in Uganda. However, a well-rounded group with the right stakeholders who have shared objectives can greatly improve performance. An example is the Uganda Cancer Working Group.[6]

Other than the performing breast imaging, medical imaging practitioners need to have knowledge on the finances. This information helps practitioners plan, acquire and use resources effectively and make smart decisions on which equipment to procure, the amount of consumables required and human resource to train.

Conclusion

Breast imaging in Uganda is making strides. A structured approach to breast imaging identifies its different components. This paper has shown the relevance, status and challenges of breast imaging in relation to radiology equipment, human resources, service delivery, health information, finances, governance and leadership. The onus is on the stakeholders to address each component with the appropriate interventions.

References

1. MG Kawooya Association of Radiologists of Uganda. The Radiology Link 1ssue 4 2014
2. Parkin DM, Nambooze S, Wabwire-Mangen F, Wabinga HR. Changing cancer incidence in Kampala, Uganda, 1991–2006. International journal of cancer. 2010;126(5):1187-95.)
3. https//www.ncbi.nlm.gov
4. Galukande M, Mirembe F, Wabinga H. Patient delay in accessing breast cancer care in a sub Saharan African country: Uganda. Br J Med Med Res. 2014, 4: 2599-2610. doi: 10.9734/BJMMR/2014/7293#sthash.PglzE4b6.dpuf
5. Bhurgri Y, Bhurgri A, Nishter S, et al. Pakistan - country pro¬file of cancer and cancer control 1995-2004. J Pak Med Assoc. 2006;56(3):124–130. [PubMed] [Google Scholar
6. A Gakwaya 1, M Galukande, A Luwaga, et al Uganda Cancer Working GroupBreast cancer guidelines for Uganda (2nd Edition 2008)Afr Health Sci 2008 Jun;8(2):126-32.
7. Elsie Kiguli-Malwadde et al. An audit of registered radiology equipment resources in Uganda. Pan African Medical Journal. 2020;37(295). 10.11604/pamj.2020.37.295.22046
8. Ministry of Health Republic of Uganda. Health Sector Development Plan 2015/16 - 2019/20. Accessed September 16, 2019.
9. Jocelyn A Rapelyea, Breast Ultrasound Past, present and future Dec 20th 2017 DOI:10.5772/intechopen.6970.
10. Okello et al. Breast cancer detection using sonography in women with mammographically dense breasts BMC Medical Imaging (2014) 14:41 DOI 10.1186/s12880-014-0041-0.
11. M Galukande Rethinking breast cancer screening strategies in low resource. Afr Health Sci 201 Mar, 10(1) 89-92 PMID 20811531
12. Matovu A et al. Pilot study of a resource-appropriate strategy for downstaging breast cancer in rural Uganda. J Glob Radiol. 2016;2(1): Article 1
13. John R Scheel et al Breast Cancer Early Detection and Diagnostic Capacity in Uganda DOI: 10.1002/cncr.32890, Received: January 24, 2020; Revised: February 24, 2020; Accepted: February 25, 2020, Published online April 29, 2020 in Wiley Online Library
14. Schoub P. Breast cancer imaging in South Africa in 2018. S Afr J Rad. 2018;22(2), a1666. https://doi.org/10.4102/sajr. v22i2.1666.

42 Technology partnership helps inform WHO review for diagnosing childhood TB

The WHO has updated its guidance to recommend the use of stool as the primary sample for initial diagnostic TB tests in children up to 10 years old

42 Technology (42T), FIND, the global alliance for diagnostics, and Rutgers University (Rutgers) have worked together to develop an innovative stool sample processing kit that has played a central role in informing the World Health Organization's (WHO) recent policy update to improve the diagnosis of tuberculosis (TB) in children.[1]

In 2020, 1.1 million of those falling ill with TB were children, out of a total of around 10 million people worldwide. Although TB is treatable and preventable, it can be difficult to diagnose and treat in children.[2]

The sample processing kit (SPK) was developed to determine whether stool samples and an automated PCR test could be used as a viable alternative to smear microscopy and culture techniques when diagnosing children. Three different sample processing methods have been trialled by multiple research institutions over the last three years, which has led to an analysis of the pooled data and the WHO's recommendation that stool should now be used as the primary sample for TB diagnosis in children up to 10 years old.[3]

'42T, Rutgers and FIND have successfully partnered to develop a simple, low-cost sample preparation kit, based on a design and process methodology first proposed by David Alland, director of the Public Health Research Institute at Rutgers University. Large-scale trials have shown the kit to be both effective and easy to use in a variety of settings. And we're pleased that it has helped to inform the WHO in making its groundbreaking policy update on diagnosing childhood TB,' said Sarah Knight, head of healthcare technology at 42 Technology.

'Diagnosing paediatric TB is a major challenge requiring fresh thinking, because traditional samples for TB testing just aren't accessible from young children. Stool is so easy to collect from almost anyone – so being able to use that to test for TB is a major step forward. FIND was pleased to work with 42T and other partners to help generate crucial data for the WHO review, and we warmly welcome the update to the guidelines,' said Morten Ruhwald, head of TB at FIND.

TB is usually diagnosed using respiratory samples such as sputum, a nasal wash or sampling of stomach contents. But these are unpleasant, invasive procedures and where it is often difficult to get samples from children at all. Stool is the ideal non-invasive sample but requires extensive pre-processing before it can be analysed using highly sensitive PCR tests.

The easy-to-use SPK has been designed to effectively process stool samples without the need for any specialist laboratory equipment or technical skills. It works in conjunction with the Cepheid Xpert MTB/RIF Ultra assay, which was co-developed by David Alland's team at Rutgers, FIND and others, and has been repeatedly endorsed by the WHO for offering improved diagnosis for detecting TB in adults and children.[4]

Courtesy of TB Alliance

42T's design and development inputs for the SPK project included: working closely with Rutgers to help test out key device functions, to design prototype moulded devices, and to transfer the final designs into volume manufacture to produce initial quantities for use in clinical trials. This work was also supported by a grant from the US National Institute of Allergy and Infectious Diseases.

42T and FIND have worked together on multiple long-term joint development projects over the last 10 years. 42T was specifically brought in for its creative approach in helping to solve complex and interrelated design problems that often occur when developing new diagnostics in readiness for private and public sector launch. The work has covered the development of diagnostics for TB, malaria and other diseases of the developing world.

References

1. Rapid communication on updated guidance on the management of tuberculosis in children and adolescents https://www.who.int/news/item/26-08-2021-who-issues-rapid-communication-on-updated-guidance-for-the-management-of-tb-in-children-and-adolescents
2. WHO tuberculosis factsheet (updated 14 October 2021) https://www.who.int/news-room/fact-sheets/detail/tuberculosis
3. On World Children's Day, FIND welcomes improved access to childhood diagnosis of tuberculosis https://www.finddx.org/newsroom/pr-20nov21/
4. Xpert MTB/RIF - rapid TB test - WHO publishes policy and guidance for implementers See: https://www.who.int/news/item/18-05-2011-xpert-mtb-rif---rapid-tb-test---who-publishes-policy-and-guidance-for-implementers

General

Regular use of proton-pump inhibitors and increased risk of stroke

Proton-pump inhibitors (PPIs) are one of the most frequently prescribed drugs used for the treatment of gastric acid-related disorders. There is preliminary evidence linking long-term PPIs use to increased risk of incident stroke. Researchers recently contributed more evidence by evaluating this association and determining which population groups are at a higher risk. A prospective analysis of the UK Biobank cohort (492,479 participants) and a meta-analysis of nine (9) randomized controlled trials (RCTs) were employed to investigate this association. The study found that regular PPI users had a 16% higher risk of stroke than non-users. The absolute risk of stroke was higher in individuals with higher baseline stroke risk score. The researchers recommended caution while prescribing PPIs and assessment of stroke risk for individualised PPIs use.

Yang, M., He, Q., Gao, F. et al. Regular use of proton-pump inhibitors and risk of stroke: a population-based cohort study and meta-analysis of randomized-controlled trials. BMC Med 19, 316 (2021). https://doi.org/10.1186/s12916-021-02180-5

Causal role of high body mass index in multiple chronic diseases: a systematic review and meta-analysis of Mendelian randomisation studies

Obesity is a global public health threat that has been associated with a multitude of chronic diseases in observational studies. Researchers summarized the evidence from Mendelian randomization (MR) studies on the association between Body Mass Index (BMI) and chronic diseases. A meta-analysis of published MR studies (from PubMed and Embase) and de novo analyses of the FinnGen consortium (a public-private partnership project combining genotype data from Finnish biobanks and digital health record data from Finnish health registries) were conducted. Genetically predicted higher BMI was associated with increased risk of type 2 diabetes mellitus, 14 circulatory disease outcomes, asthma, chronic obstructive pulmonary disease, 5 digestive system diseases, 3 musculoskeletal diseases, multiple sclerosis and several cancers. The researchers added substantial evidence in favor of a causal role of obesity in various chronic diseases and recommended continued efforts to reduce obesity prevalence.

Larsson, S.C., Burgess, S. Causal role of high body mass index in multiple chronic diseases: a systematic review and meta-analysis of Mendelian randomization studies. BMC Med 19, 320 (2021). https://doi.org/10.1186/s12916-021-02188-x

The impact of high-risk medications on mortality risk among older adults with polypharmacy

Polypharmacy is common among older adults as the burden of ageing rises globally. It's however not understood if mortality risk is related to specific medications. Researchers included 1356 older adults with polypharmacy (5+ long-term medications/day) from a longitudinal study of ageing. These were grouped according to use of high-risk medication categories, and all-cause and cause-specific mortality were assessed. Of five high-risk medication patterns, the mental health drugs cluster showed increased mortality over 6 years, while others showed no differences in mortality. Mental health drugs especially antidepressants, opioids, and muscle relaxants carried a higher risk of all-cause mortality and hence older patients on such psychotropic medications need closer attention. The researchers also recommended inclusion of opioids on structured medication reviews.

Huang Y-T, Steptoe A, et al. The impact of high-risk medications on mortality risk among older adults with polypharmacy: evidence from the English Longitudinal Study of Ageing. BMC Medicine. 2021 Dec 16. https://doi.org/10.1186/s12916-021-02192-1

Multicomponent Strategy with Decentralized Molecular Testing for Tuberculosis

In the global fight to end Tuberculosis (TB), effective strategies to aid its prompt diagnosis and treatment are paramount. In this study, researchers in Uganda, through a cluster-randomized trial involving 20 health centers from different regions in the country, compared a multi-component diagnostic strategy (on-site molecular testing for TB, guided restructuring of clinic workflows, and monthly feedback of quality metrics) to routine care (on-site sputum-smear microscopy and referral-based molecular testing). The primary endpoint was the number of patients treated for confirmed TB within 14 days upon presentation. The intervention strategy led to significantly more patients (342) being treated for confirmed TB within 14 days than the control group (220). Other indicators measured also favoured the intervention strategy. It's evident that such multi-component strategies could yield more wins in eradicating TB.

Cattamanchi A, Reza TF et al. Multicomponent Strategy with Decentralized Molecular Testing for Tuberculosis. N Engl J Med. 2021 Dec 23;385(26):2441-2450. doi: 10.1056/NEJMoa2105470. PMID: 34936740.

The role of oliguria in the diagnosis and staging of acute kidney injury among patients with critical illness.

Acute kidney injury (AKI) definition includes serum creatinine (sCr) alterations and urinary output (UO). The importance of oliguria-based criteria is however challenged. Researchers through a cohort study of 15,620 adult patients admitted at an Intensive care unit determined the contribution of oliguria to AKI diagnosis, severity assessment, and outcomes. Data on daily sCr levels, hourly UO measurements, and long-term mortality was collected. Severity of AKI using sCr and UO was determined separately, and agreement assessed. sCr and UO had a poor agreement on AKI diagnosis and staging. UO criteria enabled identification of AKI in 36.0% patients compared to sCr criteria alone, and such patients had a higher 90-day mortality compared to patients without AKI. Oliguria hence has major diagnostic and prognostic value and should be accounted for by clinicians.

Bianchi NA, Stavart LL et al. Association of Oliguria With Acute Kidney Injury Diagnosis, Severity Assessment, and Mortality Among Patients With Critical Illness. JAMA Netw Open. 2021 Nov 1;4(11):e2133094. doi: 10.1001/jamanetworkopen.2021.33094. PMID: 34735011; PMCID: PMC8569487.

Association between Implementation of the Severe Sepsis and Septic Shock Early Management Bundle Performance Measure and Outcomes in Patients with Suspected Sepsis in US Hospitals

Sepsis remains a major cause of mortality globally with the burden being greatest in Low and Middle-income countries. Different approaches have been tried but their effectiveness

remains unclear. Researchers evaluated a Severe Sepsis and Septic Shock Early Management Bundle (SEP-1) implemented in US hospitals on sepsis outcomes. A retrospective cohort study was conducted among adults admitted in 114 hospitals with suspected sepsis within 24 hours of hospital arrival. Study endpoints included lactate testing rates, broad-spectrum antibiotic use rates, and short-term mortality rates. The researchers found implementation of SEP-1 increased lactate testing rates, however, didn't affect antibiotic use rates, or short-term mortality. They further concluded that other alternative approaches to reduce sepsis mortality maybe needed.

Rhee C, Yu T et al. Association Between Implementation of the Severe Sepsis and Septic Shock Early Management Bundle Performance Measure and Outcomes in Patients With Suspected Sepsis in US Hospitals. JAMA Netw Open. 2021 Dec 1;4(12):e2138596. doi: 10.1001/jamanetworkopen.2021.38596. PMID: 34928358; PMCID: PMC8689388.

Current evidence on Tuberculosis screening among ambulatory people living with HIV

For tuberculosis (TB) screening in people living with HIV (PLWHIV), the WHO recommends a four-symptom screen (W4SS) followed by a molecular test, if W4SS is positive. A team of experts assessed the diagnostic accuracy of alternative screening tests for TB in this population. A systematic review (25 studies) and individual-participant data (22 studies) meta-analysis were conducted, and found that among PLWHIV on anti-retroviral therapy (ART), a parallel strategy of W4SS with any chest x-ray abnormality offered at the same time was the best to improve sensitivity. For outpatients not on ART, C-reactive protein (≥10 mg/L) as a stand-alone or sequential strategy (W4SS then C-reactive protein ≥5mg/L) was best to improve specificity. The current WHO-recommended algorithm wasn't sensitive enough to identify all TB cases.

Ashar Dhana, Yohhei Hamada et al. Tuberculosis screening among ambulatory people living with HIV: a systematic review and individual participant data meta-analysis; Lancet Infect Dis 2021 Published Online November 17, 2021 https://doi.org/10.1016/ S1473-3099(21)00387-X

Role of thoracic ultrasonography in pleurodesis pathways for malignant pleural effusions

In this era of Medical technology innovations, ultrasonography is showing up in new medical corridors where its utility needs validation. A team of researchers evaluated whether the use of thoracic ultrasonography in pleurodesis pathways shortened hospital stay among patients with malignant pleural effusions undergoing pleurodesis. A randomized trial involving 313 patients was conducted in 11 respiratory centers in Europe, with 159 participants assigned to ultrasonography-guided care, and 154 participants to standard care. Outcome measures included: length of hospital stay, pleurodesis failure at three months, all-cause mortality, and cost-effectiveness among others. Findings favored thoracic ultrasonography with significantly shorter length of hospital stay in the intervention arm, better cost-effectiveness compared to the standard, with no differences in pleurodesis failure at three months. The researchers hence recommended consideration of thoracic ultrasonography in patients undergoing pleurodesis.

Psallidas I, Hassan M, et al. Role of thoracic ultrasonography in pleurodesis pathways for malignant pleural effusions (SIMPLE): an open-label, randomised controlled trial. Lancet Respir Med. 2021 Oct 8:S2213-2600(21)00353-2. doi: 10.1016/S2213-2600(21)00353-2. Epub ahead of print. PMID: 34634246.

Pharmacotherapy for adults with overweight and obesity: a systematic review and meta-analysis

Obesity has global public health importance and despite lifestyle modifications being the mainstay of management, pharmacotherapy provides options for when these fail. Researchers conducted a systematic review and meta-analyses of randomized controlled trials and summarized the benefits and harms of weight-lowering drugs. A total of 143 trials involving 49810 participants were involved in the analysis. The study found phentermine-topiramate as the most effective in lowering weight, followed by GLP-1 receptor agonists. Naltrexone-bupropion, phentermine-topiramate, GLP-1 receptor agonists and orlistat were associated with adverse events leading to drug discontinuation. On further analysis, semaglutide, a GLP-1 receptor agonist was found most beneficial. The researchers concluded that phentermine-topiramate and GLP-1 receptor agonists, especially semaglutide were the best drugs for weight loss.

Shi Q, Wang Y, et al. Pharmacotherapy for adults with overweight and obesity: a systematic review and network meta-analysis of randomised controlled trials. Lancet. 2022 Jan 15;399(10321):259-269. doi: 10.1016/S0140-6736(21)01640-8. Epub 2021 Dec 8. PMID: 34895470.

MCH

A better understanding of the association between maternal perception of foetal movements and late stillbirth

Reduced fetal movements are frequently reported by mothers prior to fetal death, but there is a poor understanding about how to manage this symptom in clinical practice. Researchers, through a meta-analysis of case-control studies of late stillbirth, sought to determine which women had the greatest odds of still birth in relation to maternal report of fetal movements in late pregnancy. The researchers found that: increased strength of fetal movements, fetal hiccups and regular episodes of vigorous movement were associated with decreased odds of late stillbirth, whereas decreased frequency, and a single episode of unusually vigorous movement were associated with increased odds of late stillbirth. These findings expound on our knowledge on the concept of fetal movements and still birth, which was not well understood.

Thompson, J.M.D., Wilson, J. et al. A better understanding of the association between maternal perception of foetal movements and late stillbirth—findings from an individual participant data meta-analysis. BMC Med 19, 267 (2021). https://doi.org/10.1186/s12916-021-02140-z

Erythromycin versus azithromycin for treatment of preterm premature rupture of membranes.

Preterm premature rupture of membranes (PPROM) complicates approximately up to 3% of pregnancies and leads to one third of preterm births. Antibiotics are used to prolong pregnancy and treat or prevent chorioamnionitis. It is not clear which one of erythromycin and azithromycin is superior. Researchers conducted a systematic review and meta-analysis of 5 trials with 1289 women comparing the duration of latency and rate of clinical chorioamnionitis in women with PPROM treated with erythromycin or azithromycin. The study found no difference in duration of latency between the two groups (6.6-6.7 days), but found a lower clinical

chorioamnionitis prevalence and rate in women treated with azithromycin. The researchers concluded that azithromycin had a similar latency period as erythromycin but lower rate of clinical chorioamnionitis.

Seaman RD, Kopkin RH, Turrentine MA. Erythromycin versus azithromycin for treatment of preterm prelabor rupture of membranes: A systematic review and meta-analysis. Am J Obstet Gynecol. 2021 Dec 29:S0002-9378(21)02957-4. doi: 10.1016/j.ajog.2021.12.262. Epub ahead of print. PMID: 34973176.

Dolutegravir as first- or second-line treatment for HIV-1 infection in children

Over 1.8 million children and adolescents, globally live with HIV-1 infection. Despite this significant number, treatment options for this population remain few. Researchers through a multicentric, randomized clinical trial compared the efficacy and safety of a dolutegravir- based ART (Antiretroviral therapy) regimen (intervention) to a standard (non-dolutegravir based ART) in children and adolescents weighing at least 14 kilograms. The outcome was treatment failure at 96 weeks. Of 707 children enrolled into the study, 350 were in the intervention arm while 357 were on the standard care arm. By the end of 96 weeks, 47 participants in the dolutegravir-group and 75 in the standard care arm had treatment failure. It was concluded that a dolutegravir- based ART was superior to standard care.

Anna Turkova, Ellen White, et al. Dolutegravir as First- or Second-Line Treatment for HIV-1 Infection in Children; December 30, 2021N Engl J Med 2021; 385:2531-2543 DOI: 10.1056/NEJMoa2108793

Marked reduction in antibiotic usage following intensive malaria control in a cohort of Ugandan children

Intensive malaria control may have additional benefits beyond reducing malaria incidence. Researchers compared antibiotic treatment of children before and after implementation of highly effective malaria control interventions (Long-lasting insecticidal nets and sustained indoor residual spraying of insecticide) in Tororo, Uganda; a malaria endemic area. An observational study was conducted following two successive cohorts of children aged 6 months to 10 years in a study clinic for 8 years. The adjusted incidence of both malaria and antibiotic treatments significantly reduced in the before and after period. Researchers concluded that in malaria endemic settings, effective malaria control interventions could reduce antibiotic treatment of children which may in turn alter antibiotic prescribing practices and avert antimicrobial resistance as well as reduce health system costs.

Krezanoski PJ, Roh ME, et al. Marked reduction in antibiotic usage following intensive malaria control in a cohort of Ugandan children. BMC Med. 2021 Nov 30;19(1):294. doi: 10.1186/s12916-021-02167-2. PMID: 34844601; PMCID: PMC8630830.

COVID-19

Aspirin as therapy for patients admitted to hospital with COVID-19

It's generally accepted that thromboprophylaxis has a role in the treatment of hospitalized COVID19 patients. Aspirin with its anti-thrombotic properties has been proposed as a potential therapy. Researchers through a large trial conducted in UK, Indonesia and Nepal, evaluated its safety and efficacy. A total of 14892 patients were enrolled: 7351 received150mg aspirin daily till discharge while 7541 received standard-of-care. The outcome measure was mortality at 28 days. Researchers found a similar mortality rate in both groups (17%) with a slight reduction in hospital stay associated with aspirin, 8 days Vs 9 days in the standard-or-care group. Aspirin also resulted in a slight reduction in thrombotic events. Researchers concluded that aspirin was not beneficial in reducing mortality or mechanical ventilation amongst hospitalized COVID-19 patients.

RECOVERY Collaborative Group. Aspirin in patients admitted to hospital with COVID-19 (RECOVERY): a randomised, controlled, open-label, platform trial. Lancet. 2022 Jan 8;399(10320):143-151. doi: 10.1016/S0140-6736(21)01825-0. Epub 2021 Nov 17. PMID: 34800427; PMCID: PMC8598213.

Early Remdesivir to Prevent Progression to Severe Covid-19 in Outpatients

Remdesivir has been shown to shorten recovery time in patients hospitalized with Covid-19. However, it's utility in outpatient settings hasn't been well studied. This study set out to evaluate its efficacy and safety in high-risk non-hospitalized patients with Covid-19 through a randomized, double-blind, placebo-controlled trial. Five-hundred sixty-two (562) patients were randomly assigned to receive intravenous remdesivir or placebo; primary efficacy outcome was a composite of Covid-19-related hospitalization or death from any cause by day 28, whereas the safety outcome was any adverse event. The primary outcome occurred significantly less frequently in the remdesivir group, 2 patients (0.7%) compared to 15 (5.3%) in the placebo group. Researchers concluded that a course of remdesivir was safe and resulted in 87% lower risk of hospitalisation or death.

Gottlieb RL, Vaca CE. et al. Early Remdesivir to Prevent Progression to Severe Covid-19 in Outpatients. N Engl J Med. 2021 Dec 22:NEJMoa2116846. doi: 10.1056/NEJMoa2116846. Epub ahead of print. PMID: 34937145; PMCID: PMC8757570.

BNT162b2 Vaccine Booster and Mortality Due to Covid-19

Disturbing evidence of the waning immunity of Covid-19 vaccines has brought to life the concept of vaccine boosters. Their effectiveness in lowering mortality isn't clear. A study conducted in Israel compared mortality due to Covid-19 among participants who received a booster and those that didn't, in an elderly population who had received two doses of BNT162b2 at least 5 months earlier. Of the 843,208 eligible participants, 758,118 (90%) received the booster during the study period. Death due to Covid-19 occurred much less frequently in the booster group, 65 participants compared to 137 participants in the non-booster group. The researchers founded that the vaccine booster conferred 90% lower mortality to its recipients compared to the non-booster group.

Arbel R, Hammerman A, et al. BNT162b2 Vaccine Booster and Mortality Due to Covid-19. N Engl J Med. 2021 Dec 23;385(26):2413-2420. doi: 10.1056/NEJMoa2115624. Epub 2021 Dec 8. PMID: 34879190; PMCID: PMC8728797.

Effect of high-flow oxygen therapy vs conventional oxygen therapy on invasive mechanical ventilation and clinical recovery in patients with severe COVID-19

In severe COVID-19, the effect of high-flow (via nasal cannula) versus conventional oxygen therapy on outcomes hasn't been well studied. Researchers conducted an open-label randomized clinical trial in 3 hospitals in Colombia comparing the association of these two modalities with the need for intubation and recovery time until 28 days among a total of 220 patients with severe Covid-19. Significantly fewer patients were intubated in the high-flow arm, 34 (34.3%) vs 51

(51.0%) in the conventional oxygen therapy arm. Median recovery time was also shorter in the high-flow arm, 11 days vs 14 days in the conventional oxygen therapy group. Other indicators measured also favored the high-flow oxygen therapy. The researchers concluded that high-flow was superior to conventional oxygen therapy in patients with severe Covid-19.

Ospina-Tascón GA, Calderón-Tapia LE etal. Effect of High-Flow Oxygen Therapy vs Conventional Oxygen Therapy on Invasive Mechanical Ventilation and Clinical Recovery in Patients With Severe COVID-19: A Randomized Clinical Trial. JAMA. 2021 Dec 7;326(21):2161-2171. doi: 10.1001/jama.2021.20714. PMID: 34874419; PMCID: PMC8652598.

Effect of 12 mg vs 6 mg of Dexamethasone on the Number of Days Alive Without Life Support in Adults With COVID-19 and Severe Hypoxemia

The role of dexamethasone in treatment of severe Covid-19 is undisputed. An optimum daily dose is however still debated, with a higher dose hypothesized to be superior. Researchers compared the association of two dexamethasone dose-regimens; that is 12mg and 6mg with the number of days alive without life support. A large randomized trial involving 1000 patients with Covid-19 and severe hypoxemia was conducted, with half being treated with 12mg/day, and the other half with 6mg/day of dexamethasone for 10 days. There was no significant difference in days alive without life support at 28 days: 12mg/day of dexamethasone resulted in 22.0 days compared to 20.5 days in those that received 6mg/day dose. The researchers concluded that a higher daily dose (12mg) wasn't superior.

COVID STEROID 2 Trial Group, Munch MW et al. Effect of 12 mg vs 6 mg of Dexamethasone on the Number of Days Alive Without Life Support in Adults With COVID-19 and Severe Hypoxemia: The COVID STEROID 2 Randomized Trial. JAMA. 2021 Nov 9;326(18):1807-1817. doi: 10.1001/jama.2021.18295. Erratum in: JAMA. 2021 Dec 14;326(22):2333. PMID: 34673895; PMCID: PMC8532039.

Efficacy and Safety of Therapeutic-Dose Heparin vs Standard Prophylactic or Intermediate-Dose Heparins in COVID-19 management

Thrombo-prophylaxis is a crucial component in the treatment of hospitalized patients with Covid-19. An optimum dose regimen of heparin has however not been well studied. Researchers sought to investigate if therapeutic dose low-molecular-weight heparin reduced major thromboembolism and death compared to prophylactic/intermediate-dose heparin among hospitalized patients with Covid-19. This was achieved through a randomized trial involving 253 adults with elevated D-dimers levels. The primary efficacy endpoint was thromboembolism or death from any cause, while safety endpoint was major bleeding at 30 days. Incidence of major thromboembolism or death was much lower with therapeutic-dose (28.7%) than with prophylactic/intermediate-dose heparins (41.9%), except in critically ill patients; with no difference in safety profile. It's evident that therapeutic-dose regimen is more efficacious without increase in safety concerns.

Spyropoulos AC, Goldin M et al. Efficacy and Safety of Therapeutic-Dose Heparin vs Standard Prophylactic or Intermediate-Dose Heparins for Thromboprophylaxis in High-risk Hospitalized Patients With COVID-19: The HEP-COVID Randomized Clinical Trial. JAMA Intern Med. 2021 Dec 1;181(12):1612-1620. doi: 10.1001/jamainternmed.2021.6203. Erratum in: JAMA Intern Med. 2021 Dec 28;. PMID: 34617959; PMCID: PMC8498934.

COVID-19 Post-acute Sequelae among adults: 12 Month Mortality Risk

Complications following Covid-19 infection are a growing concern globally. It's not however understood whether Covid-19 poses a significant mortality risk downstream. In this study, researchers determined the relationship between Covid-19 infection and 12-month mortality in adult patients. An analysis of electronic medical records in the University of Florida setting was conducted for a cohort including both Covid-19 positive and negative patients. Of the 13,638 participants, 178 had severe Covid-19 (hospitalized within 30 days of test), 246 had mild/moderate Covid-19 while 13,214 were Covid-19 negative. The mortality risk was significantly higher for patients with severe Covid-19 compared to both Covid-19 negative and mild Covid-19 patients. The researchers made the following conclusion "In a time when nearly all COVID-19 hospitalizations are preventable this study points to an important and under-investigated sequela of COVID-19 and the corresponding need for prevention"

Mainous, Arch G 3rd et al. "COVID-19 Post-acute Sequelae Among Adults: 12 Month Mortality Risk." Frontiers in medicine vol. 8 778434. 1 Dec. 2021, doi:10.3389/fmed.2021.778434

CPD Challenge

Questions

1. Please indicate TRUE or FALSE concerning the management of patients with COVID-19 infection.

a. Aspirin has been used for thromboprophylaxis in hospitalised patients with COVID-19 infection.
b. While use of Aspirin may reduce thrombotic events, it does not lead to reduction in mortality or mechanical ventilation among hospitalized COVID-19 patients.
c. Remdesivir has been shown to shorten recovery time in patients hospitalized with COVID-19.
d. Remdesivir also lowers the risk of hospitalisation or death of COVID-19 patients in the outpatient settings.
e. Administration of Dexamethasone has major beneficial effects on the number of days alive without life support in adult with COVID-19 and severe hypoxemia, whether given as low dose (6mg daily) or high dose (12mg daily).

2. Which of the following are TRUE or FALSE concerning the association between maternal perception of foetal movements and late stillbirth?

a. Reduced foetal movements are frequently reported by mothers prior to foetal death.
b. There is limited information to determine which women have the greatest odds of still birth in relation to maternal report of foetal movements in late pregnancy.
c. Increased strength of foetal movements, foetal hiccups and regular episodes of vigorous movement are associated with decreased odds of late stillbirth
d. Decreased frequency, and a single episode of unusually vigorous movement are associated with increased odds of late stillbirth.
e. The concept of foetal movements and still birth is not well understood and has no clinical value in determining late stillbirth.

3. Please indicate what is TRUE or FALSE regarding preterm premature rupture of membranes

a. Preterm premature rupture of membranes complicates approximately up to 3% of pregnancies and leads to one third of preterm births.
b. Both erythromycin and azithromycin can be used to treat or prevent chorioamnionitis.
c. Azithromycin is superior to erythromycin in lowering clinical chorioamnionitis prevalence.
d. There is no clear evidence as to which one of erythromycin and azithromycin is superior to treat or prevent chorioamnionitis
e. All TRUE

4. Which of the following statements are TRUE or FALSE with respect to the management of overweight and obesity

a. Lifestyle modifications remain the mainstay management of overweight and obesity.
b. Pharmacotherapy with phentermine-topiramate is the best drug for weight loss.
c. Naltrexone-bupropion and orlistat are associated with adverse events and should not be used.
d. GLP-1 receptor agonists, especially semaglutide is of no benefit in lowering overweight.
e. All TRUE.

5. Which of the following statements are TRUE or FALSE regarding regular use of proton-pump inhibitors?

a. Proton-pump inhibitors (PPIs) are one of the most frequently prescribed drugs used for the treatment of gastric acid-related disorders.
b. Regular PPI users have a 16% higher risk of stroke than non-users.
c. Caution must always be taken while prescribing PPIs and assessment of stroke risk for individualized PPIs use.
d. The risk of stroke is not any higher in individuals on PPI compared to non-users.
e. All TRUE.

Answers

1. True: a, b, c, d, e
2. True: a, b, c, d. False: e.
3. True: a, b, c. False: d, e.
4. True: a, b, c. False: d, e.
5. True: a, b, c. False: d, e.

wissner-bosserhoff

LINET®

Members of LINET Group

SPRINT 100

Meet the new premium transport stretcher by LINET

5 FEATURES FOR SAFETY AND COMFORT

- ✓ IV&Drive – The world's first handles integrated into IV poles .
- ✓ CardiacChair – Easily adjustable for better treatment, safety and comfort.
- ✓ FlexiDrive – A shock-absorbing spring-loaded 5 th castor.
- ✓ SoftDrop – A smooth, silent and safe movement of siderails.
- ✓ EasyBrake – A four-sided braking system for easier accessibility.

www.linet.ae

LinkedIn

1.9 million lives saved and counting...

For the past 20 years, MMV and partners have been discovering, developing and delivering new antimalarials to save lives. We will not stop until malaria is defeated.

Join the fight to end malaria

Help us build a healthy world for all

Defeating Malaria Together
www.mmv.org

MMV Medicines for Malaria Venture @20