



Cluster: Health Information Research, Monitoring and Evaluation (HIRME)



No.8

01 April - 30 June 2017

**THIS IS AN OVERVIEW BY THE NATIONAL DEPARTMENT OF HEALTH ON
RESEARCH DONE GLOBALLY**

SOUTH AFRICAN NEWS

Super microscopes to zoom in on TB, HIV/AIDS

5 June 2017

Two new super-resolution microscopes will help researchers take an unprecedentedly close look into the cellular processes that govern diseases like tuberculosis (TB), cancer and Human immunodeficiency virus infection and acquired immune deficiency syndrome (HIV/AIDS). The state-of-the-art, multi-functional Carl Zeiss confocal and super-resolution microscopes are based in University of Cape Town's (UCT) Confocal and Light Microscope Imaging Facility in the Department of Human Biology, which itself is based in the Institute of Infectious Disease and Molecular Medicine (IDM). The microscopes will make advanced light microscopy imaging and analysis of cells and tissues possible for the first time, which will aid research into cancer, cell and developmental biology, immunology and infectious diseases. The list of possible applications is long and includes microbiology, neuroscience and plant biotechnology. Associate Professor, Dirk Lang of the Department of Human Biology and head of the UCT Confocal and Light Microscope Imaging Facility said, the microscope's capability includes real-time imaging and experimental manipulation of individual, live cells in tissues or small model organisms crucial to understanding of how, for example, nerve cells function in health and disease.

Another boon is that the microscopes will enable the facility to offer routine imaging of non-infectious and infectious biological samples (within appropriate safety parameters) on the Faculty of Health Sciences campus. This will allow UCT and other local researchers unprecedented access to both super-resolution, real-time live-cell and tissue imaging and a multitude of quantitative imaging and analysis techniques. One of the microscopes, the new super-resolution Elyra S1, is the first instrument of its kind in a biosafety level 3 (BSL 3) laboratory in South Africa. It allows imaging of live pathogens implicated in infectious diseases that make a great impact in Africa. The biosafety level refers to how strict a medical laboratory's safety requirements are, which depends on the potential danger of the microbes being studied. BSL 3 labs deal with pathogens such as yellow fever and the bacteria that cause tuberculosis. BSL 4 laboratories have the most stringent safety regulations, as they deal with extremely dangerous pathogens such as the Ebola and Marburg viruses.

For more info: <http://www.health.uct.ac.za/news/super-microscopes-zoom-tb-hiv aids>

South Africa and Egypt lead Africa's soaring diabetes and obesity rates

8 June 2017

Research conducted by the South African Medical Research Council (SAMRC), in collaboration with Imperial College London showed that obesity and diabetes are on the rise in Africa. That reveals the first detailed analysis of these epidemics on the continent. Due to bad diets, South Africans even those who are overweight experience high levels of nutrient deficiencies, including those relating to vitamin A, iron and other minerals and vitamins. The rates of both conditions are especially high in southern and northern Africa, led by South Africa and Egypt respectively. The research found that between 1980 and 2014 diabetes prevalence in African women increased from 4.1% percent to 8.9%. In men, prevalence of the disease increased from 3.1% to 8.5% in the same time-frame. According to the study results, this steep rise has been triggered by increasing rates of obesity across the continent. Dr James Bentham, from the Imperial College's School of Public Health, stated that their findings are based on the largest dataset ever collected describing these conditions in Africa. As the continent experiences higher burdens of obesity and diabetes, there is also a need to track performance of countries in preventing these conditions through better data. In men, the highest rates of diabetes and obesity were found in Northern Africa while in women, Southern Africa accounted for the highest levels.

Professor Andre Kenge from the SAMRC, said that this is the first detailed analysis of obesity and diabetes in Africa and shows a steady increase across the continent since 1980. According to the study, escalating diabetes rates in northern Africa have largely been attributed to inactive lifestyles and diet. However, urbanisation and economic transitions to more affluent lifestyles are to blame for rising rates of both conditions in the southern part of the continent. In conclusion, Professor Kenge said it highlights susceptibility determinants which are particular to Africans and will provide evidence that can be referenced when developing interventions in managing the dual burden of obesity and diabetes in Africa.

For more info: <https://www.health-e.org.za/2017/06/08/south-africa-egypt-lead-continent-soaring-diabetes-obesity-rates/>

Men at higher risk of not getting HIV under control

15 June 2017

In a massive study, about 85% of patients on antiretroviral had got the virus down to acceptable levels in their blood. New research revealed that men as well as patients who were children or adolescents at the start of antiretroviral treatment are more likely to have high levels of HIV in their bloodstream. Dr Dora Joseph Davey from BroadReach Healthcare and the University of Cape Town, presented the findings at the 8th annual Southern African Aids Conference held at Durban International Convention Centre from 13 to 15 June 2017. She described a study that looked at the factors associated with unsuppressed viral load in patients with HIV and on the "first line" of antiretroviral treatment (ART) in South Africa. An unsuppressed viral load is when a patient is on ART but the treatment does not bring the levels of HIV down to an acceptable level. This is associated with decreased survival and increased HIV transmission. First line treatment refers to the medicines that a patient is put onto first. If the treatment does not work they may need to be put onto what is called "second line treatment", which consists of a different set of medicines. The study looked at all patients' files that were on "first line treatment" for more than 6 months between January 2004 and were still on care by April 2016.

There were 244 370 patients in the study, with only 15% of them (37 487) being virally unsuppressed. The patients in the study were from 271 public health facilities in 4 different provinces. The most recent viral load result had to be unsuppressed for the patient to be classified as such. The fact that 85% of these patients were virally suppressed is good as it is close to the national target of 90%. 18% of men were virally unsuppressed versus 14% of women and this was statistically significant. Which means it is a real phenomenon, unlikely to be due to chance.

For more info: <https://www.dailymaverick.co.za/article/2017-06-15-groundup-men-at-higher-risk-of-not-getting-hiv-under-control/#.WVPSHmI942w>

International consortium, including University of Cape Town's geneticists identifies novel blindness gene

20 June 2017

Researchers from South Africa, Israel, Netherlands and the United States of America (USA) have identified a novel gene which is implicated in an inherited form of blindness, namely retinitis pigmentosa (RP). The gene called IDH3A is the third novel gene identified by the Division of Human Genetics, University of Cape Town (UCT), in collaboration with international partners. IDH3A is important in all human tissues, but its mutations only result in degenerative retinal disease (dystrophy), the cause of which is not yet understood. The findings, published in *Ophthalmology*, report one family from South Africa, two families from the Netherlands and one from Israel in which RP patients carry mutations in IDH3A. In the last 25 years, more than 80 genes have been associated with RP and together they explain approximately 70% of all cases. Novel identified genes such as IDH3A, typically are found in less than 1% of the RP patients. This means that they can only be identified by extensive collaborations between RP researchers worldwide.

The Division of Human Genetics has been researching inherited retinal disorders (IRD) such as RP in Southern Africa since 1989. Working very closely with ophthalmologists around the country and the lay support group, Retina South Africa (who has funded the project since its inception), the Division has recruited over 3 300 participants from 1 500 families. Major milestones of the UCT research group have included the previous identification of two novel RP genes, PRPF8 in 2001 and CA4 in 2004. The Head of Division of Human Genetics, Professor Raj Ramesar said, all of the research on inherited retinal disorders has the aim of understanding the disease mechanism which leads to visual loss with the ultimate objective of halting progression of disease, and creating precise molecular interventions.

For more info: <http://www.health.uct.ac.za/news/press-release-international-consortium-including-uct-geneticists-identifies-novel-blindness>

AFRICAN NEWS

Millions of Nigerians at risk of suicide

30 May 2017

The growing incidence of suicide among Nigerians has become worrisome to the extent that psychiatrists and other physicians have called for high index of suspicion for signs and symptoms of depression among their patients. They point to research which reveals that during their lifetime about 3.0% of Nigerians will have thoughts about ending their lives, while some will plan on how to kill themselves and actually carry out an attempt to kill themselves. According to the World Health Organisation (WHO), there are 322 million people living with depression in the world. In the WHO suicide ranking, Nigeria with 15.1 suicides per 100 000 population per year, is ranked the 30th most suicide-prone out of 183 nations in the world. Nigeria also rates 10th in Africa after countries with higher rates of suicide such as Togo (ranked 26th in the world), Burkina Faso (22nd), Cameroun (19th) Zimbabwe (16th), Central African Republic (13th), Sierra Leone (11th), Angola (9th), Equatorial Guinea (7th), and Cote D'Ivoire (5th). Medical practitioners under the aegis of the Society of Family Physicians of Nigeria (SOFPON) raised the alarm that 7 million Nigerians are living with depression, a major risk factor for suicide and called for well structured Primary Healthcare Centres (PHCs) that would help detect and treat depression early before the onset of suicide attempts.

The President of SOFPON, Lagos Zone, Dr. Blessing Chukwukwelu noted that, in Nigeria only one-fifth of those with a depressive episode receive any treatment and only one in 50 receives treatment that is minimally adequate. Therefore, there is the need for medical practitioners who see various cases of ailment at the Primary Health Centres to be trained on how to identify the symptoms of depression. The primary care is the sector that affects the health of the nation, so preventing a condition at this level will not let it progress to the secondary level. When a physician takes a good history, is able to diagnose the disorder, family physicians have the tools to tackle and also refer to the psychiatrist when he needs to. There is need to train family physicians continuously in order to close the gap in treatment of depression. She also maintained that family physicians see various cases at the primary healthcare level, hence, the need to observe high index of

suspicion, while identifying awareness among Nigerians as key to reducing the scourge. National President of SOFPON, Dr Akin Moses said a research carried out in 2015- 2016 showed that 29 million people in Africa were depressed while 322 million were affected with depression globally.

For more info: <http://allafrica.com/stories/201705300349.html>

Herbal blood tonics for anaemic conditions

15 June 2017

In clinical studies, Nigerian researchers shown that extracts of fluted pumpkin leaves, cowhage or velvet bean, fig and sorghum could be effectively used to improve blood count, as an alternative or compliment to blood transfusion and heal anaemic conditions such as in sickle cell anaemia and malaria. Researchers have shown the efficacy of fluted pumpkin vegetable extracts in the management of severe anemia in children. According to the study, case reports of two severely anaemic patients, whose parents refused blood transfusion and were subsequently managed with oral intakes of the fluted pumpkin vegetable extracts, with satisfactory rise in the haematocrit levels. The results showed that the pre-pumpkin extracts administration pack cell volume of 15% in both of them, rose to 20% in one and 25% in the other, 24 hours post administration of the extract. The researchers concluded that, the fluted pumpkin vegetable extract was efficacious in the management of severe anemia in these two children and may be useful in pediatric patients with severe anemia whose parents refuse blood transfusion. The vegetable extract may have an even greater role in the prevention of anemia if intake is instituted early. Wider studies are needed to investigate these hypotheses.

Anaemia is a common childhood disease in the third world countries. It is sometimes life threatening and may require urgent blood transfusion. Fluted pumpkin was found useful in correcting anaemia in a study of some African pregnant women. In the study, thirty anaemic pregnant women with base line pack cell volumes of 20.8+/-2.0 per cent were given freshly prepared fluted pumpkin mixture, containing its fluid extract, raw eggs and evaporated unsweetened milk, orally three times daily for seven days. The mean pack cell volume was observed to have increased to 29.5+/-2.2 per cent, a day following the administration of the mixture. There is no documentation of the use of fluted pumpkin in the management of anaemia in children. However, this study by researchers at the Department of Paediatrics, Ladoke Akintola University Teaching Hospital, Osogbo, Osun State, led by Dr. Olusola Adetunji Oyedeji, draws the attention of medical practitioners managing children to the possibility of fluted pumpkin acting as a surrogate to refused blood transfusion in anaemic children. It may also have a role in preventing anaemia.

For more info: <https://guardian.ng/features/herbal-blood-tonics-for-anaemic-conditions/>

PROMISING, CONTROVERSIAL, INNOVATIVE RESEARCH AND DISCOVERIES

Heart disease the No. 1 killer worldwide

17 May 2017

New research conducted by University of Washington School of Medicine find out that, roughly a third of all deaths around the world are the result of heart disease and stroke, making cardiovascular disease the number one killer globally. The investigators reported that, big declines in heart disease-driven fatalities in countries such as the United States, Canada, Australia, Japan, South Korea and many countries in Western Europe have started to level off over the past 20 years. The study lead author Dr. Gregory Roth, an assistant professor of cardiology at the University of Washington School of Medicine indicated that, it is an alarming threat to global health. Trends in cardiovascular disease mortality are no longer declining for high-income regions. In an American College of Cardiology news release he noted that, low- and middle-income countries are also seeing more cardiovascular disease-related deaths. The study included 2 300 investigators from

133 nations. The research looked at current international rates of various types of heart disease, including stroke, heart failure, coronary heart disease, atrial fibrillation and peripheral arterial disease.

Those diseases were highest in countries across sub-Saharan Africa, Central Asia, and eastern and central Europe. Central and eastern Europe also had high heart disease-driven death rates, alongside Iraq, Afghanistan and several island nations in the South Pacific. The lowest heart disease incidence was found to be in wealthy Asian nations. Those included Singapore, Japan and South Korea. Some southern South American countries such as Chile and Argentina also had particularly low rates of heart disease. The lowest death rates were seen in Andorra, France, Israel, Japan, Peru and Spain. The researchers reported that, about 18 million people around the world died from heart disease in 2015. More than 400 million men and women have cardiovascular illness. According to the study, global cardiovascular fatality rates fell between 1990 and 2010. They dropped from 393 deaths to 307 deaths per every 100 000 people. The lion's share of that drop occurred in developed countries. However, since 2010 fatality rates have slowed. Between 2010 and 2015 the rate dropped to 286 deaths per 100 000 people. Dr Roth said, high levels of cardiovascular disease are seen throughout the world, both in high-income countries and those with more limited access to effective and inexpensive treatments. Risk factors for heart disease, like high blood pressure, poor diet, high cholesterol, tobacco smoking, excessive alcohol use and obesity are common throughout most of the world. In conclusion, he highlighted that innovative ways to deliver low-cost, effective treatments to the hundreds of millions of people who cannot access them need to be found.

For more info: http://www.medicinenet.com/script/main/art.asp?articlekey=203653&ecd=mnl_day_051817

Sleepless nights could pose heart risk dangers

24 May 2017

New research conducted by Research and Treatment Center at Penn State's Milton S. Hershey Medical Center in Pennsylvania, United States America suggested that, getting less than 6 hours of sleep a night may double the odds of dying from heart disease or stroke for people who already have risk factors for heart disease and diabetes. Known as metabolic syndrome, this cluster of risk factors can include high blood pressure, high levels of LDL ("bad") cholesterol, high blood sugar, obesity, high levels of blood fats known as triglycerides and low levels of HDL ("good") cholesterol. Someone with at least 3 of these conditions has metabolic syndrome. An assistant professor and study lead researcher, Julio Fernandez-Mendoza who is a sleep psychologist at the Sleep Research and Treatment Center at Penn State's Milton S. Hershey Medical Center explained that, it is possible that improving sleep in people with metabolic syndrome may lead to a better prognosis, which means not worsening into cardiovascular disease or stroke that could ultimately lead to early death. He cautioned that the study did not prove that people with metabolic syndrome who get too little sleep will die from heart disease or stroke, only that an association may exist.

He also added that, many factors might account for that association, from a behavioral, lifestyle standpoint, it could be that those people with metabolic syndrome and short sleep also are more sedentary and have poorer diet, two factors which we could not account for in our study. He added that, from a biological standpoint, the researchers found that short sleep may increase the risk of premature death, particularly among those with high blood pressure and high blood sugar levels. In conclusion, he suggested that, it is possible that people with metabolic syndrome and short sleep have more severe problems related to their anatomic nervous system and metabolism. We need future studies that examine these hypotheses in combination, and in different groups of people with metabolic syndrome. Nevertheless, sleep should be evaluated and taken into consideration when calculating cardiovascular and death risk, especially in those who have already developed those risk factors. He then noted that, behavioral and pharmacological approaches to treat sleep disorders including sleep apnea, insomnia and short sleep are available and effective.

For more info: <http://www.webmd.com/sleep-disorders/news/20170524/sleepless-nights-could-pose-heart-risk-dangers#1>

How Does the Flu Vaccine Effect Preterm (PT) vs. Full-Term (FT) Infants?

29 May 2017

Infection with influenza tends to be more severe in preterm (PT) infants and this population is at a much higher risk for related complications. Physicians often associate this risk with PT infants' tendency to "experience rapid serum decay in antibody responses" to influenza infections and level of severity of symptoms. To address this correlation, a research team headed by Dr Carl D'Angio, a physician in the Department of Paediatrics at the University of Rochester Medical Center in Rochester, New York, compared flu vaccine response in PT versus FT infants. In 2011, a group of doctors based in Calcutta published a similar study that examined the efficacy of vaccinating PT babies for measles given that these infants may have lower levels of antimeasles antibodies than their FT counterparts. In that study, the doctors determined that PT infants should receive their first measles vaccination at 5 months instead of 9 months which is how it is administered in FT babies in order to balance out this inequality.

Few studies have evaluated how this strategy would work for the flu vaccine, which is administered once annually (after 6 months of age) and not on an age-based schedule. In their study, Dr. D'Angelo and her colleagues set out to "investigate the relationships among the frequencies of influenza-specific antibody secreting cells (ASC) and ASC subsets (including LLPC) and antibody responses to influenza vaccines" among PT and FT infants. The study included 11 PT infants with a mean gestational age of 27.3 weeks at birth and 11 FT babies with a mean gestational age of 39.2 weeks at birth. All infants received their first flu vaccination between six and 17 months of age via 2 doses of inactivated, trivalent IV or quadrivalent IV during 2012-2013 and 2013-2014 flu seasons. The first round of vaccination occurred on day 0 of the study and the second on day 28. The researchers collected blood samples from the infants on days 0, 10, 35, and 56 days and finally again at 9 months of age. Not surprisingly, the PT infants weighed less at their first vaccination than did the FT infants, but the postnatal ages among infants in both groups were nearly identical, with PT infants receiving their first vaccination at a mean age of 8.1 months and FT infants receiving their first vaccinations at a mean age of 8.0 months.

For more info: <http://www.contagionlive.com/news/how-does-the-flu-vaccine-effect-preterm-vs-fullterm-infants>

Reservoirs of Latent HIV Hinder Quest for a Cure

08 June 2017

HIV has remained stubbornly impervious to a complete cure and researchers have uncovered new evidence that may explain this problem, at least in part. In patients who are being treated with antiretroviral therapy (ART), it appears that a latent form of HIV residing in immune cells can continue to reproduce, potentially reactivating the virus in the body and offering resistance against ART. According to researchers at Johns Hopkins University School of Medicine in the United States, this latent HIV has an extremely long half-life, presenting a significant obstacle to complete eradication of the disease. To learn more about the reservoir of latent HIV in immune cells, the research team grew CD4 cells from the blood of 12 HIV-positive patients who were on ART. The cells were then stimulated with rounds of various chemicals to induce them to divide and proliferate. Each time the cells were stimulated they were split into 2 groups, one of which was the control group. The other group of cells would then go through the stimulation process again. The researchers discovered that the stimulated cells were able to proliferate without releasing active HIV, but that the new cells created from this division actually did emit active HIV.

In addition, the scientists discovered that when they sequenced the genomes of the viruses that were released after each stimulation, the viruses were almost all genetically identical. This gave support to the theory that the viruses had replicated during the study rather than that they came from different HIV types, as some infected people harbor more than one type of HIV. Professor Robert Siciliano of medicine at Johns Hopkins University School of Medicine and an author of the study said these [latently infected] cells are present in everybody [with HIV] but they are very rare about 1 in a million. The medical community has known for roughly 20 years that these cells exist in HIV patients. "What's new in the last year is

understanding why these latently infected cells never go away” The scientists discovered that these cells divide without producing HIV, although later they may begin to produce the virus, researchers are not sure why this happens.

For more info: <http://www.contagionlive.com/news/reservoirs-of-latent-hiv-hinder-quest-for-a-cure>

New way to measure how long bacteria tolerate antibiotics

20 June 2017

In a new study published online in *Biophysical Journal*, Asher Brauner, from the Hebrew University, Jerusalem, Israel and colleagues describe a simple new approach for measuring how long it takes for an antibiotic to kill bacteria. These findings may hold promise for devising better treatments for bacterial infections. Antibiotic resistance is a serious and growing public healthcare problem. In fact, some bacteria have become resistant to certain antibiotics through mutations that make the antibiotics less effective. According to the authors, clinicians typically use the minimum inhibitory concentration (MIC) as a method to help guide their antibiotic prescribing. The MIC quantifies the level of resistance for each bacterial isolate, and is valuable in calculating the correct dose of an antibiotic. It represents the lowest concentration of the drug that prevents bacterial growth. Corresponding author, Professor Nathalie Q. Balaban, also from Hebrew University discussed different strategies used by bacteria for survival.

The authors describe antibiotic tolerance as a poorly understood phenomenon that is rarely considered in healthcare, it is an extension of the length of time that bacteria can survive in lethal concentrations of an antibiotic. Antibiotic persistence is another phenomenon that clinicians rarely evaluate in healthcare settings. Persistence refers to the existence of subpopulations of bacteria in an overall population that are killed more slowly by an antibiotic than the majority population is killed. Dr. Balaban emphasized that they were driven to define the terms ‘tolerance’ and ‘persistence,’ versus ‘resistance’ because there has been some confusion in the literature. Although clinicians’ routine measurement of antibiotic tolerance could provide valuable information about the duration of antibiotic treatments, quantitative methods of assessing tolerance are lacking. Therefore, the researchers aimed to develop an approach to measure both tolerance and persistence.

For more info: <http://www.contagionlive.com/news/new-way-to-measure-how-long-bacteria-tolerate-antibiotics>

Boozing makes ageing clock tick faster

26 June 2017

A recent research has revealed that the more alcohol is consumed, the more cells appear to age. The researchers found that alcoholic patients had shortened telomere lengths, placing them at greater risk for age-related illnesses, such as cardiovascular disease, diabetes, cancer and dementia. Naruhisa Yamaki of the Kobe University Graduate School of Medicine in Japan said telomeres, the protein caps on the ends of human chromosomes are markers of ageing and overall health. He explained that every time a cell replicates, a tiny bit of telomere is lost, so they get shorter with age. But some groups may have shorter telomeres for reasons other than ageing. He said their study showed that alcoholic patients have a shortened telomere length, which means that heavy drinking causes biological aging at a cellular level. It is alcohol rather than acetaldehyde that is associated with a shortened telomere length.

Yamaki and his co-authors recruited 255 study participants from alcoholism treatment services at Kurihama National Hospital in Yokosuka, Japan. 134 alcoholic patients and 121 age-matched controls or non-alcoholics, ranging in age from 41 to 85 years old. DNA samples, as well as drinking histories and habits, were collected from all participants. He reported that, they also found an association between telomere shortening and thiamine deficiency (TD). He also explained that TD is known to cause neuron impairments such as Wernicke-Korsakoff Syndrome. Although how exactly TD can cause neural impairments is unclear, it is well known that oxidation stress cause telomere shortening and, thus, it is

possible that oxidation stress may also cause neuron death. He concluded by highlighting that it is important for the public to understand that heavy drinking cause telomere shortening because awareness of this fact provides important information necessary for people to live healthier.

For more info: <http://www.newindianexpress.com/lifestyle/health/2017/jun/26/boozing-makes-ageing-clock-tick-faster-1620997.html>

RECENT PUBLICATIONS

From HIV infection to therapeutic response: A population-based longitudinal HIV cascade-of-care study in KwaZulu-Natal, South Africa

ABSTRACT

DOI: 10.1016/S2352-3018(16)30224-7

BACKGROUND: Standard approaches to estimation of losses in the HIV cascade of care are typically cross-sectional and do not include the population stages before linkage to clinical care. We used individual-level longitudinal cascade data, transition by transition, including population stages, both to identify the health-system losses in the cascade and to show the differences in inference between standard methods and the longitudinal approach.

METHODS: We used non-parametric survival analysis to estimate a longitudinal HIV care cascade for a large population of people with HIV residing in rural KwaZulu-Natal, South Africa. We linked data from a longitudinal population health surveillance (which is maintained by the Africa Health Research Institute) with patient records from the local public-sector HIV treatment programme (contained in an electronic clinical HIV treatment and care database, ARTemis). We followed up all people who had been newly detected as having HIV between Jan 1, 2006, and Dec 31, 2011, across six cascade stages: three population stages (first positive HIV test, HIV status knowledge, and linkage to care) and three clinical stages (eligibility for antiretroviral therapy [ART], initiation of ART, and therapeutic response). We compared our estimates to cross-sectional cascades in the same population. We estimated the cumulative incidence of reaching a particular cascade stage at a specific time with Kaplan-Meier survival analysis.

FINDINGS: Our population consisted of 5205 individuals with HIV who were followed up for 24 031 person-years. We recorded 598 deaths. 4539 individuals gained knowledge of their positive HIV status, 2818 were linked to care, 2151 became eligible for ART, 1839 began ART, and 1456 had successful responses to therapy. We used Kaplan-Meier survival analysis to adjust for censorship due to the end of data collection, and found that 8 years after testing positive in the population health surveillance, 16% had died. Among living patients, 82% knew their HIV status, 45% were linked to care, 39% were eligible for ART, 35% initiated ART, and 33% had reached therapeutic response. Median times to transition for these cascade stages were 52 months, 52 months, 20 months, 3 months, and 9 months, respectively. Compared with the population stages in the cascade, the transitions across the clinical stages were fast. Over calendar time, rates of linkage to care have decreased and patients presenting for the first time for care were, on average, healthier.

INTERPRETATION: HIV programmes should focus on linkage to care as the most important bottleneck in the cascade. Cascade estimation should be longitudinal rather than cross-sectional and start with the population stages preceding clinical care.

For more info: <https://www.ncbi.nlm.nih.gov/pubmed/?term=28153470>

A School-Based Public Health Model to Reduce Oral Health Disparities

DOI: 10.1111/jphd.12216

ABSTRACT

OBJECTIVES: Although dental decay is preventable, it remains the most common pediatric chronic disease. We describe a public health approach to implementing a scalable and sustainable school-based oral health program for low-income urban children.

METHODS: The Los Angeles Trust for Children's Health, a non-profit affiliated with the Los Angeles Unified School District, applied a public health model and developed a broad-based community-coalition to a) establish a District Oral Health Nurse position to coordinate oral health services and b) implement a universal school-based oral health screening and fluoride varnishing program, with referral to a dental home. Key informant interviews and focus groups informed program development. Parent surveys assessed preventative oral health behaviors and access to oral health services. Results from screening exams, program costs and rates of reimbursement were recorded.

RESULTS: From 2012 to 2015, six elementary schools and three dental provider groups participated. Four hundred ninety-one parents received oral health education and 89 served as community oral health volunteers; 3,399 screenings and fluoride applications were performed on 2,776 children. Sixty-six percent of children had active dental disease, 27 percent had visible tooth decay, and 6 percent required emergent care. Of the 623 students who participated for two consecutive years, 56 percent had fewer or no visible caries at follow-up, while only 17 percent had additional disease. Annual program cost was \$69.57 per child.

CONCLUSIONS: Using a broad based, oral health coalition, a school-based universal screening and fluoride varnishing program can improve the oral health of children with a high burden of untreated dental diseases.

For more info: <https://www.ncbi.nlm.nih.gov/pubmed/28467009>

Benchmarking life expectancy and cancer mortality: global comparison with cardiovascular disease 1981-2010

DOI: <https://doi.org/10.1136/bmj.j2765>

ABSTRACT

OBJECTIVE: To quantify the impact of cancer (all cancers combined and major sites) compared with cardiovascular disease (CVD) on longevity worldwide during 1981-2010.

Design Retrospective demographic analysis using aggregated data.

Setting National civil registration systems in member states of the World Health Organization.

Participants 52 populations with moderate to high quality data on cause specific mortality.

Main outcome measures Disease specific contributions to changes in life expectancy in ages 40-84 (LE_{40-84}) over time in populations grouped by two levels of Human Development Index (HDI) values.

RESULTS: Declining CVD mortality rates during 1981-2010 contributed to, on average, over half of the gains in LE_{40-84} ; the corresponding gains were 2.3 (men) and 1.7 (women) years, and 0.5 (men) and 0.8 (women) years in very high and medium and high HDI populations, respectively. Declines in cancer mortality rates contributed to, on average, 20% of the gains in LE_{40-84} , or 0.8 (men) and 0.5 (women) years in very high HDI populations, and to over 10% or 0.2 years (both sexes) in medium and high HDI populations. Declining lung cancer mortality rates brought about the largest LE_{40-84} gain in men in very high HDI populations (up to 0.7 years in the Netherlands), whereas in medium and high HDI populations its contribution was smaller yet still positive. Among women, declines in breast cancer mortality rates were largely responsible for the

improvement in longevity, particularly among very high HDI populations (up to 0.3 years in the United Kingdom). In contrast, losses in LE₄₀₋₈₄ were observed in many medium and high HDI populations as a result of increasing breast cancer mortality rates.

CONCLUSIONS: The control of CVD has led to substantial gains in LE₄₀₋₈₄ worldwide. The inequality in improvement in longevity attributed to declining cancer mortality rates reflects inequities in implementation of cancer control, particularly in less resourced populations and in women. Global actions are needed to revitalize efforts for cancer control, with a specific focus on less resourced countries.

For more info: <http://www.bmj.com/content/357/bmj.j2765>

When students become patients: TB disease among medical undergraduates in Cape Town, South Africa

ABSTRACT

BACKGROUND: Medical students acquire latent tuberculosis (TB) infection at a rate of 23 cases/100 person-years. The frequency and impact of occupational TB disease in this population are unknown.

METHODS: A self-administered questionnaire was distributed via email and social media to current medical students and recently graduated doctors (2010 - 2015) at two medical schools in Cape Town. Individuals who had developed TB disease as undergraduate students were eligible to participate. Quantitative and qualitative data collected from the questionnaire and semi-structured interviews were analysed with descriptive statistics and a framework approach to identify emerging themes.

RESULTS: Twelve individuals (10 female) reported a diagnosis of TB: pulmonary TB ($n=6$), pleural TB ($n=3$), TB lymphadenitis ($n=2$) and TB spine ($n=1$); 2/12 (17%) had drug-resistant disease (DR-TB). Mean diagnostic delay post consultation was 8.1 weeks, with only 42% of initial diagnoses being correct. Most consulted private healthcare providers (general practitioners ($n=7$); pulmonologists ($n=4$)), and nine underwent invasive procedures (bronchoscopy, pleural fluid aspiration and tissue biopsy). Substantial healthcare costs were incurred (mean ZAR25 000 for drug-sensitive TB, up to ZAR104 000 for DR-TB). Students struggled to obtain treatment, incurred high transport costs and missed academic time. Students with DR-TB interrupted their studies and experienced severe side-effects (hepatotoxicity, depression and permanent ototoxicity). Most participants cited poor TB infection-control practices at their training hospitals as a major risk factor for occupational TB.

CONCLUSIONS: Undergraduate medical students in Cape Town are at high risk of occupationally acquired TB, with an unmet need for comprehensive occupational health services and support.

<http://www.samj.org.za/index.php/samj/article/view/11917>

International Conference on Non Communicable Diseases 2017 (ICNCD 2017)

28th - 29th July 2017

The ICNCD 2017 will be held on the 28th and 29th July 2017 in Kuala Lumpur, Malaysia under the theme of "NCD 2017:Global Responses to a Global Epidemic". The conference is believed to create a platform for eminent researchers, scientists, academicians, physicians, doctors, traditional medical practitioners, consultants and anyone in the domain of interest from around the world to discuss on creating awareness on the prevention of Non Communicable Diseases.

For more info: <http://ncdccongress.co/>

3rd International Conference on Health and Medicine

25th August 2017

Colombo will host the 3rd International Conference on Health and Medicine on the 25 August 2017 at Sri Lanka, under the theme of "Healthy People for Sustainable Development". The conference will bring together academics, leading researchers, professionals, engineers, practitioners, scholars and scientists or anyone in the domain of interest from around the world.

For more info: <http://healthandmedicineconference.globalacademicresearchinstitute.com/main/tichm>

Public Health Association of South Africa (PHASA) Conference 2017

5 -7 September 2017

The Public Health Association of South Africa (PHASA) Conference 2017 will be held at Indaba Hotel, Fourways, Gauteng province from the 4th to 7th September 2017. The conference will critically reflect on the World Federation of Public Health Associations (WFPHA)/World Health Organization (WHO) collaboration "*A Global Charter for the Public's Health*" and its implications for public health in South Africa. Although the conference focuses on implications in the South African setting, it is encouraged that the colleagues from Africa and the rest of the world to submit abstracts and share the lessons they have learnt with South Africans.

For more info: <http://www.phasaconference.org.za/>