Africa's response to childhood infection

The AfSPID BULLETIN

Volume 3 (2) Newsletter of the African Society for Paediatric Infectious Diseases September 2015

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EDITOR'S COMMENTARY

Dear Colleagues

Welcome to the fourth edition of our newsletter.

WSPID 2015 is rapidly approaching. We will have another opportunity to meet, this time in Rio de Janeiro, a year before Brazil hosts the next Olympic Games. AfSPID will be hosting a symposium on Friday 20 November 2015 and Mark Cotton plans to organise a meeting for AfSPID members – the venue and details will follow.

In this second edition of the newsletter for 2015 we feature another article on Ebola written on this occasion by Juli Switala, in which she presents a personal account of her recent experiences of working in Sierra Leone, Angela Dramowski provides guidance on tuberculosis infection control practice, Ombeva Malande reviews the 15th annual scientific conference of the Kenya Paediatric Association and in the Journal Watch section Brian Eley discusses recent publications on the care of HIV-exposed and -infected newborns, and the treatment of young infants with ART.

The Global Polio Eradication Initiative remains newsworthy. Only one serotype of wild poliovirus (WPV) remains i.e. WPV type 1. Circulation of WPV type 2 stopped more than 15 years ago, and in September 2015 the Global Certification Committee is expected to formally affirm that global circulation of WPV2 has ceased. Furthermore, no case of WPV type 3 has been reported globally since November 2012. Even more exciting from an African perspective is that on 24 July 2015 Nigeria achieved a significant milestone in its contribution to the global polio eradication initiative, i.e. one year without a single case of wild type polio. The absence of circulating wild type polio in Nigeria has had a huge positive impact on the rest of the African continent. Since 22 August 2014 there have been no cases of wild type polio reported in Africa. A much anticipated step in the Global Polio Eradication Initiative is the global withdrawal of trivalent oral polio vaccine and its replacement with Types 1 & 3 bivalent oral polio vaccine in April 2016. Pakistan, one of two remaining endemic countries in which wild type polio is still circulating, has recently initiated a massive vaccination campaign, which will hopefully take us closer to global eradication.

I hope that you find this edition of the newsletter interesting.

Kind regards, Brian Eley

EBOLA IS THE EASY PART

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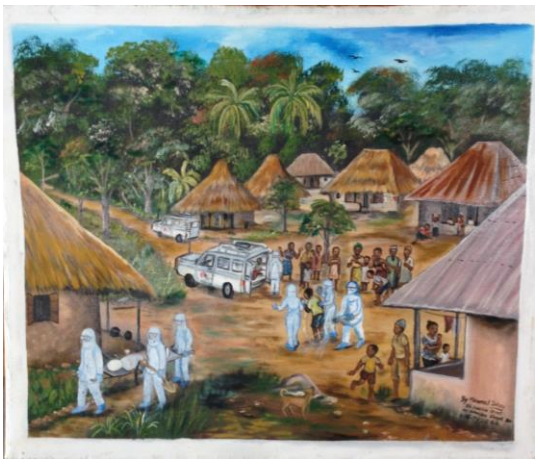
I was sent to Sierra Leone a few days before the first case of Ebola passed the border. The plan was to work in the second biggest city, Bo, at a paediatric and maternity hospital run by MSF (doctors without borders) in my capacity as a paediatrician. I had wanted to work at this project since joining MSF. Somehow, being a part of a healing process in a country where a civil war had ruined the lives of many, particularly child soldiers, felt like a worthwhile thing to do. However plans changed, and I ended up working in Medecins sans Frontieres (MSF) Ebola treatment centres and later supporting new treatment centres started by other NGOs.

Photograph 1: **A painting by a community member depicting safe handling of the deceased and patients being taken to a treatment centre.**



This is simply my account of an aspect of the horror that unfolded in my hospital and in my town, and is no way intended to be an academic piece. There are enough of those. I stopped reading the articles written by experts with advice on Ebola management, elegantly modified from their wealth of experience with cholera and dengue

fever, but who have never had to write the word Ebola on a death certificate.

In fact, I don't want to write much about Ebola at all, but rather to explore the setting in which this epidemic is taking place which may explain why it has been so devastating, and unfortunately why the worst effects will only be seen months and years after the last pair of boots have been burned and the world has lost interest.

Some statistics to show that I am not making this all up: Sierra Leone's population was 6 million in 2012. Life expectancy at birth was 45 years [1]. In 2011 it was ranked 180 out of 187 countries in the Human Development Index [2]. 60% of the population lives below the national poverty line, and 70% of young adults are unemployed or underemployed[2]. Infant mortality rate was 117deaths/ 1000 live births. Under 5 mortality was 182 deaths/1000 live births (at that stage, the highest in the world)[3]. 44% of children were classified as stunted and 21% moderately or severely wasted[3]. Maternal mortality ratio in 2010 was 890/100 000 live births, and lifetime risk of maternal death was 1 in 23[3].

Photograph 2: **Apart from being on a main road- a typical village in Sierra Leone. Communities live, eat, socialise and work very closely together-making the spread of a disease spread by contact very difficult to control.**

Having worked in poor areas in South Africa, I felt that I was equipped to deal with what I would see in Bo: malaria, malnutrition, neonatal sepsis, HIV, TB, minor surgical conditions and the consequences of traditional medicine and inadequate maternal health services. I was wrong. Children with haemoglobin and glucose levels that I did not think were compatible with life, unconscious for days, convulsions unresponsive to treatment, skin infections that looked more like full thickness burns, caustic soda (which is used to make soap, so is readily available in most homes) ingestion causing oesophageal strictures, 2 wards dedicated to severe malnutrition, rabies, tetanus – were all in a day's work. My colleagues in obstetrics had the equivalent conditions to deal with – severe postpartum haemorrhage, uterine rupture, eclampsia, septic shock and obstructed labour.

Lassa fever, a haemorrhagic fever similar to Ebola, is endemic in Sierra Leone, and our facility had suffered infections and deaths of both patients and staff. This created a constant source of fear and also dictated many of the infection control measures in the hospital, for example: not being allowed to examine any patient, regardless of symptoms, without gloves on. Very limited laboratory and treatment equipment (no ventilators, no incubators) made work tough, but learning to adapt is part of working with MSF. We were sometimes faced with the quandary of what to do for severely anaemic patients for whom the only compatible blood was malaria positive- a dilemma I had never dreamed I would be faced with.

So, in short, providing medical care in Sierra Leone was pretty tough even before Ebola, mostly, because life itself was pretty tough even before Ebola. I only started to appreciate this fully once I immersed myself into my new neighbourhood, and the lives of my new neighbours.

In the 6 districts that I visited, I never saw a factory or any business bigger than a private home. With very few employers, the vast majority of people live fairly hand to mouth. Families don't live isolated lives - they can't. Cooking, social and working spaces are often communal. In the town where I lived, the workload is shared; while one group of people tends to the homestead and prepares food (from scratch: crushing grains by hand, peeling peanuts, plucking chickens. No electricity=no refrigeration + subtropical climate = fresh. every day), some attend to children and the elderly, someone walks to the nearest water source to do hand washing and fill buckets for home use, others are chopping wood for the fire or bridge or roof while some tend to whatever may have been planted and a smaller group transport and sell the mangoes, potato leaves or fish at the market for a meagre income. Life is rather labour intensive, and requires team work. A wonderful notion, but not a good thing when trying to stop the spread of a communicable disease in which touching and sharing is not recommended. For people from such tight knit communities, returning home once cured of Ebola was often rather traumatic. Some were rejected by their communities, some arrived and found their village had been quarantined so they were not allowed in, some returned home to find their entire family had been wiped out and a large proportion of their friends and neighbours had died or run away.

I was surprised at first that despite the lush, tropical landscape with so much open space, I saw no farm lands, no cattle. A few little rice plantations, fruit trees and subsistence quantities of vegetables planted in some yards, chickens and goats wandering around. I imagine that a civil war which displaced almost 50% of the population[4] might be rather disruptive to the building of a sustainable agriculture infrastructure. No money, very little farming, not even any milk... malnutrition seems unavoidable. Discharging patients with a bag of plumpy nut (a nutritional supplement) just felt so futile. Breastfeeding babies who had lost their mothers were even more vulnerable- a few packets of formula don't last forever. This was something that worried me once we were discharging Ebola patients too- nutrition is one of the cornerstones of treatment, even once patients are declared cured many are still quite unwell and undernourished. What were they going home to? Many still too frail to fend for themselves and returning to empty homes where the crops may have died and the chickens run away. Where would they be in 6 months? I still don't know.

People get from point A to B using motorbike taxis. Even now. (The hazards of being a motorcyclist in an Ebola context, spending days with strangers hugging ones back, don't seem to have deterred many, but I suppose like a

prostitute in an HIV context- you need to eat, so you need to work.) This seemed a bizarre mode of transport to me at first; surely a minibus would be a more efficient way to get around. But then rainy season hit, and I understood. Some roads become simply impossible to cross, others have a sliver of mud between the pools of water that a motorbike but not a 4 wheel vehicle, might attempt to manoeuvre over. I saw many an ambitious car left stranded for days until the mud had dried enough for it to be (manually- with men, ropes, shovels) pushed out. So, getting to hospital is not a simple thing. Even women in labour face the choice of motorbike-ambulance or home delivery. Drugs, including antibiotics and antimalarials, are freely available in the market without a script (there is no testing, no pharmacist, refrigerator or regulator involved either), and malaria being so common that most people can correctly self-diagnose it, it suddenly made sense why so many patients waited until their children were on deaths door before bringing them to hospital. Once this became an Ebola context, this practise posed a great danger to families, as the more symptomatic a patient becomes, the higher the viral load tends to be and the more infectious he or she is to others.

Photograph 3: **A police check point. Most main roads had multiple check points at which travellers would have temperatures checked before being allowed to pass. One of the many factors negatively affecting health seeking behaviour during an Ebola epidemic.**

Once Ebola hit Bo district, there was a sharp decline in hospital attendance despite it being the peak of malaria season. People were simply terrified to come to hospitals for fear of contracting Ebola, or what might happen to them if it was the suspected diagnosis. I was fully aware that the dehydrated / anaemic / convulsing /septic/ hypoglycaemic / premature patients we would typically have been seeing had not disappeared - they were just dying at home, and would continue to do so until Ebola was eradicated. The number of confirmed Ebola deaths, which has been quoted in the media during the epidemic, does not reflect the number of deaths indirectly linked to the outbreak, which I am sure is substantially higher. The way we had to practise medicine also changed drastically. Each woman and child had to be assessed for Ebola before being seen in casualty- a labour and time intensive necessity, which delayed life-saving treatment by a few minutes more. A nationwide curfew meant that no motorcycles were allowed to operate at night, meaning that patients requiring assistance at these times had no way to get to hospital anyway. Eventually we were forced to suspend obstetric, and later, paediatric activities as the calculations with variables like risk to staff and patients, lack of human resources, case load and priorities dictated. The implications of this were heart breaking for us all. Many local staff would lose their jobs, and many patients would lose their lives. I found working in a treatment centre to have its difficulties, but it does not hold a candle to the emotional, strategic, safety and ethical challenges we had to deal with in trying to deliver routine medical care.

In Sierra Leone, almost everything is made by hand - bricks, clothes, food, furniture and bridges. I would pass a man swinging a pick axe in the morning and pass him again in the evening next to a slightly smaller rock and a small pile of freshly made gravel. What cannot be made, must be imported, at high cost, and then transported on sometimes precarious roads in poorly maintained vehicles. This made getting a treatment centre, nay, multiple treatment centres up and running a sight to behold, and I salute the colleagues who worked so tirelessly so that we had a place and equipment to work. I think the logistics of a moon landing may be simpler. Hundreds of men with machetes cutting down grass and jungle in order to make space for a few hundred square metres of gravel to be laid (see above for how gravel gets made), tents which weigh a few tons coming over the sea to be erected, countless meetings with community leaders and government officials to assure our safety and acceptance, boreholes to be dug, scrubs to be hand sewn, radio and internet signals to be established, hundreds of new employees to be trained to do a simple job- but one that allows for zero errors, hundreds of kilograms of chlorine to be sourced, hundreds of contracts to be signed, vehicles to hire...and all this racing against a clock, and in bad weather.

Eventually the world listened, and before I left there were plenty of impressive, enormous structures filled with willing staff, all the medication and equipment I could dream of, but very few of them have been full. Too much, too late. The damage was already done, and Ebola was following its natural course and receding.

Photograph 4: **The temporary Ebola isolation unit at Gondama Referral Centre in Bo, Sierra Leone. The opening of a formal treatment facility was delayed due to multiple logistical difficulties related to transport, supplies, staffing and heavy rain.**

I am as happy as anybody else to hear that the number of new infections has drastically reduced. In a few months, Ebola will be gone. However, I try not to think about the levels of malnutrition, poverty and psychological scarring that will only really be apparent in a few months' time. Will there be any improvement in the way malaria and childbirth and diarrhoea are managed? That would

require the shadow of a healthcare system, which was frail to begin with to rebuild itself, with fewer qualified people (as healthcare workers ranked highly in the list of fatalities) and less support. So my guess is no- the body count for Ebola will continue to rise long after the epidemic has ended. Can this feeble economy which has been further crippled expect much assistance from the first world? Will the massive, multimillion dollar treatment centres be turned into schools? I would be surprised. Paying for hazmat suits has an appeal that paying for textbooks simply does not. I worry about the number of orphaned children, child headed homes and elderly people who had a regular family unit this time last year, but have a different reality now. The deaths, loss, heartache, fearlessness, poverty and plight of my friends, colleagues, patients and neighbours in Sierra Leone will slide out of view as the world shifts its vicarious gaze to something more interesting than just another unlucky African country.

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TUBERCULOSIS INFECTION CONTROL FOR PAEDIATRIC HEALTHCARE WORKERS

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Risk of nosocomial TB transmission in paediatric healthcare settings

Most children with pulmonary TB are not infectious, as they have paucibacillary disease and lower concentrations of exhaled TB bacilli (in respiratory aerosols) than adults. Patient factors that increase risk of TB transmission from children include presence of lung cavities, extensive lung disease (with increased bacillary load), greater tussive force (in older children) and short duration of effective TB therapy (< 1 week).

A greater danger for patients, parents and staff in paediatric healthcare settings, is nosocomial TB transmission from adults with undiagnosed or untreated pulmonary TB (who accompany children to clinics and hospitals). In a study of hospitalised children (most < 2 years of age) with suspected TB, 12% of mothers who had chest radiography performed had active pulmonary TB.[1] In South Africa and many other Sub-Saharan African countries, women of childbearing age have some of the highest rates of TB and TB-HIV co-infection worldwide.[2] Several instances of nosocomial TB transmission in paediatric settings are documented (mostly from high-income settings).[3-7] The true extent of nosocomial TB transmission in African paediatric settings is likely underestimated and underreported, given the long duration between TB exposure and disease onset and widespread TB exposure at community level.

In contrast, the elevated risk of TB infection among African healthcare workers is well-documented. TB incidence rates among healthcare workers are double to triple that of the general population[8], with alarming increases in drug-resistant occupational TB in the last decade.[9,10] A recent South African study showed that working on a paediatric ward or in an outpatient department, is associated with a doubling of occupational TB risk.[11] Although clear guidelines for best practice of TB infection control[12-13] exist, many healthcare facilities in low-resource settings fail to implement them[14-17] with consequent elevated risk of TB transmission to both staff[18] and patients.[3,19] This article discusses TB infection control (TB-IC) measures for healthcare facilities, with a focus on paediatric settings.

The hierarchy of TB infection controls

Infection control is a process of developing and implementing evidence-based practice to improve the quality and safety of healthcare delivery. TB-IC include a set of interventions to reduce TB transmission, both in healthcare and community settings. These interventions are known as the "hierarchy of TB controls", ranked in order of administrative, environmental and personal respiratory protection. These interventions require interaction and co-operation from multiple role-players including facility managers, healthcare workers, laboratory staff, patients and caregivers.

Aims of the hierarchy of TB infection control interventions	
1. Administrative	✓ reduce production of TB aerosols in the healthcare environment
2. Environmental	✓ remove or reduce the concentration of TB aerosols
3. Respiratory protection	✓ reduce the risk of inhalation of TB aerosols

1. Administrative controls

The administrative controls for TB-IC are the most effective means of reducing production of TB aerosols in the environment. Early diagnosis of TB is the most critical intervention to reduce TB transmission and includes: high levels of diagnostic suspicion, rapid specimen collection and processing, patient recall to commence treatment, treatment adherence and active case-finding among household TB contacts with isoniazid preventive therapy

(IPT) where indicated. In paediatric settings, it is especially important to consider the possibility of TB in the adult caregivers of the child. For children requiring hospitalisation, accompanying adult caregivers should have basic TB symptom screening performed (with a chest radiograph if symptomatic) before being admitted on the wards. Similarly, in congregate settings like clinics and outpatient departments, every effort should be made to separate potentially or known infectious adults from children and to encourage cough etiquette/respiratory hygiene among patients and staff.

Administrative controls for prevention of TB transmission in healthcare facilities	
All roleplayers	✓ Promote TB awareness/education amongst staff, patients and community ✓ Encourage cough etiquette and respiratory hygiene ✓ Consider the possibility of TB in all patients
Facility management	✓ Assign responsibility and accountability for TB-IC ✓ Perform TB risk assessments and implement corrective action ✓ Develop, implement and evaluate a facility-appropriate TB-IC plan
Laboratory	✓ Ensure timely processing and reporting of specimens
Clinicians	✓ Implement effective clinical management of TB patients, including triage, isolation, prompt treatment and early discharge, where feasible ✓ TB symptom screen adult caregivers before admission on paediatric wards
Infection Control	✓ Train staff about TB-IC and personal respiratory protection ✓ Supply appropriate signage for TB isolation areas ✓ Conduct facility TB surveillance and TB patient ward visits
Occupational Health	✓ Evaluate staff at risk for TB; monitor and report occupational TB statistics

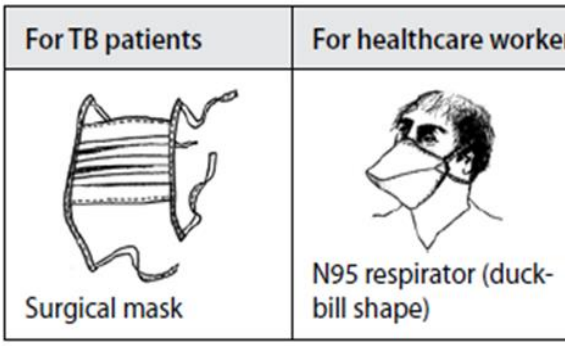
2. Environmental controls

Ventilation (movement of air) removes contaminated air and replaces it with fresh air. This dilutes the concentration of suspended TB aerosols and reduces infection risk. Ventilation can be natural (the preferred method), by means of open windows that generate draughts or air movement, or mechanical, including window-mounted extractor fans or sophisticated air-handling units. In very high-risk clinical areas (e.g. TB isolation rooms), negative pressure ventilation is recommended to achieve 12 – 20 air changes per hour (ACH). Cough rooms or sputum collection booths also require maximal ventilation, and where feasible are best located outdoors. Ultraviolet germicidal irradiation (UVGI) is an adjunctive intervention that kills TB bacilli suspended in the air. The role of UVGI in resource limited settings is still debated since UVGI lights require regular servicing and concerns remain over potential UV-induced skin damage.

3. Personal respiratory protection

N95 respirators are recommended for all healthcare workers exposed to TB, but are only effective if worn correctly and consistently. All staff should be N95 fit-tested (to assess conformance of the respirator to their face) every two years, with mandatory training on the correct technique for donning (putting on) and doffing (removing). N95 respirators may be re-used over several days (maximum 8-12 hours total use) but must be stored dry (in an envelope) and intact (not folded/crushed/torn) in order to maintain the filtering ability. Significant reduction in nosocomial TB transmission may be achieved by intermittent use of surgical masks on patients with infectious TB e.g. untreated TB, <2 weeks on effective therapy, lung cavities or drug-resistant TB. Patients only need to wear surgical masks when they are moved out of isolation to undergo procedures or when a healthcare worker is present in the isolation room. N95 respirators should not be used on patients with TB as they aggravate dyspnoea and have no additional benefit in prevention of TB transmission when compared to surgical masks.

Face-covers (respirators and masks) used for personal respiratory protection against TB infection



Surgical masks	**N95 respirators**
For infectious patients only, when not in isolation or when a health-care worker is present in the room	Recommended for maximal protection of healthcare workers against airborne infections, including TB. NOT for use on patients with TB (as it aggravates dyspnoea).
Uniform flat configuration	Various sizes and designs to suit different face shapes e.g. cone-shape, duck-bill, some have expiratory valve.
Fit-testing not required	Requires fit-testing every 2 years
Filter efficiency variable	Filters out 95% of aerosolised particles
Single-use only, discard immediately after use	Re-usable by same worker over several hours or days if stored correctly (dry, not crushed, in an envelope with name).

Picture credit: Dramowski A. Infection Prevention and Control. A guide for healthcare workers in low-resource settings. Bettercare. September 2014.

Increasingly, paediatric healthcare settings are being recognised as high risk areas for TB transmission. Despite available and implementable TB-IC interventions, many African healthcare facilities and healthcare workers continue to place themselves and their patients at risk for occupational and nosocomial TB. All paediatric healthcare workers should acknowledge this risk and take action to improve TB-IC implementation in the workplace.

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HIGHLIGHTS FROM THE 15TH ANNUAL SCIENTIFIC CONFERENCE OF THE KENYA PAEDIATRIC ASSOCIATION, APRIL 2015, MOMBASA, KENYA

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On 14th – 17th April 2015, the Kenya Paediatric Association (KPA) held its 15th Annual Scientific Conference, at the Sarova Whitesands Beach Resort and Spa Hotel, in Mombasa Kenya. This followed a very successful hosting by the KPA of the 10th International Conference on Tropical Paediatrics in Nairobi Kenya, on 24th-27th August 2014; which reflected on progress towards achievement of the Millennium Development Goals, under the theme : "Tropical Paediatrics and the MDGs: Where are we?"

This year's conference under the theme: Optimal Child Health – "Building Blocks for the future," focussed on the less spoken of illnesses and populations: the non-communicable diseases, adolescence health, cardiology and oncology. The conference began with a two days pre-congress with workshops on early childhood development and on technology of the bubble CPAP. This was followed by a two day conference, which featured plenary talks by global and regional leaders in their specialties and four parallel tracks on each day.

There were still some presentations on areas of interest to paediatric infectious diseases:

a. Plenary on Cross cutting issues in vaccines
b. Symposium on adolescent and paediatric HIV
c. Paediatric infectious diseases symposium

Cross cutting issues in vaccines:

This plenary session covered various issues that relate to vaccines. In one of the sessions, updates were given on the current state of polio eradication campaigns, and the effort to complete the remaining 0.1% eradication of polio worldwide. 22 cases had been reported in Pakistan and Afghanistan between January and April 2015. The key message was that there will be need for synchronized switch for all countries from OPV to IPV as we aim to attain the 2018 target. Another presentation focused on recent typhoid fever outbreak in Kampala Uganda, and whether a typhoid vaccine is a solution for future control of typhoid fever. The presentation on rabies vaccine focussed on benefits of vaccine, and pre and post exposure prophylaxis and vaccination for health professionals.

The session on Hepatitis B emphasized the need for a hepatitis B vaccine birth dose, to comply with the WHO recommendation that all countries offer this additional dose by 2017. The talk on cholera emphasized the need for prevention in the control of cholera outbreaks and discussed the value of cholera vaccine.

Finally, there was a presentation on the East Africa Centre for Vaccines and Immunization (ECAVI); which is an initiative of vaccine experts, medical schools & organizations that promote advocacy, research, training and support of health systems towards improved coverage and uptake of vaccines in East Africa (including the five EAC member states Burundi, Kenya, Rwanda, Tanzania and Uganda, plus Sudan, South Sudan, Ethiopia, Eritrea, Djibouti and Somalia). Political and economic developments within the East African community provide a timely opportunity for joint initiatives that can promote health in the East African region. Vaccine preventable illnesses are the largest contributors to under-5 morbidity and mortality in East Africa. The six conditions that account for about 70% of all child deaths in the Eastern Africa region are acute lower respiratory infections, mostly pneumonia (19%), diarrhoea (18%), malaria (8%), measles, (4%), HIV/AIDS (3%), and neonatal conditions.

ECAVI provides a much needed and timely platform for the promotion, research, education and advocacy for vaccines in East Africa, in order to help reduce morbidity and mortality due to vaccine preventable diseases. ECAVI provides a platform and forum for exchange and sharing of up to date and accurate information about vaccines in Eastern Africa. It also provides links to up to date statistics regarding vaccine and immunization coverage and indices within East Africa. ECAVI runs up to date programs for training and continuous education about vaccines to health professionals, policymakers, programme managers and vaccine handlers within East Africa. It provides up to date information and responds to questions about vaccines, to health care providers, medical/nursing students, parents, and the general public. ECAVI advocates for and participates in continued research in the area of vaccines, through designing low cost easy to implement systems and models to improve vaccine uptake, coverage and how vaccines can be made safer, while encouraging the utilization of new research findings on current and newer vaccines into existing programs for vaccination and immunization within East Africa. ECAVI runs a website: www.e-cavi.com.

Symposium on adolescent and paediatric HIV

This symposium mainly had two sessions, one that emphasized the need for improved care and focus on improving the quality of HIV services to children living with HIV in Kenya. The second session discussed the challenges and opportunities among adolescents living with HIV, and the need to focus on and involve the affected adolescents in their own care in the HIV care clinics and programs.

Paediatric infectious diseases symposium

This symposium had six presentations. One session focussed on bronchiolitis, with the fact that most cases are misdiagnosed leading to mis-management. The need to add differential diagnosis of bronchiolitis to national Basic care protocols, increase training and awareness on bronchiolitis and testing were emphasized. The results of a study on forecast accuracy for paediatric ARV drugs in Kenya was discussed, and that considerable inaccuracies were unearthed for six of seven products considered. Children were more likely to turn 25kg at 8 years age as opposed to 15 years as earlier assumed, and weight was therefore found to be a more reliable determinant of formulation selection than age.

Results of a systematic review of SIADH in children with paediatric community acquired pneumonia were presented, which showed a prevalence of hyponatremia in pneumonia to be 25-30% and SIADH 30-60%; therefore strongly advocating for restriction of fluid in children admitted with pneumonia. Another presentation focussed on a practical approach to the treatment of low risk childhood fever and pyrexia of Unknown origin, while researchers from Kenya Medical research Institute (KEMRI) presented a review on causes of relapse in patients with TB infection or latent TB and the predictors for relapse. They also reviewed recent studies that have looked at shortening TB regimen to 4 months with the possible use of fluoroquinolones in the OFLOTUB and RIFAQUIN trials. A case report was presented for a child with very high fever, up to 45^{o}C who suffered from acute rotavirus gastroenteritis, and the challenges involved in the management.

The final presentation was preliminary results of a retrospective observational study describing the emergence of Carbapenem Resistant *Enterobacteriaceae* (CRE) at Red Cross Children's Hospital, Cape Town, SA between 2012 – 2015. Up to 19 cases of CRE colonisation/infection have been reported, with 7 developing infection attributable to the CRE. The infected cases were often treated with colistin monotherapy, with only two were treated with colistin/amikacin combination, two colistin/ciprofloxacin. Nine of the 19 had New Delhi Metallo-beta-lactamase (NDM) gene, 3 had Guiana Extended-Spectrum (GES), while the rest tested negative. Nine of the 19 had a positive Modified Hodge test result. The use of carbapenems is increasingly being undermined by the emergence of CRE, and early detection of CRE, with emphasis of the principles and practices of Antibiotic Stewardship are key to guiding infection control and treatment decisions and supporting surveillance efforts.

JOURNAL WATCH

Managing high-risk neonatal HIV exposure and treating neonates with ART

Review completed by Brian Eley

The Mississippi baby has drawn attention to the care needs of HIV-infected neonates [Persaud D, *et al*. NEJM 2013;369:1828]. Furthermore, several sub-Saharan African studies have documented high mortality and rapid disease progression in HIV-infected infants less than 3 months of age. Bourne *et al.* identified a peak in mortality between 1 and 3 months of age owing to HIV infection

[Bourne D, *et al*. AIDS 2009;23:101]. A pooled analysis of HIV-infected infants enrolled in 12 studies confirmed that a significant mortality risk exists between 1 and 3 months of life [Marston M, *et a*l. Int J Epidemiol 2011;40:385]. Of 532 infants aged 6 to 12 weeks who were screened for eligibility for the CHER trial, 122 (22.9%) were excluded from the trial because they had advanced HIV disease [Violari A, *et al*. NEJM 2008;359:2233]. Finally a recent analysis from Cape Town and Soweto showed that of 403 infants started on ART in routine clinical practice before the age of 12 weeks, 62% had advanced HIV disease [Innes S, *et al.* J Int AIDS Soc 2014;17:189]

To address the specific care needs of HIV-exposed and –infected neonates the Southern African HIV Clinicians Society held a colloquium in February 2014. Arising from this meeting was a series of articles by Gayle Sherman, Max Kroon, Louise Kuhn, James Nuttall, Mary-Ann Davies and Brian Eley addressing HIV testing during the neonatal period, preventing HIV transmission in the high risk newborn, breastfeeding, antiretroviral therapy during the neonatal period and research gaps.

These articles cover important practical questions and fill gaps in global and national guidelines. These papers should appeal to practicing clinicians faced with the challenge of treating HIV-exposed and –infected newborns.

References: The following papers are available in the Southern African Journal of HIV Medicine, volume 16(1), 2015, URL:

http://www.sajhivmed.org.za/index.php/hivmed/issue/view/28

Eley B. Care of HIV-exposed and HIV-infected neonates (editorial)

Kroon M. Recognising and managing increased HIV transmission risk in newborns

Kuhn L & Kroon M. Breastfeeding and the 2015 South African guidelines for the prevention of mother-to-child transmission of HIV

Sherman G. HIV testing during the neonatal period

Nuttall J. Antiretroviral therapy during the neonatal period

Davies M-A. Research gaps in neonatal HIV-related care

Outcome of infants treated with ART

Review completed by Brian Eley

Research by Newell ML, *et al*, [Newell ML, *et al*. Lancet 2004;364:1236] showed that in the absence of optimal therapy HIV-infected infants and young children are an extremely vulnerable group of patients. Conversely, the CHER trial [Violari A, *et a*l. NEJM 2008;359:2233] showed that if antiretroviral therapy was commenced during the first 3 months of life in asymptomatic HIV-infected infants with minimal immunosuppression, mortality and disease progression risks are appreciably reduced. There are limited publications documenting the outcome of infants starting antiretroviral therapy in routine care in Africa. To address this gap, Porter M, *et al.* recently completed an analysis on prospectively collected data of infants starting ART in routine care in 11 paediatric treatment cohorts from South Africa, Zimbabwe, Malawi and Zambia.

Outcome data on 4945 infants initiating ART (children <12 months of age) were analysed. The median age at ART initiation was 5.9 months. Unlike the infants recruited to the CHER trial these infants had advanced HIV infection with 77% having WHO stage 3 or 4 disease and 87% having severe immunosuppression at ART initiation. The 3-year mortality probability was 16% and the lost-to-follow-up probability was 29%. At 12 months after ART initiation 17% remained severely immunosuppressed and the probability of virological suppression was 56%.

In conclusion, infants started on ART in routine care in Southern Africa have advanced disease. Despite being treated with ART they remain vulnerable and their outcomes are sub-optimal, suggesting that earlier ART initiation when their HIV disease is still mild and better support during the initial months of ART are required to improve their outcome.

Reference: Porter M, Davies M-A, Mapani MK, et al. Outcomes of infants starting antiretroviral therapy in Southern Africa, 2004 – 2012. J Acquir Immune Defic Syndr 2015;69(5):593-601.

CONFERENCE & SOCIETY NEWS

6th FIDSSA Congress takes place from 5 – 8 November 2015 at the Champagne Sports Resort, Drakensberg, KwaZulu Natal, South Africa. For more information consult the FIDSSA website: http://www.fidssa.co.za

18th International Conference on AIDS and STIs in Africa (ICASA) takes place from 8 – 13 November 2015 in Tunis, Tunisia. For more information consult the conference website: http://www.icasa2015tunisia.org

9th WSPID conference takes place from 18 – 21 November 2015 in Rio de Janeiro, Brazil. For more information visit the Paediatric Infectious Diseases Society website: http://www.pids.org/ AfSPID will once more host a dedicated symposium at this conference.

46th Union World Conference on Lung Health: This conference takes place from 2 – 6 December 2015 in Cape Town, South Africa. For more information visit the conference website: http://www.theunion.org/what-we-do/conferences/world-conference-on-lung-health/46th-union-world-conference-on-lung-health

17th International Congress of Infectious Diseases (ICID 2016) takes place from 2 – 5 March 2016 in Hydrabad, India. For more information consult the conference website: http://www.isid.org/icid/

Southern African HIV Clinicians Society 3nd Biennial Conference: This conference takes place from 13 to 16 April 2016 in the Sandton Convention Centre, Johannesburg, South Africa. For more information consult the conference website: http://www.sahivsoc2016.co.za/

The 21st International AIDS Conference will be held at the Durban International Convention Centre in Durban, South Africa, from 17 to 22 July *2016*. For more information visit the conference website: http://www.aids2016.org/

5th Biennial Congress of the African Society for Immunodeficiencies (ASID) will be held at the Zambezi Sun Hotel, Victoria Falls, Livingstone, Zambia from 12 to 14 April 2017. For more information consult the ASID website: http://www.asid.ma

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THE AfSPID BULLETIN

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Letters to the editor: Maximum of approximately 400 words and 6 references, with one illustration or table.

Review article or commentary: Maximum of approximately 3000 words (excluding references), 40 references, and 6 tables, illustrations or pictures.

Research feature: Research feature should be preceded by a 200 - 300 word biosketch of the featured young researcher. The research commentary should have a maximum of approximately 3000 words and 40 references.

Conference report: An introductory paragraph is recommended in which the conference details and focus is described. The conference report should focus on new developments and what they mean for African settings. Maximum of approximately 2500 words, 40 references, and 6 tables, illustrations or pictures.

Case report: The main elements should be an introduction, the case report and the discussion. Maximum word count of approximately 1500 words, 15 references and 3 tables, illustrations and/or pictures.

CONTACT DETAILS

Should you wish to submit articles, case reports, comments or letters for publication in the AfSPID Bulletin, please email your contribution to Brian.Eley@uct.ac.za