THE FEDERATION OF INFECTIOUS DISEASES SOCIETIES OF SOUTHERN AFRICA

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Points of interest

Experiences of Ebola from the Front Line

A review of Pertussis

The National AMR Summit

Ebola; What next? - Dr Rosie Burton (Centre)

Ebola has caused over 5,000 deaths in Guinea, Sierra Leone and Liberia, and has devastated existing fragile health services, infrastructure and economies. Sierra Leonne and Liberia have recently recovered from civil war, and were at last entering a time of stabilisation and growth.

Over 4 times as many people have died in the current outbreak than in all of the 24 previous outbreaks added together. This is not only the largest individual outbreak but also the longest, with the index case occurring in Guinea in December 2013. It is also the first to occur over such a wide geographical area, and involve urban areas, and a very mobile population. Previous outbreaks have largely been in isolated rural areas in Central Africa, with little inward or outward travel to result in widespread transmission of the disease.

I have recently returned from Monrovia, where I worked for a month at the ELWA 3 Ebola Treatment Unit, with Médecins Sans Frontières. During this time, the rate of new infections in Monrovia significantly reduced, and gave rise to much discussion about future management of ebola, the inequities of care between the small no. of cases managed in resource rich settings, and W Africa, and how outcomes can be improved in resource poor settings. Here is a summary of some the issues that working in a treatment centre raised for me.

Is there inevitably a high mortality with ebola?

Haemorrhage is not common in ebola infection. Ebola in W Africa generally presents as a febrile gastrointestinal illness, with severe fluid and electrolyte losses from vomiting and diarrhoea. Because of this, the clinical syndrome resulting from ebola infection is now called Ebola Virus Disease, rather than Ebola Haemorrhagic Fever. Pain is a prominent symptom; patients often described pain as being 'from the top of my head to my toes'. Patients are frequently very weak, and unable to sit or stand, and are confused. Whether weakness and confusion are due to direct effects of the viral infection alone causing encephalitis and myositis, or whether electrolyte loss is a major contributor is not known.

Management of an ebola outbreak is focussed on a public health approach; stopping transmission by isolating patients, contact tracing, and active case finding. This undoubtedly is the most important foundation for containing an outbreak, and preventing mortality. However is this enough? Mortality from ebola remains around 60% in Monrovia; can improved medical management improve outcomes?

This question has been raised in recent journal articles in the past few weeks. Fluid and electrolyte depletion characterise ebola, but go largely unmonitored, and are likely greatly underestimated. We often find it difficult in South African hospitals to measure fluid input and output accurately; in the context of an ebola treatment centre it is very challenging. There is little information in published studies to guide clinical management. Up to 8 litres a day of diarrhoea from ebola has been reported. 'Extreme levels of sodium and potassium' have been noted, with potassium levels often less than 2mmol/L. Most treatment centres have no laboratory capacity to measure basic biochemistry, despite having accesss to sophisticated PCR testing for ebola. Aggressive fluid and electrolyte replacement will likely save more lives. At ELWA 3, administration of IV fluids stopped completely at the height of the outbreak, when it was judged there were too many patients for this to be done safely. Intravenous fluid therapy and electrolyte replacement have now been re-introduced there. Intensive fluid management is known to be possible in resource poor environments, during cholera outbreaks for example. While there are extra considerations working with patients in the high risk area of an ETU, this is not a challenge that cannot be overcome.

New therapies for ebola: clinical trials in an outbreak context.

Much attention has been focussed on potential targeted therapies for ebola. These have been given on an individual basis to international staff repatriated to resource rich countries, and health care workers there who have subsequently become infected. With only a small no. of cases, and all of these patients having access to full intensive care facilities, it is not possible to assess whether these treatments were of benefit. On an equity basis, people in W Africa also need access to these drugs. The big question is how this can be implemented, and how to assess if they are safe and effective. MSF announced in November that 3 clinical trials would go ahead in the near future. In Conakry, convalescent serum from ebola survivors would be trialled; in Guéckedou, Guinea the antiviral drug favipiravir will be given, and at a location yet to be announced, a second anti-viral drug brincidofovir would be available. Both antiviral drugs have been investigated for other viral diseases; favipiravir is an anti-influenza drug, and brincidofovir has been shown to be effective against CMV, adenoviruses and pox viruses. Both are oral drugs, a considerable advantage over convalescent serum. Treatments that were considered for clinical trials included only those which would be available in sufficient quantities should they prove effective, in addition there being initial data on safety and efficacy. However these trials are bypassing the normal and accepted procedures for drug testing.

They will not be randomised controlled trials, but the drugs will be available to everyone. All trials will have similar recruitment criteria, allowing comparison across sites and between drugs. The end-point for all trials is 14 day survival, with trials terminating at interim analyses if survival is < 40%. Some have argued that randomised controlled trials must still go ahead, and that without high level evidence, there will be no basis on which to determine both efficacy and safety. The other side of the debate is that a placebo group is unethical given the high mortality rate, and that affected patients and communities need to have access to these drugs. Community engagement is essential, and ongoing. Having worked in a context where 60% of patients die, and 3 generations of a single family are often affected, I strongly support that these therapies are available in W Africa. They would almost certainly have been available to me as a healthcare worker should I have become infected with ebola as a result of working in Monrovia.

Re-opening of non-ebola health care facilities - 'ebola-safe' care:

Health care for diseases other than ebola is almost non-existent across the region at present. Health care workers have died, and facilities closed because of the impossibility of providing safe care should any ebola patients be admitted. As of two weeks ago, there were no non-ebola health care facilities open in Monrovia. Maternity centres have also closed. Pregnant women are severely affected by ebola, and generally miscarry or deliver due to their disease, with neonatal mortality at 100%. The fetus, placenta and amniotic fluid are highly infectious. Several previous ebola outbreaks have started with a pregnant woman with unrecognised ebola infection transmitting the disease to health care workers attending her delivery. Maternity centres have closed across Liberia, and urgently need to re-open, with measures in place to ensure pregnant women and staff are protected from infection. Similarly, most of the population now has no access to care and medication for general medical problems, including antiretroviral therapy for HIV patients. Deaths from non-ebola causes are increasing. International agencies need to urgently address the lack of access to care. In addition, a rapid test for ebola, similar to the rapid tests available for HIV, is essential. The outbreak in West Africa is far from over, and there are concerns it may become endemic or further epidemics will occur as the fruit bats that are the reservoir for ebola migrate due to destruction of their forest habitat. When the CDC laboratories consider their work is done and leave, there will need to be widespread capacity for simple and rapid testing in place. Rapid tests are in development, and every support needs to be given for them to be available as soon as possible.

Recognition of national staff:

One of the characteristics of ebola outbreaks is that healthcare workers are at high risk of infection. In the current outbreak across all 3 countries, 588 have been infected, and 337 have died. This will severely impact on capacity for rebuilding health systems in the future. In Liberia, there were only 51 doctors in the entire country before the ebola outbreak. ELWA 3 has over 600 national staff; these include physician assistants and nurses, and staff working with the water and sanitation team, mental health team, construction team, and in many other capacities. They are often invisible in international media reports, and I would like to acknowledge their dedication and hard work. Many have still not disclosed to their families that they work in an ebola treatment centre, due to fear they will be stigmatised. One of the legacies of international agencies working in ebola-affected countries must be to ensure that the national staff are given training and support on an ongoing basis to to enable them to rebuild sustainable health care systems both now and in the future.

Going Home. Survivors leave their hand print to mark the occasions

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Infectious Diseases News

Congratulations to the 3 ID fellows who passed their exams in October in Bloemfontein. Evan Shoul (left) will be taking up a consultant post in the ID department at Charlotte Maxeke Hospital, joining Sarah Stacey from January and his training post will be filled by Michelle Venter. Jan Pretorius (right) has already taken up a consultant post at Worcester Hospital in the Western Cape and Sean Wasserman (centre) will be replacing Dave Stead at Somerset Hospital in Cape Town. Dave will be relocating to East London to start an ID department at Frere Hospital and is a very welcome addition to the ID team in the Eastern Cape, doubling the numbers!

It is really encouraging that the footprint of infectious diseases is expanding slowly to help deal with the multitude of ID related problems facing South Africa. Unfortunately only one of the three training fellow posts of those who recently passed their exams was a dedicated ID training post, leaving a

further shortfall in funded training posts despite there being training numbers available. Dr. Terence Carter stated at the antimicrobial resistance summit in Johannesburg on the 16th October that each central hospital must have an ID unit that is appropriately staffed. This opens up the opportunity to train more ID sub-specialists for deployment in under-resourced provinces, however there needs to be a new approach to identifying and funding new training candidates to help expand the role of ID in South Africa. I encourage the provinces without ID services to identify candidates and fund training as supernumerary ID fellows to help grow ID outside of the main academic centres. The potential role for ID fellows after completing exams is expanding and completing the Cert ID now comes with a new set of expectations and responsibilities.

ICSSA INFECTION CONTROL SOCIETY OF SOUTHERN AFRICA News

The past quarter has been quite eventful with ongoing Ebola Virus Disease (EVD) preparations, as well as an important SANC meeting requesting recognition of a Diploma in Infection Prevention and Control Nursing.

EVD - Draft guidelines for the Infection Prevention and Control Management of a patient with EVD and specifications for Personal Protective Equipment have been drafted and submitted to the broader MNORT committee for comment. This has not been an easy task due to varying opinions across all sectors, but we need to standardise in order to prevent confusion. Documents will be moderated and finalised by Professor Adriano Duse prior to signing by the Minister of Health.

The most important messages are:

- Fluid impervious PPE (according to specifications) is used.
- When PPE has been donned, there is no skin or mucous membranes exposed.
- The sequence, in which PPE is donned, must allow for ease of doffing and minimize risk of exposure.
- Doffing is the most crucial step and a competent 'buddy'/monitor must assist and ensure that staff members do not get exposed.
- A thorough mandatory training is given on the use of PPE followed by practicing and mentoring for all users before engaging any clinical care is considered fundamental for preventing viral haemorrhagic diseases among health workers.
- Nitrile gloves are preferred over latex gloves due to latex degradation with the use of a hypochlorite disinfectant on gloves during the care of a patient as well as during the doffing process.

SANC - We met with the Professor Bhengu - President of South African Nursing Council (SANC) and submitted the first draft of the core competencies together with a request for the SANC to recognise a Diploma in Infection Prevention and Control Nursing.

Professor Bhengu thanked ICSSA for the vast amount of background work already done and invited an ICSSA exco member to attend a workshop in KZN whereby the public sector were also meeting with her to discuss and understand the process to get a Diploma in Infection Prevention and Control Nursing recognised. An exco member will attend the meeting and workshop and adapt the draft core competencies in line with varying needs.

Multi-sectorial work groups within ICSSA are currently being formed to work together with SANC on the detailed curriculum content.

During the visit to KZN, the group will be encouraged to form a new Chapter in the area and they will be provided with our guidance and support.

As the year draws to a close, we would like to thank you all for your hard work and commitment to Infection Prevention and Control and wish you and yours a wonderful and restful festive season!

Regards

Joy (Cleghorn)

Prevalence of Chlamydial infections within 8 South African Provinces, 2006-2011

Sexually Transmitted Diseases Society of Southern Africa

The sexually transmitted infections (STI) microbiological surveillance was undertaken as part of a new National Microbiological Surveillance Programme for STIs in eight provinces of South Africa (Western Cape, Gauteng, Free State, Northern Cape, Mpumalanga, Northwest, Limpopo and Eastern Cape) during 2006-2011. A nurse-administered questionnaire collected basic demographic data, clinical data and examination findings. The aim of the surveillance was to determine the aetiology of male urethritis syndrome (MUS), vaginal discharge syndrome (VDS), genital ulcer syndrome (GUS), and the prevalence of HIV co-infection in patients with these syndromes with emphasis on the prevalence of chlamydial infections among the studied population in the provinces.

Consenting consecutive enrolled patients provided endourethral swabs (MUS), an endocervical swab and vaginal swab (VDS) or a genital ulcer swabs (GUS). All patients provided blood for serology. DNA was extracted from endourethral and endocervical swabs for nucleic acid amplification to detect *Chlamydia trachomatis (*CT), *Neisseria gonorrhoeae (*NG), Mycoplasma *genitalium* (MG) and Trichomonas *vaginalis (*TV). Ulcer swabs from GUS patients were likewise tested by M-PCR for Herpes simplex virus (HSV), Haemophilus *ducreyi (*HD), *Treponema pallidum* (TP) and *Chlamydia trachomatis* L1-3, the cause of lymphogranuloma venereum (LGV) using a real-time in-house PCR. Serological evidence of syphilis was assessed by RPR while HIV and HSV-2 Serostatus were determined by rapid HIV test and ELISA respectively.

Overall, 202 (14.9%) MUS and 240 (14.2%) VDS cases were positive for *C. trachomatis* while 6 (1.3%) GUS cases were positive for *C. trachomatis* L1-3. The distribution of *C.trachomatis* infection is shown in Table 1 with the highest prevalence of 21.1% in Gauteng among men and 19.4% in women. The prevalence in other provinces was: Mpumalanga (men 18.4%; women 17.4%), Limpopo (men 14.0%; women 16.7%), Eastern Cape (men 16.4%; women 13.5%), Western Cape (men 13.5%; women 14.9%), Northwest (men 10.3%; women 11.1%), Free State (men 8.0%; women 9.8%), and Northern Cape (men 8.1%; women 9.6%). *C.trachomatis* LI-3 prevalence was 3.2% in the Free State, 2.8% in Mpumalanga and 0.7% in Gauteng and this seems to be related to high HIV infection, which was 53.4%, 70.8% and 68.5% respectively. Overall HIV among men ranged from 14.9% in the Eastern Cape to 54.3% in Mpumalanga, while among the HIV-infected women it ranged from 39.4% in Limpopo to 67.8% in the Northwest

province. Among those with GUS, the HIV prevalence ranged from 29.0% in the Western Cape and 83.3% in the Northwest.

Although the prevalence of *C.trachomatis* infection is steady in this study population, it remains an important cause of genital discharge in South Africa particularly in men who seldom visit the clinics to seek medical care; this may fuel the HIV epidemic which was high in most of the provinces in this study especially among men.

Frans Radebe. National Institute for Communicable Diseases / NHLS

Targeting infant mortality with maternal vaccination

In the past few years many national, international and non-government (NGOs) organisations have put in extraordinary efforts towards the achievement of the Millennium Development Goal for child survival (MDG 4). Whilst the global mortality of young children under 5 years of age has declined significantly in the last two decades, the mortality during the neonatal period has decreased at a slower rate. The prevention of neonatal mortality caused by infectious diseases during this early period of life has become an important area of need. One of the innovative ways to address this need is through maternal immunization programmes, which have the potential to prevent disease in newborn children as well as their mothers.[1,2]

The concept of maternal immunization has been established for some time. Maternal immunization provides protection to the newborn through transfer of vaccine-induced IgG across the placenta, a process that is itself affected by multiple variables.[3] Data on vaccine performance and safety, as well as the burden of disease during pregnancy and the newborn period are important considerations when developing and recommending maternal immunization programmes. Infectious diseases such as tetanus, pertussis, influenza, Group B Streptococcus and respiratory syncytial viral (RSV) infection are all targeted by current and future vaccines suitable for immunization in pregnancy.

Vaccinology Scientific Congress

The importance of maternal vaccination was emphasized during the 11th Vaccinology Scientific Congress that was held from 19 to 21 October 2014 at Zimbali Resort, Ballito. Professor Shabir Madhi welcomed the delegates and he focused on the current and new maternal vaccination strategies during his keynote address. He presented data from two double-blind, randomized, placebo-controlled trials of trivalent inactivated influenza vaccine (IIV3) that were conducted on HIV-infected and –uninfected pregnant women in South Africa by the Maternal Flu Trial (Matflu) Team. These results were also recently published in the New England Journal of Medicine.[4] The immunogenicity, safety, and efficacy of IIV3 in pregnant women and their infants were evaluated until 24 weeks after birth.

The results from the study show that influenza vaccination of pregnant women was associated with a 50% protection against influenza illness in HIV-uninfected women and 70% protection in HIV-infected women. The protection of HIV-infected pregnant women, approximately one-third of all pregnant women in South Africa, was particularly important as they were severely affected as a

vulnerable group during the Swine flu pandemic of 2009. Additionally, the study also showed that the infants born to mothers who received the influenza vaccine were also less likely to develop influenza confirmed illness until 6 months of age. This included 48% fewer episodes of influenza illness in infants born to influenza-vaccinated HIV-uninfected women and a similar trend observed in those born to HIV-infected women.

During the Vaccinology meeting, Dr Benjamin Kagina discussed the long term immune responses in HIV-infected adolescents and adults as well as the most effective strategies to increase vaccine responses, citing a review in the Clinical Infectious Diseases (CID) journal.[5] Other highlights of the meeting included an update by Dr Anne von Gottberg on new meningococcal vaccines, a welcome addition to the immunization armamentarium. Two further keynote addresses were presented by Professors Barry Schoub and Greg Hussey. They gave excellent overviews of the current worldwide polio burden and an overview of past, present and future of vaccines in the next decade, respectively. The Vaccinology quiz was again a highlight of the meeting. Professor Lucille Bloomberg and Dr Juno Thomas had excellent and challenging questions – the only time the dreaded Ebola outbreak was mentioned.

9th International Respiratory Syncytial Virus Symposium

The 9th International Respiratory Syncytial Virus (RSV) Symposium was held from 9 - 13 November 2014 at the Spier Hotel & Conference Centre, Stellenbosch, South Africa. This is the official conference of the RSV scientific community and it was presented on the African continent for the first time since its initiation in the mid-1990s. The programme covered a broad range of topics including estimates of global and regional morbidity and mortality of RSV-associated acute lower respiratory tract infection in under-5 children, epidemiology of RSV in children, and RSV vaccine and immunology research.

Ethical and medico-legal consideration

Although the potential impact of maternal vaccination is evident for the medical fraternity, the ethical and medico-legal considerations for vaccine safety and consent for vaccination during pregnancy should be contemplated. Most vaccines have not yet been approved for use in pregnancy and many vaccines, such as live-attenuated vaccines, are still contra-indicated. Health care providers should remain vigilante and up-to-date with vaccination recommendations during pregnancy and the postpartum period, and they must ensure that maternal autonomy is respected throughout. The Centers for Disease Control and Prevention (CDC) released guidelines for vaccinating pregnant women that was abstracted from recommendations of the Advisory Committee on Immunization Practices (ACIP); a well-written document that is worth downloading for future reference.[6]

Conclusion

The South African National Health Plan states that resources need to be rationally and effectively used, with priority given to the most vulnerable groups, in order to eradicate, prevent and control major diseases.[7] The body of data to support maternal immunization policies, some directly from South African centres, continues to grow. Further research to identify factors associated with vaccine receipt and confidence will help to target public health messaging in the future.

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SASTM News - Lee Baker

South African Society of Travel Medicine

In September 2014, SASTM hosted a very successful conference in Durban at the Elangeni Hotel. A number of International delegates as well as local delegates were welcomed.

The topics covered were varied and most interesting – from diabetes to rabies and everything inbetween, giving everyone some new information to take home.

Marc Mendelson was the key note speaker and his topic " Antimicrobial resistance – Crossing borders and crossing the Rubicon" made everyone sit up and listen, but will all players do their bit? This is in reality more frightening than ebola!

Two of the talks related to success stories in South Africa – The first one being the positive impact of the rabies programme in KwaZuluNatal. Kevin le Roux, from Veterinary Services explained the project that has won several awards for service excellence and that they were celebrating a year of no human rabies cases in KZN. Quite an achievement!! The second is in regard to the mapping and spatial analysis of malaria distribution in South Africa and other countries. Natashia Morris from MRC demonstrated how they are able to designate malaria risk areas based on actual cases.

There was a new format for part of the conference this year and 30 minute workshops were run in parallel with the main hepatitis workshop. These smaller workshops gave delegates an opportunity to voice their opinions and to raise certain concerns. Here the international delegates gave valuable input regarding their experiences.

Ebola, being uppermost in everyone's mind, was addressed in a number of sessions and hopefully allayed many of the fears and misconceptions that have arisen around this emotional topic.

A very controversial presentation by International speaker Irmgard Bauer on "Voluntourism – The Good, the Bad and the Ugly" sparked much discussion over teas and dinner. Although perhaps a little one-sided, it did raise the issue that it is not all done in good faith to better the lives of those less fortunate.

Everyone sat riveted to their chairs during the dinner when Sean Wisedale narrated his trip to the top of Everest. He showed wonderful photos (as he is also an excellent photographer), and this enabled all to understand exactly what conditions were like! The following day, Malcolm Pearse, who has led numerous expeditions into various areas of the Himalayas, told a very different story as he narrated what happened to him when he fell and got injured on one of the expeditions!

If anyone has not yet heard Imtiaz Sooliman talk on Gift of the Givers, they should endeavour to do so, as it is unbelievably inspiring! He demonstrates just what "impossiblities" can be achieved if there is a will.

Finally, the SASTM AGM was held at the Durban conference and 3 new EXCO members were welcomed. Dr Shane Kotze, a general practitioner in Pretoria who was the top student on the 2014 Travel medicine Course; Professor Adriano Duse, who is head of department for Clinical Microbiology and Infectious Diseases. NHLS/Wits University; and Dr Katherine Sinclaire, the Medical Director of Assistance Services at International SOS. She was the top student on the 2012 Travel medicine Course! Prof Ogunbanjo, Drs Jonathan Klotnick and Jeannine van Lochem were thanked for their contribution of the past few years. Dr Salim Parker is the new President and he will no doubt continue the great leadership of Dr David Hyams, the Past President.

The next conference that SASTM will organise and which to look forward to, is the regional conference for the International Society of Travel Medicine – RCISTM. It will take place from the 14th -17th September 2016 in Port Elizabeth at the recently completed Boardwalk complex. It promises to be a dynamic and "not to be missed" conference and it is hoped that the lure of the seaside, mountains and numerous nearby Game Reserves (with no malaria risk!) and not to mention the beautiful Garden Route with whale watching along the way, will entice many International, as well as local delegates to attend.
The SASTM website has been rejuvenated and has plenty of useful information and links, so browse through it at www.sastm.org.za

Under the passionate guidance of the Project manager, Dr Garth Brink, SASTM looks forward to a busy and interesting year ahead.

Evaluating Xpert MTB/RIF: a new test for TB in South Africa - Kerrigan McCarthy FCPath(Micro)

For many years the standard test for tuberculosis (TB) has been "smear microscopy", using a microscope to identify TB germs in sputum coughed up from the chest. However smear microscopy only identifies people with many TB germs in their sputum, and misses some people with TB. People with TB and HIV are more likely to be missed by microscopy. The NHLS, co-ordinated by the National Priorities Programme and Wendy Stevens, has recently replaced smear microscopy with a new test for TB called Xpert MTB/RIF in all laboratories services primary health clinics. Xpert MTB/RIF has a threshold of detection of 150 organisms/ml of sputum (compared with 10,000/ml for smear microscopy) and detects

drug-resistant TB immediately.

The XTEND study: evaluating the effect of Xpert among people being tested for TB

A study team, led by Aurum Institute, working with the London School of Hygiene & Tropical Medicine, the University of Cape Town, the South African National Health Laboratory Service and Department of Health, and the World Health Organization, together performed the XTEND project. The aim of XTEND was to find out what difference this new test would make for patients in South Africa being tested for TB at a patient (mortality) and programme level (TB and HIV outcomes).

As part of the national roll-out of Xpert in South Africa, 10 TB laboratories were selected at random to start using Xpert straight away. Another 10 laboratories continued using microscopy testing initially, and started using Xpert a few months later. We studied 2300 people at 20 clinics sending tests to labs using Xpert for TB testing, and another 2300 people at 20 clinics sending TB tests to labs using microscopy. We followed up all these people for 6 months.

Results of the XTEND study

XTEND results were presented at the Conference on Retroviruses and Opportunistic Infections and are awaiting publication.

In clinics using Xpert, about 50% more people had a positive TB test result.

However, there was no difference in the overall number of people who were treated for TB, or who had died six months later, comparing clinics using Xpert to clinics using microscopy.

People who did not know their HIV status, or who were HIV positive and not taking HIV treatment (antiretroviral therapy) were at higher risk of dying.

16% of people with a positive TB test result did not start TB treatment at the clinic where they tested, and this was not changed by Xpert.

What does this study tell us?

Xpert identifies more TB cases, which means that nurses can start more people correctly on TB treatment straight away. People being tested for TB need to know their HIV status so they can be linked to the care they need, particularly HIV treatment.

What questions still need to be answered?

The Investigator team is finalising data on how Xpert affects costs for the TB programme and for patients. The patient cohort will also allow further evaluation of how the TB Control Programme functions under operational conditions such as how primary health clinics investigate persons for TB. The study will not tell us about the effect of Xpert on outcomes for patients with drug-resistant TB, as the sample size was intentionally not large enough.

What are the next steps?

The Investigators recommend that people being tested for TB should know their HIV status. We need to strengthen primary health care systems to ensure that all people with a positive TB test result start treatment promptly, and people who undergo sputum testing for TB, also receive HIV testing and linkage to appropriate HIV care and treatment.

Pertussis - An overview. Praksha Ramjathan and Koleka Milsana

Bordetella pertussis, the causative organism of pertussis, or whooping cough, is a gram negative coccobacillus.[1] It was discovered in 1900 by Jules Bordet and Octave Gengou who observed a small ovoid bacterium in the sputum of a 5-month old child suffering from pertussis.[2] They were, however, unable to culture the organism on ordinary blood agar plates. It was only six years later that Bordet and Gengou succeeded in making a special medium, called Bordet-Gengou medium, which assisted in isolating this fastidious pathogen.

B Pertussis is transmitted from host to host by aerosolized droplets from infected persons. [3] Virulence factors include filamentous hemagglutinin, fimbriae, pertactin, adenylate cyclase, tracheal cytotoxin and pertussis toxin.[4] Pertussis toxin is one of the important virulence factors that targets airway macrophages and results in delays of neutrophil recruitment to the respiratory tract.[5] Tracheal cytotoxin causes cytopathic effects on the tracheal mucosa while adenylate cyclase inhibits phagocytic function.[4] Fimbriae, filamentous hemagglutinin and pertactin are found on the outside of the bacterium and aid in adherence to epithelial cells of the respiratory tract. [4]

In infants and young children, pertussis presents as a respiratory tract infection that is similar to viral upper respiratory tract infections. Patients may have rhinorrhea, malaise and a nonproductive cough. There are 3 stages to the illness, an initial catarrhal phase followed by a paroxysmal stage and finally a convalescent stage.[6] During the paroxysmal phase, severe coughing is followed by the hallmark inspiratory whoop. Chronic cough for longer than a month is the most common symptom in older patients.

Laboratory diagnosis is adversely affected by delayed or poor specimen collection and. contamination. For culture of *B. Pertussis*, a nasopharyngeal swab or aspirate should be collected and culture is performed on special media. Serological testing is not clinically useful due to variability of results.[7] PCR is more sensitive than conventional culture, faster and can detect nonviable bacteria.[3] Even with increased awareness, clinical diagnosis is complicated by the variability of disease expression.[7] Pertussis can be easily misdiagnosed as laryngitis, upper respiratory tract infections, bronchitis, sinusitis, asthma, or chronic bronchitis.[5] Clinicians need to have a high index of suspicion and need take the appropriate specimens to confirm the diagnosis.

The drug of choice for the treatment of pertussis is erythromycin. In infants younger than 1 month, azithromycin is the preferred drug due to the risk of hypertrophic pyloric stenosis associated with erythromycin and clarithromycin.[6]

The acellular pertussis vaccine is given to children to prevent disease. In the United States there has been an increase in adolescent and adult pertussis cases possibly due to waning immunity.[6] A Finnish study showed that children became susceptible to clinical pertussis after entry into school, suggesting that immunity persists for less than 5 years.[9]

In spite of longstanding successful vaccination programs, pertussis continues to be a public health concern. Decreasing immunity with increasing age and an increasingly susceptible population have contributed to the resurgence of this disease. As with other vaccine-preventable diseases, it has become apparent that booster doses of vaccine may be necessary for continued protection from disease.[6]

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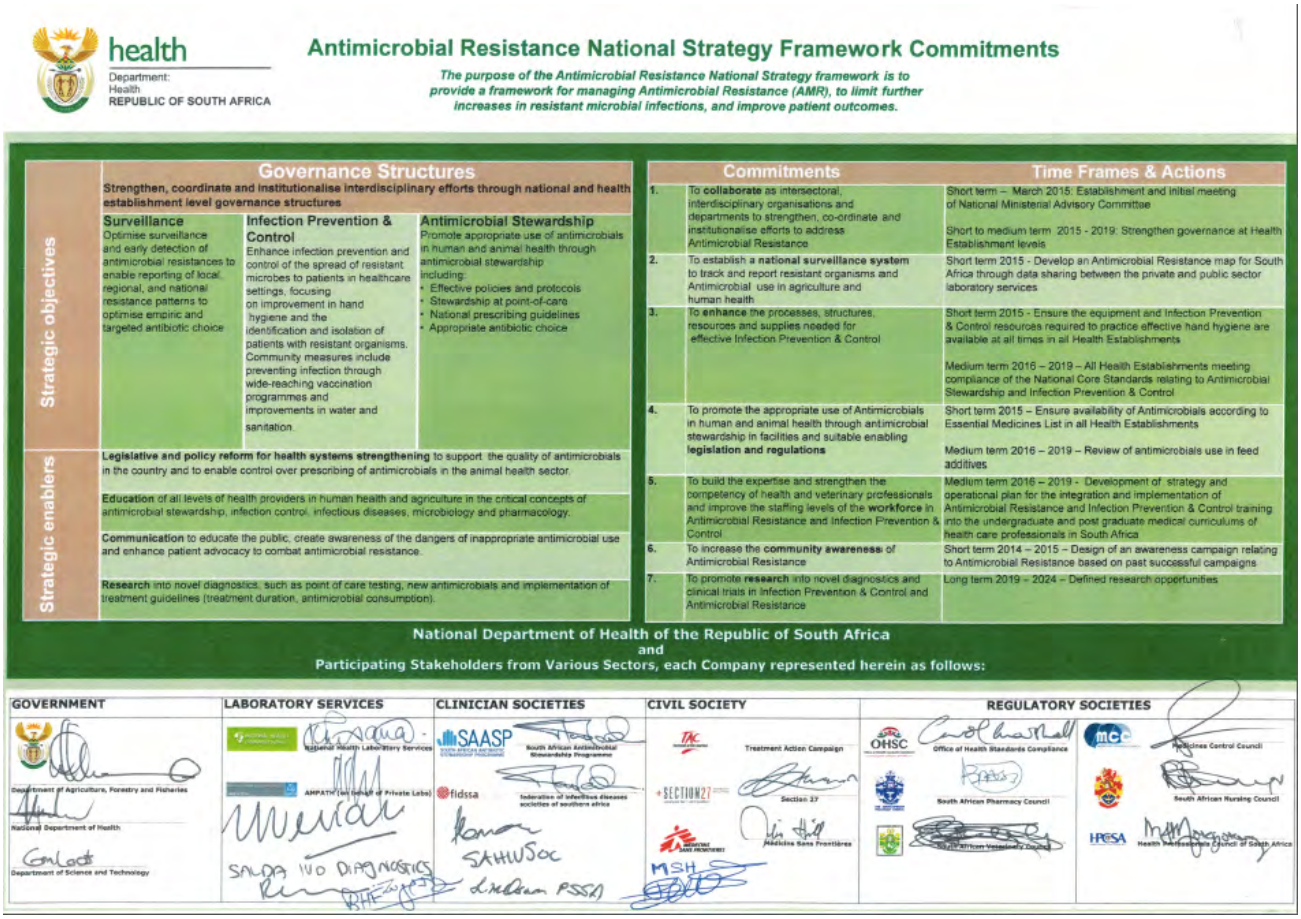
The National Antimicrobial Resistance Summit - 16th October 2014

SAASP
SOUTH AFRICAN ANTIBIOTIC STEWARDSHIP PROGRAMME

Over 100 stakeholders in antimicrobial resistance (AMR) in South Africa gathered in Johannesburg for the national AMR Summit, hosted by the Minister of Health and the Director General. Representatives from the Depts of Agriculture, Forestry and Fisheries, Education, Trade and Industry, and Science and Technology were joined by the leaders from Academia, Professional Societies, Hospital and Laboratory Groups and Civil Society. Professor Ramanan Laximinarayan gave the key note address and WHO representatives presented the Global Action Plan on AMR. Honorable Minister Aaron Motsoaledi joined the meeting and gave a well-balance analysis of the situation and a call to arms to the nation to combat antimicrobial resistance. The highlight of the meeting was the signing of the Antimicrobial Resistance National Strategy Framework Commitments by all stakeholders, committing to concerted action against AMR.

The official Strategy Framework document and background material has been finalised and is with the NDOH for printing. It should be available early in the new year. Furthermore, the implementation plan that will form the basis of the planned body of work, including that of the Ministerial Advisory Committee on AMR is nearing completion, and work is already underway behind the scenes to start meaningful intervention.



health
Department: Health
REPUBLIC OF SOUTH AFRICA

Antimicrobial Resistance National Strategy Framework Commitments

The purpose of the Antimicrobial Resistance National Strategy framework is to provide a framework for managing Antimicrobial Resistance (AMR), to limit further increases in resistant microbial infections, and improve patient outcomes.

Strategic objectives

Governance Structures

Strengthen, coordinate and institutionalise interdisciplinary efforts through national and health establishment level governance structures

Surveillance
Optimise surveillance and early detection of antimicrobial resistances to enable reporting of local, regional, and national resistance patterns to optimise empiric and targeted antibiotic choice

Infection Prevention & Control
Enhance infection prevention and control of the spread of resistant microbes to patients in healthcare settings, focusing on improvement in hand hygiene and the identification and isolation of patients with resistant organisms. Community measures include preventing infection through wide-reaching vaccination programmes and improvements in water and sanitation.

Antimicrobial Stewardship
Promote appropriate use of antimicrobials in human and animal health through antimicrobial stewardship including:
- Effective policies and protocols
- Stewardship at point-of-care
- National prescribing guidelines
- Appropriate antibiotic choice

Strategic enablers

Legislative and policy reform for health systems strengthening to support the quality of antimicrobials in the country and to enable control over prescribing of antimicrobials in the animal health sector.

Education of all levels of health providers in human health and agriculture in the critical concepts of antimicrobial stewardship, infection control, infectious diseases, microbiology and pharmacology.

Communication to educate the public, create awareness of the dangers of inappropriate antimicrobial use and enhance patient advocacy to combat antimicrobial resistance.

Research into novel diagnostics, such as point of care testing, new antimicrobials and implementation of treatment guidelines (treatment duration, antimicrobial consumption).

	Commitments	Time Frames & Actions
1.	To **collaborate** as intersectoral, interdisciplinary organisations and departments to strengthen, co-ordinate and institutionalise efforts to address Antimicrobial Resistance	Short term – March 2015: Establishment and initial meeting of National Ministerial Advisory Committee Short to medium term 2015 - 2019: Strengthen governance at Health Establishment levels
2.	To establish **a national surveillance system** to track and report resistant organisms and Antimicrobial use in agriculture and human health	Short term 2015 - Develop an Antimicrobial Resistance map for South Africa through data sharing between the private and public sector laboratory services
3.	To **enhance** the processes, structures, resources and supplies needed for effective Infection Prevention & Control	Short term 2015 - Ensure the equipment and Infection Prevention & Control resources required to practice effective hand hygiene are available at all times in all Health Establishments Medium term 2016 – 2019 – All Health Establishments meeting compliance of the National Core Standards relating to Antimicrobial Stewardship and Infection Prevention & Control
4.	To promote the appropriate use of Antimicrobials in human and animal health through antimicrobial stewardship in facilities and suitable enabling **legislation and regulations**	Short term 2015 – Ensure availability of Antimicrobials according to Essential Medicines List in all Health Establishments Medium term 2016 – 2019 – Review of antimicrobials use in feed additives
5.	To build the expertise and strengthen the competency of health and veterinary professionals and improve the staffing levels of the **workforce** in Antimicrobial Resistance and Infection Prevention & Control	Medium term 2016 – 2019 - Development of strategy and operational plan for the integration and implementation of Antimicrobial Resistance and Infection Prevention & Control training into the undergraduate and post graduate medical curriculums of health care professionals in South Africa
6.	To increase the **community awareness** of Antimicrobial Resistance	Short term 2014 – 2015 – Design of an awareness campaign relating to Antimicrobial Resistance based on past successful campaigns
7.	To promote **research** into novel diagnostics and clinical trials in Infection Prevention & Control and Antimicrobial Resistance	Long term 2019 – 2024 – Defined research opportunities

National Department of Health of the Republic of South Africa
and
Participating Stakeholders from Various Sectors, each Company represented herein as follows:

GOVERNMENT	LABORATORY SERVICES	CLINICIAN SOCIETIES	CIVIL SOCIETY	REGULATORY SOCIETIES
Department of Agriculture, Forestry and Fisheries National Department of Health Department of Science and Technology	National Health Laboratory Service AMPATH (on behalf of Private Labs) SALDA NDO DIAGNOSTICS	SAASP South African Antimicrobial Stewardship Programme fidssa Federation of Infectious diseases societies of southern Africa SAHIVSoc PSSA	Treatment Action Campaign Section 27 Médecins Sans Frontières MSH	OHSC Office of Health Standards Compliance South African Pharmacy Council South African Veterinary Council Medicines Control Council South African Nursing Council HPCSA Health Professions Council of South Africa

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Antibiotic prescribing guidelines now downloadable from the FIDSSA homepage (http://www.fidssa.co.za). The App form of the guidelines should be available for free download at the end of the month

And Finally

Another year is coming to an end, and I would like to thank all those who have contributed to Volume 5 of the FIDSSA Quarterly, and to the members of individual societies, who coordinate these efforts. A newsletter is a vibrant part of the Federation's output, so THANK YOU. To all members of the FIDSSA Family, we wish you and yours, a very happy festive season!

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