

South African Vaccination and Immunisation Centre

Annual Report 2015

SAVIC



South African
Vaccination &
Immunisation
Centre



MOTTO

Dedicated to strengthening immunisation services

VISION

An African continent free of vaccine-preventable diseases

MISSION

Committed to increasing knowledge on vaccine-preventable diseases and improving the quality and sustainability of immunisation services

CONTACT

Tel: +27 12 521 3880 or 4044
Fax: +27 12 521 5794
Email: bontle.motloung@savic.ac.za

MANAGEMENT AND ADMINISTRATIVE TEAM

HEAD

Prof. Rose BURNETT; MPH, PhD

Department of Virology, Sefako Makgatho Health Sciences University, PO Box 173, MEDUNSA, 0204, South Africa

Tel: +27 12 521 3880

Fax: +27 12 521 5794

Email: rose.burnett@smu.ac.za

HEALTH PROGRAMME CO-ORDINATOR

Ms Bontle MOTLOUNG; MPH

Department of Virology, Sefako Makgatho Health Sciences University, PO Box 173, MEDUNSA, 0204, South Africa

Tel: +27 12 521 4044

Fax: +27 12 521 5794

Email: bontle.motloung@savic.ac.za

SECRETARIAT

Ms Queen MABANDO

Department of Virology, Sefako Makgatho Health Sciences University, PO Box 173, MEDUNSA, 0204, South Africa

Tel: +27 12 521 3880

Fax: +27 12 521 5794

Email: queen.mabando@savic.ac.za

SCIENTIFIC AND TECHNICAL TEAM

Prof. Jeffrey MPHAHLELE; MSc (Medical Virology), PhD

SAVIC Scientific Advisor: Vaccines and immunisation policies

Professor: Department of Virology/Vice-President: Medical Research Council of South Africa

Private Bag X385, 0001, Pretoria, South Africa

Tel: +27 12 339 8630

Fax: +27 12 324 7922

Email: Jeffrey.Mphahlele@mrc.ac.za

Mr Mabina MOGALE; MPH

SAVIC Scientific Advisor: Health systems management and policy

Department of Public Health, Sefako Makgatho Health Sciences University, PO Box 215, MEDUNSA, 0204, South Africa

Tel: +27 12 521 3969

Email: mabina.mogale@smu.ac.za

Dr Andrew MUSYOKI; MSc (Medical Virology), PhD

SAVIC Scientific Advisor: TB and HIV: Epidemiology and vaccine development

Department of Microbiological Pathology, Sefako Makgatho Health Sciences University, PO Box 211, MEDUNSA, 0204, South Africa

Tel: +27 12 521 4976

Email: andrew.musyoki@smu.ac.za

Mrs Baile SELALEDI; BACur (Hons), MCur

SAVIC Scientific Advisor: Curriculum development and training

Department of Nursing Science, Sefako Makgatho Health Sciences University, PO Box 142, MEDUNSA, 0204, South Africa

Tel: +27 12 521 5913

Fax: +27 12 521 3820

Email: baile.selaledi@smu.ac.za

Dr Lisbeth LEBELO; MSc (Medical Virology), PhD

SAVIC Scientific Advisor: HPV-related cancers and HPV lab-based surveillance

Department of Virology, Sefako Makgatho Health Sciences University, PO Box 173, MEDUNSA, 0204, South Africa

Tel: +27 12 521 4113

Email: ramokone.lebelo@smu.ac.za

Mrs Mmampedi HUMA; MPH

SAVIC Scientific Advisor: Outbreak response/Field epidemiology

Department of Public Health, Sefako Makgatho Health Sciences University, PO Box 215, MEDUNSA, 0204, South Africa

Tel: +27 12 521 3969

Email: mmampedi.huma@smu.ac.za

Prof. Hannelie MEYER; MSc (Med) Pharmacy, PhD

SAVIC Scientific Advisor: Pharmacovigilance, cold chain management and logistics

Department of Pharmacy, Sefako Makgatho Health Sciences University, PO Box 218, MEDUNSA, 0204, South Africa

Tel: +27 12 521 4567

Email: hannelie.meyer@smu.ac.za

Mr Nare RAKGOLE; MSc (Medical Microbiology); MPhil

SAVIC Scientific Advisor: ICT and statistics

Department of Virology, Sefako Makgatho Health Sciences University, PO Box 173, MEDUNSA, 0204, South Africa

Tel: +27 12 521 3077

Fax: +27 12 521 5794

Email: nare.rakgole@smu.ac.za

Dr Kgadi MAPHOTO; MBChB, MMed (Virology)

SAVIC Scientific Advisor: Clinical management, prevention and control

Department of Virology, Sefako Makgatho Health Sciences University, PO Box 173, MEDUNSA, 0204, South Africa

Tel: +27 12 521 3880

Email: ramokone.maphoto@nhls.ac.za

TABLE OF CONTENTS

| | | |
|-----------|---|-----------|
| 1. | Executive Summary | 3 |
| 2. | Background | 4 |
| 3. | Strategic Operational Areas | 5 |
| 3.1 | Education and Training | 5 |
| 3.2 | Operational Research | 5 |
| 3.3 | Technical Support and Advocacy | 10 |
| | Annexure 1 | 13 |
| | Publications in National and International Peer-reviewed Journals | 13 |
| | Technical Reports | 13 |
| | Peer-reviewed Presentations at International Conferences | 13 |
| | Peer-reviewed Presentations at Local Conferences | 13 |
| | Acknowledgements | 14 |
| | Current Funding and Donations | 14 |
| | Previous Funding | 14 |



LIST OF ABBREVIATIONS

| | |
|---------|---|
| bOPV | Bivalent Oral Polio Vaccine |
| EPI | Expanded Programme on Immunisation |
| EPI-SA | EPI of South Africa |
| GSK | GlaxoSmithKline |
| HCert | Higher Certificate |
| HCW | Healthcare Worker |
| HPV | Human Papillomavirus |
| ISTM | Insitut Supérieur des Techniques Médicale |
| LMS | Learning Management System |
| MEDUNSA | Medical University of Southern Africa |
| MUAC | Mid Upper Arm Circumference |
| NAGI | National Advisory Group on Immunization |
| NDoH | National Department of Health |
| NESI | Network for Education and Support in Immunisation |
| NGO | Non-governmental Organisation |
| NICD | National Institute for Communicable Diseases |
| OPV | Oral Polio Vaccine |
| PQM | Programme and Qualification Mix |
| SAMRC | South African Medical Research Council |
| SAVIC | South African Vaccination and Immunisation Centre |
| SMU | Sefako Makgatho Health Sciences University |
| STI | Sexually Transmitted Infection |
| tOPV | Trivalent Oral Polio Vaccine |
| VPD | Vaccine-preventable Disease |
| WHO | World Health Organization |

1. EXECUTIVE SUMMARY

Vaccination, the most cost-effective healthcare intervention preventing morbidity and mortality associated with vaccine-preventable diseases (VPDs), has been estimated to prevent between two and three million deaths annually. The role and input of universities responsible for research, education and training of healthcare workers (HCWs) in the prevention and control of VPDs, cannot be underestimated. The South African Vaccination and Immunisation Centre (SAVIC) was established in 2003 as a network of partners in the field of vaccination and immunisation. SAVIC is a public-private-academic alliance between the National Department of Health (NDoH), the vaccine industry, academic institutions and other stakeholders, with its activities undertaken in close collaboration with the NDoH, Network for Education and Support in Immunisation (NESI), based at the University of Antwerp, the World Health Organization (WHO) and its partners. The strategic operational areas of SAVIC include Education and Training, Operational Research and Technical Support and Advocacy. Several activities were undertaken within each of these areas in 2015.

In the area of Education and Training, in 2015 SAVIC, in collaboration with the NDoH, the National Advisory Group on Immunisation (NAGI) and partners from the vaccine industry, initiated the development of an online Higher Certificate (HCert) Vaccinology Programme geared towards the training of in-service HCWs who work in the Expanded Programme on Immunisation of South Africa (EPI-SA) and private sector clinics that offer childhood vaccination services. Another important highlight in the area of education and training was the commencement of the joint SAVIC/NESI project, 'Improving skills and institutional capacity to strengthen country adolescent immunisation programmes and health systems in the African region', with two of its three planned meetings taking place in early and late 2015.

SAVIC continued to participate in Operational Research in 2015, with selected research projects aimed at improving immunisation programmes and services. SAVIC members published widely in peer-reviewed national and international journals, and participated in national and international scientific conferences on VPDs throughout the year.

During 2015, SAVIC was very active in the area of Technical Support and Advocacy, the main objective of which is to allow rapid dissemination of up-to-date information on vaccines and immunisation at global, regional and national level. SAVIC continued to serve as a faculty member of vaccinology courses and workshops regionally and internationally, providing technical expertise in various meetings and events. Furthermore, SAVIC members are active players in disseminating correct information on the risks and benefits of vaccines to communities and countering anti-vaccination messages, using mass media.



2. BACKGROUND

Vaccination, the most cost-effective healthcare intervention preventing morbidity and mortality associated with VPDs, has been estimated to prevent between two and three million deaths annually. The Expanded Programme on Immunisation (EPI), launched by the WHO in 1974, was originally designed to deliver vaccines against diphtheria, tetanus, pertussis, polio, measles and tuberculosis. Twenty years later, more than 70% of the world's population were receiving these vaccines. Since 1994, global vaccination coverage against these diseases has increased only slightly. Hepatitis B vaccination has been increasingly incorporated into national vaccination programmes, resulting in a dramatic rise in global coverage from less than 10% in 1994 to more than 80% in 2014. Similarly, vaccination coverage against *Haemophilus influenzae* type b, introduced in 1994, had risen to more than 55% by 2014. Other new vaccines have been developed or improved, e.g. vaccines against human papillomavirus (HPV) infection, rotavirus diarrhoea and pneumococcal disease, that will further reduce the infectious disease burden. The widespread use of vaccination has contributed greatly to the United Nations' Millennium Development Goal Target 4 of reducing global childhood mortality by two-thirds by 2015, with measles vaccination alone resulting in a 79% global drop in measles deaths between 2000 and 2014.

As new vaccines become available, countries face many challenges in introducing these vaccines into their existing immunisation programmes. These include decision-making and prioritisation of these vaccines against other competing health programmes; addressing strengths and weaknesses in the immunisation programme; managing more complicated vaccination schedules; developing multi-year plans to ensure sustainable use of the new vaccines; integration of these vaccines in the broader context of health systems; and building and maintaining public trust in these vaccines. Thus, continued and increased efforts are required not only to accelerate action to vaccinate children against VPDs, but to reach and maintain high vaccination coverage.

The role and input of universities responsible for research, education and training of HCWs in the prevention and control of VPDs, cannot be underestimated. SAVIC was established in 2003 at the Medical University of Southern Africa (MEDUNSA), which subsequently became the Medunsa Campus of the University of Limpopo and is now the Sefako Makgatho Health Sciences University (SMU), as a network of partners in the field of vaccination and immunisation. Since its inception, SAVIC has worked very closely with NESI, and has functioned as a NESI focal office for the southern African region, since January 2012.

SAVIC is a public-private-academic alliance between the NDoH, the vaccine industry, academic institutions and other stakeholders, with its activities undertaken in close collaboration with the NDoH, NESI, the WHO and its partners. SAVIC was established to strengthen collaborations between academics, the NDoH, the vaccine industry and other stakeholders, with the overall aim of supporting immunisation services. Although there are a number of players in the field of vaccines and immunisation, SAVIC has a unique aim of strengthening immunisation programmes by bridging the gap through cascading of up-to-date vaccine-related information to the community and operational-level staff with various innovative outreach programmes. Thus, SAVIC creates a platform whereby experts from universities, the NDoH and provincial departments of health, the vaccine industry, non-governmental organisations (NGOs) and public-private partnerships interact in a joint effort to improve public health programmes concerning VPDs.



3. STRATEGIC OPERATIONAL AREAS

The **strategic operational areas of SAVIC** focus on three issues:

- Education and Training
- Operational Research
- Technical Support and Advocacy

Within each strategic area, there are several objectives that were realised by specific activities undertaken in the year under review. Some of these activities were undertaken in collaboration with other stakeholders, such as the NDoH, SMU, South African Medical Research Council (SAMRC), WHO Regional Office for Africa (WHO-AFRO), NESI at the University of Antwerp, and the vaccine industry (Sanofi Pasteur), while SAVIC provided largely technical support in other activities.

3.1 EDUCATION AND TRAINING

Objectives under this strategic goal include a) organising education and training programmes; b) contributing to the improvement of pre-service EPI training programmes/curricula for training institutions; and c) contributing to the improvement of knowledge of in-service staff through dedicated themed programmes. Below are a number of activities that were conducted during 2015.

3.1.1 Vaccinator accreditation – short courses in vaccinology and the Higher Certificate (Vaccinology) programme

Discussions about developing a vaccinator accreditation programme were initiated in 2014 by the National Advisory Group on Immunisation (NAGI), and work on this programme commenced in 2015. SAVIC collaborated with the NDoH, NAGI, and partners from the vaccine industry in developing an online HCert (Vaccinology) programme that can also be offered in modular form as short courses for certificates of attendance. The Programme and Qualification Mix (PQM) and teaching materials were developed by vaccinologists from NAGI, the NDoH and the vaccine industry, and academics from the SMU departments of Virology, Microbiology, Public Health, Pharmacy and Nursing Sciences during the early part of 2015. All modules were subsequently internally moderated by SMU academics from the departments of Virology, Microbiology, Public Health, Pharmacy and Psychology during the latter part of 2015. The services of external moderators from other universities (national and international) were also secured during 2015. Furthermore the SMU E-Learning Division identified a suitable online Learning Management System (LMS) with all the necessary capabilities, and will be managing the information technology aspects of the programme. The PQM was approved by the Senate of SMU during 2015, and is currently being reviewed by the Department of Higher Education and Training.

The HCert (Vaccinology) programme is a new qualification that is not offered by any university in South Africa. It is a basic introductory programme for in-service HCWs who work in EPI-SA and private sector clinics offering infant/childhood vaccination services. HCert (Vaccinology) is designed to equip HCWs with the theoretical knowledge and practical expertise necessary for running an up-to-date clinic offering infant/childhood vaccination services. HCert (Vaccinology) introduces students to key concepts in vaccinology, and at the end of the programme students will be knowledgeable about VPDs, vaccines, vaccination and immunisation, and will be able to apply this knowledge in the practice of vaccine delivery and administration within the framework of EPI-SA and private sector vaccination programmes. The programme is divided into two blocks consisting of 11 modules over 30 weeks:

Module 1: Introduction to the human immune response against infectious diseases

Module 2: Introduction to vaccinology

Module 3: Introduction to vaccine manufacture and distribution

Module 4: Introduction to EPI-SA

Module 5: Introduction to the epidemiology of VPDs and the corresponding vaccines used within EPI-SA and the private sector

Module 6: EPI-SA and private sector vaccination schedules and strategies

Module 7: Introduction to cold chain, vaccine management and logistics

Module 8: Introduction to the safe administration of vaccines

Module 9: Introduction to adverse events following immunisation

Module 10: Introduction to advocacy, communication and social mobilisation to increase vaccination uptake

Module 11: Monitoring and evaluation of EPI-SA

The first part of the programme (Modules 1 to 5) will be taught entirely online, with Blackboard being used as the LMS. Apart from the course materials, an automatically generated formative assessment will be used as a teaching tool. Each module in this block ends with a formative assessment, with students being able to return to the course materials and repeat the formative assessments until they have passed. Blackboard generates a 'certificate' at this stage, providing evidence that the student has successfully mastered the content of the module.

The second part of the programme (Modules 6 to 11) combines online teaching with practical assignments. These modules all start with one week of theory, including a formative assessment as described above, followed by practical assignments. For these practicals, students will attend a workshop where they will be taught, supervised and assessed (formative assessments with a certificate of practice being issued when they have demonstrated competence) using hypothetical clients and simulated scenarios. Students will be allowed to repeat attendance of these workshops until they have been assessed as competent. Suitably qualified human resources for these workshops have been identified from industry partners, who are able to travel around the country at regular intervals throughout the year.

Throughout the programme, students will be required to develop their own Portfolio of Vaccinology Theory and Practice. At the end of the first part (i.e. after Modules 1 to 5 are successfully completed), students will submit their draft portfolio for formative assessment by programme faculty. At the end of the programme, after all 11 modules have been successfully completed, students will submit their final portfolio for summative assessment by programme faculty, who will then submit these to the external examiners.

3.1.2 HPV Symposium: Implementing HPV vaccination in Africa: opportunities for strengthening adolescent health. Menlyn Boutique Hotel, Pretoria, South Africa, 24 March 2015

This symposium was organised by SAVIC, SAMRC and NESI. The objectives of the Symposium were to (a) update delegates on the global burden of cervical cancer with an emphasis on primary and secondary prevention; (b) discuss the introduction of HPV vaccination programmes in Africa with an emphasis on integrating HPV vaccination with other adolescent health interventions, and highlighting ethical considerations; (c) share country experiences with advocacy, communication and social mobilisation towards the uptake of HPV vaccination; and (d) share country experiences with programmatic and other issues when introducing HPV vaccination programmes.

This meeting was made possible through a grant from the Flemish Government, with some added support from the vaccine industry. It was attended by a total of 57 delegates from 13 countries (Belgium, Congo-Brazzaville, Ghana, Indonesia, Jordan, Senegal, South Africa, Swaziland, Switzerland, Uganda, United Kingdom, Zambia and Zimbabwe). The delegates were from international agencies (including the WHO-AFRO and Gavi, the Vaccine Alliance), academic institutions, ministries of health, and the vaccine industry.



Prof. André Meheus (NESI) at the HPV Symposium: Implementing HPV vaccination in Africa: opportunities for strengthening adolescent health

3.1.3 Stakeholder Meeting: Improving skills and institutional capacity to strengthen country adolescent immunisation programmes and health systems in the African region. Menlyn Boutique Hotel, Pretoria, South Africa, 25 March 2015

This meeting was the first of three meetings planned for the joint SAVIC-NESI project, 'Improving skills and institutional capacity to strengthen country adolescent immunisation programmes and health systems in the African region'. SAVIC, NESI and SAMRC organised this meeting to follow on directly from the HPV Symposium, as this provided the background for using HPV vaccination as a vehicle for this capacity building project. The objectives of the Stakeholder Meeting were to (a) compile/develop training materials that can be easily adapted to specific country needs and used as national resources to facilitate the introduction of HPV vaccination and other adolescent health interventions in the African region; and (b) develop a common framework to guide cascading of training in various countries, with the overall objective of promoting successful and effective introduction of HPV vaccination and other adolescent health interventions.

This meeting was made possible through a grant from the Government of Flanders. It was attended by a total of 22 delegates from ten countries (Belgium, Congo-Brazzaville, Ghana, South Africa, Swaziland, Switzerland, Uganda, United Kingdom, Zambia and Zimbabwe). The delegates were from universities (London School of Hygiene and Tropical Medicine, University of Antwerp, SMU, Stellenbosch University, University of the Free State and University of Ghent); ministries of health (Ghana, Swaziland, Uganda, Zambia and Zimbabwe); national (SAMRC) and international (Gavi and WHO/AFRO) agencies. The meeting objectives were achieved, with the first training workshop for southern African countries being held in October 2015 (see 3.1.5).



Delegates of the Stakeholder Meeting: Improving skills and institutional capacity to strengthen country adolescent immunisation programmes and health systems in the African region



Prof. Jeffrey Mphahlele at the Stakeholder Meeting: Improving skills and institutional capacity to strengthen country adolescent immunisation programmes and health systems in the African region

3.1.4 Second WAKA HPV AFRICA Symposium. Southern Sun Hotel OR Tambo, Johannesburg, South Africa, 28–29 May 2015

This two-day symposium was held in Johannesburg, South Africa, for the WAKA HPV AFRICA network members and invited delegates. It was organised by SMU, SAVIC, SAMRC and the University of Antwerp, with the following objectives: (a) To showcase ongoing PhD research in HPV, cervical cancer prevention and management, and other HPV-related diseases in Africa; (b) To showcase the new HPV and sexually transmitted infection (STI) Training Centre for Africa, situated in the Department of Virology at SMU; (c) To strengthen the collaborations between the institutions and countries that form part of the WAKA HPV AFRICA network; (d) To discuss projects proposed from the previous symposium; (e) To stimulate research interest in HPV and cervical cancer in countries where research is limited; (f) To encourage participants to set up HPV research in their respective institutions/countries; and (g) To discuss and propose practical ways to strengthen the capacity of laboratories to detect and characterise HPV types circulating in cervical and other cancers in the African region.



Delegates of the second WAKA HPV AFRICA Symposium

3.1.5 Workshop for southern African countries: Implementing HPV vaccination in Africa: Opportunities for strengthening adolescent health. Premier Hotel OR Tambo, Kempton Park, South Africa, 5–7 October 2015

This workshop was the second of three meetings planned for the joint SAVIC-NESI project, 'Improving skills and institutional capacity to strengthen country adolescent immunisation programmes and health systems in the African region'. It was organised by SAVIC, NESI and SAMRC, with the objectives of: (a) Promoting successful and effective introduction of HPV vaccination and other adolescent health interventions in the southern African region; (b) Creating a multi-disciplinary resourceful team of experts to support and advocate for the introduction of HPV vaccines and other adolescent health interventions in the southern African region; and (c) Increasing synergy between academics, educators and ministries of health to revive and strengthen school-based health programmes as delivery platforms of adolescent immunisation services in the southern African region.

This workshop was made possible through a grant from the Government of Flanders. It was attended by a total of 54 delegates from eight countries. Participants included representatives of the Ministry of Health of Botswana, Malawi, South Africa, Swaziland, Zambia and Zimbabwe; a representative of the Ministry of Primary and Secondary Education of Zimbabwe; and the WHO representatives of Malawi, Mozambique, Namibia, South Africa and Zimbabwe. The facilitators were from national (SAMRC) and international (WHO, Gavi) agencies, and universities (University of Cape Town, Stellenbosch University, University of the Witwatersrand, University of the Free State, SMU, London School of Hygiene and Tropical Medicine and University of Antwerp).

Dr Lisbeth Lebelo presenting at the workshop for southern African countries on implementing HPV vaccination in Africa: Opportunities for strengthening adolescent health

The workshop was held over three days. It was officially opened by the Vice-Chancellor of SMU, with the first day covering key aspects of cervical cancer, HPV screening, HPV vaccines, adolescent health interventions, delivery platform for HPV vaccination, and effective communication strategies for building public trust in HPV vaccination. The second day focused on country presentations grouped in three sessions: (a) countries with a national HPV vaccination programme; (b) countries with a demonstration project; (c) countries planning for HPV vaccine introduction. Country group presentations were made on the third day, with the strengths, gaps and challenges being highlighted, based on the feedback received during the individual country presentations on the second day. Countries also identified opportunities for collaboration to assist each other in successfully implementing HPV vaccination and other adolescent health services. The last session of the workshop focused on monitoring and evaluation, the importance of a cancer registry and measuring the impact of HPV vaccination. Closing remarks were made by the South African DoH Chief Director: Child, Youth and School Health; the Dean of the Faculty of Health Sciences of SMU; and the Deputy Representative of the Government of Flanders.



An analysis of daily evaluations, completed by delegates, found that all objectives were achieved and the workshop was highly rated by participants. Providing a forum for countries to present their current status of HPV vaccination introduction, and exchange best practices and challenges, resulted in building an international multi-disciplinary network of experts and in increased ownership of the workshop. The workshop programme has been duplicated for the last of the three meetings planned for the joint SAVIC-NESI project, which will be held in Kenya for the eastern African region in March 2016.

3.1.6 Third WAKA HPV AFRICA Symposium. Hotel Sultani, Kinshasa, DR Congo, 2-4 December 2015

A two-day workshop was organised in Kinshasa, DRC, for the WAKA HPV AFRICA network members, invited delegates from APOF (Pathologists without Borders, Italy) and Insitut Supérieur des Techniques Médicale (ISTM) for reflection on training for pathologists and creation of a new training programme for cyto-technicians. PhD students from each participating country presented data on ongoing or planned research projects. Local and international delegates presented HPV research conducted in their institutions and countries. On the third day, all the members visited the study site of KINAVAV, a randomised controlled trial which is currently ongoing.



Delegates of the third WAKA HPV AFRICA Symposium in DRC

3.2 OPERATIONAL RESEARCH

During 2015, the following activities were conducted within SAVIC's key research areas.

3.2.1 Behavioural and social issues

This key area is concerned with factors related to uptake of immunisation, including the influence of cultural practices, the anti-vaccination lobby and the knowledge, attitudes and practices of HCWs regarding vaccination. The main objectives are to identify barriers to, and predictors of vaccination uptake and the utilisation of vaccination services in the current immunisation programmes. During 2015, four studies (*Hepatitis B virus vaccination policies for healthcare workers in referral and district hospitals in Botswana*; *Vaccination coverage in children aged 12–23 months old in Refilwe Township, Gauteng Province*; *The practices of healthcare workers regarding hepatitis B virus prevention and control at Nyangabwe Hospital, Francistown, Botswana*; and *Perceptions and beliefs of parents towards pneumococcal diseases and vaccination in rural KwaZulu-Natal Province*) were concluded. A study that had been concluded in 2014 (*A profile of anti-vaccination lobbying on the South African internet: 2011 to 2013*) was also published in 2015 (see Annexure 1).

3.2.2 Epidemiology of VPDs

This key area focuses on improving knowledge of VPDs and the impact of vaccination on the burden of VPDs through collecting, analysing and sharing data on VPDs. During 2015, the results of two studies (*Factors associated with the hepatitis B virus serological status of healthcare workers in Gauteng and Mpumalanga provinces, South Africa*; and *Complete genome analysis of hepatitis B virus in human immunodeficiency virus infected and uninfected South Africans*) that had been concluded during 2014 were shared at conferences in 2015, as listed under Annexure 1. In addition, four studies (*Hepatitis B virus infection in post-vaccination South Africa: occult HBV infection and circulating surface gene variants*; *Laser micro-dissection and qPCR for identifying specific HPV types responsible for malignancy in penile lesions*; *Detection, genotyping and quantitation of multiple HPV infections in South African women with cervical squamous cell carcinoma*; and *Hepatitis B virus reactivation or reinfection in a FEM-PrEP participant: a case report*) were published in international journals in 2015 (see Annexure 1).

3.2.4 Health systems management and policy

This key area is concerned with the cost-effectiveness of vaccination, and evaluation of the quality of reported data on VPDs, especially EPI targeted diseases. During 2015, the results of a study (*Economic assessment of implementing Hexaxim® vaccine within the South African Expanded Programme on Immunisation*) were shared at a local conference as listed under Annexure 1.

3.3 TECHNICAL SUPPORT AND ADVOCACY

The main objective for this strategic goal is to allow rapid dissemination of up-to-date information on vaccines and immunisation issues originating at global, regional and national levels, to HCWs working within EPI-SA. In order to achieve this, SAVIC has, since its inception, embarked on numerous networking activities that advocate for strengthening immunisation services in South Africa and in this way has expanded its partnerships locally and abroad. SAVIC is a faculty member of vaccinology courses and workshops regionally and internationally, and provides technical expertise in various meetings and events. In order to remain at the cutting-edge of developments within the field of vaccinology, SAVIC members themselves attend advanced courses, conferences and workshops every year. Furthermore, SAVIC members are active players in disseminating correct information on the risks and benefits of vaccines to communities and countering anti-vaccination messages, through targeted national radio stations, newspapers, magazines, and electronic social media. The following activities took place in 2015.

3.3.1 Technical support given by SAVIC members

3.3.1.1 TropEd Advanced Vaccinology Course. Institute for Tropical Medicine and International Health, Berlin, Germany, 13–22 January 2015

SAVIC is a faculty member for this advanced course, which is presented annually. Prof. Jeffrey Mphahlele participated in the 2015 course, and facilitated the group work on rotavirus vaccines and gave lectures on immunising the immuno-compromised; rotavirus vaccines; and HIV vaccines.

3.3.1.2 Integrated measles, polio, deworming, vitamin A and measuring mid upper arm circumference (MUAC) 2016 campaign planning meeting. Department of Health, Pretoria, 4 November 2015

The NDoH has fully adopted and implemented the WHO recommended strategies for polio eradication and measles elimination, as well as other childhood interventions such as vitamin A, deworming and nutrition. The NDoH is planning to hold a nation-wide integrated measles, polio, deworming, vitamin A and measuring MUAC campaign in 2016.

In preparation for the campaign, SAVIC was requested by the NDoH to assist as part of a multi-stakeholder committee. The multi-stakeholder committee is divided into four subcommittees: training; social mobilisation; cold-chain; and monitoring and evaluation. SAVIC members Mr Mabina Mogale and Ms Bontle Motlounng served on the training subcommittee, while Dr Lisbeth Lebelo and Mrs Mmampedi Huma served on the monitoring and evaluation subcommittee.

3.3.1.3 Global switch from trivalent oral polio vaccine (tOPV) to bivalent OPV (bOPV) Planning Meeting. National Department of Health, Pretoria, 9 November 2015

In preparation for the globally synchronised withdrawal of tOPV from the EPI, which will be taking place in April 2016, the NDoH held a planning meeting to establish the South African National Switch Validation Committee. The meeting was attended by SAVIC members Mr Mabina Mogale and Ms Bontle Motloung, who were requested by the NDoH to form part of the committee, which includes partners from PATH, Right to Care, Sanofi, SAVIC and the Polio Expert Committee. Members will be responsible for overseeing the smooth running of the switch monitoring and validation process by (a) providing training and support to provinces; (b) adapting the switch validation questionnaire and training materials to suit local context; (c) conducting analysis of collected data; and (d) writing a national report of the activities undertaken.

3.3.2 Advocacy

3.3.2.1 Keynote, plenary, guest speaker and workshop addresses by SAVIC members

SAVIC members gave the following presentations during 2015:

Burnett RJ. The ethics of HPV vaccination. HPV Symposium: Implementing HPV vaccination in Africa: Opportunities for strengthening adolescent health. Menlyn Boutique Hotel, Pretoria, South Africa, 24 March 2015.

Burnett RJ. How quackery, pseudoscience and profiteering threaten the health of our children. Sefako Makgatho Health Sciences University 1st Research Days. Sefako Makgatho Health Sciences University, Pretoria, 25–27 August 2015.

Burnett RJ. The impact of HPV vaccination. Workshop for southern African countries: Implementing HPV vaccination in Africa: Opportunities for strengthening adolescent health. Premier Hotel OR Tambo, Kempton Park, South Africa, 5–7 October 2015.

Lebelo RL. HPV reference laboratory. Workshop for southern African countries: Implementing HPV vaccination in Africa: Opportunities for strengthening adolescent health. Premier Hotel OR Tambo, Kempton Park, South Africa, 5–7 October 2015.

Mogale NM. Introduction of HPV vaccine: Public health and policy decisions. Workshop for southern African countries: Implementing HPV vaccination in Africa: Opportunities for strengthening adolescent health. Premier Hotel OR Tambo, Kempton Park, South Africa, 5–7 October 2015.

Mphahlele MJ. Global burden of cancers caused by HPV. Workshop for southern African countries: Implementing HPV vaccination in Africa: Opportunities for strengthening adolescent health. Premier Hotel OR Tambo, Kempton Park, South Africa, 5–7 October 2015.

Burnett RJ, Cameron N. Vaccination of healthcare workers. Vaccinology 2015, Fairmount Zimbali Resort, Ballito, South Africa. 18–20 October 2015.

3.3.2.2 Contributions to non-peer reviewed journals and national media

During 2015 SAVIC was requested to write an article for a publication aimed at educating healthcare workers (Burnett RJ. The dangers of vaccine refusal: The case of measles outbreaks. *WhyKids*. 2015;8(3):6–7). In addition, SAVIC was interviewed by Health24 about narcolepsy and the flu vaccine in 2015 (<http://www.health24.com/Medical/Flu/The-flu-virus/How-a-2009-swine-flu-vaccine-caused-narcolepsy-20151102>).

3.3.3 Capacity building of SAVIC members

3.3.3.1 12th Vaccinology Congress 2015. Fairmont Zimbali Resort, Ballito, KwaZulu-Natal, 18–20 October 2015

Ms Bontle Motloung, Mr Mabina Mogale, Ms Baile Selaledi, Dr Lisbeth Lebelo, Dr Andrew Musyoki, Dr Hannelie Meyer and Prof. Rose Burnett participated in this annual event organised by the National Institute for Communicable Diseases (NICD). The annual NICD Vaccinology meeting is a platform where experts from South African universities with medical schools, government and NGOs, parastatals and state-owned enterprises and other relevant organisations, share and exchange scientific knowledge and information.



Prof. Rose Burnett at the 12th Vaccinology Scientific Congress

3.3.4 Ongoing SAVIC network

SAVIC maintains a network of partners at national, regional and global levels. We have successfully collaborated with a number of South African universities and interacted with stakeholders such as the NDoH, WHO and the South African Nursing Council. Regional and international networking, including participation in national, regional and international meetings, were also achieved.

National Institutions

- Gauteng Province
 - University of Pretoria
 - University of the Witwatersrand
 - University of South Africa
 - Tshwane University of Technology
 - NICD
- Western Cape Province
 - University of Cape Town
 - Stellenbosch University
- Free State Province
 - University of the Free State
- Limpopo Province
 - University of Limpopo
 - Limpopo Nursing Colleges: Sovenga and Thohoyandou
- Kwazulu-Natal Province
 - University of KwaZulu-Natal

National organisations

- NDoH
- Provincial Departments of Health
- South African Military Health Services
- South African Nursing Council
- The Democratic Nursing Association of South Africa

Regional and international partners

- WHO, UNICEF and NESI at the University of Antwerp, Belgium

ANNEXURE 1

PUBLICATIONS IN NATIONAL AND INTERNATIONAL PEER-REVIEWED JOURNALS

Amponsah-Dacosta E, **Lebelo RL, Rakgole JN, Selabe SG, Gededzha MP, Mayaphi SH, Powell EA, Blackard JT, Mphahlele MJ**. Hepatitis B virus infection in post-vaccination South Africa: occult HBV infection and circulating surface gene variants. *J Clin Virol*. 2015 Feb;63:12–7.

Burnett RJ, Von Gogh LJ, Moloji MH, Tshatsinde EA, François G. A profile of anti-vaccination lobbying on the South African internet: 2011 to 2013. *S Afr Med J*. 2015;105(11):922–6.

Lebelo RL, Thys S, Benoy I, Depuydt CE, Bogers JP, Bida MN, Mphahlele MJ. Laser micro-dissection and qPCR for identifying specific HPV types responsible for malignancy in penile lesions. *J Med Virol*. 2015 Oct;87(10):1761–8.

Lebelo RL, Bogers JJ, Thys S, Depuydt C, Benoy I, Selabe SG, Bida MN, Mphahlele MJ. Detection, genotyping and quantitation of multiple HPV infections in South African women with cervical squamous cell carcinoma. *J Med Virol*. 2015;87(9):1594–600.

Machiya T, **Burnett RJ, Fernandes L, François G, De Schryver A, Van Sprundel M, Mphahlele MJ**. Hepatitis B vaccination of healthcare workers at the Princess Marina Hospital, Botswana. *Int Health*. 2015 Jul;7(4):256–61.

Malahleha M, Ahmed K, Deese J, Nanda K, Van Damme L, De Baetselier I, **Burnett RJ**. Hepatitis B virus reactivation or reinfection in a FEM-PrEP participant: a case report. *J Med Case Rep*. 2015 Sep 28;9(1):207.

TECHNICAL REPORTS

Dochez C, **Burnett RJ, Mbola Mbassi S, Mphahlele MJ**. Implementing HPV vaccination in Africa: opportunities for strengthening adolescent health. World Health Organization Global Immunization News. October 2015, p8.

PEER-REVIEWED PRESENTATIONS AT INTERNATIONAL CONFERENCES

Burnett RJ, Dochez C, Mphahlele MJ. Ethical issues of justice and non-discrimination arising from the human papillomavirus vaccination programme in South Africa. 30th International Papillomavirus Conference and Clinical Workshop (HPV 2015). Lisbon, Portugal, 17–21 September 2015.

Dochez C, **Burnett RJ, Mphahlele MJ**. HPV vaccination in the African region: opportunities for strengthening overall adolescent health. 30th International Papillomavirus Conference and Clinical Workshop (HPV 2015). Lisbon, Portugal, 17–21 September 2015.

PEER-REVIEWED PRESENTATIONS AT LOCAL CONFERENCES

Burnett RJ, Dochez C, Mphahlele MJ. Ethical issues of justice and non-discrimination arising from the human papillomavirus vaccination programme in South Africa. Sefako Makgatho Health Sciences University 1st Research Days. Sefako Makgatho Health Sciences University, Pretoria, 25–27 August 2015.

Ndlovu TH, **Burnett RJ, Fernandes L**. Vaccination coverage of, and reasons for not vaccinating 12–23 month-olds from Muldersdrift, Gauteng in 2014. Sefako Makgatho Health Sciences University 1st Research Days. Sefako Makgatho Health Sciences University, Pretoria, 25–27 August 2015.

Mogale M, Burnett RJ, Olivier O, Mphahlele MJ. Economic assessment of implementing Hexaxim[®] vaccine within the South African Expanded Programme on Immunisation (EPI-SA). Sefako Makgatho Health Sciences University 1st Research Days. Sefako Makgatho Health Sciences University, Pretoria, 25–27 August 2015.

Sondlane TH, **Burnett RJ, Mawela L, Selabe SG, Lebelo RL, Rakgole JN, Mphahlele MJ, Fernandes L, De Schryver A**. Factors associated with the hepatitis B virus serological status of healthcare workers in Gauteng and Mpumalanga provinces, South Africa. Sefako Makgatho Health Sciences University 1st Research Days. Sefako Makgatho Health Sciences University, Pretoria, 25–27 August 2015.

Sondlane TH, Gededzha MP, Muzeze M, **Burnett RJ, Amponsah-Dacosta E, Mphahlele MJ, Selabe SG**. Complete genome analysis of hepatitis B virus in human immunodeficiency virus infected and uninfected South Africans. Sefako Makgatho Health Sciences University 1st Research Days. Sefako Makgatho Health Sciences University, Pretoria, 25–27 August 2015.

ACKNOWLEDGEMENTS

SAVIC would like to acknowledge the contributions of the following:

- Past and present MEDUNSA and University of Limpopo, Medunsa Campus staff members who were involved in SAVIC from the outset.
- The Department of Epidemiology and Social Medicine, University of Antwerp, who were involved in the Flemish Interuniversity Council-funded, own initiative project, 'Improvement of the health of future generations by strengthening infant immunisation programmes in South Africa', from which SAVIC originated. This was an inter-university project between MEDUNSA and the University of Antwerpen and the EPI-SA of the NDoH, the goals of which were to enhance MEDUNSA's institutional strength and capacity in the field of VPDs and immunisation, and to strengthen the immunisation programmes in three provinces in South Africa, namely Gauteng, North West and Limpopo. SAVIC was recognised and acknowledged as a centre of excellence by MEDUNSA's Executive Management in August 2003.
- Funding, donations and in-kind donations that were received from:

CURRENT FUNDING AND DONATIONS

- 2003–present: MEDUNSA/University of Limpopo, Medunsa Campus/SMU
- 2012–present: Aspen Pharmacare/GlaxoSmithKline (GSK)
- 2012–present: NESI
- 2005–present: Sanofi Pasteur
- 2014–present: Flemish Government
- 2015: Roche
- 2015: The Biovac Institute
- 2015: SAMRC

PREVIOUS FUNDING

- 2009–2010: WHO
- 2003–2008: Flemish Interuniversity Council
- 2008–2010: GSK
- 2007–2009: Wyeth and Becton Dickinson
- 2006: Pfizer Laboratories

SAVIC receives unrestricted educational grants towards its annual activities from the vaccine industry and NESI. The Sefako Makgatho Health Sciences University provides funding towards administration, management and some research activities. Additional funds are raised during the organisation of meetings from various stakeholders. SAVIC practices strict operational and scientific independence. None of the sponsors is involved in the strategic objectives of SAVIC, and SAVIC declares that its operations, unless where otherwise acknowledged, are independent of sponsors.





PO Box 173, MEDUNSA, 0204
South Africa
Tel: +27 12 521 3880 or 4044
Fax: +27 12 521 5794
Email: bontle.motloun@savic.ac.za

