## Network for Education and Support in Immunisation

Saving lives through immunisation

ANNUAL REPORT 2020







## Network for Education and Support in Immunisation

Saving lives through immunisation





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AIDS	Acquired Immune Deficiency Syndrome
BCG	Bacillus Calmette-Guérin
CHW	Community Health Worker
COVID-19	Coronavirus Disease 2019
DTP	Diphtheria, Tetanus and Pertussis vaccine
EBODAC	Ebola Vaccine Deployment, Acceptance and Compliance
ECAVI	East Africa Centre for Vaccines and Immunization
EPI	Expanded Programme on Immunisation
EVM	Effective Vaccine Management
GACVS	Global Advisory Committee on Vaccine Safety
GHD/ EMPHNET	Global Health Development/ Eastern Mediterranean Public Health Network
GVAP	Global Vaccine Action Plan
HPV	Human Papillomavirus
IA2030	Immunization Agenda 2030
КМТС	Kenya Medical Training College
KRCHN	Kenya Registered Community Health Nursing
LIVE	Leading International Vaccinology Education
MLM	Mid-Level Management
МоН	Ministry of Health
MOTS	Mobile Training and Supportive Service
MoU	Memorandum of Understanding
МРН	Master of Public Health
MSc	Master of Science
NESI	Network for Education and Support in Immunisation

LIST OF ABBREVIATIONS

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NGO	Non-Governmental Organisation
NITAG	National Immunisation Technical Advisory Group
OPV	Oral Polio Vaccine
PhD	Doctor of Philosophy
RITAG	Regional Immunisation Technical Advisory Group
SAGE	Strategic Advisory Group of Experts
SARS-CoV-2	Severe Acute Respiratory Syndrome-Coronavirus-2
SAVIC	South African Vaccination and Immunisation Centre
SMU	Sefako Makgatho Health Sciences University
SOMIPEV	Société Marocaine d'Infectiologie Pédiatrique et de Vaccinologie
UNICEF	United Nations Children's Fund
UNPAD	Universitas Padjadjaran
VACFA	Vaccines for Africa Initiative
VLIR-UOS	Flemish Interuniversity Council – University Development Cooperation
VSN	Vaccine Safety Net
WHO	World Health Organization
WHO/AFRO	WHO Regional Office for Africa
WHO/EMRO	WHO Regional Office for the Eastern Mediterranean
WHO/HQ	WHO Headquarters
WHO/IVB	WHO Department on Immunisation, Vaccines and Biologicals
WHO/SEARO	WHO Regional Office for South East Asia

FOREWORD

Dear colleagues,

It is a pleasure to present the Annual Report of the Network for Education and Support in Immunisation (NESI), highlighting the achievements of 2020.

The year 2020 is a year we will never forget. The world is facing an unprecedented challenge with individuals, communities and economies everywhere affected by the ongoing COVID-19 pandemic caused by a new coronavirus, SARS-CoV-2. The importance of vaccination to control the pandemic cannot be more stressed.

As travel restrictions were imposed worldwide, we had to rethink many of our education and training activities. Some have been put on hold, while other activities have been delivered online. Planned surveys have been rescheduled and priority given to surveys evaluating the acceptability of COVID-19 vaccines. It made us realise that some of our activities can continue virtually and it will certainly contribute to rethinking some of our initiatives in the future. But it is not the same. We miss our colleagues in different parts of the world, we miss the interaction with the participants in our workshops, we miss visiting the health training institutions and learn from each other. As technical support and institutional strengthening is one of the strategic areas of NESI, we would really like to emphasize the important role that health training institutions are playing during this pandemic. We are very proud that many of our partner institutions have been at the forefront of capacity building for COVID-19 vaccination in their respective countries.

NESI is pleased that together with our partners we have launched several initiatives during this challenging year, including but not limited to: (1) the Ebola Vaccine Preparedness Initiative; (2) the development of a vaccinology course for the National Immunisation Technical Advisory Groups in the Eastern Mediterranean Region; and (3) the launch of a Research Topic "Advances in adolescent vaccination programs in Low- and Middle-Income Countries (LMICs): A focus on HPV vaccination capacity strengthening" in the journal Frontiers in Public Health.

The Annual Report highlights the activities of NESI during 2020. We sincerely thank all our partners for their continued commitment and support during the COVID-19 pandemic. We are looking forward to continuing this excellent collaboration in 2021 as the world returns back to normal activity.

Sincerely,

Chill?

Dr Carine Dochez Director NESI

Prof Dr Filip Lardon Vice-Rector University of Antwerp



### ABOUT NESI

The Network for Education and Support in Immunisation (NESI) was officially launched in 2002. The Executive Secretariat of NESI is hosted at the Department of Family Medicine and Population Health (previously Department of Epidemiology and Social Medicine), University of Antwerp in Belgium. NESI was built on the experience of the International Network for Eastern and Southern Africa on hepatitis B vaccination, which was established in 1999 by five universities in Eastern and Southern Africa (Kenya, South Africa, Tanzania, Zambia and Zimbabwe), Ministries of Health (MOH) in Africa and the University of Antwerp. The purpose of this network was to translate research on hepatitis B through capacity building and advocacy into universal access to hepatitis B vaccination in the partner countries.

With the development of new vaccines and increased commitment by development partners and private sector initiatives to strengthen vaccine supply and immunisation services, there are more opportunities to prevent more diseases in more people. This led to the establishment of NESI, which is an international multidisciplinary network with the mission to strengthen immunisation programmes, in particular in low- and middle-income countries. As human resources play a crucial role in the delivery of quality immunisation services to the public, NESI focusses on capacity building, education and training, and institutional strengthening through partnerships and collaboration with the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), Gavi, the Vaccine Alliance, academic institutions, Ministries of Health and other immunisation stakeholders.

Due to its links with universities and other health professional training institutions, which are vital to achieving sustainable capacity and competence building in the field of vaccinology, NESI is unique in its attention on pre-service training, particularly on the development of curricula and training for nurses, medical doctors, pharmacists, public health specialists and other related health professionals.

A Memorandum of Understanding (MoU) between NESI and the WHO Regional Office for Africa (WHO/AFRO) clearly defines the overall goal and activities of NESI in the area of capacity building in the African Region. Collaboration in the Eastern Mediterranean Region (WHO/EMRO) and in the South-East Asian Region (WHO/SEARO) is based on joint work plans with partner organisations. To ensure the sustainability of the Network and to increase its reach, NESI has signed Collaboration Agreements with partner institutions/organisations in the different WHO regions. This validates the position of NESI as an integral partner in capacity building within the different Regions.

## **Mission**

The mission of NESI is to improve the quality and sustainability of immunisation programmes and services, in particular in low- and middle-income countries, through education and training, technical support, operational research and networking and advocacy.

NESI aims to build the capacity of managers and staff working in the Expanded Programme on Immunisation (EPI) in their respective countries, as well as to improve pre-service and post-graduate training at the different faculties of health training institutions involved in immunisation, including medicine, nursing, pharmacy, and public health. NESI also aims to strengthen the capacity of the National Immunisation Technical Advisory Groups (NITAGs) in evidence-based recommendation-making.

## **Strategies**

To accomplish its mission, NESI engages in a number of activities, which are grouped into four strategic areas: education and training, technical support, operational research and networking and advocacy. NESI offers the following in each area:

### **1. EDUCATION AND TRAINING**

- Organises training courses and workshops in collaboration with partner institutions/ organisations;
- Serves as faculty in national and international vaccinology courses;
- Validates the content of educational and training materials;
- Develops up-to-date, high-quality training materials for different levels of the immunisation programmes, capturing the needs of all staff;
- Collaborates with health training institutions to strengthen the curriculum for health professionals involved in immunisation and advises on regular refresher courses in collaboration with Ministries of Health.

### 2. TECHNICAL SUPPORT

- Monitors and evaluates currently implemented education and training programmes;
- Performs training needs assessments in collaboration with academic and other partners;
- Assists countries in developing comprehensive training plans as part of their Multi-Year Plans;
- Provides support to country staff to implement training activities;
- Supports institutional strengthening to improve national and regional capacity to deliver education and training.

### 3. OPERATIONAL RESEARCH

- Supervises MSc, MPH and PhD students;
- Evaluates pre-service EPI curriculum at health training institutions;
- Conducts post introduction evaluations;
- Evaluates effectiveness and impact of training activities;
- Writes scientific and review articles.

#### 4. NETWORKING AND ADVOCACY

- Facilitates a forum to discuss and coordinate actions related to education, training, and support for immunisation programmes in low- and middle-income countries;
- Maintains a network of specialists drawn from international organisations, universities, national immunisation programmes, Non-Governmental Organisations (NGOs), industry, and other relevant stakeholders, to deliver high-quality training in all aspects of immunisation and at different stages of implementation of immunisation programmes;
- Collaborates with local, regional, and global training initiatives to advocate for better education and training;
- Offers a website that houses training materials and links to other relevant sites.



### Structure

NESI is a partnership between the University of Antwerp and the public and private sector. An Executive Secretariat, based at the Department of Family Medicine and Population Health (previously Department of Epidemiology and Social Medicine), University of Antwerp, Belgium, coordinates and implements activities for the Network.

**Collaboration with partner institutions/organisations** in the different WHO Regions is an essential component for the implementation of NESI's activities. Collaboration Agreements have been established with the following institutions: South African Vaccination and Immunisation Centre/Sefako Makgatho Health Sciences University (SAVIC/SMU), South Africa; Société Marocaine d'Infectiologie Pédiatrique et de Vaccinologie (SOMIPEV), Morocco; Universitas Padjadjaran (UNPAD), Indonesia; East Africa Centre for Vaccines and Immunization (ECAVI), Uganda; Global Health Development/Eastern Mediterranean Public Health Network (GHD/EMHPNET), Jordan.

NESI **scientific advisors** are engaged in advising on strategic areas and reviewing outputs, identifying potential funding and reviewing proposals/applications.

NESI has full operational and scientific independence

## Funding

During 2020, NESI was supported by educational grants from Glaxo– SmithKline Vaccines and Janssen Vaccines & Prevention B.V., Janssen Pharmaceutical Companies, Johnson & Johnson, and by funds from the University of Antwerp, which also provides infrastructure, ICT, administrative, and legal support.

Previously, NESI received support from MSD, the Flemish Interuniversity Council - University Development Cooperation (VLIR-UOS) and the Flemish Government.





The mission of NESI is to improve the quality and sustainability of immunisation programmes and services, in particular in low- and middle-income countries, through education and training, technical support, operational research and networking and advocacy.

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## Education and Training

### CHAPTER ONE

Human resources are key to providing good quality healthcare services to the population. A national immunisation programme relies on the support of well-trained medical and nursing staff, in order for the population to benefit of receiving the right vaccine at the right time in the right way. Therefore, training of health personnel must be relevant to national needs. Education and training must be coordinated and integrated with the developing health system as it moves towards meeting the objectives of health for all in the 21st century. For the current decade, the key global immunisation strategies are conveyed through the Global Vaccine Action Plan (GVAP) adopted at the 65th World Health Assembly in 2012.

Evidence from various EPI reviews and health facility surveys conducted at national and provincial/district levels showed that important barriers to reaching every child with immunisation services are related to planning and management of human, material and financial resources at district and service delivery levels. To overcome these barriers, capacity building will be key to improve planning and managerial skills and to integrate the immunisation services within the overall health system.

Training needs assessments conducted at various health training institutions revealed several gaps: incomplete or outdated EPI content in the pre-service curricula; lack of demonstration equipment and current EPI reference material; insufficient time allocation for EPI theory; insufficient knowledge on current EPI theory and practice. Clinical and public health training that incorporates the learning objectives of EPI will enable students to develop a firm basis of EPI core knowledge and skills. A strong collaboration between the EPI programme and the health training institutions, linking professional education with service reality, is key to the overall success.



### **1.1 Pre-service training**

Pre-service health training institutions are critical in delivering medical and nursing staff deployable in immunisation programmes capable of addressing complex situations, sustaining routine immunisation, and introducing new vaccines and technologies. The incorporation of EPI into undergraduate medical education, nursing/midwifery, and other health professional training programmes is important towards improving and strengthening immunisation service delivery, logistics, surveillance, communication and management practices. Clinical and public health training that incorporates the learning objectives of EPI will enable students to develop a firm basis of EPI core knowledge and skills.

To facilitate the systematic revision of EPI curricula at training institutions in the African Region, two EPI prototype curricula for medical and nursing/midwifery schools were developed by WHO/AFRO and partners in 2006 and revised in 2015, and are available in English and French.

### 1.1.1 Kenya Medical Training College, Nairobi, Kenya

Since 2015 Kenya Medical Training College (KMTC) and NESI/University of Antwerp are closely collaborating to improve the pre-service training in immunisation at nursing and midwifery training institutions in Kenya. KMTC is one of the leading health training institutions in Kenya, and the driving force advocating for updating EPI curricula at all pre-service nursing and midwifery training institutions in the country.

Following a survey to determine the technical competences (knowledge, skills and attitudes) of nurse lecturers in EPI at the different KMTC colleges, a workshop was organised to strengthen the teaching and learning of immunisation within the existing curriculum for the pre-service Kenyan Registered Community Health Nursing (KRCHN) programme. Consensus was obtained on the EPI content to be incorporated in the pre-service KRCHN curriculum, using the EPI prototype curriculum as a guideline. Following consensus on the EPI content, an EPI learning guide to be used by students during the skills laboratory sessions has been developed. The last step in the process of strengthening EPI pre-service training at KMTC is the organisation of a refresher training course for all nurse lecturers on current immunisation guidelines and practices, in order for them to deliver the updated EPI content with confidence.

Building on the successful strengthening of EPI pre-service education at KMTC, a joint effort between KMTC, UNICEF and NESI has started to strengthen pre-service education in Effective Vaccine Management (EVM). The aim is to incorporate EVM content within pre-service curricula for specific health cadres in the relevant courses at KMTC.

### **1.2 In-service training**

To be effective, a national immunisation programme relies on the support of well-informed medical, nursing and support staff. To provide immunisation services of good quality it is essential to have a workforce that is sufficient in numbers, well-educated and trained, adequately deployed and motivated.

### 1.2.1 Developing of training materials

## **1.2.1.1 Pocket guide for community health workers to support the national immunisation programme in Sierra Leone**

Following the successful introduction and use of two training modules developed for Community Health Workers (CHW) in Sierra Leone using Mobile Training and Supportive

Service (MOTS), it was felt useful to make the training modules also available in a different format. The Pocket Guide is based on the content from the MOTS platform developed together with the EBODAC consortium, and was approved by the Ministry of Health in Sierra Leone.

The Pocket Guide is a hands-on practical document and is composed of two modules:

- 1. Vaccination and
- 2. Outbreak Response.

Each module consists of several sub-topics. Each sub-topic contains short descriptions, illustrations, and key messages. The Pocket Guide provides a framework for users and can be further adapted to local conditions.

**Module 1** on Vaccination explains the importance of vaccination and will guide CHWs through the vaccination schedule of Sierra Leone. At the end



of this module CHWs will be knowledgeable about the need for vaccination, who should be vaccinated and when, and where to go for vaccination.

**Module 2** on Outbreak Response explains the importance of reporting notifiable diseases and events, births, deaths and stillbirths. At the end of the module CHWs will know which diseases and events need to be reported, to whom to report and how to complete the surveillance register.

imum ate of cataly an anticancer drug combina norrycin, and cyclophosphamide. vaccination (vacc) /vak'sinā'shən any injection of attenua a cow]. as bacteria, viruses, or rickettsia immunity or to reduce the effect diseases. Historically, the first

This pocket guide was developed in collaboration with EBODAC and the Ministry of Health in Sierra Leone in the context of an Innovative Medicines Initiative-funded project. This project has received funding from the Innovative Medicines Initiative 2 Joint Undertaking under grant agreement EBODAC (grant nr. 115847). This Joint Undertaking received support from the European Union's Horizon 2020 research and innovation programme and EFPIA.

### 1.2.2 Vaccinology courses

In-service vaccinology courses are key to build national vaccinology expertise by strengthening the capacity of academics in vaccinology (involved in teaching/research related to infectious diseases, mother and child healthcare, vaccines and immunisation) and to guide policy makers and programme managers to make evidence-based recommendations and decisions on:

- 1. immunisation policies and strategies;
- 2. introduction of new vaccines and technologies;
- 3. sustaining routine immunisation;
- adjustments of existing immunisation programmes (e.g. adolescent or adult vaccination);
- 5. adjustments to vaccination schedules;
- conducting phase 1 to phase 3 clinical trials, and post-marketing surveillance (phase 4 studies).

The target audience of vaccinology courses are:

- 1. teachers at health training institutions from the different faculties involved in immunisation: medicine, nursing, public health and pharmacy;
- 2. NITAG members;
- 3. EPI managers;
- 4. MoH support staff;
- 5. staff of multilateral (WHO, UNICEF) and bilateral organisations, and of NGOs; and
- 6. MSc/MPH and PhD students.

The general objective of the vaccinology course is "to master the basic principles and specificities of a vaccine, how it is developed, produced and utilised, including its use within the EPI programme". The vaccinology courses are built around 9 themes:

- 1. The scientific basis of vaccinology;
- 2. Vaccine development and evaluation;
- 3. Routine EPI vaccines and optimising the impact of immunisation;
- 4. New vaccines;
- 5. Future vaccines;
- 6. Vaccine safety and the value of vaccination;
- 7. Prequalification, registration, production and control;
- 8. Programmatic issues; and
- 9. Training and research.

## **1.2.2.1 Erasmus+ Mundus Joint Master Degree "Leading International Vaccinology Education" (LIVE),** Lyon, France, September 2020

The Erasmus+ Mundus Joint Master Degree "Leading International Vaccinology Education" (LIVE) was launched September 2016. LIVE is a two years Master's programme between five European universities: Université Claude Bernard Lyon 1, France (coordinating university); Universitat Autonoma de Barcelona, Spain; Universitat de Barcelona, Spain; University of Antwerp, Belgium; Université Jean Monnet Saint-Etienne, France. The programme is supported by a worldwide network of 31 international associated partners and 16 supporting partners. NESI is supporting partner to the LIVE programme.

A total of 25 students are currently enrolled in the fourth LIVE promotion, called the "Maurice Hilleman" Master LIVE Promotion 2019-21.



NESI was invited to give a lecture on 23 September 2020 at the Université Claude Bernard Lyon 1, during the third semester of the LIVE programme in the session on "Communication on vaccines and public health". However, due to the COVID-19 pandemic, the lecture was delivered online. Topics presented included: History and rationale of vaccination schedules; role of the NITAGs; and GVAP goals.

From the third LIVE promotion, the "Lady Mary Montagu" Master LIVE Promotion 2018-20, one student successfully completed her 6-months internship with NESI. Her research focused on "Assessing confidence in measles vaccination in Wakiso District, Uganda: Comparison of two data collection tools" (see section 3.1.1).

### 1.2.2.2 ECAVI vaccinology course, Kampala, Uganda, October 2020

The vaccinology course for health professionals was organised by the East Africa Centre for Vaccines and Immunization (ECAVI) from 19 to 22 October 2020 in Kampala, Uganda. Due to the COVID-19 pandemic, the course was delivered in a hybrid format.

The aim of the vaccinology course was to equip health professionals with up-to-date knowledge and skills on vaccines and immunisation in order to enable them deal with current and emerging challenges related to the immunisation programme.

The format of the course included: formal lectures; case studies; debate and discussion; and presentations by participants.

Upon completion of the course, participants were able to:

- Understand the concept and principles of vaccination
- Describe how vaccines work and their side effects
- Describe indications, contraindications, efficacy, and safety of vaccines according to WHO criteria
- Identify, manage and report adverse events following immunisation
- Identify ways to improve communication with patients, parents, and caregivers about vaccination
- Identify best practices for implementing or improving immunisation programmes
- Understand how to link and partner with other stakeholders involved in immunisation
- Champion and advocate for uptake and promotion of immunisation

A total of 20 participants attended the course in-person in Kampala, Uganda, while an additional 40 participants attended online. The participants came from the following countries: Kenya, Rwanda, Senegal, Somaliland, South Africa, South Sudan, Sudan and Uganda.









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ECAVI vaccinology course, Kampala, Uganda, October 2020

NESI was invited by ECAVI to chair 3 sessions and to give the following lectures: 1. Overview of vaccine-preventable diseases and their epidemiology; 2. Human Papillomavirus (HPV) vaccines. NESI participated online in the course.

The experience of the ECAVI vaccinology course was documented in "Africa Health". The article acknowledges the collaboration between ECAVI, SAVIC and NESI.



Malande OO, Afaayo RN, Dochez C, Meyer JC, Musyoki AM, Burnett RJ. Strengthening immunisation services in East Africa through training. Africa Health. January 2020:11-13

### 1.2.2.3 16th Annual African Vaccinology Course,

Cape Town, South Africa, November – December 2020

The 16th Annual African Vaccinology Course was organised by the Vaccines for Africa Initiative (VACFA), University of Cape Town, from 30 November to 4 December 2020 in Cape Town, South Africa. Due to the COVID-19 pandemic, the course was organised in a hybrid format, offering both face-to-face and online participation and facilitation.

The objectives of the course included:

- Provide participants with essential and up-to-date knowledge on human vaccines
- Encourage dialogues about the successes, challenges and opportunities to improve national immunisation programmes in Africa
- Provide a forum for NITAG members to share country-specific immunisation policy-making experiences and identify areas for collaboration and technical capacity development
- Foster communication and networking among African vaccinologists

Keynote lectures on issues around COVID-19 vaccine development and accessibility within the African context were delivered by internationally recognized experts.

A total of 34 participants attended the course in-person in Cape Town, while 50 participants attended the course virtually. Participants had diverse backgrounds and came from 12 African countries.

The course was facilitated by 38 faculty members (national and international), all experts in the field of vaccinology coming from academia, government, non-governmental institutions and pharmaceutical industry.

NESI was invited by VACFA to give a lecture on "HPV vaccination during the COVID-19 pandemic". NESI participated virtually in the course.



### 1.2.3 Mid-Level Management training

National immunisation systems are constantly undergoing changes, including the introduction of new vaccines and technologies, and programme expansion to reach broader target populations beyond infants and children. In addition, the EPI programme faces external changes related to administrative decentralization, health reforms, among others. EPI programmes operate within the context of the national health systems, in alignment with global and regional strategies.

To address these changes and to ensure the smooth implementation of immunisation programmes, EPI managers and staff require skills in problem solving, priority setting, decision-making, planning and managing human, financial and material resources as well as monitoring the implementation, supervision and evaluation of services.

In view of the above mentioned current changes, WHO/AFRO in collaboration with key immunisation partners, like UNICEF and NESI/University of Antwerp have revised the standardised EPI Mid-level management (MLM) training modules, which were first developed in 2004. The revision was supported by Bull City Learning, an organisation specialised in instructional design. In addition, the training was reformatted to have a mix of classroom and self-paced online training.

The experience of the MLM training and perspectives have been documented in the "Pan African Medical Journal".



Masresha B, Dochez C, Bumgarner A, Pienkowski N, Mihigo R. The WHO African regional training course for mid-level immunisation managers – lessons and future directions. Pan African Medical Journal 2020; 37: 194. doi: 10.11604/pamj.2020.37.194.26295 To understand the current training needs and preferred training platform in order to develop strategies to guide the work of EPI capacity building within the WHO African Region in the coming years, a Training Needs Assessment was conducted at the end of 2020 in nine priority countries (3 countries in each of the 3 sub-regions).

## **1.3 Strengthening evidence-based decision-making**

Before embarking on the introduction of a new vaccine, countries must make an evidence-based decision whether a new vaccine merits introduction into the national immunisation programme. As more new vaccines become available, countries face several challenges in introducing these vaccines in the existing immunisation programme:

- a. decision-making and prioritisation of which vaccines to be introduced;
- b. addressing strengths and weaknesses in the immunisation programme;
- c. managing more complicated vaccination schedules;
- d. developing multi-year plans to ensure sustainable use of the new vaccines;
- e. integrating vaccines in the broader context of health systems.

Since these tasks are multiple and complex, these issues need to be addressed in a comprehensive and detailed manner. Through round table discussions and workshops, bringing together NITAG chairs/members and MoH representatives, NESI aims to strengthen national teams of experts and to build an international network.

### **1.3.1 Coordination meeting GHD/EMPHNET and NESI/University of Antwerp**, Amman, Jordan, January 2020

NESI was invited for a two days meeting by Global Health Development/Eastern Mediterranean Public Health Network (GHD/EMPHNET) on 13 and 14 January 2020 in Amman, Jordan. The aim of the meeting was to discuss joint activities to support immunisation programmes in the Eastern Mediterranean Region through education and training, operational research and technical support.

More specifically, NESI/University of Antwerp and GHD/EMPHNET discussed the development of a **Vaccinology course for NITAGs** in the Eastern Mediterranean Region. The overall aim of the vaccinology course is to equip the NITAG members with up-to-date knowledge and skills on vaccines and immunisation in order to enable them to make evidence-based recommendations, to support the national policy, strategy and decisions on vaccines and immunisation. The vaccinology course is comprised of 9 modules. Each module will consist of a PowerPoint presentation with explanatory note and several case studies relevant to the work of NITAG members. The face-to-face piloting of the course was planned during 2020,



Coordination meeting GHD/EMPHNET and NESI/University of Antwerp, Amman, Jordan, January 2020

but was postponed due to the COVID-19 pandemic. The possibility of offering the course in a hybrid format - partly online, partly face-to-face - is being explored.

Following the coordination meeting in January 2020, teleconferences between NESI/University of Antwerp and GHD/EMPHNET have been organised on a regular basis to discuss the progress regarding the development of the Vaccinology course for NITAGs. Other partners, including WHO, UNICEF, Gavi, the Vaccine Alliance and the Global Collaboration on Vaccinology Training have been invited to participate in the discussions in order to broaden the collaboration.

## **1.3.2** Follow-up activities on HPV vaccine introduction workshops

Following the successful workshop "Strengthening national teams of experts to support HPV vaccine introduction in Eastern Mediterranean countries" in Marrakech, Morocco, in October 2018, a summary of the workshop and key recommendations have been published in "Vaccine".



Dochez C, Al Awaidy S, Mohsni E, Fahmy K, Bouskraoui M. Strengthening national teams of experts to support HPV vaccine introduction in Eastern Mediterranean countries: lessons learnt and recommendations from an international workshop. Vaccine 2020; 38: 1114-1119.

Two follow-up surveys were conducted following the workshop "Supporting HPV vaccine introduction in the Asian region" in Bandung, Indonesia, in November 2019.

- The first survey was sent out 3 months after the workshop in February 2020 and focused on the following issues: current status of the HPV vaccination programme; sharing of information following the workshop; other topics of interest; preferred training format.
- The second survey was sent out 9 months following the workshop in August 2020, in the midst of the COVID-19 pandemic, and focused on the impact of COVID-19 on the immunisation programme in general and specifically on the HPV vaccination programme.

### 1.3.3 Ebola Vaccine Preparedness Initiative

The preparatory phase to launch the Ebola Vaccine Preparedness Initiative started at the end of 2020. The objectives of the training programme include:

- 1. Strengthening NITAGs to make evidence-based recommendations on the introduction of the Ebola vaccine
- 2. Strengthening EPI programmes to successfully plan for and introduce the Ebola vaccine
- Preparing healthcare workers/vaccinators for successful handling and administration of the Ebola vaccine

The training programme will be delivered through Webinar series. In addition, an online platform, hosted by NESI/University of Antwerp, will be developed to exchange information and stimulate discussion among NITAGs and EPI teams of different countries. It is anticipated to officially launch the initiative during the first quarter of 2021.





## Technical Support

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## 2.1 NITAG partners meeting

Geneva, Switzerland, August 2020

On 26 August 2020 WHO/HQ organised a virtual meeting with the NITAG partners to discuss the progress on training projects targeting NITAGs.

The introduction of the meeting by WHO/HQ was followed by 4 partner presentations. Robert Koch Institute gave an update on SYSVAC2: Global registry of systematic reviews on vaccination and online course. NESI/University of Antwerp presented the development of a NITAG vaccinology course for the Eastern Mediterranean Region. The Task Force for Global Health presented the Toolkit for NITAG Evidence to Recommendation (EtR) training. WHO/ HQ presented the WHO project on revision of training materials.

This virtual meeting was important to exchange, align and coordinate activities with the main stakeholders involved in supporting NITAGs at various levels.

## 2.2 Training in immunisation

at South African Vaccinology and Immunisation Centre/ Sefako Makgatho Health Sciences University

The South African Vaccination and Immunisation Centre/Sefako Makgatho Health Sciences University (SAVIC/SMU) developed the online "**Higher Certificate in Vaccinology**" (HCert Vaccinology) programme, which is a basic introductory programme for in-service healthcare workers who work in the South African EPI programme and private sector clinics offering infant/childhood vaccination services. The training programme is divided into 2 blocks consisting of 11 modules over 30 weeks. Accreditation for the Higher Certificate in Vaccinology was received in 2018.



NESI was invited by SAVIC/SMU to be **external moderator** for three modules in the HCert Vaccinology programme:

- 1. Introduction to immune response against infectious diseases;
- 2. Introduction to vaccinology; and
- 3. Introduction to vaccine manufacture and distribution.

NESI served as external examiner for a Master of Pharmacy dissertation:

Sandra Tanyaradzwa Nhira. Prevention and control of hepatitis B and influenza among healthcare workers at the Dr George Mukhari Academic Hospital, Gauteng Province. January 2020.

**Joint publication.** Malande 00, Afaayo RN, Dochez C, Meyer JC, Musyoki AM, Burnett RJ. Strengthening immunisation services in East Africa through training. Africa Health. January 2020: 11-13. (see also section 1.2.2.2)

## 2.3 Global Collaboration on Vaccinology Training

The Global Collaboration on Vaccinology Training was established in November 2018 during the first Global Vaccinology Training Workshop, organised by the Mérieux Foundation and the University of Geneva. The collaboration aims to identify gaps and future needs as well as discuss collaboration between the different vaccinology courses.

To address these aims, four working groups have been established: (1) e-portal; (2) industry engagement; (3) evaluation and; (4) needs assessment. NESI is member of the working group on "needs assessment".

A global vaccinology training website has been developed, providing an overview of existing vaccinology training courses.

Teleconferences are being organised every six months to discuss any updates of the working groups. NESI is an active member of the Global Collaboration on Vaccinology Training and participates in the Webinar series on "Best Practices in Continuous Professional Development". NESI is member of the organising committee for the second Global Vaccinology Training Workshop, which is planned for the first quarter of 2022.

#### .. An overview of the current vaccinology courses was published in "Vaccine".



Asturias EJ, Duclos P, MacDonald NE, Nohynek H, Lambert P-H, the Global Vaccinology Training Collaborative. Advanced vaccinology education: Landscaping its growth and global footprint. Vaccine 2020; 38: 4664-4670.



## Operational Research

### CHAPTER THREE

## **3.1 Internship projects**

### 3.1.1 Internship project Erasmus+ Mundus Joint Master Degree "Leading International Vaccinology Education"

In the framework of the Erasmus+ Mundus Joint Master Degree entitled **"Leading International Vaccinology Education"** (LIVE), one MSc student has completed her internship at NESI from January to July 2020. LIVE is a two years Master's programme, between five European universities: Université Claude Bernard Lyon 1, France (coordinating university); Universitat Autonoma de Barcelona, Spain; Universitat de Barcelona, Spain; University of Antwerp, Belgium; Université Jean Monnet Saint-Etienne, France. NESI is supporting partner to the LIVE programme.

### Summary of internship project:

Despite safe and effective vaccines, measles is still a leading cause of vaccine-preventable deaths among children under 5 years of age. To interrupt measles transmission and prevent the disease, immunising more than 90% of the population is vital. However, achieving the targeted coverage of measles vaccination can be dampened by several reasons; among them is vaccine hesitancy. Since 2016, Uganda experienced several measles outbreaks. Even though all the EPI vaccines are provided by the government for free, the national coverage of the first measles vaccine dose in Kampala Area (Including Wakiso District) was 86% in 2016. Wakiso District was listed as one of the districts suffering recurrent measles outbreaks in Wakiso District, and whether vaccine hesitancy played a role. In addition, the study evaluated the vaccine hesitancy assessing tool developed by the Strategic Advisory Group of Experts (SAGE) of WHO with a tailored questionnaire adjusted to Uganda country settings and measles disease and vaccination. The study was conducted in collaboration with ECAVI, using two questionnaires during face-to-face interviews with the general population who presented in health facilities for vaccination.

••• The student successfully defended her thesis online on 2 July 2020.



Yu-Tan Chen. Assessing confidence in measles vaccination in Wakiso District, Uganda: Comparison of two data collection tools.





#### CHAPTER THREE OPERATIONAL RESEARCH



Conducting the study "Assessing confidence in measles vaccination in Wakiso District, Uganda: Comparison of two data collection tools." in Uganda, March 2020.



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### 3.1.2 Internship Master in Epidemiology

In the framework of the "Master in Epidemiology" at the University of Antwerp one student completed his internship at NESI in 2020.

#### Summary of internship project:

Vaccination coverage has remained suboptimal at both national and regional levels in Uganda. However, most published literature masks regional/sub-regional differences in the vaccination coverage and determinants. The objective of this study was to determine the regional vaccination coverage trends and predictors of vaccination completion among children aged 12-23 months using the Uganda Demographic Health Surveys (1995-2016). Trends in vaccination coverage, completion and dropout rates among children aged 12-23 months were calculated for each sub-region and key socio-demographic characteristics (education, residence, religion and wealth) were presented. Bivariate and multivariate analysis was performed in four selected sub-regions to identify the predictors of vaccination completion.

The vaccination completion and coverage rates among children aged 12-23 months in Uganda were found to vary between sub-regions and key socio-demographic characteristics. The proportion of fully vaccinated children aged 12-23 months has persistently remained low in some sub-regions over the last 25 years despite improving BCG, OPV1 and DPT1 coverage. Furthermore, predictors of vaccination completion among children aged 12-23 months in Uganda are not uniform across sub-regions. This implies that when designing interventions to improve utilization of vaccination services in Uganda, it is important to consider these regional differences.

#### The student successfully defended his thesis online in June 2020.



Gerald Okello. Trends of vaccination coverage and determinants of vaccination completion among children aged 12-23 months in Uganda (1995-2016).

# **3.2 Assessing acceptability of vaccines and immunisation, especially COVID-19 vaccine,** in Indonesia

The current outbreak of SARS-CoV-2 clearly demonstrates the severity of an epidemic without the availability of any efficacious therapeutics or vaccine. The whole world is currently looking forward to a vaccine against SARS-CoV-2. At the same time, vaccine hesitancy is a growing problem worldwide and a lot of misinformation on COVID-19 is being spread, which might negatively impact on future COVID-19 vaccines but also on the acceptance of other vaccines.

Healthcare workers are in the frontline of combatting COVID-19 and are therefore the first target group to receive the vaccine. At the same time, healthcare workers are key in com-

munication with the general public. Therefore, they need to be highly knowledgeable on vaccine-preventable diseases and vaccination and confident to recommend vaccinations to the public and address their concerns, as well as any misinformation on vaccines and immunisation. However, in low- and middle-income countries, the knowledge and attitude of healthcare workers towards vaccination and vaccine acceptance has not been extensively studied.

The survey aims to understand COVID-19 vaccine acceptability among healthcare workers to receive the vaccine themselves, but also to understand their behaviour in recommending the vaccine to their patients. The survey will also assess the acceptability and perception of the community (especially university students and lecturers) towards COVID-19 vaccines. Two questionnaires were developed and data are currently being collected in different regions in Indonesia through SurveyMonkey.

## **3.3 Research Topic in Frontiers in Public Health**

In December 2020 NESI/University of Antwerp and VACFA/University of Cape Town launched a Research Topic in Frontiers in Public Health, titled "Advances in adolescent vaccination programs in Low- and Middle-Income Countries: A focus on HPV vaccination capacity strengthening".

The Research Topic is open for submission of manuscripts focusing on the following areas (but not limited to):

- HPV vaccination workshops or conferences
- Introduction of national HPV vaccination programmes
- HPV vaccination acceptability studies
- Integration of HPV vaccination with other health-related interventions
- Strategies to improve adolescent vaccination
- Recommendations for adolescent vaccination

#### The Research Topic can be accessed on:

www.frontiersin.org/research-topics/18600/advances-in-adolescent-vaccination-programs-in-low--and-middle-income-countries-lmics-a-focus-on-hpv



## Networking and advocacy

### CHAPTER FOUR

NESI works with both the public and private sector to develop and deliver high-quality preand in-service training programmes. Through networking and advocacy NESI aims to align the different stakeholders in immunisation to achieve faster and coordinated introduction of new and under-utilised vaccines. Therefore, building and sustaining international networks is paramount in sharing experiences and best practices.

The NESI website (www.nesi.be) plays an important role in the dissemination of up-todate information on vaccines and immunisation. The website hosts high-quality training materials, which can be downloaded if required.

A database keeps track of all alumni and training activities organised. A mailing list linked to this database has been established in order to send out news updates and updated training materials.

Participating in networking meetings is important for NESI to discuss and plan collaborative activities, to share experiences with other immunisation partners, and to receive latest updates and recommendations on vaccines and immunisation.

### 4.1 NESI website

The Vaccine Safety Net (VSN) is a global network of websites, established by WHO, that provides scientifically based information on vaccine safety in various languages. The Global Advisory Committee on Vaccine Safety (GACVS) is a key player in this network. GACVS developed four categories of criteria for good information practices, namely credibility, content, accessibility and design to which websites providing information on vaccine safety should adhere. WHO evaluates those websites for their adherence to these criteria.

The NESI website underwent a make-over to make it more user-friendly and attractive, and is online since June 2020. The new NESI website was evaluated by VSN in September 2020 and accreditation was received.



## 4.2 Meetings

### 4.2.1 Strategic Advisory Group of Experts meeting,

Geneva, Switzerland, April and October 2020

The Strategic Advisory Group of Experts (SAGE) meetings were organised by WHO from 31 March to 1 April 2020, and from 5 to 7 October 2020, in Geneva, Switzerland. SAGE advises WHO on overall global policies and strategies, ranging from vaccine research and development, to delivery of immunisation services and linking immunisation with other health interventions. SAGE usually meets twice a year and reports directly to the Director-General of WHO. Due to the COVID-19 pandemic, the in-person SAGE meeting was replaced by a virtual meeting.

SAGE is an excellent opportunity for NESI to network but also for understanding the rationale supporting WHO's recommendations on vaccines and immunisation. These evidence-based arguments can immediately be incorporated in NESI's education and training activities enriching discussions with the most up-to-date information, especially relevant for vaccinology courses and workshops focusing on new vaccine introduction.

TOPICS ADDRESSED BY THE STRATEGIC ADVISORY GROUP OF EXPERTS DURING 2020			
Topics discussed at SAGE April 2020	Topics discussed at SAGE October 2020		
Report from WHO/IVB and Regional Updates	Report from WHO/IVB and Regional Updates		
Measles outbreak epidemiology and WHO coordination	Report from Gavi, the Vaccine Alliance		
Update on SARS-CoV-2 vaccine development	Immunisation in the context of the COVID- 19 pandemic, including regional and country focus		
Update on Ebola	Rotavirus vaccines		
Polio	Polio		
IA2030 monitoring and evaluation framework	COVID-19 vaccination		
Global Vaccine Safety Blueprint 2.0	Measles Rubella Strategic Framework		
	IA2030: Development of the IA2030 monitoring, evaluation and action and ownership and accountability frameworks		
	Pneumococcal vaccines: considerations for use in older adults and use in outbreak settings		
	Vaccine Innovation Prioritisation Strategy		

During the SAGE meeting in October 2020, special attention was given to the Roadmap for prioritizing population groups for COVID-19 vaccination. The Roadmap aims to guide the planning and recommendation-making for COVID-19 vaccination based on the epidemiological setting and vaccine supply scenarios. The importance of maintaining routine immunisation services during this pandemic was continuously emphasized.

### **4.2.2 WHO/AFRO Regional Immunisation Technical Advisory Group meeting,** Brazzaville, Congo, November 2020

The Regional Immunisation Technical Advisory Group (RITAG) meeting was organised by WHO/AFRO in Brazzaville, Congo from 18 to 19 November 2020. The in-person meeting was replaced by a virtual meeting.

During the opening session, highlights from the October 2020 SAGE meeting and the implementation status of July 2020 RITAG recommendations were discussed. The second session focused on COVID-19 vaccination, including an update on COVID-19 epidemiology and a detailed discussion on the Roadmap for prioritising population groups for COVID-19 vaccination and the COVAX facility. The regional COVID-19 vaccine readiness was also presented. The third session focused on Immunisation in the context of COVID-19. The fourth session concentrated on Polio eradication.

The RITAG meeting is an excellent opportunity for NESI to receive the latest updates from the WHO African Region and to identify potential new activities and collaborations.

### **4.2.3 La tuberculose de l'enfant en 2020,** Morocco, November 2020

On 19 November 2020, the Ministry of Health Morocco, SOMIPEV and the Global Fund to fight AIDS, tuberculosis and malaria, organised an online meeting on "La tuberculose de l'enfant en 2020".

The meeting discussed in detail latent tuberculosis infection and BCG vaccination. NESI was invited to present an overview of tuberculosis vaccines currently in development, with a special focus on the candidate vaccine M72/AS01E.

The webinar was attended by more than 200 participants and generated a lively discussion between speakers and participants.

### 4.2.4 Vaccine Safety Net virtual meeting

Geneva, Switzerland, December 2020

The Vaccine Safety Net organised a virtual meeting on 8 and 10 December 2020. The meeting focused on identifying how VSN members could play a critical role in the dissemination of COVID-19 vaccine safety information and on the operationalization of the communication module of the COVID-19 Vaccines.

Specifically, the meeting addressed the following issues:

- Coordination of active communication on COVID-19 vaccine safety
- Identification of additional elements that should be further developed to improve messaging and content
- Learning from the approaches and communication strategies already used by VSN members to address COVID-19 vaccines safety related questions
- Defining concrete actions for VSN members and the VSN Secretariat based on proposed scenarios

NESI was invited to participate in the virtual meeting as VSN member.



## 4.3. Webinars

A selection of the Webinars attended by NESI is presented here:

- EMPHNET WEBi Series. A series of interactive webinars addressing public health issues in the Eastern Mediterranean Region. Nine WEBi Series were organised by GHD/EMPHNET from 16 June 2020 to 1 December 2020.
- VSN Café. Monthly Webinar series organised by Vaccine Safety Net for VSN members to attend.
- Webinar series on Vaccination Misinformation, Control and Prevention. Organised by Sabin Vaccine Institute, UNICEF and the Boost Community.
  - Misinformation: a strategic approach: 29 October 2020
  - Infodemiology in practice: 12 November 2020
  - Inoculation against disinformation: 3 December 2020
- Technical assistance in the post-COVID world. One purpose, six new transformative approaches. Improving access to quality medicines, vaccines and medical technologies. Organised by UNICEF on 28 October 2020.
- Using new technologies to build trust and manage rumours in times of outbreaks. Organised by the EBODAC Consortium on 25 November 2020.
- How to maintain and build trust in immunisation a particular challenge in face of the COVID-19 Pandemic. Organised by the Mérieux Foundation on 16 December 2020.





NESI GUIDANCE AND SUPPORTING STRUCTURE

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## Scientific advisors

NESI scientific advisors are engaged in advising on strategic areas and reviewing outputs, identifying potential funding and reviewing proposals/applications.

The input of the scientific advisory members will contribute to

- 1. refinement of strategic areas;
- 2. identification of additional resources;
- 3. identification of new collaborations; and
- 4. overall improved functioning of NESI.

### **Current scientific advisors:**

- Dr Robin Biellik, DrPH Retired Epidemiologist WHO - Geneva, Switzerland
- Dr Edith Maes, DBA, MSc
  Health Economist Global Health, Planet Strategy Group, Strassen, Luxembourg
- Prof Dr Fred Were, MD, PhD
  Professor of Paediatrics, Department of Paediatrics and Child Health, University of Nairobi - Nairobi, Kenya
- Dr Salah Al Awaidy, MD, MSc Sr. Consultant Epidemiologist, Communicable Disease Surveillance and Control Advisor to the office of the Undersecretary of Health Affairs at the Ministry of Health - Muscat, Sultanate of Oman

## Collaboration with partner institutions/organisations

Collaboration with partner institutions/organisations in the different WHO Regions is an essential component for the implementation of NESI's activities. Each partner will bring in their own strength and expertise, consequently strengthening the overall Network, ensuring its sustainability and extending its reach.

## NESI has established Collaboration Agreements with five partner institutions:

- South African Vaccination and Immunisation Centre/ Sefako Makgatho Health Sciences University | SAVIC/ SMU, South Africa
- Société Marocaine d'Infectiologie Pédiatrique et de Vaccinologie | SOMIPEV, Morocco
- Universitas Padjadjaran | UNPAD, Indonesia
- East Africa Centre for Vaccines and Immunization | ECAVI, Uganda
- Global Health Development/Eastern Mediterranean Public Health Network | GHD/EMHPNET, Jordan





## Colophon

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### Network for Education and Support in Immunisation Department of Family Medicine and Population Health (FAMPOP) Social Epidemiology and Health Policy (SEHPO)

University of Antwerp Campus Drie Eiken Building R, 2nd floor Universiteitsplein 1 2610 Antwerp Belgium

#### **Executive Secretariat**

- **S** +32 (0)3 265 25 15 (Secretariat)
- **S** +32 (0)3 265 28 91 (Management)
- 😇 +32 (0)3 265 84 93
- nesi@uantwerpen.be
- www.nesi.be



www.nesi.be