About this newsletter
Providing updates on GVSI activities

The GVSI Bulletin\(^1\) newsletter provides updates on the implementation of the Global Vaccine Safety Initiative (GVSI)\(^2\), a forum aiming to synergize the knowledge and expertise of its stakeholders to help ensure the safety of vaccinations through the implementation of the three strategic goals of the Global Vaccine Safety Blueprint\(^3\) which are summarized in a product portfolio.

To optimize collaborative activities, GVSI Bulletin aims to provide all stakeholders of the initiative with a practical overview of activities identified. Components of the portfolio and activities of GVSI stakeholders that match the eight objectives of the Global Vaccine Safety Blueprint and profiles of stakeholders are presented to increase visibility of actions and support synergies.

Regional Update – SEARO & WPRO
Inter-country workshop on Causality Assessment of AEFI Bangkok 18 – 20 February 2014

Madhava Ram Balakrishnan

Ten countries; Bangladesh, Bhutan, India, Indonesia, Maldives, Nepal, Sri Lanka, Thailand, Timor Leste and Vietnam participated in the first Inter-country workshop on Causality Assessment of AEFI held in Bangkok

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from 18 to 20 February 2014. The 31 participants included EPI program managers, Epidemiologists, National Regulatory Authorities, clinical specialists, representatives from National Control Laboratories, National AEFI committees, Ministry of Health and WHO country office vaccine safety focal persons.

The three day workshop focused on providing “hands on” participatory training on the Revised WHO causality assessment methodology using 26 actual AEFI cases identified and contributed by the participating countries. The participants were very enthusiastic and were by and large satisfied with the revised WHO causality assessment method as it provided them greater clarity on the process and outcome compared to the previous method. The participants when presenting the group work also provided several insights on the challenges faced when using the revised method and offered practical suggestions. The vibrant and enthusiastic discussions were coordinated by an expert team including Dr Noni Macdonald, Professor of Paediatrics, Dalhousie University, Canada; Dr Ananda Amarasinghe, Consultant Epidemiologist, Sri Lanka; Dr Madhava Ram Balakrishnan, Medical Officer, Department of Essential Medicines and Health Products (EMP), WHO HQ and Mr Stephane Guichard, Regional Adviser, Vaccine Supply and Quality, IVD, SEARO.

The key outcomes of the workshop were to build national and regional capacity to investigate AEFI, assess causality using the revised WHO methodology by reviewing selected AEFI cases in South-East Asia and Western Pacific regions, streamlining AEFI data collection procedures by introducing standardised formats and data transmission methods and setting prerequisites for sustainable collaboration of sharing of vaccine safety data at regional and global meetings.

Research
Improving global media monitoring - Pentavalent vaccine (DTP-HBV-Hib) and Sudden Infant Death Syndrome (SIDS) in India

Heidi Larson¹, David Smith¹, Benedikt Becker², Jan Kors², Daniel Weibel², Yolanda Brauchli Pernus³, Miriam Sturkenboom² and Jan Bonhoeffer³

Background

It is paramount to detect, analyze and understand public concerns and the drivers of public confidence to inform adequate public health responses and provide insights and guidance for future vaccine introduction programs.

Public concerns around sudden infant death syndrome (SIDS) following pentavalent vaccine have spread in India and South East Asia with the potential to escalate to widespread vaccine hesitancy and suspension of marketing authorizations. We set out to analyze the utility of public and social media in combination with a geographical

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information system (GIS) for monitoring such concerns and explored routes for automation of the monitoring process.

Methods

Two sources of media reports were utilized. The primary source was the Vaccine Confidence Database (VCD) at the London School of Hygiene and Tropical Medicine (LSHTM) mainly comprising HealthMap news streams. Data acquisition and pre-processing was previously described¹. For the purpose of this study, news items collected since May 2011 pertaining to pentavalent vaccine and/or SIDS and/or India were identified by key word matching, extracted, annotated and analyzed with a focus on reporting rate over time, sentiment and geographic distribution.

The second source was publicly available social media data. We developed tools to search and extract information from Google+, Facebook, and Twitter streams. Several text mining operations were applied to post-process the datasets and annotate them. Social and public media items were fed into a GIS (i.e., ESRI ArcGIS) to capture the spatio-temporal dimension.

Results and Discussion

Vaccine Confidence Database

A total of 539 reports in the database were identified pertinent to pentavalent vaccine and India. The dynamic evolution of positive and negative news items published over time is illustrated in Figure 1. It demonstrates how analysis of available data may allow for correlation of sentiment quality and quantity with important events in the immunization program life cycle.

The distribution reflects the general pattern of positive messages related to vaccine availability and program implementation, while the negative messages relate to government recommendations and safety concerns¹. The peak in the second half of 2013 will require further investigation in terms of its relative representativeness as compared to previous periods. This appears to be a combination of an actual increase in communication and a change in consistency of report classification during

this pilot project. Further, this graph illustrates the potential for utilizing the available resources for real-time monitoring of public sentiment. The spatio-temporal change of media reporting frequency in India and its neighbouring countries based on reports in the VCD is demonstrated in Figure 2.

Social media: The searches on the three social networks resulted in 4779 original messages on pentavalent vaccine and 3919 original messages on SIDS between August 2007 and February 2014. GIS processing and visualization of reports illustrates that pentavalent vaccine is discussed globally, with hot spots in India and South East Asia (Figure 3). Spatio-temporal analyses demonstrate that a large peak of pertinent messages from India was observed in December 2011 continuing until mid-2012. In the first half of 2012, the main focus shifted to Indonesia, with two smaller peaks in March and May. In 2013 the interest spread rather broadly and a continuous stream of messages came from Vietnam. This highlights the potential utility of social media as complementary resources for real-time monitoring.

Overlap in content

Most messages in the social media reference online data. Comparison of the articles from the VCD database with the articles referenced by the social media shows that these sets are largely distinct: only 51 articles show up both in the VCD and social media, while 685 are uniquely in the VCD database and 466 in social media. Thus, 7% of the articles about pentavalent vaccine in India from the VCD are also referred to by messages in the social media, and 10% of the articles referred to in social media are covered in the VCD.

Towards real-time monitoring

The VCD is a high-quality data set that is mostly manually annotated. This is a rate-limiting factor to rendering real-time data available for real-time analysis. To reduce the time needed for review, text mining algorithms can be utilized to (pre-) annotate the large volume of reports. Based on the annotated VCD various machine-learning methods were utilized to train and test classifiers for automatic sentiment annotation. The pilot demonstrated optimal sensitivities of 96% and specificities of 84% for different classifiers. This suggests a promising route for automated pre-processing of large news volumes for global media monitoring prior to targeted human review and thus represents a major step towards real-time monitoring.

Acknowledgements: This project was funded by the World Health Organization (WHO) and conducted as part of the Global Vaccine Safety Initiative (GVSI). We are grateful to Christine Maure and Patrick Zuber at the WHO-GVSI Secretariat for their support.
GACVS statement
Safety of HPV vaccines
Philipp Lambach & Patrick Zuber

The Global Advisory Committee on Vaccine Safety is WHO’s independent expert group that provides the Organization with authoritative, scientific advice on vaccine safety issues of global or regional concern with the potential to affect in the short or long term national immunization programmes. Since their introduction, vaccines against human papilloma virus (HPV) have been under intense scrutiny. Many coincidental health events that occurred in close temporal relationship with vaccine administration have received media attention in many countries. In addition, some studies have been published that suggested possible untoward effect of those vaccines. While safety concerns about HPV vaccines have been raised, these have systematically been investigated: to date, the GACVS has not found any safety issue that would alter any of the current recommendations for the use of the vaccine. In order to summarize the committee’s work over the past 6 years with respect to HPV vaccines, GACVS recently published a statement because a number of national immunization programs have been facing real and potential public losses of confidence in their programs as a result of increased negative publicity, even from safety issues that have been addressed.

The full statement can be found under the following link:

The Vaccine Safety Net
Websites providing information on vaccine safety recognized for complying with good information practices
Isabelle Sahinovic

Vaccines are one of the greatest achievements in medicine and public health. Due to the success of immunization, however, some diseases are no longer perceived as a threat. Certain groups have even questioned the utility of vaccination, in spite of its ongoing necessity to control disease. In recent years, a number of websites providing unbalanced, misleading and alarming vaccine safety information have been established, making it more difficult to identify and access reliable sources of information on the web. Acknowledging the above-mentioned issues and urged by governments, key non-governmental organizations, UNICEF and WHO initiated the Vaccine Safety Net in 2003, a project to facilitate the access of public health authorities, health professionals and the public to reliable information on vaccine safety.

A key player in the Vaccine Safety Net is the Global Advisory Committee on Vaccine Safety (GACVS), the committee of vaccine safety experts established by WHO in 1999 to respond promptly, efficiently, and with scientific rigour to vaccine safety issues of potential global importance.

Four criteria for good information practices regarding credibility, content, accessibility and design for websites were developed by the GACVS. To comply with credibility and content criteria, websites must clearly indicate the purpose of the site, disclose their ownership and information sources, reveal their
sponsors, provide contact information, have a data protection policy, and provide quality information in sufficient quantity.

Since the beginning of the project a decade ago, thirty-three sites providing information on vaccine safety have been determined to meet the credibility and content criteria defined by the GACVS, and have thus been accepted to join the Vaccine Safety Net. These websites are listed and can be accessed at the link: http://www.who.int/vaccine_safety/initiative/communication/network/vaccine_safety_websites/en/ and provide information to English, Dutch, French, German, Italian Spanish and others-speaking audiences.

The listing of a site does not indicate endorsement by WHO of the site's content. Commercial sites are not eligible for membership of the Vaccine Safety Net.

Additional websites are currently under review. In order to ensure a global reach, the Vaccine Safety Net is further expanding to websites in languages other than English and to websites from all regions of the world.

Candidates who are interested in joining the VSN network may send their request for evaluation to the WHO Global Vaccine Safety team at: gysi@who.int.

Vaccine Pharmacovigilance Toolkit
Promoting the use of vaccine safety monitoring tools

Alex Dodoo¹

The Global Vaccine Safety Initiative which hinges on eight strategic objectives continues to provide leadership and a convening platform for vaccine pharmacovigilance. One of the activities that the GVSI earmarked as priority in 2013 was the Vaccine Pharmacovigilance Toolkit.²

The development of the vaccine pharmacovigilance toolkit is being led by the WHO Collaborating Centre for Advocacy and Training in Pharmacovigilance, Accra, Ghana with the Planning Group of the GVSI providing governance in terms of contents, accuracy and diversity. The vaccine PV toolkit is structured in a similar way to the drug pharmacovigilance toolkit also developed by the WHO-CC in Accra Ghana and which aims to bring under one umbrella, all the necessary tools and resources for the effective conduct of pharmacovigilance.

The vaccine pharmacovigilance toolkit equally brings within the same web-space all tools and resources necessary for the effective conduct of vaccine pharmacovigilance. It brings together all agreed and approved norms and standards from WHO, the Brighton Collaboration, the CDC and other technical agencies. The vaccine pharmacovigilance toolkit is web-based offering the possibility for frequent updates and also allowing the linking of pages to relevant websites. There will however be an off-line

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² http://www.vaccinepvtoolkit.org/
USB version for use by practitioners in low and middle-income countries where internet access still remains a formidable challenge. The chapters in the maiden edition of the vaccine pharmacovigilance toolkit are outlined in the chart below.

- Introduction
- Vaccine Pharmacovigilance (including definitions);
- Setting up a Vaccine PV System
- Drugs vs. Vaccines and Vaccine PV Methods

- Causality assessment
- Case definitions for AEFIs
- Signal identification; communication and risk perception;
- Managing AEFIs
- Investigating AEFIs
- Crisis management.

- Monitoring & evaluation of vaccine PV systems
- IT for vaccine pharmacovigilance
- Resources for hands-on practice of vaccine pharmacovigilance
- Organizations, societies & regulators in safety
- WHO Vaccine safety e-learning course

The vaccine PV toolkit is available at [http://vaccinepvtoolkit.org/](http://vaccinepvtoolkit.org/)