



Foundation for Influenza Epidemiology

Uncovering the true burden of influenza

Two new data-driven collaborations with Sanofi Pasteur's Foundation for Influenza Epidemiology seek to improve genetic mapping of the disease and its impact at national and global levels

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In recent years, research has shown that when we catch the flu we risk more severe complications than we'd otherwise expect, including increased risk of heart attack or aggravation of diabetes, to name just two. That's not to mention the more commonly recognized risks associated with the disease, such as pneumonia.

Scientists are increasingly realizing that the true impact of annual flu epidemics may be much more diverse and harmful than we realized in the past. The dynamics and evolution of seasonal influenza is also challenging to predict. Yet, scientific understanding is key to the continuous development of improved flu vaccines. Today, strengthening effective surveillance of influenza – and establishing disease burden estimates are high on the research agenda, aligned with needs expressed by the World Health Organization's (WHO) Global Influenza Programme and Pandemic Influenza Preparedness (PIP) framework. Vaccine manufacturers already contribute substantially to the funding of the PIP, but the magnitude of the challenge requires joint action from all players. This is why Sanofi Pasteur's Foundation for Influenza Epidemiology and its Global Influenza Hospital Surveillance Network (GIHSN) are forging new collaborations with two leading institutions in data collection and analysis for the burden of disease estimation and influenza virus characterization.

The Global Influenza Hospital-based Surveillance Network (GIHSN) is a platform to generate epidemiological evidence on the burden of severe influenza and the potential public health benefit of influenza vaccines. This worldwide platform is open to networks of hospitals coordinated by public health institutions willing to share surveillance data and epidemiology expertise with other countries. In 2017-2018, institutes from 18 countries (20 sites, 60 hospitals) implemented the GIHSN protocol and contributed to the annual analysis and discussion of the pooled cumulative data.

GIHSN is partnering with the Global Initiative on Sharing All Influenza Data (GISAID) to share virus data collected through its network via GISAID, to link clinical and virological surveillance data. Sanofi Pasteur's Foundation for Influenza Epidemiology is also making a contribution of €300,000 to GISAID to further strengthen the Initiative and enhance its EpiFlu™ database and educational programs. "Thanks to this new initiative, GISAID and GIHSN will together help increase our collective understanding of the molecular epidemiology of influenza and its impact on disease severity. The integrated effort will also improve information provided to the WHO for its recommendations on influenza vaccine composition each year," said Dr. Alan Hay, Scientific Liaison Officer of GISAID.

The BIRD (Burden of Influenza and RSV Disease) project, a new consortium including a US-based population health research center, Netherlands Institute for Health Services Research (NIVEL), the University of Edinburgh and the OpenHealth Company will also receive a grant of M€1.2 to analyse all available data sources including GIHSN data to refine currently disparate estimates of the true public

health burden from influenza and RSV. The consortium will be under the scientific coordination of Dr. Cécile Viboud (US NIH). Public Health agencies like US CDC, WHO and others will be offered membership of the Advisory Board to provide scientific guidance. “We’re thrilled to have all the key players around the table in a joint effort to better estimate influenza and RSV disease burden, using all available data we can access. This project will focus on severe disease leading to hospitalization and mortality, taking into account population risk heterogeneity, disease complications and current vaccine coverage.” said Dr. John Paget, senior researcher at NIVEL.

Together, these integrated initiatives mark a unique level of commitment from a pharmaceutical company in the global public health community’s efforts to better understand and respond to the true burden of yet underestimated influenza, worldwide. The grants and collaborations will allow sharing of data and expertise to support the partnering organizations’ improved epidemiological and disease burden surveillance objectives. “Given the high variability of influenza virus circulation, generation of comparable data across seasons with a broad geographical scope are required”, says Dr. Cédric Mahé, President of the Foundation and Head of Epidemiology at Sanofi Pasteur. “Existing networks usually rely on either passive clinical surveillance or virological data. A combination of representative clinical and virological information is needed to support influenza vaccine virus selection and vaccine development. The GIHSN provides important data on countries traditionally under-represented in such surveillance activities. It needs to be scaled up, involving both public and private sector participants, to advance the next generation of influenza vaccines.”

In addition, this month, the GIHSN is also granting additional funds and expertise to hospitals in Argentina, Brazil, Canada, China, Columbia, Czech Republic, France, India, Ivory Coast, Kenya, Lebanon, Mexico, Peru, Romania, Russia, Serbia, South Africa and Spain that are either new to the network or reinforcing their local data collection expertise in influenza epidemiology.

About the GIHSN:

The Global Influenza Hospital-based Surveillance Network (GIHSN) is a platform to generate epidemiological evidence on the burden of severe influenza and the potential public health benefit of influenza vaccines. This worldwide platform is open to networks of hospitals coordinated by public health institutions willing to share surveillance data and epidemiology expertise with other countries. In 2017-2018, institutes from 18 countries (20 sites, 60 hospitals) implemented the GIHSN protocol and contributed to the yearly pooled analysis and related discussions. It is funded through The Foundation for Influenza Epidemiology, established in 2015 by Sanofi Pasteur. All donations collected through the foundation are dedicated to epidemiological research in the field of severe influenza and other respiratory viral diseases. For more information: <https://www.gihsn.org/>

About GISAID:

The GISAID Initiative is an international public-private partnership which provides a data sharing platform, featuring a unique mechanism that ensures free, open, unhindered collection and dissemination of influenza genetic information, also essential for the Global Influenza Surveillance and Response System (GISRS) and the biannual WHO influenza vaccine recommendations. GISAID is a key player in global health security and crucial for pandemic preparedness of the global community, as evident in the early response to the 2009 influenza pandemic and to the emerging threat of H7N9 bird flu in China. In 2017, Health Ministers of the G20 recognized the importance of GISAID. For more information: <https://www.gisaid.org/>

About NIVEL: NIVEL (Netherlands Institute for Health Services Research) is an independent research organization. Its domain is applied and applicable health services research. NIVEL has operated the Dutch Sentinel Surveillance System since 1968 and has been an important partner in the surveillance of influenza (and RSV) in the Netherlands since this date. NIVEL has been involved in the epidemiology of influenza and RSV, including burden estimates, at a national, European and global level. For more information: <http://www.nivel.eu/>

About Open Health: OpenHealth is a French company leader in health data analytics innovation. It processes big scale health data from various sources and provides best-in-class data analytics and insights for pharmaceutical companies, health authorities and public health research. Since 2017, OpenHealth has been entrusted with the responsibility of coordinating the Global Influenza Hospital Surveillance Network (GIHSN) and managing the GIHSN data collection and data analysis processes. OpenHealth will be coordinating the BIRD project (Burden of Influenza and RSV Diseases). For more information: <http://www.openhealth.fr/>

About University of Edinburgh: The University of Edinburgh's Respiratory Viral Epidemiology Group led by Professor Harish Nair developed the first and most widely cited RSV and influenza disease burden estimates in under-5 children. They lead the RSV Global Epidemiology Network and the Innovative Medicines Initiative funded RSV Consortium in Europe (RESCEU).