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EDITORIAL

More than half a year after the Third European Influenza Conference took place in Vilamoura, Portugal, it is now a good moment to look back on a successful and very valuable influenza meeting. In line with the previous meetings, the conference covered all relevant scientific disciplines, focusing on new developments and state-of-the-art advances in the influenza field. At the same time, the conference was designed to maximise the return in terms of communication. Based on the irrefutable fact that the fight against the impact of influenza on society is a responsibility shared by many different parties, 200 government representatives and opinion leaders in healthcare attended clearly delineated, tailor-made programme tracks. The highlights of the conference are the topic of an extensive article in this edition of ESWI's *Influenza* bulletin. One of ESWI's major conclusions, however, was the need for an intensified collaboration with both healthcare workers (HCWs) and policymakers.

HCWs, on the one hand, play a key role in the vaccination of at-risk groups, as patients heavily rely on their recommendations. However, for various reasons, HCWs do not fully recognise the importance of their role in combating influenza. Yet, their advice is crucial and saves lives. At the Third European Influenza Conference, medical ethicists and leading HCWs took it even further, saying: 'Vaccinate yourself first to better serve your patients and reduce their risk of exposure'.

The remarkable variation in pandemic preparedness plans in Europe, on the other hand, demonstrates that policymakers are still uncertain about the best preparedness strategy. The natural resistance to oseltamivir that recently emerged in H1N1 viruses might incite national governments to stop stockpiling antiviral drugs. However, it may be necessary to stockpile more than one antiviral compound. It is therefore essential to keep national and international influenza policymakers informed about the latest scientific insights and developments. If we compare the pandemic preparedness armament that we have today versus 3 years ago, the field has advanced immensely. The development of new adjuvants has already led to licensed vaccines for pre-pandemic use and candidate-vectored vaccines have shown great promise. In fact, the licensing of the first pre-pandemic influenza vaccine on the European market has triggered ESWI into organising the first edition of its pre-pandemic preparedness workshop for European public health officials. One of the main objectives was indeed to work towards a consensus on a European pre-pandemic preparedness strategy.

The importance of close collaboration between influenza stakeholders like public health officials and healthcare providers is further demonstrated by ESWI's Country Influenza Stakeholder Networks. The Finnish network is exemplary to the way national influenza stakeholders can join forces to improve seasonal influenza response. Similar projects have been set up in the Czech Republic and Portugal and will help ESWI to realise its objective of reducing the impact of epidemic and pandemic influenza in the European population.

I am convinced that ESWI's actions and activities will contribute to developing a European prevention strategy for seasonal influenza as well as a preparedness strategy for a pandemic outbreak.

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INFLUENZA VACCINATION OF HEALTHCARE WORKERS – ETHICAL OBLIGATIONS

Causes and consequences of lack of influenza vaccination among healthcare workers

From an ethical perspective, the most serious consequence of healthcare workers (HCWs) remaining unvaccinated against influenza is that elderly patients can be expected to suffer significantly increased morbidity and mortality resulting from infection by HCWs (or others infected by HCWs).

The failure of HCWs to receive influenza vaccination is also disadvantageous to HCWs themselves because remaining unvaccinated increases the chance that they will become ill and/or miss work. This negatively affects the functioning of healthcare institutions, especially during the flu season when HCW absenteeism rates are high.

Given that HCWs promote health for a living, it is surprising that they have not proven more willing to receive safe and effective seasonal influenza vaccine. Average vaccination rates among HCWs are only

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40% in the USA and 25% in Europe. Studies reveal numerous reasons for HCWs remaining unvaccinated, and these include: lack of awareness of the importance of vaccination (e.g. for patient protection), inconvenience, and/or fear of needles/injections and vaccine side effects.

HCWs' obligations

That there is an ethical imperative for HCWs to be vaccinated against influenza can be argued on numerous grounds. First and foremost is the duty not to infect others, which follows on from a more general duty to do no harm [1]. Though such duties apply to everyone, they are especially important for HCWs given their job and professional aim to promote human well-being via reduction of illness.

There are limits to such duties: one should not be expected to make enormous sacrifices or do everything in one's power to prevent harm to others. But being a Good Samaritan requires that we make minor sacrifices when this will help to prevent major harm to others [2], and we should surely expect HCWs to be Good Samaritans towards their patients. The failure to take minimally burdensome actions when the result is predictable mortality among those entrusted to one's care and protection would appear to involve negligence as well as a lack of altruism.

Vaccination takes time and involves a jab in the arm (perhaps followed by soreness), however serious side effects are extremely rare. In comparison with the life-saving benefits to patients, the risks/sacrifices by HCWs would be small even if there were no benefits to the HCWs themselves. In reality, however, vaccination is expected to benefit the HCW as well as the patient and so, all things considered, the net sacrifice by the HCW is usually zero or negative. It would be one thing if an HCW was unwilling to make a minor sacrifice in order to protect patients' lives and health, but it is something else, and morally worse, when a HCW fails to take an action that would benefit him/herself as well as averting serious harm to patients.

Even if, for the sake of argument, the risks of vaccination to the HCW were greater, it might still be correct to think that HCWs would have an obligation to be vaccinated. The duty of care enshrined in numerous health professions' codes of conduct holds that HCWs should care for contagious patients even when this poses potentially serious risks (of infection) to HCWs themselves. This widely acknowledged duty already entails risk-taking by HCWs, when necessary, to promote and protect patient health. Facing such risks is arguably part of a HCW's job, just as it is part of a fire-fighter's job to face risks fighting fires. Healthcare is an inherently risky business, and the risks associated with influenza vaccination are presumably no greater than those already faced by HCWs on a daily basis.

Institutional obligations

The above analysis assumes there is good reason to believe that influenza vaccination really would provide overall net benefits to HCWs as well as enormous benefits to patients. If this is correct, then the best explanation for why more HCWs do not get vaccinated would appear to be that they lack sufficient awareness of prudential and moral reasons for them to do so. Studies have consistently shown lack of awareness and/or misunderstanding of influenza and influenza vaccine to be common reasons why HCWs remain unvaccinated.

While ethics discourse surrounding HCW vaccination often focuses on the ethical obligations of HCWs themselves, the above explanation for low HCW vaccine uptake points to parallel ethical obligations of society and healthcare institutions to do more to improve HCW vaccine uptake. It is commonly said that consistently low levels of HCW influenza vaccination point to the need for mandatory vaccination of HCWs. Coercive measures, e.g. making vaccination a contractual requirement of HCWs, might be morally justified as a last resort. The use of coercion is less objectionable in cases such as this, where we are talking about coercing people to do what they are already morally obligated to do. But a common tenet of public health ethics is that we should use the least restrictive means to achieve the public health goal in question [3]. If it would be possible to (equally) improve HCW vaccination uptake via voluntary programmes, then this would be morally preferable.

Improved communication regarding the risks and benefits of influenza vaccination might be all that is necessary to increase uptake by HCWs. Research to date has shown mixed results regarding the impact of relevant HCW education programmes. In cases where the results have been poor, this might merely reveal the inadequacy of the education programmes in question rather than inadequacy of the communication strategy in general. If a convincing empirical case can be made that influenza vaccination is, at best, in the HCW's own interests and, at worst, no riskier than other things done on a daily basis by HCWs, then effective communication of this should itself motivate significantly increased vaccination uptake by HCWs.

Increased uptake also requires that vaccination be offered for free and in a maximally convenient manner. HCWs (and/or their families) should also be assured that they will receive compensation in the unlikely event that harm results from vaccination. Finally, before resorting to coercion, we should consider offering HCWs financial payment or other incentives for being vaccinated.

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INFLUENZA AND BACTERIAL SUPERINFECTION: A DEADLY COMBINATION

Influenza: the 'old man's friend'

Death following influenza occurs via one of three distinct mechanisms. In a very small number of cases, viral-induced acute lung injury is severe enough to kill the host. More frequently, this lung injury is mild and resolves after a period of time, during which co-pathogens such as bacteria may take advantage of changes in innate immunity and physical damage to the lung to cause fatal infections. In hosts who are compromised by comorbidities such as pre-existing chronic heart or lung disease, the increased physiological load during influenza may cause the host to succumb to underlying pathologies. In most inter-pandemic influenza seasons, it is this latter mechanism that predominates, and most deaths occur in the elderly. Mortality directly from viral effects may strike any age group and has historically been the province of only a select few highly pathogenic influenza viruses, such as the 1918 pandemic strain and the H5N1 strains of avian origin currently circulating in Asia, Europe and Africa.

Although secondary bacterial pneumonia as a cause of death has been appreciated since the 1803 pandemic struck Europe, this association came into sharp focus in 1918 [1]. Our societal memory of 1918 is of the virus that triggered 40–50 million deaths worldwide, but contemporary investigations and careful reconstructions suggest that bacterial superinfections were responsible for the majority of fatal cases [2]. The descendants of that virus now circulate in an adapted and weakened form, and neither the primary viral deaths nor secondary

bacterial fatalities that were hallmarks of the Spanish Flu occur with regularity in the present day. The spectre of a new pandemic with another highly pathogenic strain, however, suggests we need to better understand both of these mechanisms of killing before a novel virus enters the population.

The paradox and problem of inflammation

Influenza is a highly inflammatory disease, and secondary bacterial infections amplify this process. One of the paradoxes apparent in the study of secondary bacterial infections is, 'Why is the inflammatory response supporting and worsening bacterial infections rather than helping to clear them?' Recent data suggest that the adaptive immune response to influenza virus promotes a robust inflammatory response to secondary challengers [3], but at the same time cripples the ability of innate immune effectors such as macrophages to deal with these pathogens [4]. The result is severe pneumonia and its accompanying immunopathogenic effects, coupled with unrestrained bacterial growth.

Treatment of these highly inflammatory, combined infections is difficult; rapid lysis and elimination of the offending bacteria with antibiotics can actually worsen this clinicopathological scenario by releasing additional inflammatory mediators. Alternate antibiotic regimens which shut down protein synthesis rather than bursting the bacterial cell wall may be one potential answer [5]; immunomodulatory therapies may be another. The threat of pandemic disease with a highly pathogenic and inflammatory virus like many H5N1 strains raises the question of how best to treat the inevitable secondary infections that will occur. Pandemic planning must take into account not only what supplies of antibiotics we might need, but also which ones are most appropriate for use. At present the world does not have sufficient supplies of any antibiotics, much less specific choices, to deal with the magnitude of the predicted threat.

The (re-)emergence of *Staphylococcus aureus*

One of the worrisome trends of the last decade has been the emergence and now worldwide dominance of new strains of *S. aureus* mostly from a group designated as USA300. *S. aureus* has long been associated with influenza pandemics. It ranked either third or fourth as a cause of superinfections during 1918 [2], and was the predominant secondary bacterial pathogen in many case series during the 1957 pandemic. After being an infrequent cause of pneumonia for much of the last three decades, *S. aureus* strains are now being isolated with greater frequency from healthy persons infected with influenza viruses. The resulting disease is often a severe, necrotic pneumonia that is rapidly fatal. Since the USA300 strains are highly resistant to most of the antibiotics commonly employed to treat pneumonia, this shift in staphylococcal epidemiology could present great difficulties for management of secondary bacterial infections during pandemic influenza, and for planning prior to the next pandemic.

Conclusion

Bacterial superinfections account for much of the mortality associated with influenza in select seasons, most strikingly during pandemic years. The evolution of influenza viruses and of their bacterial partners that contribute to these co-infections has an impact on epidemiology and outcomes that is imperfectly understood at present. If we are to prepare for another event of the magnitude of the 1918 Spanish Flu or even the 1957 pandemic, we must better comprehend how these pathogens work together, develop more effective means to treat the resulting superinfections and work to implement proven clinical practices when the next pandemic does occur.

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THE THIRD EUROPEAN INFLUENZA CONFERENCE: HIGHLIGHTS

Introduction

The Third European Influenza Conference, organised by the European Scientific Working group on Influenza (ESWI), was held in Vilamoura, Portugal, 14–17 September, 2008. The 1,362 attendees came from 55 countries (66% from the European Union; 34% from the rest of the world). The scientific programme counted 82 oral presentations and 278 posters in 11 different subjects. More than 50 young scientist grants made it possible to present promising scientific results. In parallel 'Science in practice' for government representatives and opinion leaders in health, interaction with scientists was enhanced. Only the highlights will be presented.

Influenza vaccination of healthcare workers

Influenza vaccine has been shown to be both effective and cost-effective in preventing influenza amongst healthcare workers (HCWs), and additionally is effective in reducing mortality among their patients. Rachel Jordan from the University of Birmingham, UK, provided the evidence from a meta-analysis on the effectiveness and cost-effectiveness of vaccinating HCWs, along with an evaluation of the evidence concerning the best methods for improving uptake. From Germany, Dieter Walter of the Robert Koch Institute gave some examples of best practices in German hospitals. The ethicist Hans van Delden from the University Medical Center Utrecht, The Netherlands, presented a study into the ethics of mandatory vaccination against influenza for HCWs [1]. A group of European ethicists argued that institutions caring for the frail elderly have the responsibility to implement voluntary programmes for vaccination against influenza in HCWs. When the uptake falls short, a mandatory programme may be justified.

Mechanisms of oseltamivir resistance

Influenza A H1N1 viruses resistant to the neuraminidase inhibitor, oseltamivir, emerged globally during the winter of 2007/08. A mutation in the neuraminidase protein at position 275 (H275Y) was responsible for the antiviral resistant phenotype, Maria Zambon from the HPA Centre for Infection, London, UK, argued. Isolation of this variant did not correlate with drug treatment or transmission from a treated individual. She demonstrated that the 2007/08 circulating resistant strains do not appear to have growth disadvantage, in contrast to previous strains with this mutation, and are therefore able to compete for transmission in humans.

Pandemic and vaccination strategies

During the Second European Influenza Conference in 2005, much of the discussion was about the impossibility to prepare for an influenza pandemic, because of the time lag in producing the right pandemic vaccine. Now, in 2008, the field has advanced immensely. The stockpiling and use of pre-pandemic and pandemic vaccines has been the

subject of intense debate between scientists and policymakers. In the late breaker session, the newly developed adjuvanted H5N1 vaccines were discussed. They allow a highly flexible prime-boost vaccination strategy. Next to that, the adjuvanted vaccines give the possibility for antigen sparing, which is good news because of the restricted production facilities of today. In addition to the new adjuvants, intradermal vaccination may improve the immunogenicity of the seasonal influenza vaccine in the elderly.

Mathematic modelling

Since performing trials is not possible as long as the pandemic is pending, mathematic modelling presents the only possibility to study the impact of interventions. Ira Longini from the University of Washington, USA, described the recent use of mathematical models for the detection, transmission and control of pandemic influenza in clusters of households and wider geographical regions. Containment with antiviral agents, pre-pandemic influenza vaccines and social distancing measures can be effective. Cecile Viboud from National Institutes of Health (NIH), Bethesda, USA, used data from the 1918–1920 pandemic in 13 countries. The conclusion was that the most likely biological explanation for the observed mortality patterns of the Spanish Flu is a composite one, involving a protection effect against mortality in adolescents, combined with partial immunity in older individuals due to antigenic recycling. Neil Ferguson discussed what the rapid spread of the transmission-fit oseltamivir-resistant H1N1 strain across Europe implies for the possible emergence of antiviral resistance in a pandemic.

Assessing vaccine efficacy

The benefits of influenza vaccination are widely accepted by healthcare policymakers and members of the scientific community, particularly as a means of reducing mortality among seniors. Yet the question remains as to precisely how effective vaccination is, and questions have emerged about the methods used to evaluate vaccine efficacy. Recent excess mortality studies could not confirm a decline in influenza-related mortality in several countries, even as senior vaccination coverage rose greatly. On the other hand, a large number of observational studies have consistently reported that vaccination reduces the risk of dying in winter from any cause by approximately 50%. This estimate far exceeds the assessments from excess mortality studies that less than 10% of all winter deaths are attributable to influenza. In observational studies, the very selection of patients for influenza vaccination may introduce a confounding bias, and hence vaccine effects may be over- or underestimated.

Three authors discussed this subject. Lone Simonsen from NIH, Bethesda, USA, discovered the cause of the inflated 50% figure. She calls it 'frailty selection bias': many physicians were not vaccinating frail seniors, while healthier seniors were being vaccinated. The death of the unvaccinated seniors skewed the figures. Simonsen advocates conducting detailed chart reviews to eliminate this bias. Kristin Nichol of the University of Minnesota, USA, sees the problem as more fundamental. She thinks that the actual number of influenza deaths is under-reported because patients may die from other complications. Nichol believes that mortality rates during the influenza season are inflated because we fail to account for heterogeneity.

Eelko Hak from the University of Utrecht, The Netherlands, reported a study, which confirmed the benefits of vaccination among the elderly, even taking into account the potential for residual confounding. He used the national mortality statistics to determine changes in excess mortality among elderly persons during periods of increased influenza and respiratory syncytial virus (RSV) activity before and after the start of the Dutch national influenza campaign in 1995/6. After the campaign began, the average annual influenza-associated mortality declined from 131 to 105 per 100,000 people. No decline was observed in RSV-associated mortality.

In short, all the approaches indicated that influenza vaccination was associated with considerable mortality reduction and that the potential for confounding bias was relatively small. The available evidence, therefore, favours annual immunisation of the elderly against influenza.

The best guinea pigs are . . . guinea pigs?

The new generation of scientists presented themselves in a special plenary session for young scientists. Anice Lowen from Mount Sinai School of Medicine, New York, USA, characterised the guinea pig as a model host for influenza [2]. Guinea pigs are highly susceptible to infection with human influenza isolates and transmit these viruses efficiently, both by aerosol and contact routes. Julie McAuley and colleagues from St Jude Children's Research Hospital, Memphis, USA, sought to better understand virus pathogenicity by re-engineering the 1918 influenza virus. The researchers zeroed in on the pro-apoptotic protein PB1-F2. This virus, constructed by reverse genetics, was more virulent in mice, induced a heightened cellular and inflammatory cytokine response, caused more severe pulmonary immunopathology and potentially made individuals more susceptible to secondary bacterial pneumonia. These and other findings implicate PB1-F2 as an important virulence factor.

Colin Russell and colleagues from the University of Cambridge, UK, studied the global migration routes of influenza viruses [3]. They analysed the haemagglutinin of some 13,000 human influenza A (H3N2) viruses from six continents during 2002 to 2007. They discovered that each year epidemics in the temperate regions were seeded by viruses from East and Southeast Asia. The researchers concluded that the antigenic characteristics of A (H3N1) viruses outside East and Southeast Asia may be forecast each year based on surveillance within East and Southeast Asia, with implications for vaccine strain selection.

Summary and conclusions

Since the Second European Influenza Conference in 2005, the field has advanced immensely. The main topics of this Third Conference were the possible mandatory vaccination for seasonal influenza of healthcare workers, the oseltamivir resistance of the H1N1 virus, the pandemic and pre-pandemic vaccination strategies and the mathematical modelling of a pandemic. A firm discussion was held on the efficacy of seasonal vaccination of the elderly. Young scientists presented promising work on influenza transmission in the guinea pig model, the pathogenicity of the re-engineered 1918 Spanish Flu influenza virus and the global migration routes of influenza viruses.

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AN UPDATE ON H5N1 IN ASIA

The recent epidemiology of H5N1 in Asia can be broadly summarised as 'more of the same'. The first quarter of 2009 saw Nepal report its first outbreaks, outbreaks recur in Bangladesh, and Indonesia and Vietnam continue to be chronically affected. On a brighter note, Thailand declared itself H5N1 free as of 11 February 2009, following 3 months without any evidence of animal infections.

With characteristic unfortunate timing, the Lunar New Year was again an unhappy and busy time for some in Asia, with human cases occurring in China, Vietnam and Indonesia. So far this year China has reported seven cases distributed across six Provinces, despite detecting only three poultry outbreaks since December 2008. Four cases with three deaths have been confirmed in Vietnam and one of these cases was the first case in Southern Vietnam for more than 3 years. In January, Indonesia reported two fatal cases and in March an Indonesian official told the press of four more H5N1 deaths.

Family clusters remain a feature of the epidemiology of human cases. The older sister of one of the confirmed Vietnamese cases died of an undiagnosed respiratory illness in the same month and two of the four deaths mentioned by the Indonesian official in March appear to be adult siblings. One of the China cases, a 2-year-old girl, may also be part of a cluster since the child's mother had recently died of pneumonia.

It is more than 5 years since H5N1 spread out of China to affect large swathes of Asia and the situation, although less acute than in 2004 and 2005, is in many ways more complex than ever. Multiple lineages have become established following continued diversification and reassortment, and co-circulation of different lineages is not uncommon [1,2]. This has implications for countries that use poultry vaccination and, since it is probable that any of these lineages are capable of causing human infections and may possess differing antiviral susceptibility patterns, it also complicates the diagnosis and treatment of human cases.

The detection of human cases is also becoming more problematic in China due to the increased dissociation between poultry and human cases – none of the seven human cases occurring in China this year have been associated with laboratory-confirmed outbreaks in poultry. It is important to establish the reasons that human cases are occurring without any detected signals from poultry. Does this reflect viruses with inherent lower pathogenicity, transmission in a sub-population of relatively resistant poultry species, the influence of vaccination, weak surveillance, unusually susceptible individuals or any combination of these? Recent data from Thailand suggests that covert persistence and recurrence of H5N1 may occur despite apparent freedom from disease outbreaks and in the absence of poultry vaccination [3].

Asia remains the epicentre of H5N1 in poultry and humans, this unenviable title challenged perhaps only by Egypt. Altogether Asia is home to more than 60% of the world's human and poultry populations and control of highly pathogenic avian influenza is a formidable challenge. This is well demonstrated by the difficulties facing Hong Kong, which has one of the most rigorous surveillance and control programmes to be found anywhere. In December 2008, Hong Kong authorities found H5N1 in a chicken at a poultry farm in Hong Kong (the first farm outbreak since 2003), prompting the slaughter of more than 60,000 birds. In the last few months Hong Kong has detected H5N1 viruses in wild birds and chicken carcasses found at the coast. Most countries in the region have much longer and more porous borders, larger populations, more challenging geography and fewer resources than Hong Kong. During the rest of 2009 we can expect yet more of the same, and undoubtedly a few surprises.

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ESWI'S FIRST PRE-PANDEMIC PREPAREDNESS WORKSHOP OUTLINES THE INFLUENZA ISSUES TO INTERNATIONAL POLICYMAKERS

To convey the challenges of pre-pandemic and pandemic preparation, ESWI held a half-day workshop in Brussels, Belgium for international policymakers. The 23 January gathering brought together 50 health officials from 23 European countries to review the latest developments in pre-pandemic planning, vaccine research and modelling techniques – and to answer participants' questions. The workshop was an extension of ESWI's Third European Influenza Conference for influenza scientists and health workers in Vilamoura, Portugal (September 2008) and the start of a long-term cooperation with international public health officials.

The ESWI workshop speakers urged their public policy audience to think hard about their countries' vaccine options, public communication strategies and especially the differences between pre-pandemic versus pandemic planning. Although there are a lot of planning tools available, the remarkable variation in pandemic preparedness plans in Europe demonstrates that there is still a lot of confusion about what to do. One of the main objectives of the ESWI workshop was to get policymakers and public health officials attuned to the urgency of influenza preparatory planning and to work towards a consensus on a European pre-pandemic preparedness strategy. After all, a range of options are available: medical and non-medical intervention, surveillance, antiviral stockpiling and the stockpiling of vaccines that might be used at the beginning or during Stage Four of a pandemic. Combining mathematical simulation models and 'real life' practices from the UK and the US, the workshop outlined the challenges policymakers are facing and provided new insights and possible solutions.

Layered interventions

Given the variation in pandemic preparedness levels among European countries, the response to an influenza pandemic would not be synchronised across the continent. Clamping down on borders, for instance, is considered an effective preventive measure by many governments. Yet, it was used during the 2003 SARS outbreak in Hong Kong with little effect. The problem is the sheer rate of growth of a pandemic. The case number may grow by tenfold every 1–2 weeks. Thus, travel restrictions won't stop its growth. Even if 99% of all travel is stopped, which would be severely disruptive for a modern economy, it might slow down the spread by only some weeks. Such restrictions are only useful very early in a pandemic. Instead, the important concept of layered interventions was introduced as a valuable alternative to drastic, disruptive measures: combining two nonoverlapping interventions has a higher impact than the sum of the individual impacts. Moreover, layered interventions are the most effective and failsafe answer. Combining prophylactic treatment with isolation is but one example.

Improve seasonal influenza response to prepare for a pandemic

The workshop faculty also urged its audience to adopt new policies to increase flu vaccination

among the public, linking the importance of seasonal flu to pandemic control, and stressing that the same approach in preparation will mitigate both. Improving seasonal vaccination coverage rates along the lines of the WHO's recommendations will indeed greatly improve vaccine production capacity in interpandemic periods as well as the eventual availability of pandemic influenza vaccine in Europe. At the same time, the seasonal influenza period provides an excellent opportunity to implement and test vaccine distribution plans and procedures.

Lively debate

ESWI's workshop prompted a lively exchange with its audience, whose members ranged from EU influenza scientists to national health policy officials from Scandinavia to the Mediterranean. Their questions focused on issues having both political and pragmatic aspects. In light of the enormous interest shown and the huge challenges ahead, ESWI sees this workshop as the start of a long-term cooperation with leading European and national public health policymakers, as epidemic and pandemic planning is key to protecting the European population from a public health scourge. As part of this cooperation, the group is looking forward to organising the second edition of its pre-pandemic preparedness workshop in October 2009.

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Workshop faculty

- Professor Ab Osterhaus, ESWI Chairman and Head of the Virology Department at Rotterdam's Erasmus Medical Centre
- Professor Neil Ferguson, Director of Outbreak Analysis and Modelling at London's Imperial College
- Professor Arnold Monto, Professor of Epidemiology at the University of Michigan
- Professor Jonathan Van-Tam, Professor of Health Protection at the UK's University of Nottingham

HIGHLIGHTS OF THE YOUNG SCIENTIST SESSIONS AT THE THIRD EUROPEAN INFLUENZA CONFERENCE

The process of peer-reviewed publication is fundamental to the scientific process and probably an accurate measure of state-of-the-art and the pace of innovation. In principle, it is all that's needed for background and as a basis to inform work by any other researcher pursuing the same direction. But such publications are a finished output that hide a lot of the underlying process. Conferences are a modern day vehicle for the sort of social face-to-face interaction that ties independent researchers, scientists, and desk quixotes into a productive layer of society and progress. They offer the opportunity for rapid informal exchange on tentative ideas that often help to recognise the relevant context for a problem and contribute to shape a fruitful idea. Often they also bring together people who work on different and complementary aspects of a general area that should coordinate efforts.

It has become customary at many of the main conferences that senior scientists attend on behalf of their teams, and often end up presenting work resulting from efforts of their junior collaborators or students. This is a system that serves the purpose of disseminating cutting-edge research and keeping the collaborative and institutional aspects alive and functional.

A great part of these benefits reaches the younger scientists in their home institutions via reports and conference proceedings, and the strength of the environment provided for them. However, it is precisely at the initial stages of scientific careers when individuals may draw the greatest profit from conference participation. Academic experience goes a long way to providing confidence in the occurrence, assessment, calibration and eventual pursuit of research plans. In the absence of this experience doubts are more consuming and confidence a lot more tentative, as young scientists set out to find their voice in a terrain with useful landmarks but sparse support for tentative explorations that might quickly fold or feed in interactions with other scientists working on related areas.

At previous conferences, ESWI has funded young scientists. For this conference, we wanted to go further than before, pushing the active participation of young scientists.

Last year The Third Influenza Conference with over 1,300 attendees took place in Vilamoura in Southern Portugal, a scientific event crammed into little over 2 days brimming with talks and exhibitions. ESWI grant Young Scientist Awards towards conference expenses to 47 of the best young scientists selected from around the world on the strength of their work submissions. This commitment on ESWI's side made it easier for the winners to obtain the rest of the financial support they needed to make it to Vilamoura.

Our plan was that successful grant applicants would play an active role in the conference. Seven young scientists were to give oral presentations on their research, and 40 to exhibit posters. The second day would open with a plenary session entirely devoted to the work of promising scientists.

The reality of young scientist participation exceeded our expectations. Not only did everyone fulfil their commitment, but the young scientist keynote plenary was rated best session at the conference by two standard deviations in the attendee evaluation. In addition, a young scientist team led by Colin Russell delivered a conference newspaper with the previous days' highlights on mornings two and three. By the second day the success of the young scientist experiment inspired us all, leading to unscheduled extensions of the scheme.

One of our more adventurous decisions had been to invite young scientists to act as co-chairs during the conference sessions. For example, John Steele was scheduled to co-chair the session on current and novel approaches to vaccines with Albert Osterhaus. Attending the session, I was surprised when Ab, smiling, left the podium and let John chair the session alone. But John chaired the session with such confidence and flair it was a pleasure to attend his session. One leap of faith inspired another. Ron Fouchier left Nicola Lewis to chair their session, and I left Maria Van Kerkove

to chair the Friday plenary, a challenge they responded to with equal aptitude. It was extremely rewarding.

Overall the young scientist aspect of this conference was very successful. Not everything was perfect. The guided poster tours we had envisioned plainly didn't work and had to be cancelled because there were just too many people in one place crowding around the poster boards at the scheduled poster session slots.

The 'Nikki Beach Party' was scheduled to provide an opportunity for interaction among the young scientists with seaside sushi and beer. This turned into a fabulous party. Not that I would know. You may have heard that inspection of footprints the next morning revealed some dinosaurs had actually made their way down to the beach that night, or that deep trails of bags filled with beer went that way, but that is only a myth, any resemblance between beach attendees and the greyhairs of flu are mere coincidence.

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Maria Van Kerkove

I felt privileged to be asked to co-chair the third plenary session with Derek Smith. The speakers, Drs Malik Peiris and David Swayne, two scientists I greatly admire, had both visited my poster prior to this session and to my surprise each visit resulted in a lengthy (much more lengthy than your typical poster session) discussion about highly pathogenic avian influenza H5N1 and poultry trading through live bird markets. I am extremely grateful for their time and also for their thoughtful and insightful questions on my PhD work. This is the first conference I've attended which offered scholarships for young scientists and I thought it was an excellent way to bring our work to the attention of others in a conference setting. I was also extremely surprised to win the 'best poster' award at the conference. As a PhD student, to have my colleagues and my work recognised was very encouraging.

John Steele

Possibly the thing which has stayed with me most strongly, and differentiated the conference from other international conferences I have attended, was the way that interaction amongst the younger scientists was encouraged and fostered by the organisers. Going forward, it looks likely that collaborations with young scientists whom I met and discussed work with in Vilamoura (especially the scientists from the Erasmus group) will develop, and this is really the kind of interaction which I imagine the organisers were hoping to facilitate.

Julie McAuley

The ESWI conference at Vilamoura was a whirlwind of surprises and happy times for me. From donning my official ESWI cap, to being hugged by Dr Webster for winning the best oral presentation and my work being featured in both Professor Osterhaus's final oration and the ESWI newsletter – you couldn't have wiped the grin off my face if you tried. I learned so many new things, tasted a lot of fine food, sampled a fair bit of port, met new friends and caught up with old colleagues at Vilamoura.

CALENDAR OF EVENTS

Date/Venue	Title	Organiser/Secretariat
16–19 May 2009 Helinski, Finland	European Congress of Clinical Microbiology and Infectious Diseases (ECCMID)	19th ECCMID c/o ESCMID Executive Office PO Box 4005 Basel Switzerland Tel: +41 61 686 7799 Fax: +41 61 686 7798 E-mail: info@eccmid-icc.org
9–13 June 2009 Brussels, Belgium	27th Annual Meeting of the European Society for Paediatric Infectious Diseases (ESPID)	1–3 Rue de Chantepoulet PO Box 1726 CH-1211 Geneva 1 Switzerland Tel: +41 22 908 0488 Fax: +41 22 906 9140 E-mail: espid@kenes.com
5–8 July 2009 Macau SAR, China	4th International Congress of the Asia Pacific Society of Infection Control	Rua de Xangai 175 Edlf.ACM 12 andar G Macau China Tel: +86 853 2870 3858 Fax: +86 852 2870 3857 E-mail: apsic2009@mvdmc.com
21–23 August 2009 Qingdao, China	Lancet Conferences: Influenza in the Asia-Pacific	#1303, China Merchants Plaza East Building No. 333 Cheng Du Road (N) Shanghai, 200041 China Tel: +86 216 133 3077 E-mail: summitenquiry@elsevier.com
12–19 September 2009 California, USA	49th Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC)	American Society for Microbiology 1752 N Street, NW Washington, DC 20036-2904 USA Tel: +1 202 737-3600 E-mail: icaac@asmusa.org
19–22 September 2009 Vancouver, British Columbia, Canada	International Symposium on Respiratory Virus Transmission and Community Mitigation	c/o Integress Meetings and Events 2 Ravinia Drive Suite 605 Atlanta, GA 30346 USA Tel: +1 404 591 3284 Fax: + 1 404 233 2827 E-mail: lynne.pryor@meetintegress.com
27–30 September 2009 Harbiye, Istanbul	European Society for Clinical Virology – 12th Annual ESCV Meeting	Yeditepe University Faculty of Medicine Kayisdagi Street 34755 Kayisdagi Istanbul Turkey Tel: +90 216 578 05 35 E-mail: gulden.yilmaz@yeditepe.edu.tr
18–22 November 2009 Buenos Aires, Argentina	6th World Congress of the World Society for Pediatric Infectious Diseases (WSPID)	1–3 Rue de Chantepoulet PO Box 1726 CH-1211 Geneva 1 Switzerland Tel: +41 22 908 0488 Fax: +41 22 906 9140 E-mail: wspid@kenes.com
2–7 September 2010 Hong Kong SAR, China	Options for the Control of Influenza VII	c/o Integress Meetings and Events 2 Ravinia Drive Suite 605 Atlanta, GA 30346 USA Tel: +1 404 591 3284 Fax: + 1 404 233 2827 E-mail: lynne.pryor@meetintegress.com

INFLUENZA BULLETIN

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