



Vaccination and the At-risk Population of Adults with Heart and Lung Conditions

BRIEF REPORT

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Introduction

Chronic diseases are the leading cause of morbidity and mortality in Europe, with a growing proportion of the population affected at a younger age.¹ Though few things are certain, current trends strongly suggest that the future of healthcare will be dominated by the social and economic challenges associated with those people with multiple, complex chronic conditions.² Vaccine-preventable diseases (VPDs) such as influenza and pneumonia have a significant negative effect on individuals with chronic diseases and a long-lasting impact on health with increased risk for infection.³

Vaccination is a known preventive tool against diseases such as influenza and pneumonia, both of which can seriously threaten the health and well-being of people with chronic diseases who may already be managing significant health needs. Yet, chronic disease populations remain under-vaccinated due to both systemic and personal factors that need to be addressed.³

In response to the under-vaccination of at-risk populations, the International Federation on Ageing (IFA) in partnership with the Swedish Heart and Lung Association (SHLA) organized the expert meeting on “Vaccination and the at-risk population of adults with heart and lung conditions” in Stockholm (herein referred to as the ‘Stockholm Meeting’).

Context

Heart and lung diseases in Sweden

Data from the World Health Organization (WHO) indicates that in 2016, chronic diseases accounted for 90% of all deaths in Sweden.⁴ Of these diseases, cardiovascular disease accounted for 35% and respiratory diseases for 6% mortality.⁴ Particularly among older adults (defined as people over 65 years of age) cardiovascular disease is the most common cause of mortality.⁵ Both heart and lung diseases present significant public health concerns, especially in older people who are more likely to have complex co-morbidities and a weakened immune system that increases vulnerability, including susceptibility to vaccine-preventable diseases (VPDs).⁶ For example, those most at risk of pneumococcal pneumonia include older adults, nursing home residents, people with heart failure and those with chronic lung disease.⁷

Ageing and vaccine-preventable diseases

One in five hospitalizations of older people is directly related to a vaccine-preventable disease, most commonly influenza and pneumonia.⁸ This is in part related to the fact that ageing is associated with higher predisposition to diseases and less effective responses to immunization, an occurrence known as immunosenescence.⁹ Immunosenescence is further described as “multiple arms of the immune system [which are] shown to develop age-related defects resulting in the loss or decreased effectiveness of key protective functions.”¹⁰

Immunosenescence also explains why older people often experience a higher risk of morbidity and mortality as a result of VPDs. Esposito et al (2018) conceive that in addition to being more susceptible to VPDs, VPDs are more difficult to manage in older people, especially those with chronic diseases. Concerns such as polypharmacy, and the fact that diseases like influenza and pneumonia can trigger cardiovascular complications¹¹ contribute to this multi factorial situation.

Evidence supports investment in a comprehensive public health strategy that incorporates the targeted use of vaccines across the life course that will contribute to a population ageing in good health, enabling maximum functional ability and continued societal participation.

Pneumococcal Pneumonia

Pneumococcal disease is an infection caused by *Streptococcus pneumoniae* bacteria.¹² When the bacteria invades the lungs, it can cause serious illness including pneumonia, which is the most common form of pneumococcal infection in older adults.¹² According to the PneuVUE study, “it is estimated that every year across Europe alone, there are 3 million cases of pneumonia, of which an estimated one million are hospitalised.”¹³

In Sweden, patients with community-acquired pneumonia (CAP) treated in the infectious diseases departments have mortality rates ranging from 3.5-6%, and patients hospitalized for CAP have a higher long-term mortality (12%) than people of the same age who have not been diagnosed with CAP.¹⁴ According to Galanis et al (2016), risk groups for CAP include young children and older adults, “immunocompromised patients, patients with previous influenza virus infections, and patients with comorbidities, such as chronic lung disease, heart disease, malignancies and diabetes.”¹⁵

Vaccines are available to combat pneumococcal pneumonia, with the potential to ease the disease burden significantly. However, the PneuVUE study indicates that only 29% of those surveyed were aware of a pneumonia vaccine, and only 16% of those at higher risk of pneumonia had been vaccinated.¹³ Knowing the serious and life threatening consequences of pneumonia for older people and at-risk groups, this low level of awareness is a significant knowledge gap requiring urgent attention.

Connecting age, chronic diseases and vaccine-preventable diseases

Influenza and pneumonia can negatively modify the trajectories of chronic disease, causing increases in morbidity, as well as mortality, which materialize as permanent losses of functional ability, a need for long-term care, and possible premature death.

Despite the above risks, in Sweden the vaccine coverage for influenza in adults over 65 years of age in the 2016-17 season was only 49%,¹⁶ well below the target of 75% set by the World Health Organization (WHO) and the European Commission in 2010.¹⁷ Of even greater concern is that “only 32% of those with known vaccination status who belonged to an at-risk group and needed intensive care during this season were vaccinated [against influenza].”¹⁶

Under-vaccination of at-risk groups requires systematic intervention on behalf of experts advocating for ageing in good health. As long as uptake remains below target rates, the health of at-risk groups will continue to be jeopardized by the possibility of contracting VPDs, resulting in complications that prevent active participation in society.

Actions that draw attention to the profound protective effect of vaccination can have a positive impact at the individual and collective level by increasing vaccination uptake rates.

Vaccination of at-risk groups with heart and lung conditions in Sweden

The Stockholm Meeting brought together experts in the fields of public health, heart and lung conditions, ageing, immunization and bioethics to focus on building relationships and brainstorming

actions central to improving adult vaccination uptake among those with heart and lung conditions in Sweden.

In Sweden, there is an urgent need to recognize and understand individual needs and circumstances of older people and how these may inform attitudes toward vaccination; to create targeted messages on the risks and benefits of vaccination and the dangers of non-vaccination for specific at-risk groups; and to create spaces for health care professional-led discussions that address the needs, concerns, and motivations of at-risk groups related to vaccination.

Key areas of attention to improve adult vaccination rates in Sweden were identified. They include:

1. Barriers to adult vaccination.

Poor awareness and lack of access to appropriate adult vaccines are barriers for at-risk populations such as those with heart and lung conditions in Sweden. A lack of access was also recognized by the Public Health Agency of Sweden as a predominate barrier to improving vaccination uptake rates.¹⁸

Awareness can manifest in the under-recognition of the severity of an illness or disregarding an illness' impact on personal health. This may also be linked to the nature of public health messages and the public health narrative of 'risk and consequences.'

A study of four European countries including Sweden found that "the most mentioned misconception is that one has sufficient resistance to flu. At least one out of three non-vaccinated in all four countries mentioned this reason."¹⁹ Another misconception was that influenza is not a serious disease.¹⁹ These myths are serious as they contribute to decision-making borne out of misinformation and potentially leading to non-vaccination.

Systemic barriers such as confusing vaccine information, limited vaccinator gateways, complex processes to access vaccines as well as complicated vaccine schedules with inconsistent reimbursement also present challenges to vaccination uptake.

2. Vaccination information for at-risk patients.

Providing one-size-fits-all information on vaccination to the public has proven ineffective, because general information about the risks of a particular VPD or the benefits of vaccination may not resonate with individuals who do not view themselves as at-risk. Conversely, it has been indicated that providing specific vaccination knowledge may support positive attitude changes toward vaccinations.²⁰

Greater attention is needed to tailor evidence-based messages to those groups that are at highest risk. These messages need to include long-term impact of VPDs on function and lifestyle within particular contexts. For instance, Kohn and Schaffner (2017) suggest that in at-risk groups, vaccination can help support the development of self-efficacy by providing something concrete and easily achievable that patients can do to protect their health.³

The importance of contextual information was also noted by the European Federation of Allergy and Airway Diseases Patients' Organization representative, who said that those most at-risk are often overwhelmed with information about the management and treatment of their condition(s). As a result of this abundance of information patients may need specific prompting from health coaches or HCPs regarding vaccination. Figure 2 ("My IMPACT The good COPD Patient." *European Federation of Allergy and Airways Diseases Patients' Associations*, 12) illustrates the multiple competing priorities

of someone with one (or more) chronic conditions (of which vaccination is one of many), presenting a challenge especially if not focused on by HCPs.



Figure 2. “My IMPACT The good COPD Patient.” *European Federation of Allergy and Airways Diseases Patients’ Associations*, 12 October 2018.

3. Pathways to vaccination.

Vaccination of high-risk populations as part of a broad public health strategy contributes to the reduction of disease burden and associated social and economic costs. Emphasizing the view of vaccines as instrumental to decreasing morbidity and mortality is essential so that vaccines may gain more traction at all levels as a necessary prevention method.²¹

According to Wu et al (2012), less attention is paid to adult vaccination in contrast to childhood vaccination, which means the infrastructure – surveillance systems, registers, and recommendations – is often less established.²² In the absence of clear adult vaccination recommendations and practices, barriers such as real or perceived lack of vaccination access present themselves.

In Sweden, multiple levels of government cooperate to implement the vaccination program. The Federal government is responsible for deciding on diseases to include in the program while the Public Health Agency of Sweden (PHAS) develops regulations, recommendations and guidance for healthcare professionals while the County Councils implement these decisions, “defining target groups, number of doses, timing, etc.”²³

The role of the PHAS is also to inform and educate the general public, monitor vaccination coverage through appropriate registers and measure the effect of the vaccinations. As a further complication, a separate agency (the Medical Products Agency) is in charge of monitoring vaccine safety, while individual county councils are responsible for implementing the recommendations.

By the very nature of government there are complexities in decision making and implementation of vaccine schedules across several Ministries. To ensure the best population-based outcomes it is essential to have a comprehensive communication plan linking governmental agencies at various levels to limit confusion and to ensure that the targeted population (i.e. citizens needing to be vaccinated) can identify and act on the information being given.²⁴

4. Health care professionals

Patient-centricity, when applied to vaccination, involves acknowledging the knowledge gaps, misconceptions, and concerns of individual patients with regard to vaccines and working to address these apprehensions. The ESTHER Network in Sweden is an example of good practice that positions the needs and want of older people at the heart of programs.

Health care professionals are a trusted source of vaccine-related information²⁵ from which the consumer often decides on their course of action. Therefore, it is critical to understand and help to influence the attitudes of HCPs toward vaccination, considering the known rates of HCP vaccination are below expectation.²⁶

According to a European Centre for Disease Prevention and Control (ECDC) report on vaccine hesitancy in health care workers, an increasing number of studies show that some HCPs are vaccine-hesitant, which is then communicated during conversations with patients.²⁷ Despite the formal education that HCPs undertake to assume their role, studies show that hesitation concerning the influenza vaccine is similar to patients. These may include fear of becoming ill from the vaccine; a belief that influenza is not serious; difficult access to/inconvenient times for vaccination; and insufficient education on influenza vaccination.²⁸

Helping to reshape and reframe attitudes and responding to knowledge gaps related to vaccination is a vital first step to empowering patients to gain knowledge on vaccination. Paterson et al (2016) found that "...knowledge about particular vaccines, their efficacy and safety, helped to build HCPs own confidence in vaccines and their willingness to recommend them to others."²⁹

Patient-centricity empowers individuals to actively seek information, encouraging mutual sharing of information between HCPs and patients and supporting patients to seek out information.³⁰ As patients seek out information, access to "reliable and up-to-date scientific data"³¹ is essential for making informed decisions. During conversations with HCPs, the onus is on the HCP to translate the information sought by patients into useable knowledge for the person / patient,³² revealing the importance of HCPs' belief in vaccination as a public health strategy.

5. Communication of vaccination information.

At the crux of the vaccination conversation and debate is how and what information is communicated to stakeholders (individuals, communities, HCPs, patients, policymakers, organizations, at-risk groups, and the public). Social media is a powerful means of communication at the disposal of stakeholders working to increase vaccination uptake rates. That being said, in order to maximize the positive potential of social media, a cohesive strategy to support stakeholders in pursuing credible sources of information is needed.

Communication of vaccination information through social media has often been regarded as contributing to vaccine hesitancy.³³ Yet, there is evidence to suggest that communication interventions can actually combat vaccine hesitancy and arm the public with positive tools to adopt

or sustain positive health behaviours that will improve individual, community and public health outcomes.³³

A study of online comments on vaccination indicated that where misinformation was circulated, there are opportunities for engagement utilizing online media and social media outlets to dispel myths and disseminate messages about the importance of vaccination.³⁴ Collaboration between researchers, HCPs, policy makers and the media is imperative to ensure complete and accurate information is disseminated.³⁴

There is a need to involve consumers and patients in developing communication tools – videos, vaccination guidelines, printed materials – on vaccination. This would contribute substantially to improving the effectiveness of these tools and the public relatability of the messaging, especially in at-risk groups who may otherwise feel that vaccination public health messaging is not directed at them.

6. Multi-stakeholder collaboration.

Increasing vaccination awareness and uptake requires interdisciplinary collaboration to understand the knowledge to action gaps. Multi-stakeholder commitment has the potential to show a clearer picture of the complexities of vaccination culture and build a consensus on strategies for change. Consistent, long-term commitment to improving uptake rates requires sustainable partnerships that endeavour to focus on the core of issues of under-vaccination and pledge to utilize collective resources to counter this issue.

The will to make these changes is evident in meetings such as the Stockholm Meeting, that bring together advocates for adult vaccination. Health care, public health, policy and other stakeholders must now continue expanding their networks and working to engage with patients to provide evidence-based information in order to improve delivery of vaccine-related messaging and ultimately increase vaccination uptake.

With indication that HCPs are the most trusted source of vaccination information,³⁵ a concerted effort by all stakeholders to arm HCPs with trusted, evidence-based sources of information is an important step in countering vaccine apathy and improving uptake.

Next Steps

Experts at the Stockholm Meeting indicated the need to formulate actions to improve knowledge of and access to vaccination information and vaccines. These actions will substantiate dialogue held at the Stockholm Meeting and advance the investment of all stakeholders, including patient organizations, in improving vaccination uptake rates.

Enduring work to improve vaccination uptake rates for at-risk groups includes the formulation of guiding principles unique to disease-specific patient groups aimed at increasing patient engagement on vaccination, as the needs and concerns of these groups can differ significantly.

There is also an urgent requirement for patient groups to come together with HCPs (doctors, nurses, pharmacists, patient advocates) to discuss their needs regarding vaccination, for HCPs and public health officials to adapt their outreach to the needs of these groups, and for public health programs to diversify methods through which patients receive vaccination information.

Several connections were made between the IFA and organizations including the Swedish Heart and Lung Association and the European Allergy and Airway Diseases Patients' Association to collaborate on future work to educate patients on the importance of vaccination, including a possibility to integrate vaccination into health coach training and delivery at the Swedish Heart and Lung Association. An overwhelming commitment to improving vaccination awareness and uptake was voiced throughout the Stockholm meeting, with express concern for the risks faced by undervaccinated groups and drive to change the way vaccination information is shared in order to mitigate those risks.

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