



Immune response

Adult immunisation in the UK

Improving access to vaccination for older people

David Sinclair
and Trinley Walker

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The International Longevity Centre - UK (ILC-UK)

The International Longevity Centre-UK (ILC-UK) is the leading think tank on longevity and demographic change. It is an independent, non-partisan think-tank dedicated to addressing the challenges of longevity, ageing and population change. We develop ideas, undertake research and create a forum for debate.

We have been working on matters related to adult vaccination for over six years. We and our colleagues in the ILC Global Alliance have published:

- Immunization - Not Just for Kids (2007) ILC¹
- Life Course Vaccination - Impact of Life Course Vaccination on an Ageing Population (2009) Alliance for Health and the Future²
- Life Course Immunisation (2011) ILC-UK³

We have written a number of blogs on the topic for our website. David Sinclair has spoken at national and international conferences exploring the challenges facing vaccination in an ageing society.

ILC-UK are a founding and leading member of SAATI

SAATI (Supporting Active Ageing Through Immunisation) is a voluntary pan-European partnership of individuals who have an interest in improving the health of citizens as they grow older, and reducing the incidence of illness through effective immunisation. The partners include representatives from different

perspectives, including clinicians, health promotion experts, advocacy groups, nurses, industry, think tanks and healthy ageing specialists. The group has come together with a commitment to tackle low public awareness of the risk and burden of vaccine-preventable diseases.

SAATI aims to: Increase public and policy maker awareness of the need for adult vaccinations to combat vaccine-preventable diseases, such as flu, pneumonia, herpes zoster, invasive pneumococcal disease, pertussis, diphtheria and tetanus.

The SAATI partnership produced a consensus statement as a result of a European stakeholder meeting on the “Value of and Barriers to Adult Vaccination” organised and funded by Pfizer. The SAATI Consensus Statement is available at:

http://www.ilcuk.org.uk/images/uploads/SAATI_Consensus_Statement_1.pdf

In November 2013, SAATI published Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe. The executive summary of this report is available on pages 44 to 45 of this report.

Through this report we have incorporated evidence emerging from the SAATI report but taken a UK perspective on the findings.

Methodology

In order to produce this report, ILC- UK have undertaken a traditional literature review. We have also undertaken a policy review incorporating grey literature. ILC-UK have incorporated findings of the research commissioned by SAATI (Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe) and published in November 2013.

¹http://www.ilc-alliance.org/images/uploads/publication-pdfs/Immunizations_NotJustForKids.pdf

²http://www.ilc-alliance.org/index.php/reports/report_details/life_course_vaccination._impact_of_life_course_vaccination_on_an_ageing_pop

³http://www.ilcuk.org.uk/files/pdf_pdf_190.pdf

In May 2013, ILC-UK ran a focus group discussion on the themes of the report. The views of focus group members are highlighted (anonymously) through this report. Participants included:

Sandra Chalmers – Chalmers Communications

Helen Chung – Head of Health Policy Research at Swiss Re

George Clerk – London Minority Ethnic Elders project at Age UK

Michael Corr – Immunisation Co-ordinator for Lewisham Healthcare *NHS Trust* and *NHS Lewisham*

Helen Donavan – Public Health Adviser at RCN

Tom Gentry – Policy Adviser, health services at Age UK

Matt Hawkins – Policy and Public Affairs Assistant at ILC-UK

Alex Lee – Vaccines customer manager at Pfizer

Graham Mulley- ILC-UK trustee and Former President of British Geriatric Society – Chairing discussion

Natalie Moores – Senior Product Manager National Tenders and Pipeline at GSK

Simon Oakley – Scientific Affairs Manager at Sanofi Pasteur MSD

Katie Panton – Government Affairs at Pfizer

Steve Shaffelburg - Strategic Public Health Advisor at Westminster Council

David Sinclair – Assistant Director at ILC-UK

Ginny Storey – Head of Care Quality at Anchor (until 31 July 2013)

Professor David Taylor – Public Health & Policy at UCL School of Pharmacy

Trinley Walker – Research Officer at ILC-UK

Following the focus group, participants were sent a draft version of this report in August 2013 and given an opportunity to comment on the report and recommendations.

Any issues, omissions or errors are the responsibility of ILC-UK. This paper does not (necessarily) represent the views of the attendees at the focus group.

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Contents

Foreword	2
Summary and recommendations	3
Why is adult vaccination important?	9
Our ageing society	9
The impact of immunosenescence	9
Protecting the herd	10
Prevention and antimicrobial resistance	13
Migration	13
Vaccine Preventable Diseases	14
What are Vaccine Preventable Diseases?	14
Incidence of Vaccine Preventable Diseases	18
The cost effectiveness of adult vaccination	19
The UK Policy framework	22
The structure of decision making	23
Move of public health to local authorities	24
Adult vaccination recommendations in the UK	24
A life-course approach to adult vaccination	27
Poverty and infectious diseases	30
Improving Vaccination as a tool for healthy ageing	32
Prevention better than cure	32
Incentivising the provision of vaccination	32
Vaccination on the high street and beyond	33
Greater uptake of vaccination by health and social care professionals and in care homes	35
Using the “Nudge”	38
Making the business case for vaccination	40
A poorly informed/engaged consumer	41
A need to know more	43
Appendix – SAATI Executive Summary	44

Foreword

Innovations in public health over the past two hundred years have transformed life expectancy in the UK and we are living longer than ever before.

Clean water, widespread vaccination, and a greater understanding of and focus on public health, have contributed to an expectation that we will live longer than the generations who came before us.

But alongside increasing life expectancy, we have been having fewer children, resulting in an ageing society. Policymakers are increasingly worried that our changing demography will generate significant economic costs and societal problems.

Will there be enough younger people working to support a growing older population? Who will care for the next generation of retirees when they need that support? And will they be poorer and in worse health than today's older people?

The ageing of our society demands that policymakers focus greater energy on preventing ill health in old age. There is a financial driver, but there is also a moral one. We want older people to live not just longer, but also be healthier.

Vaccination has been a huge success story in terms of reducing the likelihood that we die young.

And over recent decades, policymakers have begun to use vaccination to also support good health later in life. As the SAATI report reveals, the UK is doing a good job at making this shift. Compared to some of our European neighbours, we have relatively high rates of vaccination of older people against seasonal flu and pneumococcal disease for example.

So we start from a very positive place. But now is not the time to get complacent.

The growth of antibiotic resistance, the challenges of immunosenescence and the context of migration mean that we need to put

greater focus on improving adult vaccination in the UK.

The SAATI report has highlighted the cost effectiveness of adult immunisation. Adult vaccination saves money. Prevention is better (and cheaper) than cure.

It is vital that we build on the successes of the childhood immunisation programme in the UK. We need to focus increasing attention on the vaccination of older people.

This report sets the scene for adult immunisation and makes detailed recommendations for, amongst others, Government, Public Health England, JCVI and individuals. I hope decision makers will seriously consider the ideas within this report.

Vaccination has a vital role to play in preventing ill health in old age. Let's make the UK the world leader on adult vaccination.

Baroness Sally Greengross

Summary and recommendations

The ageing of society, resulting from longer life expectancies⁴ and lower rates of fertility will have huge implications for the way we organise our health and social care services.

Health interventions will need to increasingly be focussed on prevention. As part of a healthy ageing framework, vaccination has an instrumental role to play.

Vaccination has controlled 12 major diseases (at least in parts of the world). Other than clean water, it has arguably had the biggest impact on mortality reduction and population growth.⁵

A greater focus on the vaccination of older adults is particularly important due to immunosenescence, antimicrobial resistance and global migration.

Over recent years, death rates from infectious diseases have fallen globally, partly as a result of vaccination campaigns and partly due to initiatives which have reduced the spread of such diseases. But they are still a major cause of death in the very young and old.

A systematic review of the relevant literature in English language on the cost-effectiveness evidence of immunisation for adults aged 50 years or over in all EU Member States was performed for the SAATI report⁷ published in November 2013. The key vaccine-preventable diseases examined were seasonal influenza, pneumonia, invasive pneumococcal disease (IPD), pertussis, tetanus, diphtheria and herpes zoster. Cost-effectiveness studies were found for 4 of the 7 diseases in this report: herpes zoster, influenza, IPD and pneumonia.

For these 4 diseases, studies were found for 13 EU nations that show immunisation is likely to provide a cost-effective strategy for those aged 50 years or over.

No study was found in the scope of the research on the cost-effectiveness of pertussis, tetanus and diphtheria. This may be due to the fact that, for instance, tetanus and diphtheria booster immunisation was broadly used and recognised as an effective preventative tool before the widespread use of such economic models.

The SAATI report⁶ sets out the incidence of infectious diseases across Europe.

- **Seasonal influenza:** The UK reported a 2010-11 winter period more severe in terms of pressure on hospitals than during the 2009-10 pandemic winter. In 2012-13, excess death rates were the highest since 2008-09, with peaks coinciding with influenza circulation (Public Health England).
- **Pneumonia:** UK and Slovakia have the highest reported mortality rates in Europe (25 per 100 000 population cases in 2005 and 2009).
- **Invasive pneumococcal disease:** In 2005, the UK, as well as Belgium, Ireland and Sweden, reported rates of confirmed cases which approach or are greater than 10 per 100 000. There was a similar picture in 2009 with relatively high rates in the UK and in Belgium, Finland, Ireland, Sweden and Slovenia compared to the other countries reporting.
- **Pertussis:** The recent increase in pertussis notifications corresponds with the availability of enhanced diagnostic methods. Since 2006, there has been greater awareness and use of these testing methods, compared to previous years.

⁴It is worth noting that vaccination has contributed significantly to rising life expectancies

⁵Plotkin, S. and S. Plotkin. "A Short History of Vaccination," Chapter 1 in *Vaccines*, Edition 5 by Stanley A. Plotkin,

⁶Walter A. Orenstein, Paul A. Offit. Elsevier Health Sciences, 2008.

⁷SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

A broader view of the long-term benefits of vaccination demonstrates that immunisation programmes are worthwhile in terms of their economic advantages.

Evidence from SAATI – Cost effectiveness⁸

- **Herpes zoster:** the general consensus across studies which compared a vaccination strategy versus no vaccination strategies was that vaccination is a cost-saving or a cost-effective intervention. Existing evidence indicated that if immunisation was not cost-effective in the short-term, it did not imply cost-ineffectiveness in the long run. There is evidence that adult vaccination is a valuable preventive option when targeting populations aged 50-54 years and that vaccinating older cohorts (70+) is less cost-effective than vaccinating younger cohorts.
- **Invasive pneumococcal disease:** A study conducted a multi-country analysis across 10 EU countries to analyse the cost-effectiveness of pneumococcal vaccination for IPD across those aged >65 years. The study observed substantial variation in the Incremental Cost-Effectiveness Ratios (ICERs) across the countries, with older populations generally having higher ICERs. A UK based study recommended routine vaccination of all populations aged ≥ 65 years. It was estimated to be the best strategy, with lower cost per life year gained compared to vaccinating high-risk groups only.
- **Pneumococcal pneumonia:** Two studies conducted in the Netherlands concluded vaccination with pneumococcal conjugate vaccine to be cost-effective when compared with no vaccination for both the general population and high risk populations aged ≥65 years. A Finnish study presented similar findings.
- **Seasonal influenza:** The results of the multi-country analysis found vaccination for influenza to be cost-effective across all the countries of interest. An Italian study concluded that the economic advantage of extending influenza vaccination to healthy adult workers aged 50-64 years mainly related to indirect costs such as costs associated with productivity loss.

Each of the four countries within the United Kingdom is able to determine their own immunisation policy, however decisions are usually based on the recommendations provided by the Joint Committee on Vaccination and Immunisation. The Green Book is the national summary document which outlines all adult vaccinations.

The UK adult vaccination programme operates enviable monitoring systems which assess the implementation of the seasonal influenza programme.

Uptake of seasonal influenza and pneumococcal vaccine is monitored among people aged over 65. In the case of pneumococcal vaccine, an annual survey is conducted through the collaboration of GPs. Vaccine uptake amongst specific at-risk groups is undertaken.

Recent changes to the anatomy of publicly funded public health in the England have been introduced, as of April 2013. The reforms had an overarching aim of devolving decision making power in the NHS from central authorities to more devolved bodies that feature representation of medical professionals themselves.

In definition

A life-course approach to adult vaccination: Stresses vaccination through all stages of life, including the adult years, as a cost-effective strategy to promote healthy and active ageing.

⁸SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

ILC-UK recommends

- **Joint Strategic Needs Assessments (JSNA's) should take a life-course approach to immunisation.**
- **Health and Wellbeing Boards should be set up to regularly scrutinise immunisation uptake. Guidance published by the Centre for Public Strategy helpfully supports this scrutiny.**
- **Health and Wellbeing Boards should ensure that that life-course vaccination is adequately considered as part of health planning and commissioning.**
- **The Public Health Outcomes Framework indicator on “population vaccination coverage” should be refocused as an indicator of “life-course vaccination coverage”.**
- **Health and Wellbeing Boards should consider how commissioning good adult vaccination services could contribute to some of their other high level priorities, for example, most have a priority around enabling older people to live independently in their own homes.**
- **Commissioning arrangements for immunisation should support the uptake of adult vaccination.**
- **We support the recommendation of the Chief Medical Officer that “Health and Wellbeing Boards should explicitly consider how they will address inequalities due to infectious diseases in their local Health and Wellbeing strategy.”⁹**

The Government follows the WHO target of 75% seasonal influenza coverage for over 65s. In 2012/13, the NHS was asked to plan to reach uptake of 70% for people aged under 65 years in clinical risk groups and plan for reaching uptake of 75% by 2013/14. Other than seasonal flu, there are no targets for take-up of other vaccinations recommended for adults.

Despite a common perception (with the exception of the flu vaccine) that immunisation is for children, it is beneficial for people of all ages. According to the WHO, immunization prevents between 2-3 million deaths a year across all age groups.¹⁰

A life course approach to adult vaccination stresses vaccination through all stages of life, including the adult years, as a cost-effective strategy to promote healthy and active ageing.

ILC-UK recommends

- **The Government should make an explicit commitment to a life-course vaccination programme, with age-group based as well as risk group based recommendations for vaccination.**
- **Guidelines for adults in the UK should continue to be regularly reviewed by the Joint Committee on Vaccination and Immunisation (JCVI).**

Being poor or living in a poor community is linked with low levels of uptake of vaccinations. In 2011, the Chief Medical Officer highlighted this trend: “Throughout history, infectious diseases have been a marker for social and economic disadvantage. Poor diet, housing and environmental conditions, exposure to pests and vectors, lack of access to good healthcare and low incomes are all features of low socioeconomic status that predispose to the acquisition and transmission of infectious diseases”¹¹

⁹Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

¹⁰http://www.who.int/immunization/newsroom/events/immunization_week/2012/further_information/en/

¹¹Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

ILC-UK recommends

- **Public Health England should work to ensure that across the life-course, a growth in the vaccination rates amongst those facing social or economic disadvantage are prioritised.**
- **Public health experts should work with community leaders to disseminate messages about immunisation.**

Whilst prevention is better than a cure, vaccination remains an underused public health strategy for adults.

ILC-UK recommends

- **Healthcare professionals undertaking health check-ups of older people should check whether their patients are up to date with their vaccines.**

Broader arguments about the usefulness and appropriateness of incentives within health care delivery can be fractious, and there are questions as to whether the culture of the NHS is conducive to financial salaries that impel deliverers of healthcare to reach targets. That being said the introduction of Quality Outcome Framework (QOF) targets has in some people's eyes raised standards, improved prevention and saved the NHS money¹².

ILC-UK recommends

- **The Government should explore whether the financial incentives for the delivery of vaccination are adequate to recompense GPs. They should explore whether additional financial incentives may encourage greater promotion of vaccination as a tool for prevention.**
- **The QOF should include an annual check on the immunisation status of all GP registered patients.**
- **The decision by the Secretary of State for Health (see 38) to link extra funding for hospitals with uptake of seasonal flu vaccination is welcome. If the initiative is successful it should be considered whether such financial incentives for vaccination might work in other parts of health and social care.**

Vaccination services have been available from pharmacists in the UK for over a decade, with seasonal influenza the most commonly sold vaccine by pharmacists. The administration of vaccinations through pharmacists can increase uptake - with local pharmacies providing a convenient outlet at which to receive vaccination.

ILC-UK recommends

- **It is vital to expand the range of settings which provide vaccination to include, for example, community pharmacies.**
- **Clinical Commissioning Groups and Public Health Departments should pilot the use of vouchers which could be used by those eligible for the seasonal flu vaccine. These could be used not just in GP surgeries but also in registered high street pharmacies.**

Last year, just 45.6% of health and social care workers were vaccinated against flu¹³. The levels of vaccination of healthcare professionals varies significantly by NHS Trust. As the figures below highlight, in 2011, some trusts achieve almost 95% coverage of staff whilst others only achieved around 5% of staff vaccinated against seasonal flu.

Whilst NHS healthcare workers are entitled to certain free vaccinations through the NHS, workers in the independent social care sector (in the main) need to access their rights to vaccination through their companies' occupational health programme. Some Clinical Commissioning Groups offer seasonal flu vaccination for independent social care workers¹⁴.

¹²See <http://www.telegraph.co.uk/health/8905329/GPs-partnerships-now-thats-what-I-call-a-healthy-salary.html>

¹³Vaccines Update. October 2013 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252328/Vaccine_update_issue_208_v11_Final.pdf

ILC-UK recommends

- **Public Health England and the Department of Health should review whether the current approach to the vaccination of social care workforce in England is appropriate. They should consider what could be done to improve access to vaccination of social care workforce.**
- **It is vital that GPs do provide vaccination services to older people living in care homes.**
- **Other regulatory bodies should introduce duties to protect similar to the General Medical Council duty to “protect and promote the health of patients and the public.”**
- **Public Health England should review whether the current approach to the vaccination of social care workforce in England is appropriate and adequate.**

The concept of Nudge was developed by Thaler and Sunstein and is based on the field of behavioural theory which suggests that individuals’ actions and decisions don’t result simply from a rational overview of external circumstances. Instead they are equally likely to be based on systems of habitual behaviour based on learned traits and biases.

ILC-UK recommends

- **The Prime Minister’s Behavioural Insights Team (“Nudge Unit”) should explore the potential to use behavioural economics to improve take-up of vaccinations amongst adults. They should consider for example:**
 - **The use of “declination forms” by health services and employers could encourage employees to think twice about turning down vaccination.**
 - **How to make vaccination an “easy” default choice**
 - **How to play on the strong sense of civic duty which might encourage vaccination to protect others, particularly if advised to do so by their physicians.**
 - **Creating a social norm of adult vaccination (beyond flu) through an investment in communications.**

Examples of “nudges” to encourage adult vaccination

- Making vaccination an “easy” default choice
- Many older people have a strong sense of civic duty and will often accept vaccination to protect others, particularly if advised to do so by their physicians.
- Creating a social norm of adult vaccination (beyond flu) might require long term investment in communications. A social norm has arguably already developed in relation to the seasonal flu vaccination and older people. Similarly, joint efforts from older people’s organisations and government could influence the social norm in relation to other vaccines.
- The use of “declination forms” by health services and employers could encourage employees to think twice about turning down vaccination.

Both the Government and the private sector are increasingly interested in how we extend working lives. A fear of a skill shortage and an ageing society means that employers and Government are going to have to look for ways to support us in the workplace for longer. At the same time, as individuals we are likely to need to work longer to fund our retirement. And State Pension Age is

¹⁴E.g. Wakefield did in 2012. <http://www.wakefield.gov.uk/News/PressReleases/news/PR3935.htm>

set to increase. The end of more generous final salary pension schemes is but one factor which will result in our average retirement age increasing. Many companies have begun to recognise these challenges and have begun to consider how they can ensure that their employees are kept healthier for longer. But there have been few initiatives in the private sector (outside healthcare providers in particular) which have considered the case for adult vaccination.

The broader insurance market must also recognise the risks and opportunities of vaccination. Health insurers could consider whether they could better cover adult vaccination as a preventative measure. This can happen in other countries. If the ACA (Affordable Care Act) Obamacare reforms are implemented this would be recommended in the US.

ILC-UK recommends

- **Government should seek to encourage a group of companies to undertake vaccination of their over 50s against seasonal flu vaccine. Proper research of the effectiveness of the initiative (via a Randomised Controlled Trial) should be undertaken.**
- **Companies who are interested in vaccination of their staff should share best practice in terms of the best ways of achieving high take-up.**
- **The Institution of Occupational Safety and Health should review the potential role vaccination could have in terms of the occupational health of older workers.**
- **Some health insurers provide incentives for individuals to join a gym. Putting in place similar incentives to vaccinate may prove useful.**

It is important that older people take a greater responsibility for their own healthy ageing. As Government and health services emphasise the importance of personal responsibility older people are likely to need more information and support to help them remain healthy and active for longer.

ILC-UK recommends

- **The Government should introduce an adult vaccination record card (paper and/or electronic) which could be carried throughout a lifetime. This record of an individual's vaccination history. could be linked to employer schemes encouraging vaccination.**
- **There is a need for a simplified adult vaccination checklist for the over 18s.**
- **Alternatively, the Government should encourage people to incorporate a record of their immunisation history to be carried with their passport.**
- **GPs should be permitted to privately prescribe approved vaccinations (in addition to travel vaccines) to adults on their books.**
- **There is a case for an expert organisation, independent of industry and Government to be a first point of call for media queries on vaccination.**
- **The Government should ensure that it does always respond with timely information when any public concerns about safety and efficacy of vaccines emerge.**

It is striking that there is limited research which explores adult vaccination. Where it does exist it is dominated by research on influenza. The new analysis by SAATI does help to begin to address the balance. However, it is vital that we see further research on immunosenescence, improving take-up of vaccinations, and vaccinations as a contribution to a healthy ageing strategy.

ILC-UK recommends

- **The Government, industry and other research funders should ensure there is adequate research on the potential and efficacy of adult vaccination.**

Why is adult vaccination important?

“The greatest burden of morbidity for most infectious diseases, except for those transmitted primarily through sexual contact or injecting drug use, falls on the very young or old.”¹⁵

Ageing society

The ageing of society, resulting from longer life expectancies¹⁶ and lower rates of fertility will have huge implications for the way we organise our health and social care services.

Society is ageing:

- One in six people are aged over 65 – an increase of 900,000 on 2001 (England and Wales).
- By 2050 there will be 3.9 working age people to 1 person aged 65+.
- The number of centenarians in the UK is projected to rise from 12,640 in 2010 to 160,000 by 2040.¹⁷

There are clearly huge benefits that come from those above the age of 60, maintaining an active lifestyle, both for the individual and society at large. Part of an active lifestyle is engaging in healthy behaviours, such as taking part in exercise and maintaining a healthy diet.

If we are to ensure our ageing society does not result in greater numbers of dependent older people, we must place an increasing focus on healthy ageing. A healthier older population may be less inclined to withdraw from the labour market, result in fewer days lost to sickness and increase social capital¹⁸. Older people in good health benefit from improved health outcomes, more active lifestyles and greater autonomy.

Vaccination has an instrumental role to play within healthy ageing policy frameworks.

The impact of immunosenescence

Immunosenescence is the decline of our immune system as we age and could imply that vaccination becomes more limited in its impact.

***“An age-related decline in immune responses in the elderly results in greater susceptibility to infection and reduced responses to vaccination”.*¹⁹**

Immunosenescence makes vaccination against vaccine preventable diseases more difficult for older people as highlighted by a meta-analysis of 31 influenza vaccine studies which confirmed a lower immune system response to the vaccine compared to younger adults.²⁰

Immunosenescence does not, however, represent a case against immunisation. On the contrary

¹⁵Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

¹⁶It is worth noting that vaccination has contributed significantly to rising life expectancies

¹⁷ILC-UK (2013) Ageing, longevity and demographic change: A factpack of statistics from the International Longevity Centre-UK. London: ILC-UK.

¹⁸See Oxley, H. (2009) Policies for Healthy Ageing: An Overview. OECD Health Working Papers, No 42. OECD Publishing.

¹⁹Grubeck-Loebenstein B. et al. Immunosenescence and vaccine failure in elderly. Aging Clin Exp Res. 2009;21:201–209.

²⁰Goodwin K, Viboud C, Simonsen L. Antibody response to influenza vaccination in the elderly: a quantitative review. Vaccine24(8),1159–1169 (2006).

it strengthens it. An 'outcomes' approach, e.g. prevention of death or hospitalisation, supports the influenza vaccination as an effective public health measure for older people.

Some research has suggested that immunosenescence is not an inevitable part of ageing. Research published in 1996 found that whilst T cell response fell with age, the group aged over 90 saw more limited declines in the immune system. The researchers argued that contrary to other research “ (1) the decreased immune response of the elderly is not directly related to age, over age 70; and (2) there may be a selection process in which subjects who live to the age of 90 are those in whom the least decrease in immune response is demonstrated.”²¹

Even if immunosenescence is a reality as we age, researchers argue that it is “possible to partially overcome the effects of attenuated immune response to vaccination in older people” and that “concerns about immunosenescence should not curtail an active approach to vaccinating older people.”²²

A group of experts in immunology and gerontology met in Paris in 2008 and set out a number of strategies for tackling the challenge of immunosenescence. They proposed “ensuring that seroprotective antibody levels against preventable infectious diseases are maintained throughout adulthood, and improving diet and exercise to address the effects of frailty”. They also pointed out that new intradermal and high dose vaccines are being developed to overcome this challenge. The experts argued that “the development and use of markers of immunosenescence to identify patients who may have impaired responses to vaccination, as well as the use of end-points other than antibody titers to assess vaccine efficacy, may help to reduce morbidity and mortality due to infections in the elderly.”²³

There have been numerous developments that might result in improved vaccine efficacy, including: the development of non-living antigen delivery systems such as liposomes, the use of transgenic plants to produce antigens, greater understanding of adjuvants and their modes of action, improved modes of vaccine delivery by intradermal or transcutaneous and nasal routes²⁴.

Immunosenescence may strengthen an argument for vaccinating older people before immunosenescence begins, i.e. whilst individuals are in their 50s and 60s rather than later in life.²⁵

We believe that the vaccine programme should start in middle age, before the onset of immunosenescence, which may cause vaccine responses to be blunted compared with the response in healthy young adults.²⁶

Protecting the herd

In definition

Herd protection: situation in which enough of a population is vaccinated against an infectious organism making spread of disease less likely and reducing risk of disease in unvaccinated individuals.

Herd (or community) immunity: “the proportion of subjects with immunity in a given population”.

Herd effect: “the reduction of infection or disease in the unimmunised segment as a result of immunising a proportion of the population”.²⁷

²¹D.M. Murasko, B.J. Nelson, R. Silver et al. Immunologic response in an elderly population with a mean age of 85 Am J Med, 81 (1986), pp. 612–618

²²Woodward, M (2012) Immunisation of Older People. Journal of Pharmacy Practice and Research Volume 42, No. 4, 2012

²³Grubeck-Loebenstien B. et al. Immunosenescence and vaccine failure in elderly. Aging Clin Exp Res. 2009;21:201–209.

²⁴Cao, W., Kim, J., Chirkova, T., Reber, A., Biber, R., Shay, D. & Sambhara, S. (2011) Improving immunogenicity and effectiveness of influenza vaccine in older adults.

²⁵Expert Review of Vaccines. 10 (11), pp.1529-1537.

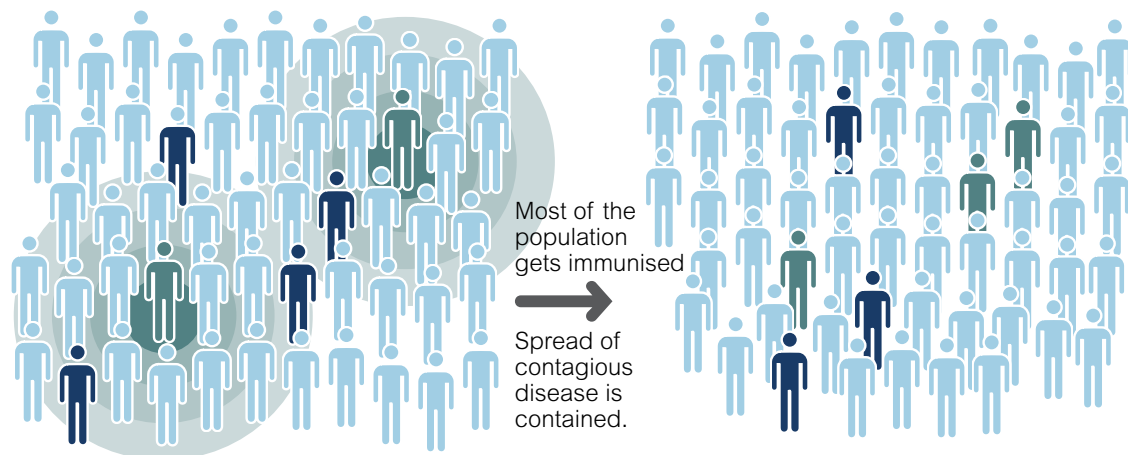
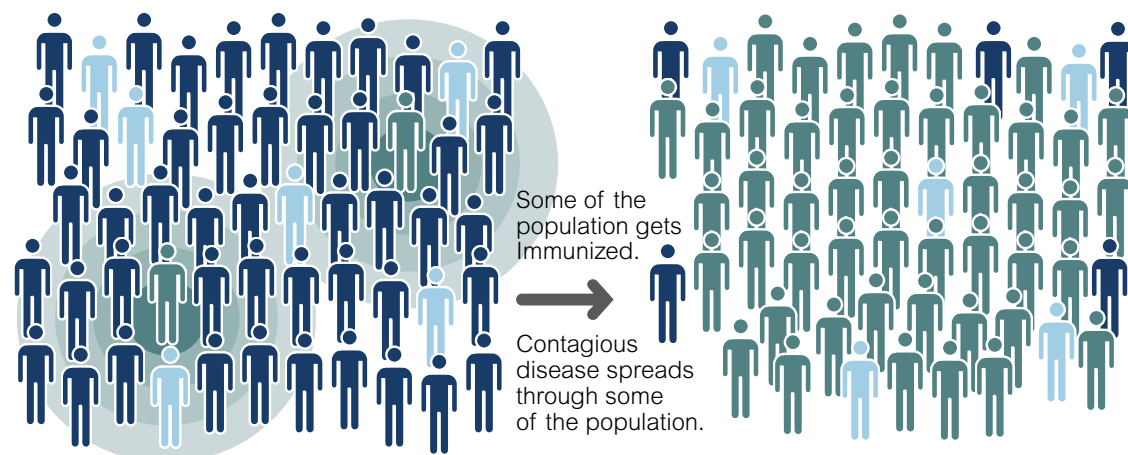
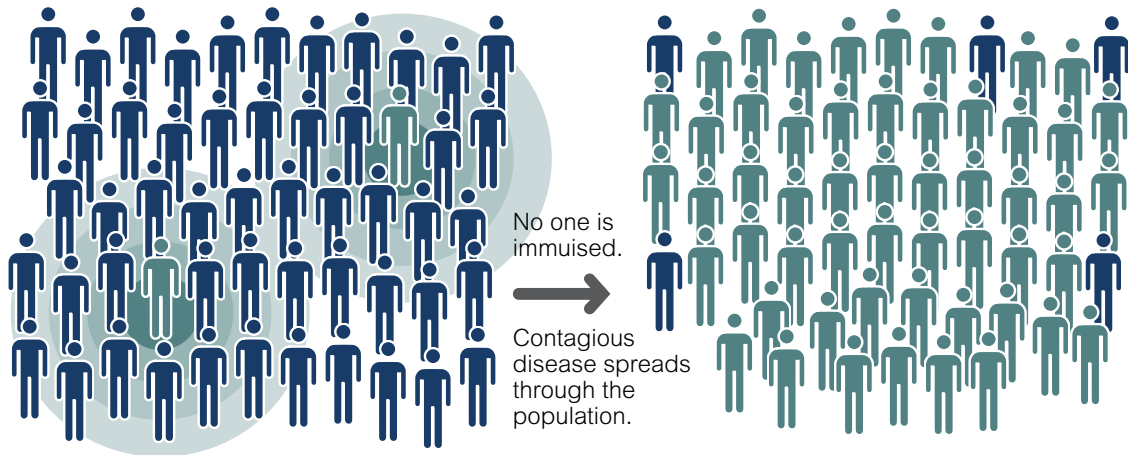
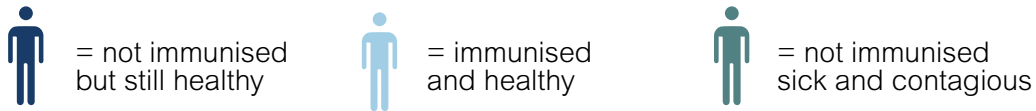
²⁶See Grubeck-Loebenstien B. et al. Immunosenescence and vaccine failure in elderly. Aging Clin Exp Res. 2009;21:201–209. Michel, J.P. et al. Vaccination and healthy ageing: how to make life-course vaccination a successful public health strategy. Eur Geriatr Med. 2010;1:155–165. And Lang P.O. et al. Immunosenescence: Implications for vaccination programmes in adults. Maturitas. 2011;68(4):322-330.

²⁷Michel, J.P. et al. Vaccination and healthy ageing: how to make life-course vaccination a successful public health strategy. Eur Geriatr Med. 2010;1:155–165.

²⁷Herd immunity and herd effect: new insights and definitions 2000, European Journal of Epidemiology Volume 16, Issue 7, pp 601-606

The concept of herd (or community) immunity is not a new one, having been coined over a century ago²⁸. Yet understanding its implications offer significant benefit for the reduction and elimination of vaccine preventable diseases.

Adult vaccination: a key component of healthy ageing²⁹



²⁸Herd Immunity": A Rough Guide Clinical Infectious Diseases. Stanley Plotkin, Section Editor; Paul Fine; Ken Eames, and David L. Heymann" Volume 52, Issue 7 Pp. 911-916

²⁹Taken and adapted from <http://niaid.nih.gov/topics/pages/communityimmunity.aspx> SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

“Clear understanding of these phenomena and their relationships will help improve the design of effective and efficient immunisation programmes aimed at control, elimination or eradication of vaccine preventable infectious diseases.”³⁰

The herd effect represents a strong reason for considering the vaccination of not just children, but adults also. In essence, the herd offers a degree of protection against vaccine preventable diseases. If herd (or community) immunity declines, the risk of spreading communicable diseases can increase. “When a high percentage of the population is protected against a pathogen, making it difficult for a disease to infect new hosts because there are so few new people to infect. This can effectively stop the spread of disease in the community.”³¹

The “risk of infection among susceptible individuals in a population is reduced by the presence and proximity of immune individuals”³². In other words, protecting adults through vaccination not only helps reduce their risk of contracting vaccine preventable diseases, but it also helps reduce the persistence of a communicable disease.

In the 1970s, a major step forward in understanding of the importance of herd protection was set out by Smith and Dietz who found “that if immunity (i.e., successful vaccination) were delivered at random and if members of a population mixed at random, such that on average each individual contacted R_0 individuals (see below) in a manner sufficient to transmit the infection”³³

A herd threshold therefore sets out the percentage of a population which would need to be immune in order to ensure a disease could no longer persist. The table below³⁴ highlights the approximate herd threshold of different vaccine preventable diseases.

Disease	Transmission	R_0	Herd immunity threshold
Diphtheria	Saliva	6–7	85%
Measles	Airborne	12–18	83–94%
Mumps	Airborne droplet	4–7	75–86%
Pertussis	Airborne droplet	12–17	92–94%
Polio	Fecal-oral route	5–7	80–86%
Rubella	Airborne droplet	5–7	80–85%
Smallpox	Social contact	6–7	83–85%

R_0 is the basic reproduction number, or the average number of secondary infectious cases that are produced by a single index case in completely susceptible population.

We should however, take care not to assume that the herd threshold level should be the same level as is proposed for public health vaccination targets. The theoretical herd immunity thresholds assume a random group in the population is vaccinated whereas the reality may be that certain groups may be more or less likely to be vaccinated. For example, if a high proportion of the non-vaccinated live close to each other this may undermine a national herd immunity threshold.

³⁰Herd immunity and herd effect: new insights and definitions 2000, European Journal of Epidemiology Volume 16, Issue 7, pp 601-606

³¹<http://www.vaccinestoday.eu/vaccines/what-is-herd-immunity>

³²Herd Immunity”: A Rough Guide Clinical Infectious Diseases.Stanley Plotkin, Section Editor; Paul Fine; Ken Eames, and David L. Heymann” Volume 52, Issue 7 Pp. 911-916

³³Herd Immunity”: A Rough Guide Clinical Infectious Diseases.Stanley Plotkin, Section Editor; Paul Fine; Ken Eames, and David L. Heymann” Volume 52, Issue 7 Pp. 911-916

³⁴History and Epidemiology of Global Smallpox Eradication From the training course titled “Smallpox: Disease, Prevention, and Intervention”. The CDC and the World Health Organization. Slide 16-17.

Prevention and antimicrobial resistance

Antimicrobial resistance is the reduced susceptibility of pathogenic bacteria to one or more of the antimicrobial agents (a.k.a. antibiotics) administered in clinical medicine.

An antimicrobial is a substance which kills or inhibits bacteria, viruses, or moulds. Antibacterials are only effective against bacteria.

The growing problem of antimicrobial resistance is one of significant worry for policy makers across the world. “The continuing increase in organisms that are resistant to one or more antimicrobial drug is one of the greatest threats that we face today” argued the Chief Medical Officer recently.³⁵

The treatment of a huge range of conditions has been made possible through the use of these products. But policymakers have begun to realise the very severe impact on public health of antimicrobial resistance. As the Chief Medical Officer points out: “while a new infectious disease has been discovered nearly every year over the past 30 years, there have been very few new antibiotics developed leaving our armoury nearly empty as diseases evolve and become resistant to existing drugs.”³⁶

Vaccination limits the development of antimicrobial resistance by decreasing the likelihood that bacteria targeted by these vaccines are exposed to antimicrobial agents (a.k.a. antibiotics).³⁷

If antimicrobial resistance makes it more difficult to treat conditions including vaccine preventable diseases, then policy makers are likely to need to refocus more significant efforts on prevention of disease in the first place. Vaccination should be part of this prevention toolkit.

Migration

“It is now possible for a person to travel around the globe in less time than it takes for symptoms to appear following an infection.”³⁸

The global transmission of H1N1 in 2009 highlighted that infectious diseases can move across the world extremely quickly. But it is also the case that with global migration and travel, infections transmitted in one country can cause illness in another.

“Migrants comprise an increasing proportion of the UK population. In 2010, 12% of the total UK population were born abroad, whereas in 2001 the figure was nearer to 8%. This population comes from all over the world. Whilst the majority of long-term migrants will have a similar pattern of health needs as UK-born individuals of the same age group, a small sub-population bears the greatest burden of infectious diseases.”³⁹ argued the Chief Medical Officer recently.

Individuals coming from a developing country where they may not have been vaccinated, into a country with a long history of vaccination, may find that the herd effect is not strong enough to protect them. This is particularly the case if they live within a community with a high number of unvaccinated immigrants. The recent increase in TB in London and the Midlands has been a result of this issue.

A key recommendation in the HPA (Health Protection Agency – now Public Health England) Migrant Health Guide⁴⁰ is for individuals to “update immunisations according to the UK schedule”.

³⁵Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

³⁶Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

³⁷Vaccines Europe, quoted in SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

³⁸Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

⁴⁰See <http://www.hpa.org.uk/MigrantHealthGuide/>

Vaccine Preventable Diseases

What are Vaccine Preventable Diseases?

In definition

Diphtheria: A life-threatening infection of the upper respiratory tract caused by *Corynebacterium diphtheria*. Also affects internal organs and/or the skin.

Herpes Zoster (Shingles): A painful, blistering skin rash caused by the varicella-zoster virus, which also causes chickenpox. After a chickenpox infection, the virus remains inactive in certain nerves in the body. Shingles occurs when the virus becomes active again years later. Symptoms include severe pain, tingling or burning and the appearance of a rash and small blisters that may burst and crust over. The triggers for viral reactivation are unknown, and it is impossible to predict if and when shingles will occur.

Influenza: An acute respiratory disease caused by human influenza viruses. Symptoms include fever, headache, muscle pain, runny nose, sore throat, non-productive cough and a general feeling of ill-health.

Invasive pneumococcal disease (IPD): An acute and potentially life-threatening disease caused by different strains of the bacterium *Streptococcus pneumoniae*. Invasive infection can lead to septicaemia, pneumonia and meningitis.

Meningitis: Potentially life-threatening inflammation of the protective membranes covering the brain and spinal cord (a.k.a. meninges). Most common symptoms include headache, neck stiffness, associated with fever, altered consciousness, vomiting, photophobia and phonophobia.

Pertussis (Whooping Cough): A highly contagious acute respiratory infection caused by the bacterium *Bordetella pertussis*. Symptoms in children include severe cough of at least 14 days, plus paroxysmal cough, inspiratory whoop or post-tussive vomiting. Symptoms in adults can be mild and unspecific. Adults appear to serve as the reservoir of the organism.

Pneumonia: An acute infection of the lung tissue. *Streptococcus pneumoniae* is responsible for 40% of cases. Morbidity and mortality are highest among the very young (<5 years of age) and the elderly (>60 years of age).

Tetanus: An illness caused by contamination of wounds by the bacterium *Clostridium tetani*. Leads to muscular spasms that sometimes result in death. Tetanus is not transmitted from person to person. *Clostridium tetani* is found anywhere in the environment.

“Vaccination is a miracle of modern medicine. In the past 50 years, it’s saved more lives worldwide than any other medical product or procedure”.⁴¹ But vaccination is not new, with Edward Jenner generally credited with the birth of modern vaccination in 1796.

⁴¹NHS Choices Website: <http://www.nhs.uk/Conditions/vaccinations/Pages/the-history-of-vaccination.aspx>

The discovery of vaccination by Edward Jenner



Edward Jenner noticed that dairy maids suffering from cow pox did not succumb to the more deadly smallpox. “The more accurately to observe the progress of the infection, I selected a healthy boy about eight years old for the purpose of inoculation with the cowpox. The matter was taken from the suppurated sore on the hand of a dairy Maid who was infected by her master’s Cows, and it was inserted on the 14th May 1796 into the arms of the Boy by means of two superficial incisions each about three quarters of an inch long...During the whole of [the ninth day after this] he was perceptibly indisposed and had a restless night; but, on the following day he was perfectly well. On the 1st of July following this the Boy was inoculated with Matter immediately taken from a smallpox Pustule. Several punctures and slight incisions were made in both his arms, and the matter was well rubb’d into them, but no disease followed.”⁴²

Vaccination has controlled 12 major diseases (at least in parts of the world). Other than clean water, it has arguably had the biggest impact on mortality reduction and population growth.⁴³ Vaccines can prevent the onset and/or consequences of serious, often deadly, diseases including: chickenpox and shingles, diphtheria, hepatitis A and hepatitis B, human papillomavirus, influenza, measles, meningococcal disease, mumps, pertussis, polio, pneumococcal disease, rubella, and tetanus.

WHO Global Vaccines Action Plan

Overwhelming evidence demonstrates the benefits of immunization as one of the most successful and cost-effective health interventions known. Over the past several decades, immunization has achieved many things, including the eradication of smallpox, an accomplishment that has been called one of humanity’s greatest triumphs. Vaccines have saved countless lives, lowered the global incidence of polio by 99 percent and reduced illness, disability and death from diphtheria, tetanus, whooping cough, measles, Haemophilus influenzae type b disease, and epidemic meningococcal A meningitis.⁴⁴

In the UK in 2011, around 27.5 million days were lost due to minor illnesses, such as coughs, colds and ‘flu. This represented 21% of all days lost and was the most common reason given for sickness absence.⁴⁵

The impact of the decline in vaccine preventable diseases following the introduction of vaccination is highlighted by the graph below on diphtheria and whooping cough. The drop in diphtheria cases and deaths following the introduction of the vaccine in 1942 is striking.

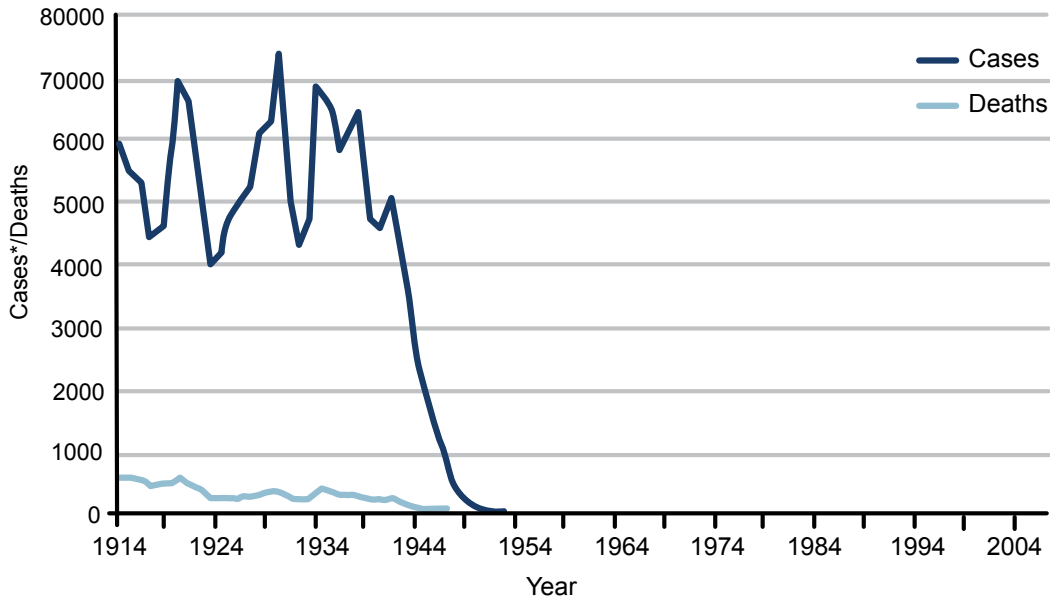
⁴²Cartwright FF. A social history of medicine (1st edn). London: Longman, 1977.

⁴³Plotkin, S. and S. Plotkin. “A Short History of Vaccination,” Chapter 1 in Vaccines, Edition 5 by Stanley A. Plotkin,

⁴⁴Walter A. Orenstein, Paul A. Offit. Elsevier Health Sciences, 2008.

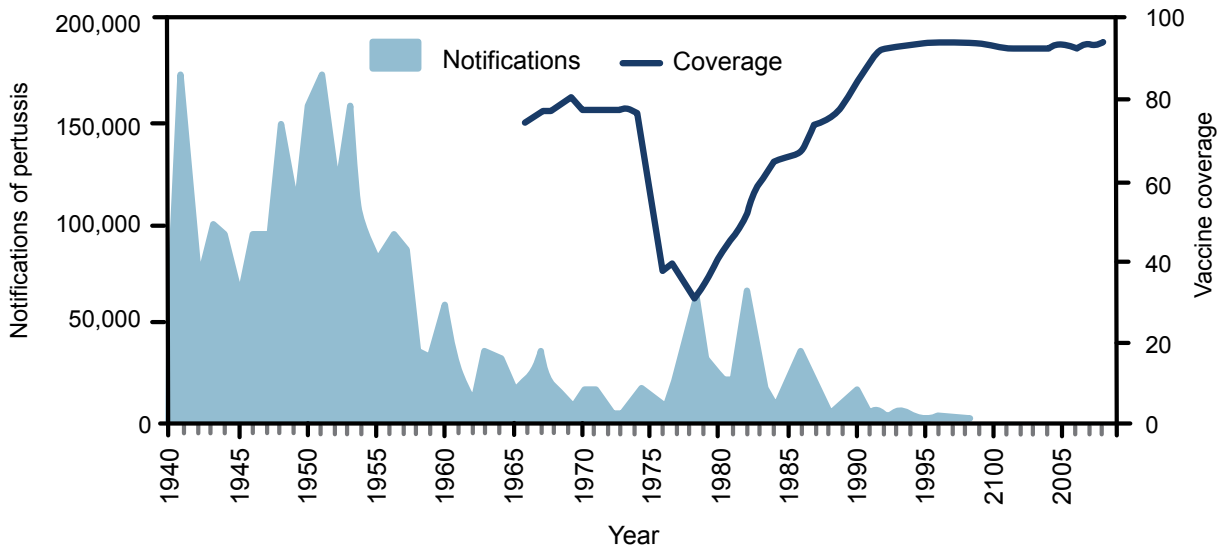
⁴⁵Sickness Absence in the Labour Market (April 2012). http://www.ons.gov.uk/ons/dcp171776_265016.pdf

Diphtheria cases* and deaths, England and Wales, 1914-2009⁴⁶



In the case of whooping cough, the introduction of a vaccine in the 1950s saw the number of people infected decline steeply. When coverage of the vaccine fell in the 1970s due to a highly publicised health scare, the incidence of whooping cough increased before declining again as coverage increased.

Whooping cough notifications and vaccine coverage: England and Wales, 1940-2009⁴⁷



Safe, effective vaccination programmes have a profound impact on the epidemiology of infectious disease. Diseases such as polio, diphtheria and tetanus are no longer a significant cause of disease in England because of high levels of vaccine coverage.⁴⁸

Vaccines continue to be developed and introduced into the NHS with a positive health impact. According to the DH Immunisation Annual Report (April 2009), the first 30 months of the infant

⁴⁶Health Protection Agency www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947379101

⁴⁷Health Protection Agency www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947379101

⁴⁸Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

Pneumococcal Conjugate vaccine programme, is estimated to have prevented 959 cases of serious illness and up to 53 deaths from Invasive Pneumococcal Disease (IPD).

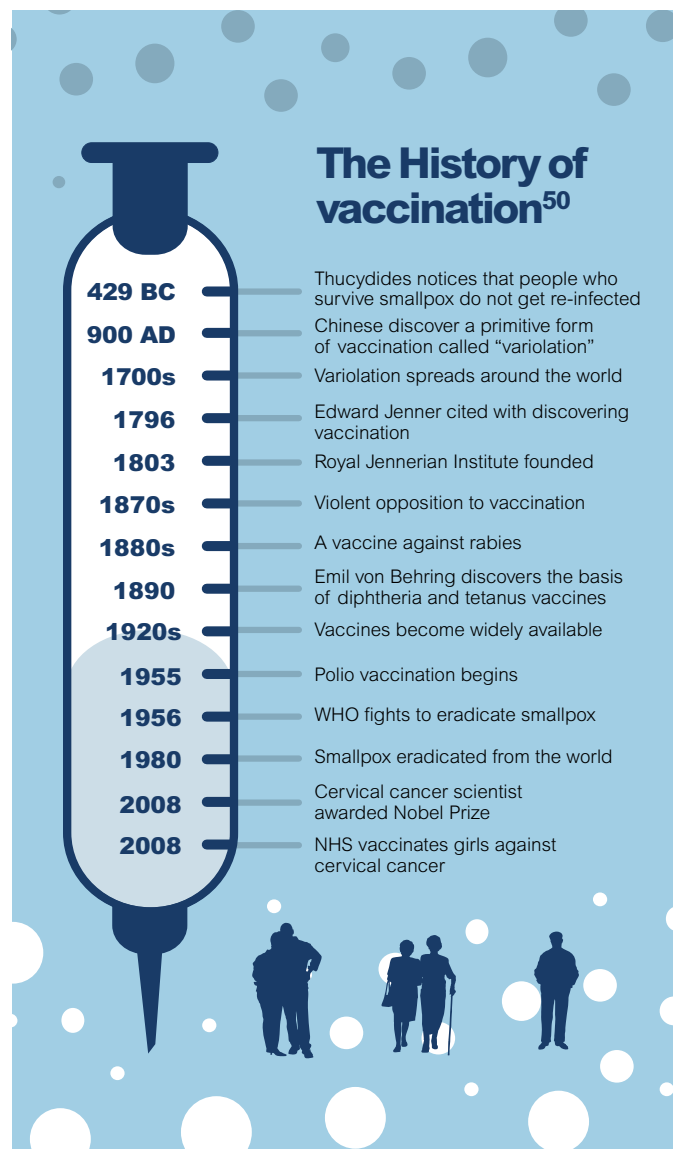
Similarly, new research has highlighted the positive impact of vaccinating older adults against shingles. A large cohort study in the US recently found that vaccinating older adults against Herpes zoster resulted in a 48% (95% CI 39% to 56%) reduction in the incidence of shingles.⁴⁹ The Government has recently announced plans to vaccinate 70 and 79 year olds to protect against shingles following a recommendation from the Joint Committee on Vaccinations and Immunisation in 2010.

Incidence of infectious diseases

Over recent years, death rates from infectious diseases have fallen globally, partly as a result of vaccination campaigns and partly due to initiatives which have reduced the spread of such diseases. But whilst “mortality rates for infectious diseases have declined in all developed countries over the last few decades... infections are still a major cause of death in the very young and in the elderly, particularly in those with coexisting chronic disease.”⁵¹

The SAATI report⁵² sets out the incidence of infectious diseases across Europe. The information below sets out the UK evidence highlighted in the report.

- Seasonal influenza:** The UK reported a 2010-11 winter period more severe in terms of pressure on hospitals than during the 2009-10 pandemic winter. In 2012-13, excess death rates were the highest since 2008-09, with peaks coinciding with influenza circulation (Public Health England).
- Pneumonia:** UK and Slovakia have the highest reported mortality rates in Europe (25 per 100 000 population cases in 2005 and 2009).
- Invasive pneumococcal disease:** In 2005, the UK, as well as Belgium, Ireland and Sweden, reported rates of confirmed cases which approach or are greater than 10 per 100 000. There was a similar picture in 2009 with relatively high rates in the UK and in Belgium, Finland, Ireland, Sweden and Slovenia compared to the other countries reporting. Among the countries reporting high rates, the trend is relatively static in the UK.
- Pertussis:** the recent increase in pertussis notifications corresponds with the availability of enhanced diagnostic methods. Since 2006, there has been greater awareness and use of these testing methods, compared to previous years.



⁴⁹BMJ 2013;346:f2389

⁵⁰NHS Choices: The History of Vaccination. <http://www.nhs.uk/Conditions/vaccinations/Pages/the-history-of-vaccination.aspx>

⁵¹Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

⁵²SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

	2006	2007	2008	2009	2010	2011
Pneumonia						
<i>Hospital in-patient rates (in patient/1000 populations) of Pneumonia ICD10:J13. Source: WHO</i>						
Total	0,0512	0,0505	0,0523	0,0518	0,0539	-
Invasive Pneumococcal Disease						
<i>Hospital in-patient admission rates (in-patients /1000 populations) of IPD cases, ICD10 (A40, G00, J13). Source: WHO</i>						
Total	0,0995	0,0947	0,098	0,0982	-	-
<i>Number of IPD cases and rates per 100 000. Source: ECDC</i>						
Total cases	5820	5624	5514	5019	-	-
Rates	9,63	9,25	9,01	8,2	-	-
Pertussis						
<i>Reported cases. Source: WHO</i>						
Total	478	1163	1028	846	518	1243
<i>Reported cases. Source: ECDC</i>						
Total	3	65	1051	852	-	-
Herpes Zoster						
<i>Hospital in-patient admission rates (in-patients/1000 populations) ICD10: B02. Source: WHO</i>						
Total	0,0452	0,0433	0,0442	0,047	-	-
Diphtheria						
<i>Reported cases. Source: WHO</i>						
Total	3	3	5	3	0	2
<i>Reported cases. Source: ECDC</i>						
Total	3	3	6	4	-	-
Tetanus						
<i>Reported cases. Source: WHO</i>						
Total	3	4	5	6	9	3
<i>Reported cases. Source: ECDC</i>						
Total	3	0	0	1	-	-

The cost effectiveness of adult immunisation

A systematic review of the relevant literature in English language on the cost-effectiveness evidence of immunisation for adults aged 50 years or over in all EU Member States was performed for the SAATI report⁵³ published in November 2013. Cost-effectiveness studies were found for 4 of the 7 key vaccine-preventable diseases in this report: herpes zoster, influenza, IPD and pneumonia.

- For these 4 diseases, studies were found for 13 EU nations that show immunisation is likely to provide a cost-effective strategy for those aged 50 years or over.
- No study was found in the scope of the research on the cost-effectiveness of pertussis, tetanus and diphtheria. This may be due to the fact that, for instance, the tetanus and diphtheria booster immunisation was broadly used and recognised as an effective preventative tool before the wide-spread use of such economic models.
- There is a lack of health economic research in low- and middle-income countries of the European region.
- A broader view of the long-term benefits of vaccination demonstrates that immunisation programmes are worthwhile in terms of their economic advantages.

Immunisation is a preventative health intervention, and is a cost effective way of making significant savings on health expenditure, a finding that has been consistently shown within academic literature. According to the WHO, immunisation prevents between 2-3 million deaths a year across all age groups. Some of the debilitating diseases that immunisation protects against include; diphtheria, hepatitis A and B, polio, pneumococcal disease, mumps and yellow fever among others.⁵⁴

As part of the final European SAATI output Heron (a health product consultancy) conducted an extensive literature review to examine the cost-effectiveness of vaccinating against the seven vaccine-preventable diseases. The results of this review were that for four of the seven vaccine preventable diseases; herpes zoster, seasonal influenza, invasive pneumococcal disease and pneumonia, there were clear economic benefits around the implementation of the vaccines for adults over the age of 50, amongst high-income countries: UK, Germany, the Netherlands, Sweden, Belgium, France, Italy, Spain, Poland, Denmark, Finland, Slovakia and Czech Republic. Firm conclusions on the cost-effectiveness of immunisation against pertussis, tetanus and diphtheria could not be drawn due to a dearth of evidence reviews on their efficacy.

There are a number of economic costs associated with failure to effectively immunise that extend beyond health costs that result from the allocation of resources on treatment. These can include lost working days and expenditure on disability payments and social services. As will be addressed further throughout this paper,

Investing €1 in adult immunisation can generate over €4 of future economic revenue for government (case study in the Netherlands).

⁵³SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

⁵⁴WHO - World Immunization Week 2012, available at: http://www.who.int/immunization/newsroom/events/immunization_week/2012/further_information/en/

immunisation of the adult population allows them to remain healthier for longer, and therefore increases the contribution that they can make within the labour market, and generate greater state revenue.⁵⁵

The SAATI analysis into the cost-effectiveness of adult immunisation, also included an applied analytic framework that assessed overall financial impact based on lifetime alterations in gross tax receipts and transfer costs attributed to changes in morbidity and mortality. Due to the availability of longitudinal data, the Netherlands was selected as a case study to apply this framework. A lifetime modelling approach was utilised that derived estimates for productivity and labour force participation for each vaccine preventable disease.

Adult immunisation: Ensuring on-going protection against vaccine-preventable diseases in adulthood through the implementation of effective vaccination programmes, especially for adults aged above 50.

The case study results showed very significant cost savings that could be attributed to immunisation. For the seven vaccine preventable conditions, an estimated 34,528 infectious disease cases would be avoided over a 50 year period, with approximately 5,782 premature deaths avoided over the same period. As a result the amount of lost working days prevented over the same period was put at 127,480. In financial terms, the health cost savings was projected to reach 6.6 million euros, with the most important fiscal benefit linked to lifetime tax contributions from implementing adult vaccination compared with no vaccination which amounted to 537 million over the remaining life years of the cohort. Based on the investment costs of vaccinating those aged 50 in the year 2012, the benefit-cost ratio suggests that every 1 euro invested would result in 4.02 euros over the lifetime of the cohort⁵⁶.

Evidence from SAATI – Cost effectiveness⁵⁷

- **Herpes Zoster:** the general consensus across studies which compared a vaccination strategy versus no vaccination strategies was that vaccination is a cost-saving or a cost-effective intervention. Existing evidence indicated that if immunisation was not cost-effective in the short-term, it did not imply cost-ineffectiveness in the long run. There is evidence that adult vaccination is a valuable preventive option when targeting populations aged 50-54 years and that vaccinating older cohorts (70+) is less cost-effective than vaccinating younger cohorts.
- **IPD:** A study conducted a multi-country analysis across 10 EU countries to analyse the cost-effectiveness of pneumococcal vaccination for IPD across those aged >65 years. The study observed substantial variation in the Incremental Cost-Effectiveness Ratios (ICERs) across the countries, with older populations generally having higher ICERs. A UK based study recommended routine vaccination of all populations aged ≥ 65 years. It was estimated to be the best strategy, with lower cost per life year gained compared to vaccinating high-risk groups only.
- **Pneumococcal pneumonia:** Two studies conducted in the Netherlands concluded vaccination with pneumococcal conjugate vaccine to be cost-effective when compared with no vaccination for both the general population and high risk populations aged ≥65 years. A Finnish study presented similar findings.

⁵⁵SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

⁵⁶WHO - World Immunization Week 2012, available at: http://www.who.int/immunization/newsroom/events/immunization_week/2012/further_information/en/

⁵⁷SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

- **Seasonal influenza:** The results of the multi-country analysis found vaccination for influenza to be cost-effective across all the countries of interest. An Italian study concluded that the economic advantage of extending influenza vaccination to healthy adult workers aged 50-64 years mainly relate to indirect costs such as costs associated with productivity loss.

Whilst the cost-effectiveness analysis commissioned by SAATI highlights the availability of some cost-effectiveness evidence, the research also highlighted a number of limitations. For example, none of the economic models identified considered the potential interdependencies across diseases, only three mentioned assumptions surrounding herd immunity and few studies consider co-morbidities.

Traditional health economic frameworks do not tend to take into account the wider range of benefits associated with vaccination. If anything, they underplay the wider benefits of vaccination including the cost of averted infections that may occur over the long-term; the effects of health on incomes and economic growth; and the fact that immunisation also protects individuals against the long-term effects that an illness can have on an individual's physical, emotional and cognitive development.⁵⁸

Recent research in Heart Journal suggests that while flu did not increase the chance of heart attack, the flu vaccination may deliver protective effect, reducing the risk by 45%.⁵⁹

In other words, the cost-effectiveness data for vaccination is likely to significantly underestimate some of the financial benefits of vaccination.

⁵⁸SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

⁵⁹See <http://www.telegraph.co.uk/health/healthnews/8013304/The-winter-flu-jab-may-prevent-heart-attacks-finds-research.html>

The UK Policy Framework

Each of the four countries within the United Kingdom is able to determine their own immunisation policy, however decisions are usually based on the recommendations provided by the Joint Committee on Vaccination and Immunisation. Unusually for health policy, immunisation policy is formulated without the involvement of the National Institute for Health and Care Excellence (NICE), which in other areas often guides the Department of Health in policy formulation.

The Joint Committee on Vaccination and Immunisation is an independent expert advisory body of the UK Department of Health. The Committee's remit is to provide recommendations to the British Government on vaccine safety. The Committee plays a crucial role in formulation of UK vaccination policy in that it advises health ministers on the current vaccination schedule and potential additions – based on clinical evidence, cost effectiveness and impact.⁶⁰

Our focus group was very supportive of the UK policy framework for adult immunisation, however, some felt that there was a case to better involve NICE in vaccination policy.

“It would be hugely detrimental to lose the JCVI” ILC-UK focus group participant

“There could be a value of engaging NICE in vaccination due to its ability to mandate guidance. The JCVI has an advisory role” ILC-UK focus group participant

“JCVI and NICE should work closer together on immunisation. We need the JCVI to act as experts, NICE to do the publishing.” ILC-UK focus group participant

The current guidelines established by the Department of Health following advice set out by the Joint Committee on Vaccination and Immunisation, regarding adult vaccination include all population recommendations for: seasonal influenza (65), invasive pneumococcal disease (65), herpes zoster (70 and 79), and tetanus and diphtheria – recommended as a booster to be administered every ten years throughout the life-course.

There are differences in the way that vaccination policy is administered among the constituent nations of the United Kingdom. Immunisation policy and advice for Wales is, for example, communicated to health professionals via Ministerial letter and letters from the Chief Medical Officer.

Other relevant organisations involved in the UK immunisation policy process include the Medicines and Healthcare products Regulatory Agency and Public Health England:

- The Medicines and Healthcare products Regulatory Agency (MHRA) is responsible for monitoring the safety, efficacy and quality of all marketed medicines (including vaccines) and medical devices.
- The Health Protection Agency, now part of Public Health England, oversee and are responsible for the monitoring of vaccination uptake, and this is the case for both paediatric and adult vaccination.

The *Green Book* is the national summary document which outlines all adult vaccinations.

The UK adult vaccination programme operates enviable monitoring systems which assess the

⁶⁰ Weston, M. (2009) Not immune: UK vaccination policy in a changing world – a 2020 health discussion paper. London: 2020health.org.

implementation of the seasonal influenza programme: Public Health England; Health Protection Scotland; Public health Wales and Public Health Agency (Northern Ireland). In England, there is close to real time data of uptake in order to allow the Department of Health to intervene where low uptake amongst specific groups can be observed.⁶¹ Uptake of seasonal influenza and pneumococcal vaccine is monitored among people aged over 65. In the case of pneumococcal vaccine, an annual survey is conducted through the collaboration of GPs. Vaccine uptake amongst specific at-risk groups is undertaken pneumococcal vaccine is monitored among people aged over 65.

Vaccination within structural NHS reforms

ILC-UK recommends

- **Joint Strategic Needs Assessments (JSNA's) should take a life-course approach to immunisation.**
- **Health and Wellbeing Boards should be set up to regularly scrutinise immunisation uptake. Guidance published by the Centre for Public Strategy helpfully supports this scrutiny.**
- **Health and Wellbeing Boards should ensure that life-course vaccination is adequately considered as part of health planning and commissioning.**
- **The Public Health Outcomes Framework indicator on “population vaccination coverage” should be refocused as an indicator of “life-course vaccination coverage”.**
- **Health and Wellbeing Boards should consider how commissioning good adult vaccination services could contribute to some of their other high level priorities, for example, most have a priority around enabling older people to live independently in their own homes.**
- **Commissioning arrangements for immunisation should support the uptake of adult vaccination.**
- **We support the recommendation of the Chief Medical Officer that “Health and Wellbeing Boards should explicitly consider how they will address inequalities due to infectious diseases in their local Health and Wellbeing strategy.”⁶²**

Recent changes to the anatomy of publicly funded public health in the England have been introduced, having come into effect in April 2013. The reforms had an overarching aim of devolving decision making power in the NHS from central authorities to more devolved bodies that feature representation of medical professionals themselves.

Central to the structural reconfiguration was the creation of Public Health England, which in effect is a new executive body of the NHS. The Government has estimated that on current spend Public Health England expenditure could be in excess of four billion pounds. Clinical commissioning groups and Health and Wellbeing boards will also form part of the new configuration of the NHS.⁶³

Whilst the NHS reforms in England have sought to move the onus of planning and decision making for health delivery away from central authorities to more locally accountable groups, the national vaccination programme will continue to be administered nationally with responsibility shared between the Department of Health, Public Health England and the NHS England⁶⁴

The NHS reforms outlined above will only take place in England as health policy in Scotland, Wales and Northern Ireland will continue to be controlled by their respective devolved governments.

⁶¹ILC-UK (2011) Life Course Immunisation: Improving adult immunisation to support healthy ageing http://www.ilcuk.org.uk/index.php/publications/publication_details/life_course_immunisation_improving_adult_immunisation_to_support_healthy_ag

⁶²Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

⁶³HM Government. (2010) Health Lives, Healthy People: Our strategy for public health in England.

⁶⁴Moberly, T. (2012) Vaccination plans raise 'grave concern' from experts. GP online. Available at: <http://www.gponline.com/News/article/1147809/Vaccination-plans-raise-grave-concerns-experts/>

Advice has been produced by the Centre for Public Scrutiny⁶⁵ which sets out guidance for Health and Wellbeing Boards and others who may want to scrutinise local immunisation services.

Move of public health to local authorities

“This change is not just about a transfer of staff to local authorities. It is much bigger than that. It means that local authorities will have a statutory responsibility to deliver public health. It won’t be just the responsibility of small public health teams to ensure this happens but every local authority member of staff. This could result in dramatic change in the delivery of public health” ILC-UK Focus group participant

Under the new arrangements Local Authorities will commission for most of the public health services in their area, including: public mental health services, dental public health services, obesity and community nutrition initiatives and supporting, reviewing and challenging delivery of key public health-funded and NHS-delivered services such as immunisation programmes. NHS England will, however, commission some specific public health services including national immunisation programmes.⁶⁶

Whilst the overall planning for national immunisation programmes will remain a centrally planned health programme, there nevertheless will be important implications for health care workers involved in the administration of vaccination.

New layers in the NHS could potentially result in more barriers – in the case of vaccination this must be overcome in view of the need to maintain and in some cases increase rates of take up.

It is vital that capability in the current model is maintained and continued within the new model of delivery.

Adult vaccination recommendations in the UK

In definition

Adult Vaccination Schedule: A set of key recommendations per vaccine and age group issued by a public health authority to guide the adult population in its vaccination choices. Specific at-risk population groups may also be referred.

ILC-UK recommends

- **The Government go beyond the seasonal flu targets and consider the case for targets for levels of vaccination take-up and coverage for other vaccine preventable diseases recommended for older adults.**
- **Indicators for adult vaccinations should be incorporated within the Public Health Outcomes Framework and should incorporate a range of vaccinations targeted at the over 65s.**

The table below, adapted from work by ILC-UK for SAATI highlights the extent to which the UK has targets for adult vaccination. It also highlights the uptake of different vaccinations.

The government follows the WHO target of 75% seasonal influenza coverage for over 65s. In 2012/13, the NHS was asked to plan to reach uptake of 70% for people aged under 65 years in clinical risk groups and plan for reaching uptake of 75% by 2013/14. The Department of Health and Public Health England expressed disappointment in 2013 that “overall vaccine uptake for the under 65 years in clinical risk groups has apparently stalled and has only been around 50% for several years now”.

⁶⁵<http://cfps.org.uk/publications?item=7353&offset=0>

⁶⁶Royal College of Nursing. (2013) RCN Policy and International Department Policy Briefing 5/13, Public Health Reforms in England – A guide to the changes and RCN position. London: Royal College of Nursing.

In 2013/14 the Department of Health and Public Health England are asking local areas to ensure that they offer flu vaccine to “**everyone** at risk”. They are targeting a 75% uptake for people aged 65 years and over; and a 75% uptake for people under 65 years in risk groups, including pregnant women.

Other than seasonal flu, there are no targets for take-up of other vaccinations recommended for adults.

In definition

At risk groups: Individuals with certain medical or social conditions who may have a higher risk of contracting certain infectious diseases than the rest of the population.

Condition	Including for adults in vaccination schedule	Government policy guidelines	National Targets rates for recommended groups	Access (funding mechanisms in place)	Government media campaigns and communications plans	Vaccinations up-take for recommended groups
Seasonal influenza	Yes	Recommended at the age of 65 and annually thereafter and for certain at risk groups Hospitals in England will have to get 75% of staff vaccinated against flu in order to access Accident & Emergency bailout fund in the future.	75% (WHO target)	Government funding mechanism in place for some groups	Public Health England communications to include a national advertising campaign focused on at risk groups	England: 74% Northern Ireland: 77% Scotland: 76.2% Wales: 67.7% (2012/2011 season) England: 72.8% Northern Ireland: 74.9% Scotland: 75.4% Wales: 65.7% (2011/2010 season) England: 72.4% Northern Ireland: 77% Scotland: 75% Wales: 63.5% 2010/2009 season
IPD	Yes	Recommended at the age of 65 and for certain at risk groups	No target	Government funding mechanism in place	No	69% (2008)
Pertussis	No	-	-	-	-	-
Herpes Zoster	Yes	One-off inoculation at ages of 70 and 79 (programme to be rolled out on opportunistic basis by GPs)	No	Government funding mechanism in place	No	Data not available

Diphtheria	Yes	Five inoculations throughout the life course as a booster	No	Government funding mechanism in place	No	Not measured
Tetanus	Yes	Five inoculations throughout the life course as a booster	No	Government funding mechanism in place	No	Not measured

The Public Health Outcomes Framework sets out desired outcomes for public health and how they will be measured. Within the guidelines on health protection, population vaccine coverage is highlighted as an indicator.

A life-course approach to adult vaccination

In definition

A life course approach to adult vaccination: Stresses vaccination through all stages of life, including the adult years, as a cost-effective strategy to promote healthy and active ageing.

ILC-UK recommends

- The Government should make an explicit commitment to a life-course vaccination programme, with age-group based as well as risk group based recommendations for vaccination.
- Guidelines for adults in the UK should continue to be regularly reviewed by the Joint Committee on Vaccination and Immunisation (JCVI).

With the exception of the seasonal influenza vaccine, many adults believe that vaccination is relevant only for children, and awareness of adult vaccines is low.⁶⁷

Despite a common perception (with the exception of the flu vaccine) that immunisation is for children, it is beneficial for people of all ages. According to the WHO, immunisation prevents between 2-3 million deaths a year across all age groups.⁶⁸

Protection from influenza in older adults is, however, lower than in younger adults and children, and may be very low in some years when the match between vaccine and circulating strains of influenza is poor.⁶⁹

Across the world, there is growing global interest from health practitioners and policymakers about the role of vaccination in supporting healthy ageing. In 2007 our colleagues in the ILC Global Alliance published 'Immunization, not just for kids' and in 2009 the Alliance for Health and the Future, of which ILC-UK was a member, published 'Life Course Vaccination'. In Europe the SAATI partnership has convened individuals and organisations advocating for a stronger focus on adult vaccination. Recently, in Australia Professor Michael Woodward, urged policy-makers to develop a national immunisation program for Australians, "from the day you are born to the day you die."⁷⁰ A Joint Working Group of the European Union of Geriatric Medicine Society (EUGMS) and the International Association of Geriatrics and Gerontology-European Region (IAGG-ER) has proposed specific vaccine guidelines for older adults.⁷¹

⁶⁷Perception of vaccines and vaccinations EVM Study Number 41039032. International Management Summary Report 4, April, 2004. Available online:

⁶⁸http://www.evm-vaccines.org/pdfs/survey_perceptions_fin.pdf. Accessed on 21.03.10.

⁶⁹http://www.who.int/immunization/newsroom/events/immunization_week/2012/further_information/en/

⁷⁰Also referenced in the chapter on immunisation in the Green Book

⁷¹<http://www.australianageingagenda.com.au/2013/04/09/article/Ageism-in-vaccination-issue-for-older-people/KUXOIZYUZS>

J.P. Michel, C. Chidiac, B. Grubeck-Loebenstein et al. Advocating vaccination of adults aged 60 years and older in western Europe: statement by the Joint Vaccine Working Group of the European Union Geriatric Medicine Society and the International Association of Gerontology and Geriatrics - European Region Rejuvenation Res, 12 (2009), pp. 127–135 and J.P. Michel, C. Chidiac, B. Grubeck-Loebenstein et al.

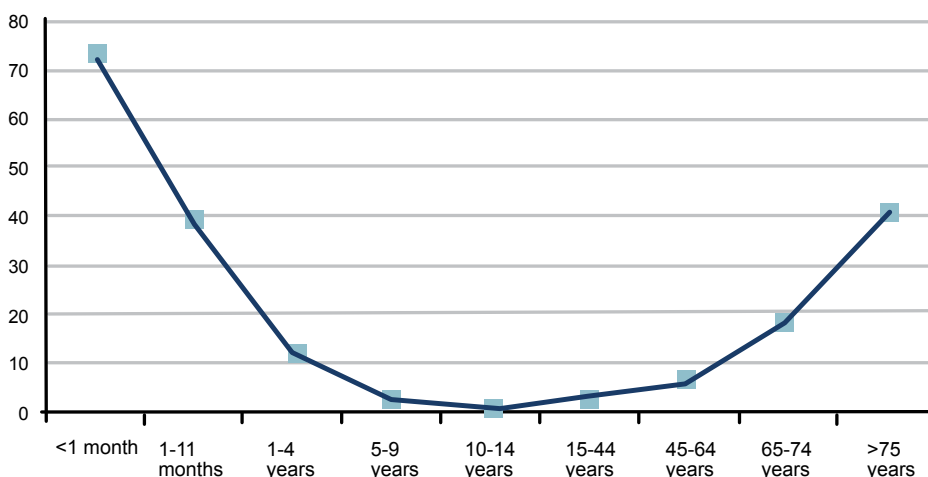
In the UK

- Shingles affects approximately 250,000 adults in the UK every year.⁷²
- In England and Wales in 2011, 25,696 people died of pneumonia (5.3% of all deaths), compared to 109 with influenza and 316 with pandemic influenza⁷³
- More adults in the US die from vaccine preventable diseases each year than children⁷⁴ New evidence from Scotland suggests that the majority of cases of invasive pneumococcal infection are in older age groups: 41.1% (127 cases) were aged 65 years and older and 40.5% (125 cases) were aged 35 to 64 years, with just 18.4% (57 cases) being aged 34 and under.”⁷⁵

Across Europe

- In the EU, between 40,000 and 220,000 deaths per year can be attributed to influenza infection, depending on the pathogenicity of the circulating viral strain.⁷⁶ The highest prevalence occurs among older adults, especially those with chronic medical conditions or immunological disorders, resulting in increased mortality.⁷⁷
- Rates of invasive Pneumococcal infection were highest among children aged <5 years and adults aged >65 years (9.6 and 14.4 cases per 100,000, respectively) (Figure 3). The rate increased in the elderly, from 9.84 in 2009 to 14.4 in 2010.⁷⁸
- People over 50 years of age account for 70% of the estimated 1 million new cases per year.⁷⁹
- In 2010 there were just 130 cases of tetanus reported (74 confirmed) for 12 EU/EEA States with the highest reported rate in people aged 65 and over. Italy accounted for 57 of the 74 confirmed cases.
- Older people may never have been properly vaccinated against diphtheria; in Spain less than half of those born before 1975 were properly vaccinated [ECDC 2013].⁸⁰

Invasive Pneumococcal infection, England & Wales, incidence per 1000,000 by age group 2000⁸¹



⁷²See <http://news.bbc.co.uk/1/hi/health/8487987.stm>

⁷³Fingar AR, Francis BJ. American College of Preventive Medicine Practice Policy Statement: adult immunizations.

⁷⁴Am J Prev Med 1998;14:156-8; Poland GA, Jacobson RM, Ovsyannikova IG. Trends affecting the future of vaccine development and delivery: The role of demographics, regulatory science, the anti-vaccine movement, and vaccinomics. Vaccine (2009), doi:10.1016/j.vaccine.2009.01.069.

⁷⁵HPS, weekly report 31 August 2011. Available at: <http://www.documents.hps.scot.nhs.uk/ewr/pdf2011/1135.pdf>

⁷⁶European Centre for Disease Prevention and Control (ECDC). The hard facts are often overlooked: Influenza remains a threat. http://ecdc.europa.eu/en/healthtopics/spotlight/spotlight_influenza/key_message_2/pages/full_key_message_2.aspx

⁷⁷Influenza vaccines. Wkly Epidemiol. Rec.80,279-287 (2005). [Medline]

⁷⁸SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

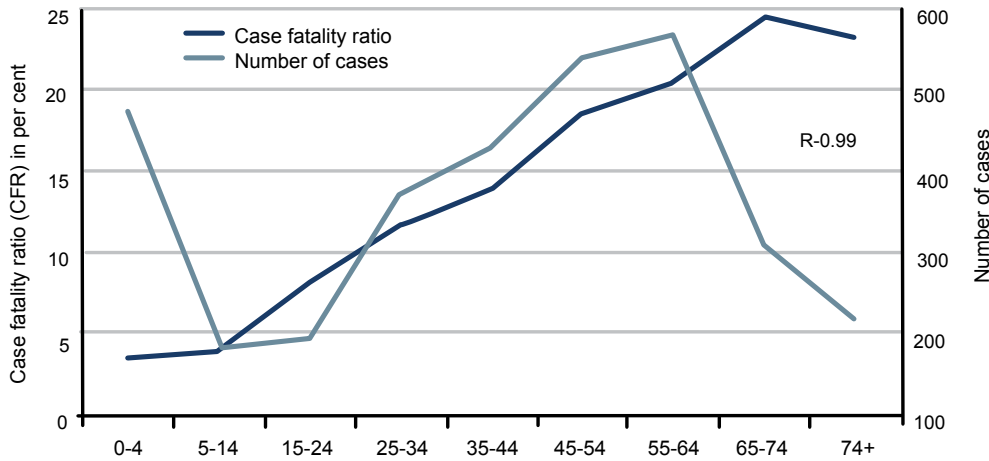
⁷⁹BRISSON (2001). Quoted in SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

⁸⁰Quoted in SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

⁸¹Health Protection Agency www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947379101

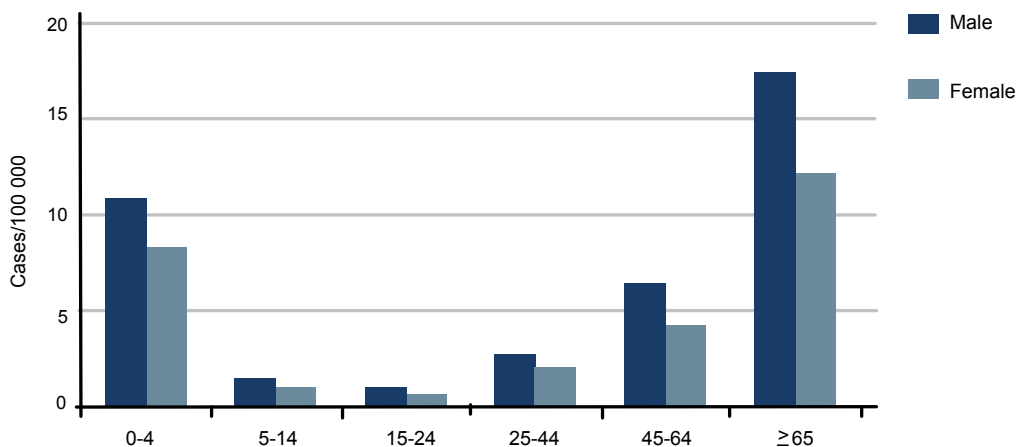
The 2010 data from the European Centre for Disease Control shows how the “case fatality ratio” for influenza increased with age. It is interesting that the number of cases actually fall after the age of 65. This may be down to the vaccination of older people being a part of all EU Member States schedules.

Distribution of influenza-related severe acute respiratory infection cases and case-fatality ratio by age group, 2010–2011 season, EU/EEA countries [ECDC 2013]



The rates of reported confirmed invasive pneumococcal disease (IPD) cases in the EU by age and gender show a similar pattern to the UK in that the number of cases per 100,000 are highest amongst people aged over 65 and children aged under 4.

Rates of reported confirmed IPD cases, by age and gender, EU/EEA countries, 2006–10 [ECDC 2013]⁸²



“Without specific vaccination programmes for the adult population aged > 50 years (‘50+ vaccine programmes’), infectious diseases will continue to be a cause of substantial morbidity and mortality in late adulthood.”⁸³

⁸²See SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe. Includes the following countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Malta,

Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, UK

⁸³Michel, J.P. et al. Vaccination and healthy ageing: how to make life-course vaccination a successful public health strategy. Eur Geriatr Med. 2010;1:155–165.

Investing in age based adult vaccinations could:

- Contribute to maintaining good health in an ageing society.
- Be a more effective way of ensuring that those most at risk receive vaccinations – as many in the 50+ age range have chronic conditions and qualify for vaccination, but do not see themselves as “at risk”.
- Support the Government’s plans to extend working lives.

The example of pertussis shows another important perspective to consider. Since the initiation of widespread vaccination of infants and children, the burden of pertussis has shifted to adolescents and adults. Several countries have reported an increased incidence in older age groups. As these older age groups can transmit the disease to unprotected infants, there is an additional need for an effective pertussis booster vaccination programme in older age groups.

Evidence for vaccination of older adults⁸⁴

Cohort studies show that **influenza vaccination** provides substantial health benefits, including reduced hospitalisations, outpatient visits, mortality and antibiotics prescription among older people.

A vaccination programme for older people was shown to be effective on invasive **pneumococcal disease (IPD)** in the UK. Recent clinical studies also suggest vaccination with pneumococcal conjugate vaccines may provide a benefit in adults.

The implementation of a **herpes zoster** vaccination programme for older people has the potential to improve their quality of life markedly by reducing the incidence and severity of the disease. One study, based on a randomised control trial, found a reduction in disease burden in older adults of 61% and a reduction of postherpetic neuralgia by 67%.

It is vital that as non-communicable diseases grow in prevalence and impact, we do not lose a focus on vaccine preventable diseases. Health and Wellbeing boards must prioritise vaccination uptake performance. As the Chief Medical Officer argued “This is likely to be the single most effective intervention for reducing disease burden due to infection.”⁸⁵

One participant in the ILC-UK focus group highlighted a specific challenge as someone moved from 17 to 18 years old, with immunisation coordinators sometimes racing against time to vaccinate before someone reached their 18th birthday.

Government should use the language of “life-course” in communications about vaccination.

Poverty and infectious diseases

ILC-UK recommends

- **Public Health England should work to ensure that across the life-course, a growth in the vaccination rates amongst those facing social or economic disadvantage is prioritised.**
- **Public health experts should work with community leaders to disseminate messages about immunisation.**

⁸⁴SAATI (2013) Adult vaccination: a key component of healthy ageing. Benefits of life-course immunisation in Europe

⁸⁵Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

Being poor or living in a poor community is linked with low levels of uptake of vaccinations. In 2011, the Chief Medical Officer highlighted this trend: “Throughout history, infectious diseases have been a marker for social and economic disadvantage. Poor diet, housing and environmental conditions, exposure to pests and vectors, lack of access to good healthcare and low incomes are all features of low socioeconomic status that predispose to the acquisition and transmission of infectious diseases”⁸⁶

“Opt-out on religious grounds often leads to pockets of ethnic groups that are susceptible”.
ILC-UK Focus group participant

“We need to understand the cultural backgrounds of different minorities. For example, what kinds of programmes do adults from various communities watch. Do they watch cable programmes that are not in English? This is important so that we can target the right channels”. ILC-UK focus group participant.

Certain groups are more difficult to communicate with than others. One participant at the ILC-UK focus group highlighted the heterogeneity of the ethnic minority community but argued that whilst “the NHS produces lots of documents in different languages, but few people read them”. The participant went on to say that it was “vital for professionals to work with community leaders to get messages out”.

⁸⁶Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

Improving Vaccination as a tool for healthy ageing

Prevention is better than a cure

ILC-UK recommends

- **Healthcare professionals undertaking health check-ups of older people should check whether their patients are up to date with their vaccines.**

*“Vaccination can provide cost-effective protection against a host of diseases throughout life, but remains an underused public-health strategy in adults for the promotion of healthy ageing”.*⁸⁷

The ubiquitous idiom – prevention is better than a cure – seems like a given, but for what reasons?

From the perspective of the state, there are a number of benefits to preventive health strategies. The Department of Work and Pensions funded pilot programmes, the Programme for Older People’s Projects (POPP), demonstrated that for every £1 spent on prevention projects there was an average of around £1.20 savings in emergency bed days; hospital overnight stays were reduced by 47%; accident and emergency attendances cut by 29%; clinic or outpatient appointments reduced by 11%; and physiotherapy/occupational therapy appointments reduced by 8%.⁸⁸

For older people - preventing ill-health means staying healthier and thus individuals are able to live far more fulfilled lives and for longer, reducing the risk of morbidity.

Vaccination can play a significant preventative role, alongside other forms of prevention such as screening, in proactively preventing diseases and health ills before they occur, rather than reacting to them afterwards, with drugs and other forms of treatment. However, vaccination is rarely utilised within proactive strategies to promote healthy and active ageing.

Incentivising the provision of vaccination

ILC-UK recommends

- **The Government should explore whether the financial incentives for the delivery of vaccination are adequate to recompense GPs. They should explore whether additional financial incentives may encourage greater promotion of vaccination as a tool for prevention.**
- **The QOF should include an annual check on the immunisation status of all GP registered patients.**
- **The decision by the Secretary of State for Health (see page 38) to link extra funding for hospitals with uptake of seasonal flu vaccination is welcome. If the initiative is successful it should be considered whether such financial incentives for vaccination might work in other parts of health and social care.**

“What we know is that incentives matter”. ILC-UK Focus group participant

“Perhaps an incentive of £20 pounds to the GP for vaccinating would be successful, but would it be in the public interest and would the public trust this type of approach?” ILC-UK Focus group participant

⁸⁷Michel, J.P. et al. Vaccination and healthy ageing: how to make life-course vaccination a successful public health strategy. *Eur Geriatr Med.* 2010;1:155–165
⁸⁸Watts, Jacqueline H.; Watts, Tony and Jordan, Lesley (2011). Healthy life styles: prevention better than cure - initiatives in Enfield. In: EU Twin Town Over 50s Project, 28-29 September 2011, Strasbourg University, Strasbourg, France.

“Incentives motivate and lead to the normalisation of vaccination” ILC-UK Focus group participant

Broader arguments about the usefulness and appropriateness of incentives within health care delivery can be fractious, and there are questions as to whether the culture of the NHS is conducive to financial salaries that impel deliverers of healthcare to reach targets. That being said the introduction of Quality Outcome Framework (QOF) targets has in some people’s eyes raised standards, improved prevention and saved the NHS money.⁸⁹

An exercise performed by a focus group participant looked at the variation between PCTs in terms of adult vaccination take up. They found that the top five PCTs all had local incentives in place whilst none of the bottom five did.

The Dutch immunisation programme ensures that there is a financial incentive to encourage GPs to administer vaccines. Each GP clinic has a database containing electronic medical records that allows physicians to identify eligible patients. And for each recommended vaccine administered, the GP receives a fee.⁹⁰

Vaccination on the high street and beyond

ILC-UK recommends

- **ILC-UK believe that it is vital to expand the range of settings which provide vaccination to include, for example, community pharmacies.**
- **Clinical Commissioning Groups and Public Health Departments should pilot the use of vouchers which could be used by those eligible for the seasonal flu vaccine. These could be used not just in GP surgeries but also in registered high street pharmacies.**

“It is unlikely that one route of public health service delivery will meet the needs of a diverse population and so plurality of providers at different times and locations will maximise outcomes and benefits for patients. Certain patient groups will always want to access immunisation services at GP practice, but for others there are many reasons why this is not the case.”⁹¹

Isle of Wight Community Pharmacy Seasonal Flu Vaccination

Policy-makers in the Isle of Wight have experimented with initiatives over recent years to increase uptake of vaccinations. In 2010 NHS Isle of Wight was awarded the Chief Medical Officers Silver Medal for commissioning community pharmacies to improve the uptake of hepatitis B immunisation in patient groups considered “hard to reach”.

They also undertook a follow up project delivering the flu vaccine through pharmacies. The successful campaign found that local access to vaccination was more convenient and more accessible.

Vaccination services have been available from pharmacists in the UK for over a decade, with seasonal influenza the most commonly sold vaccine by pharmacists.⁹²

The administration of vaccinations through pharmacists can increase uptake - with local pharmacies providing a convenient outlet at which to receive vaccination.⁹³ One ILC-UK focus group participant noted that supermarkets have an incentive to promote vaccination services as they can be useful to “get customers in the door and cross-sell to them.”

⁸⁹See <http://www.telegraph.co.uk/health/8905329/GPs-partnerships-now-thats-what-I-call-a-healthy-salary.html>

⁹⁰European Scientific Working Group on Seasonal Influenza. (2011) The First European Influenza Summit, Brussels, May 26 2011. Available at: <http://www.flusummit.org/engine/wp-content/uploads/european-flu-summit-report.pdf>

⁹¹Isle of Wight Community Pharmacy Seasonal 'Flu Vaccination Evaluation http://www.psn.org.uk/data/files/seasonal_flu_community_pharmacy_service_report_2010_v1.4c_final.pdf

⁹²Isle of Wight Community Pharmacy Seasonal 'Flu Vaccination Evaluation http://www.psn.org.uk/data/files/seasonal_flu_community_pharmacy_service_report_2010_v1.4c_final.pdf

⁹³Francis, M. & Hinchliffe, A. (2010) Vaccination services through community pharmacy: a literature review. Cardiff: Public Health Wales NHS Trust



“There are competencies that need to be met. We need to get to a standardised practice on immunisation”. ILC-UK Focus group participant

Allowing different organisations to deliver vaccinations could play an important role in increasing uptake among working adults (including those in “at risk” groups), and health and social care professionals.

As of this winter,⁹⁴ pharmacies across London are to provide free flu vaccinations to at risk groups through a scheme commissioned by NHS England. Under the scheme, free vaccinations are provided to people aged 65 and over and those under 65 who fall into at-risk groups.

The expansion of vaccination to other providers must go alongside good data collection and information systems which facilitate the sharing of data. Pharmacists delivering vaccination must be as competent and qualified to deliver vaccinations as professionals delivering vaccination in a GP’s surgery. Pharmacists are guided on this issue through their own registered body. The HPA has produced guidance for non-registered healthcare professionals who provide vaccination.

Making vaccination more accessible. How vaccination vouchers might work?

Mrs Jones is aware that she is eligible for a free seasonal flu vaccination. She has had one in her GP surgery for the past five years. However she finds the new automated booking system frustrating and doesn’t want to have to sit and wait in a GP’s surgery. She has access to a local pharmacist which is open at more convenient times and she does not need to queue. The ability to go for her flu job in a local pharmacy would increase the likelihood that she gets the protection she needs.

Mrs Jones would be sent a non-transferable voucher by local commissioners of services. She would be told she could use the voucher at her local GP or a number of other community pharmacies. She would be given clear information about location, opening times and contact details. She would be given a leaflet and advised by the pharmacist of other vaccinations or healthy ageing interventions which she should consider.

Whilst seasonal influenza is recommended for all adults over the age of 65, individuals of any age can purchase vaccination from a host of high street pharmacies for a relatively modest cost (usually under £15 depending on the pharmacy). Certain high street pharmacies will also provide a service to businesses whereby they will vaccinate their full workforce against seasonal influenza.

So whilst we have seen encouraging progress in terms of pharmacists playing a proactive role in the roll-out of seasonal influenza, there is a further role that they could play for other adult vaccinations. Pharmacists play an important role in providing information and advice, therefore pharmacists can also inform potential customers about vaccinations for which they might fall into an ‘at risk’ recommendation, this should be tied in to a government push to improve health literacy on aspects of vaccination for older people.

⁹⁴<http://www.pharmacy.biz/latest-news/London+pharmacies+win+right+to+provide+flu+vaccination+service/2058>

Greater uptake of vaccination by health and social care professionals and in care homes

ILC-UK recommends

- Public Health England and the Department of Health should review whether the current approach to the vaccination of social care workforce in England is appropriate. They should consider what could be done to improve access to vaccination of social care workforce.
- It is vital that GPs do provide vaccination services to older people living in care homes.
- Other regulatory bodies should introduce duties to protect similar to the General Medical Council duty to “protect and promote the health of patients and the public.”
- Public Health England should review whether the current approach to the vaccination of social care workforce in England is appropriate and adequate.

“When I was doing the rounds as a nurse, teams used to come around and offer vaccination to myself and other healthcare workers. But some members of staff still refused.” ILC-UK Focus group participant

Last year, just 45.6% of health and social care workers were vaccinated against flu.⁹⁵ Levels of vaccination of healthcare professionals varies significantly by NHS Trust. As the figures below highlight, in 2011, some trusts achieve almost 95% coverage of staff whilst others only achieved around 5% of staff vaccinated against seasonal flu.

The same applies in the care home sector where some organisations are proactive in relation to the vaccination of staff whilst others have very low levels of cover. Residents of care homes should be registered with their GP and therefore receive access to vaccination through this source. However, over recent years, there have been complaints that residents of care homes do not always receive the primary care they are entitled to.⁹⁶

“There is still a problem with GP access in some care services and it is true to say that not every care home has the services of a good and proactive GP, and so the Government must ensure that there is some mechanism whereby care home residents, are immunised against the flu.” Professor Martin Green OBE, Chief Executive, ECCA

“One Care Home chain not only vaccinates staff and residents but also visitors. This is rare”. ILC-UK Focus group participant

Flu vaccine uptake among healthworkers

Top five 2010-11	%
Birmingham Children's Trust Hospital NHS Foundation Trust	94.9
Royal Liverpool and Broadgreen University Hospital NHS Trust	90.3
St Helens and Knowsley Hospital NHS Trust	89.8
York Hospital NHS Foundation Trust	82.8
Hull and East Yorkshire Hospital NHS Trust	71.3
Bottom five	
Oxfordshire learning Disability Trust	7.0
Hinchingbrooke Health Care NHS Trust	6.9
Richmond and Twickenham PCT	6.2
Sussex Partnership NHS Foundation Trust	5.4
Heart of Birmingham Teaching Trust	5.2

Source: Department of Health

The Times, 3rd September 2011

⁹⁵Vaccines Update. October 2013 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252328/Vaccine_update_issue_208_v11_Final.pdf

⁹⁶See for example: <http://www.bbc.co.uk/news/health-17264349>

South Staffordshire and Shropshire Healthcare NHS Foundation Trust⁹⁷ saw the number of frontline staff receiving flu vaccinations rocket from 10 per cent to 52 per cent in 2010/11 by using a combination of flexible ways to deliver the vaccine. The Trust, which employs 3500 staff, used a wide range of techniques as part of their campaign.

- They trained 50 nurses to administer the vaccines.
- Clinics were set up on an appointment system from 9.30am to 4pm. Several early morning clinics, commencing at 7am, were set up for night staff.
- Information about the programme was updated on the intranet and via email and inpatient areas were telephoned daily to remind staff.
- The team walked the wards as the numbers attending the clinic decreased, leaving leaflets and contact details for those staff unable to get out at our allocated times. They also changed the clinic to a drop-in arrangement.
- The team commenced a programme to vaccinate long-stay patients on the wards.

On average, older adults have more contact with healthcare services than children or younger adults.⁹⁸

And healthcare workers arguably have a duty to protect their patients. Doctors for example, registered with the General Medical Council have a duty to “protect and promote the health of patients and the public.”

The Chief Medical Officer has highlighted the risk associated with this group “It can also be a group that spreads infection to and between more vulnerable groups, hence the importance of frontline healthcare staff being immunised each year for influenza.”⁹⁹ Yet uptake remains poor despite the advice of the Department of Health. In 2010/11 it was just 35% among healthcare workers.¹⁰⁰

“Healthcare workers are as susceptible to influenza as other adults and may spread infection to their vulnerable patients. Uptake of influenza vaccine among healthcare workers, at about 45% in 2011/12, has increased but is not yet high enough. Increasing vaccine uptake in this group would contribute significantly to reducing mortality and morbidity in the older population”¹⁰¹ Chief Medical Officer

Nair et al found that in a mild epidemic season a quarter of Health Care Workers had serological evidence of flu and most of them continue to care for their patients when ill despite nosocomial flu having a mortality rate up to 27%.¹⁰²

There is limited research into the impact of vaccination in care homes. However, research published in the BMJ in 2006 found that “Vaccinating care home staff against influenza can prevent deaths, health service use and influenza-like illness in residents during periods of moderate influenza activity.”¹⁰³

It is vital that vaccinations are accessible to healthcare workers. As one correspondent to the BMJ argued “Even for those who are keen on vaccination, accessibility may be a major hindrance. For example, in some Trusts, HCWs [Health care worker] get rather short notices and the service may be available only for short periods and only on specific days. Others may have to choose between

⁹⁷National NHS staff seasonal flu vaccination campaign. Good practice case study Effective planning and flexible vaccine delivery http://www.nhsemployers.org/SiteCollectionDocuments/NHS%20FluFighter_CaseStudy_Southstaffs_2012.pdf

⁹⁸ McNiece R, Majeed A. Socioeconomic differences in general practice consultation rates in patients aged 65 and over: prospective cohort study. BMJ 1999; 319(7201): 26–8.

⁹⁹Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

¹⁰⁰Sheridan A, Begum F, Pebody R. Seasonal influenza vaccine uptake amongst frontline healthcare workers (HCWs) in England. Department of Health, 2011. www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_129849.

¹⁰¹Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

¹⁰²Nair H, Holmes A, Rudan I, Car J. Influenza vaccination in healthcare professionals. BMJ 2012;344:e2217

¹⁰³BMJ 2006;333:1241

cancelling their clinical work at short notice and having the vaccination. In addition, HCWs working in the community may have to travel considerable distances.”¹⁰⁴

A variety of initiatives are used by different healthcare organisations to encourage uptake of vaccinations amongst staff. These include: providing vaccine at no cost to employees; providing vaccination during all work shifts and introducing mobile vaccination carts; expanding vaccine offerings to non-HCP [Health care professional] employees; expanding vaccine offerings to non-HCP employees; use of reminder methods and financial incentives; kick-start events as well as awareness and education campaigns; annual targets and evaluation of influenza vaccination rates; use of ‘declination forms’ and analyses of reasons why employees chose not to participate.¹⁰⁵

It’s all about access

“In one of our hospitals coverage of flu vaccination among staff increased from 50% to 74%. We did away with the clinics and had drop in sessions, went knocking on doors across the building, and put information in staff bulletins”. ILC-UK focus group participant

“We found that introducing competitions between wards for high take-up of vaccination had a positive impact on levels of coverage” ILC-UK Focus group participant

Tips for other trusts (from South Staffordshire and Shropshire Healthcare NHS Foundation Trust) ¹⁰⁶

- Look for frontline champions who will be able to convince their peers about the importance of vaccinations.
- Ensure board ownership of the programme and provide senior staff with dedicated time to manage this.
- Make it easy for staff to access vaccinations wherever and whenever they work.
- Set clinics up in areas where staff are attending training, meetings or social functions.
- Ensure systems and preparation meetings include key staff, for example, pharmacist, data analyst, occupational health nurses, lead infection control nurse, resuscitation officer, medical director, director of infection, prevention and control (DIPC), communication officer.
- Include clinic dates as a standing agenda item on all trust meetings during the vaccination programme period.
- Encourage the executive team and senior managers to be vaccinated at the first clinics and use this as part of an advertising campaign.
- Celebrate achievements – our flu team won the clinical section at the 2010 staff awards event.

Whilst NHS healthcare workers are entitled to certain free vaccinations through the NHS, workers in the independent social care sector (in the main) need to access their rights to vaccination through their companies’ occupational health programme. Some Clinical Commissioning Groups offer seasonal flu vaccination for independent social care workers.¹⁰⁷

The lack of automatic access to free NHS immunisation against seasonal flu for example, may make access to vaccination more difficult for social care workers. Many independent small social care providers do not have occupational health departments for example.

¹⁰⁴<http://www.bmj.com.libproxy.ucl.ac.uk/content/344/bmj.e2217/rrr/587922>

¹⁰⁵Michel, J.P. et al. Vaccination and healthy ageing: how to make life-course vaccination a successful public health strategy. *Eur Geriatr Med.* 2010;1:155–165

¹⁰⁶National NHS staff seasonal flu vaccination campaign. Good practice case study Effective planning and flexible vaccine delivery

¹⁰⁷E.g. Wakefield did in 2012. <http://www.wakefield.gov.uk/News/PressReleases/news/PR3935.htm>

The social care sector is currently facing significant challenges and it seems unlikely that given cost pressures, uptake of vaccination is going to be a priority. This could be putting vulnerable people at risk.

In 2009, during the swine flu mass vaccination programme, frontline social care workers provided with a vaccination via the NHS. But generally, the social care workforce has to rely on occupational health for vaccination coverage and is not entitled to free vaccination via the health service.

Some members of our focus group felt strongly that social care workers, working with vulnerable adults and children as well as NHS workers should be able to access free appropriate vaccinations through the NHS. There may be knock on benefits of doing so and government should consider the merits of this argument. Others pointed out that occupational health should be the responsibility of the employer. ILC-UK believe that the gap between policy and practice could pose a significant risk for public health. The current system for vaccinating the social care workforce against the seasonal flu may not be adequate.

“There is wide disparity in take up across different health care workers, some achieve 100% take up, others 0%.” ILC-UK Focus group participant.

Following the Measles epidemic in parts of the UK over the last year, an interesting debate re-emerged in relation into the case for compulsory vaccination of healthcare staff (and indeed compulsory vaccination of children). It is certainly the case that we need to make it easier for health care professionals to be vaccinated and vital that good practice is shared. Policy making in this area would benefit from a Randomised Control Trial to consider the impact of compulsion on healthcare workers and their patients.

In September 2013, the Secretary of State for Health announced that extra money to help hospitals to cope with winter pressure will be tied to a target of 75% uptake of the seasonal influenza vaccination by their staff. This should have a significant impact on levels of vaccination in hospitals and is very welcome.

Participants at our focus group were cautious about the potential impact of compulsion, with one commenting “With compulsory immunisation in the US, evidence suggests that it doesn’t reduce disease because children aren’t vaccinated until they go to school. That’s at the age of 4 so they’ve still had 4 years of exposure.”

Using the “Nudge”

ILC-UK recommends

- The Prime Minister’s Behavioural Insights Team (“Nudge Unit”) should explore the potential to use behavioural economics to improve take-up of vaccinations amongst adults. They should consider for example:
 - The use of ‘declination forms’ by health services and employers which could encourage employees to think twice about turning down vaccination.
 - How to make vaccination an “easy” default choice.
 - How to play on the strong sense of civic duty which might encourage vaccination to protect others, particularly if advised to do so by their physicians.
 - Creating a social norm of adult vaccination (beyond flu) through investment in communications.

Research should be commissioned to explore what messages are most likely to result in greater uptake of adult vaccinations.

*“The concept of Nudge was developed by Thaler and Sunstein (2008) and is based on the field of behavioural theory which suggests that individuals’ actions and decisions don’t result simply from a rational overview of external circumstances. Instead they are equally likely to be based on systems of habitual behaviour based on learned traits and biases.”*¹⁰⁸

The use of behavioral economics to influence our behaviour is not new. Supermarkets have, for many years used the theories to influence what we spend our money on. From placing sweets at the end of an aisle to placing more profitable products at eye height, the retail sector is very aware of how to nudge our spending habits.

Over recent years, however behavioural economics has become of increasing interest to public policy. The Prime Minister set up a “nudge unit” in the Cabinet Office to consider how to encourage rather than compel the “good” and discourage rather than ban the “bad”.

“TV story editors need to be convinced to run stories in soap operas highlighting the benefits of adult immunisation.” ILC-UK Focus group participant.

“The most useful and cheapest bit of advertising we did at the Department of Health was to send posters to Holby City and Casualty. That was 15 years ago and they are still using them!” ILC-UK Focus group participant.

Essentially, behavioural economists argue that as humans we do not always act in our own self-interest. We tend to be conservative in our personal decision-making, even where there is little or no evidence that the status quo benefits us more than some alternative. Behavioural economists talk of the choice architecture which influences what and how we make decisions.

We tend to over-value the present and under-value the future (thus making health prevention interventions difficult. We know we should eat better, do physical activity, and drink less alcohol but we worry less about our future selves than our short term satisfaction.

“We need to find a ‘tipping point’. Don’t tell people the bad things – tell people that most people are getting the vaccine already. That sends a powerful message.” ILC-UK Focus group participant.

The fact that our decisions are often “anchored” in our experience also creates a barrier to preventative health. Our perceptions of risk are heavily influenced by what we have seen and what we know, even if this is not representative of real risk.

And finally, behavioural economists note that we are all heavily influenced by social norms, the behaviour of others and our peer group.

Behavioural factors plays a big part in explaining why we, as individuals and society, do not take healthy ageing seriously. But behavioral economics can also help us promote health ageing.

“Healthcare staff need to get the message that they are having a vaccine in order to protect others not necessarily themselves. The health workforce is generally not older and relatively fit and doesn’t see itself as a risk.” ILC-UK Focus group participant.

“We ran a campaign to protect customers, family and friends and that really resonated.” ILC-UK Focus group participant.

Another employer at the ILC-UK focus group argued that this message was not just important for healthcare workers and that when they had explored why individuals had taken the opportunity of free seasonal flu vaccination, a driving factor was that doing so “protected customers and friends”.

¹⁰⁸Mason, Sinclair, Berry (2012) Nudge or Compel? Can behavioural economics tackle the digital exclusion of older people? ILC-UK http://www.ilcuk.org.uk/index.php/publications/publication_details/nudge_or_compel_can_behavioural_economics_tackle_the_digital_exclusion_of_o

Examples of “nudges” to encourage adult vaccination

- Making vaccination an “easy” default choice
- Many older people have a strong sense of civic duty and will often accept vaccination to protect others, particularly if advised to do so by their physicians.
- Creating a social norm of adult vaccination (beyond flu) might require long term investment in communications. A social norm has arguably already developed in relation to the seasonal flu vaccination and older people. Similarly, joint efforts from older people’s organisations and government could influence the social norm in relation to other vaccines.
- The use of ‘declination forms’ by health services and employers could encourage employees to think twice about turning down vaccination.

It is important to understand what communications messages are most likely to result in action. Research could usefully explore the promotion of vaccination in a number of different ways in different areas to see which one was more effective. For example, having a strong evidence base as to which of the following four messages worked best would be useful:

- 1) Get vaccinated or you’ll get sick.
- 2) Get vaccinated to stop other people from getting sick.
- 3) Most people over 65 get vaccinated – so should you.
- 4) Contact your GP to find out how.

Making the business case for vaccination

ILC-UK recommends

- **Government should seek to encourage a group of companies to undertake vaccination of their over 50s against seasonal flu vaccine. Proper research of the effectiveness of the initiative (via a Randomised Controlled Trial) should be undertaken.**
- **Companies who are interested in vaccination of their staff should share best practice in terms of the best ways of achieving high take-up.**
- **The Institution of Occupational Safety and Health should review the potential role vaccination could have in terms of the occupational health of older workers.**
- **Some health insurers provide incentives for individuals to join a gym. Putting in place similar incentives to vaccinate may prove useful.**

Both the Government and the private sector are increasingly interested in how we extend working lives. A fear of a skill shortage and an ageing society means that employers and Government are going to have to look for ways to support us in the workplace for longer. At the same time, as individuals we are likely to need to work longer to fund our retirement. And State Pension Age is set to increase. The end of more generous final salary pension schemes is but one factor which will result in our average retirement age increasing. Many companies have begun to recognise these challenges and to consider how they can ensure that their employees are kept healthier for longer. But there have been few initiatives in the private sector (outside healthcare providers in particular) which have considered the case for adult vaccination.

Yet the vaccination of older workers against for example, the flu could not only be cost-effective (reducing the number of days lost due to ill health) for employers, but could also contribute to a healthier workforce. Similarly getting shingles whilst still in the workplace can pull people out of the workforce for very long periods.

For self-employed individuals there is an even stronger personal case for vaccination as you may not be able to afford not to be in work.

The broader insurance market must also recognise the risks and opportunities of vaccination. Health insurers might consider whether they could better cover adult vaccination as a preventative measure. This can happen in other countries. If the ACA (Affordable Care Act) Obamacare reforms are implemented this would be recommended in the US.

Obamacare and immunisation

The Affordable Care Act in the United States seeks to make prevention affordable and accessible for all Americans by requiring health plans to cover preventive services and by eliminating cost sharing.

In passing the Act, the administration argued that “too many Americans don’t get the preventive health care they need to stay healthy, avoid or delay the onset of disease, lead productive lives, and reduce health care costs”. They pointed out that cost was a barrier to preventative health and services such services were used at about half the recommended rate.

The Affordable Care Act will result in an addition 10 million people in new individual plans which will benefit from the new prevention provisions under the Affordable Care Act.

Individuals enrolled in these new group or individual health plans will have access to the vaccines recommended by the Advisory Committee on Immunization Practices (ACIP) prior to September 2009 with no co-payments or other cost-sharing requirements.

Many of the 98 million people currently enrolled in group health plans already have preventive services coverage including vaccines, although they may have co-payments or other cost-sharing requirements.¹⁰⁹

Text adapted from The Affordable Care Act and Immunisation Factsheet. US Department of Health and Human Services.

One focus group participant argued that there is demand from some insurance consumers for life and health insurance to become more integrated and centred around the policyholder. Such a change may result in the industry needing to reinvent its offer to meet the demands of this new consumer. And vaccination might form part of this offer.

A poorly informed/engaged consumer

ILC-UK recommends

- **The Government should introduce an adult vaccination record card (paper and/or electronic) which could be carried throughout a lifetime. This record of an individual’s vaccination history. could be linked to employer schemes encouraging vaccination.**
- **There is a need for a simplified adult vaccination checklist for the over 18s.**
- **Alternatively, the Government should encourage people to incorporate a record of their immunisation history to be carried with their passport.**
- **GPs should be permitted to privately prescribe approved vaccinations (in addition to travel vaccines) to adults on their books.**
- **There is a case for an expert organisation, independent of industry and Government to be a first point of call for media queries on vaccination.**
- **The Government should ensure that it does always respond with timely information when any public concerns about safety and efficacy of vaccines emerge.**

¹⁰⁹ The Affordable Care Act and Immunisation Factsheet. US Department of Health and Human Services. <http://www.hhs.gov/healthcare/facts/factsheets/2010/09/The-Affordable-Care-Act-and-Immunization.html>

It is important that older people take a greater responsibility for their own healthy ageing. As Government and health services emphasise the importance of personal responsibility older people are likely to need more information and support to help them remain healthy and active for longer.

“Carers should be targeted with information about adult vaccination.” ILC-UK Focus group participant.

“People tend to know where their passport is. We could encourage people to keep a slip of paper with their passport detailing their vaccination history.” ILC-UK Focus group participant.

“We should use travel vaccination clinics and general health checks as an opportunity to inform adults about vaccination more generally.” ILC-UK Focus group participant.

Yet an adult in the UK interested in what vaccinations were available and which might protect them from disease may find it very difficult to access information in a single place in lay language. Whilst for example, during the swine flu epidemic (2009/10), NHS Choices recommended that vulnerable individuals should have the flu vaccination, it said nothing about whether non-vulnerable adults should.¹¹⁰ Yet in the United States, the recommendations are firmer. The Centers for Disease Control and Prevention (CDC) in the USA recommends that everybody should receive vaccination against seasonal flu each year.

“It can be difficult for consumers to find out what the UK immunisation guidelines are. Not many people are going to delve into the Green book. There should be a simplified check list for those aged over 18.” ILC-UK Focus group participant.

Some vaccinations in the UK are approved for use but are not available free on the NHS. Yet individuals in the UK who want to self pay for vaccination via their GP face an administrative hurdle to do so. It is contractually difficult for GPs to administer private vaccines. So for example, whilst someone, aged 60, might decide they want a shingles vaccination and is willing to pay for it, they would find it difficult to access through their own GP.¹¹¹

Department of Health research reveals that the public are inclined to trust health professionals in terms of whether or not to vaccinate. Parents of young children are more likely to trust information on vaccination coming from health professionals than other parties. In particular, most trust is expressed for GP and practice nurses, followed by pharmacists and government sources. Few respondents to the DH survey trusted the information they received via the media.¹¹²

In fact, there is a wealth of academic studies which highlight the valuable role of health care professionals in advising people of the importance of immunisation.¹¹³ A major influenza vaccination coverage study conducted in 11 European countries, found that advice from a family doctor or nurse was a major factor in uptake of seasonal influenza vaccination in the general population and the 50+ age group (53 and 59%, respectively).¹¹⁴

Throughout childhood, across much of Europe, Children are given a record book in which their vaccination history is included. A major challenge for many people as to whether they require vaccination is simply memory. There is a strong case for a nationally supported initiative which would allow us all to keep a track of our immunisations throughout our lives.

It is vital that older people are well informed about the potential benefits of vaccination. Government

¹¹⁰<http://www.nhs.uk/conditions/pandemic-flu/Pages/Introduction.aspx>

¹¹¹There is currently a shortage of supply of the vaccine but this is not likely to be a long term challenge.

¹¹²http://www.dh.gov.uk/en/PublicHealth/Immunisation/Marketresearch/DH_108600

¹¹³See for example: P.A. Bovier, E. Chamot, M. Bouvier Gallacchi et al. Importance of patients' perceptions and general practitioners' recommendations in understanding missed opportunities for immunisations in Swiss adults *Vaccine*, 19 (2001), pp. 4760–4767; Madelin R. Future challenges for EU health and customer policy. Director General SANCO Health and Consumer Protection Directorate General, editor. Brussels: European Commission; 2008. Available online http://ec.europa.eu/dgs/health_consumer/future_challenges/future_challenges_paper.pdf; T.A. Mieczkowski, S.A. Wilson Adult pneumococcal vaccination: a review of physician and patient barriers *Vaccine*, 20 (2002), pp. 1383–1392; C. Motbey Pneumococcal polysaccharide vaccination in Australia: an examination of barriers and arguments in support of the hospital-based approach *Hum Vaccin*, 4 (2008), pp. 341–343; T.D. Szucs, D. Muller Influenza vaccination coverage rates in five European countries—a population-based cross-sectional analysis of two consecutive influenza seasons *Vaccine*, 23 (2005), pp. 5055–5063; R.K. Zimmerman, T.A. Santibanez, M.J. Fine et al. Barriers and facilitators of pneumococcal vaccination among the elderly *Vaccine*, 21 (2003), pp. 1510–1517

¹¹⁴PR. Blank, M. Schwenkglenks, T.D. Szucs Vaccination coverage rates in eleven European countries during two consecutive influenza seasons *J Infect*, 58 (2009), pp. 446–458

has historically undertaken advertising campaigns to promote the seasonal flu vaccine to older and vulnerable groups. After the 2010 election some of this was reduced and refocused on communicating the seasonal campaign to healthcare workers.

There is a strong case for Government supported campaigns on vaccination. But the responsibility does not just lie with Government. Vaccination should increasingly become an important part of healthy ageing initiatives by not just Government, but by the voluntary sector and employers.

*“The media can have a positive or a negative effect on the public perception of vaccination. However, the quality of the information provided by the media is variable and can sometimes be sensational. Negative reporting can result in a lack of confidence in government healthcare policies, and can cause people to reject public health initiatives that they do not view as being independent”*¹¹⁶

The media is also responsible for ensuring that messages about vaccination reach the consumer. Yet the messages are frequently confused and can be confusing for consumers. The recent WHO Global Vaccine Action Plan¹¹⁷ urged governments to “Respond with timely information when public concerns are raised about safety and efficacy to sustain public trust.” It is important that the UK does heed this recommendation.

A need to know more

ILC-UK recommends

- **The Government, industry and other research funders should ensure there is adequate research on the potential and efficacy of adult vaccination.**

It is striking that there is limited research which explores adult vaccination. Where it does exist it is dominated by research on influenza. The new analysis by SAATI does help to begin to address the balance. However it is vital that we see further research on immunosenescence, improving take-up of vaccinations, and vaccinations as a contribution to a healthy ageing strategy.

The WHO Global Vaccines Action plan urged Governments to “Encourage and support research on vaccines and vaccination issues”. It is important that the Government continues to support such research.¹¹⁸

The Chief Medical Officer recently highlighted a need for more work on antivirals “An opportunity to reduce the impact of influenza may be more widespread use of antivirals at the appropriate time. However, current evidence suggests this is rarely done and increasing the use of antivirals may also substantially reduce the impact of Influenza. More research is needed.”¹¹⁹



Vaccines on the Go: What You Should Know

The Vaccine Education Center at The Children’s Hospital of Philadelphia (VEC) has created Vaccines on the Go: What You Should Know so busy parents can access the information wherever and whenever they need it.

Vaccines on the Go: What You Should Know contains information about:

- Vaccines and the diseases they prevent.
- Vaccine safety topics, including autism, thimerosal and too many vaccines.
- Types of vaccines and how they’re made.
- Recommended immunization schedules for children, teens and adults.¹¹⁵

¹¹⁵<http://www.chop.edu/service/parents-possessing-accessing-communicating-knowledge-about-vaccines/vaccine-mobile-app.html>

¹¹⁶Michel, J.P. et al. Vaccination and healthy ageing: how to make life-course vaccination a successful public health strategy. *Eur Geriatr Med.* 2010;1:155–165 referencing: M. Griffin, D. Shickle, N. Moran European citizens’ opinions on water fluoridation *Community Dent Oral Epidemiol*, 36 (2008), pp. 95–102

¹¹⁷Global Vaccine Action Plan, 2011–2020 (2013) WHO

¹¹⁸Global Vaccine Action Plan, 2011–2020 (2013) WHO

¹¹⁹Infections and the rise of antimicrobial resistance (2013) Annual Report of the Chief Medical Officer Volume Two, 2011

Adult vaccination: a key component of healthy ageing

Benefits of life-course immunisation in Europe SAATI Report Executive Summary

The Supporting Active Ageing Through Immunisation (SAATI) Partnership came together to raise awareness of the need for, and the value of, life-course immunisation. The evidence put forward in this report supports the call for the immunisation of adults in Europe's ageing society.

Why is it necessary to protect the ageing society in Europe against the threat of infectious diseases?

Beliefs persist that infectious diseases are a “problem of the past” and that there is not enough evidence to justify implementing a life-course approach to immunisation. Furthermore, childhood immunisation strategies have to some extent eliminated these threats, and outbreaks have been experienced by fewer people.

However infectious diseases such as seasonal influenza, pneumococcal diseases (including pneumococcal meningitis, pneumococcal pneumonia and invasive pneumococcal disease), pertussis, herpes zoster, measles, diphtheria and tetanus **continue to place a significant burden on individuals of all age groups and on Europe's ageing society.**

These diseases threaten the life or the quality of life of patients: older adults may suffer more frequently than younger people from these severe infections, and their impact is often greater, with poorer outcomes noted in the older population [Michel 2010]. This is due to a variety of factors such as underlying chronic medical conditions, age-related reduction in immunity ('immunosenescence') and unwillingness among individuals to get vaccinated or take booster injections. Adults contracting these diseases may also infect unvaccinated individuals (e.g. newborn infants or the elderly), who can also be severely affected.

In the face of this situation, **maintaining high immunisation rates across all age groups, including adults, is essential to protect the population and avoid the risks of outbreaks** [ECDC 2013].

The benefits of a life-course approach to immunisation

This report puts forward evidence that adult immunisation programmes, especially for those aged above 50, can bring significant **health and socio-economic benefits**. These include:

- Extending protection beyond the patient to the wider society through herd protection and protection of individuals who have not developed immunity (e.g. newborn infants).
- Contributing to the **fight against antimicrobial resistance**.
- For herpes zoster, seasonal influenza, IPD and pneumonia, studies were found for 13 EU Member States that show immunisation is likely to provide a **cost-effective strategy** for those aged 50 years or over.

Furthermore, a **broader and more long-term view of vaccination** has also shows its strongly beneficial economic consequences, for example, through **its effects on growth, productivity and workforce participation**, as well as on **tax and pension systems**.

In particular, a framework to evaluate investments in health from a government perspective shows that **every €1 invested in adult vaccination commencing at the age of 50 years would yield €4.02 of future economic revenue for government** over the lifetime of the cohort (Netherlands case study, Section 2).

Without life-course immunisation, infectious diseases will continue to cause substantial morbidity and mortality, especially in late adulthood. This is a particular concern in light

of current demographic trends in Europe, and their impact on healthcare systems:

- By 2025, nearly 50% of Europeans are expected to be 50 years or older.
- Around 50% of healthcare spending is targeted to those over the age of 65 years [UK: NHS].
- In light of these trends, a potential shortfall of around one million healthcare workers is expected in Europe by 2020 [European Commission].

Why is there no adequate implementation of adult immunisation policies?

Despite tangible benefits, this report indicates that there is reluctance to take firmer action to improve standards of adult immunisation in Europe. Vaccination policy in EU Member States mainly focuses on the young (aged below 18), to some extent the old (aged above 65), especially for seasonal influenza and pneumococcal diseases, and those in at-risk groups.

Adult vaccination remains **an underused public health strategy** to promote healthy ageing. Only six EU countries operate a comprehensive **adult immunisation schedule**. Countries often recommend vaccination to at-risk groups, whilst age-based recommendations – which allow individuals to self-assess their status – are not applied for all vaccine preventable diseases. Furthermore, the **lack of implementation of these recommendations** may be linked to a variety of factors, including:

- Gaps in access to the vaccines and reimbursement;
- Limited awareness of infectious diseases and vaccines in the population of all age groups;
- Gaps in the promotion of adult vaccination schedules by public health authorities;
- Limited leadership from healthcare professionals in recommending vaccination; and
- Inconsistent monitoring and surveillance systems.

As a result, adult vaccination coverage rates are often low and vary across European countries. They are also significantly lower than

early childhood vaccination rates. In addition, Central and Eastern European countries often perform less well than Western Europe in terms of uptake results.

To tackle these problems, and on the basis of the evidence in this report, the SAATI Partnership calls for **immunisation as a prevention strategy to be part of an age-based health approach throughout all phases of life.**

Achieving consistent strategies to spur action

The challenge now is to give impetus to effective adult vaccination policies, and to initiate an open discussion about **the value of life-course immunisation in promoting healthy ageing. This aligns strongly with the ‘EU 2020’ strategy to achieve sustainable and inclusive growth in Europe by 2020.**

At EU and national level, the SAATI partnership recommends that the following steps be taken:

- Incorporate life-course immunisation into EU and national level healthy and active ageing policies or public health and prevention strategies to prevent infectious diseases;
- Expand opportunities for the whole EU population to receive vaccination across the life-course as a part of national immunisation policies;
- Work with healthcare professionals (HCPs) to improve their leadership in recommending immunisation across the life-course, as well as improving their own vaccination rates;
- Strengthen health literacy for patients and the public to improve attitudes and beliefs towards immunisation, as part of European and national policies;
- Enhance the European surveillance and monitoring system to better measure the burden of infectious diseases.

In order to give impetus to effective adult vaccination programmes, and to stimulate discussions about the value of life-course immunisation in promoting healthy ageing, the SAATI Partnership calls for the establishment of a European Health and Vaccination Platform as a matter of priority. Such a Platform would discuss these recommendations and develop strategies for their implementation.

ILC-UK
11 Tufton Street
London
SW1P 3QB
Tel : +44 (0) 20 7340 0440
www.ilcuk.org.uk
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