



# Healthcare workers' vaccination in Europe and at global level

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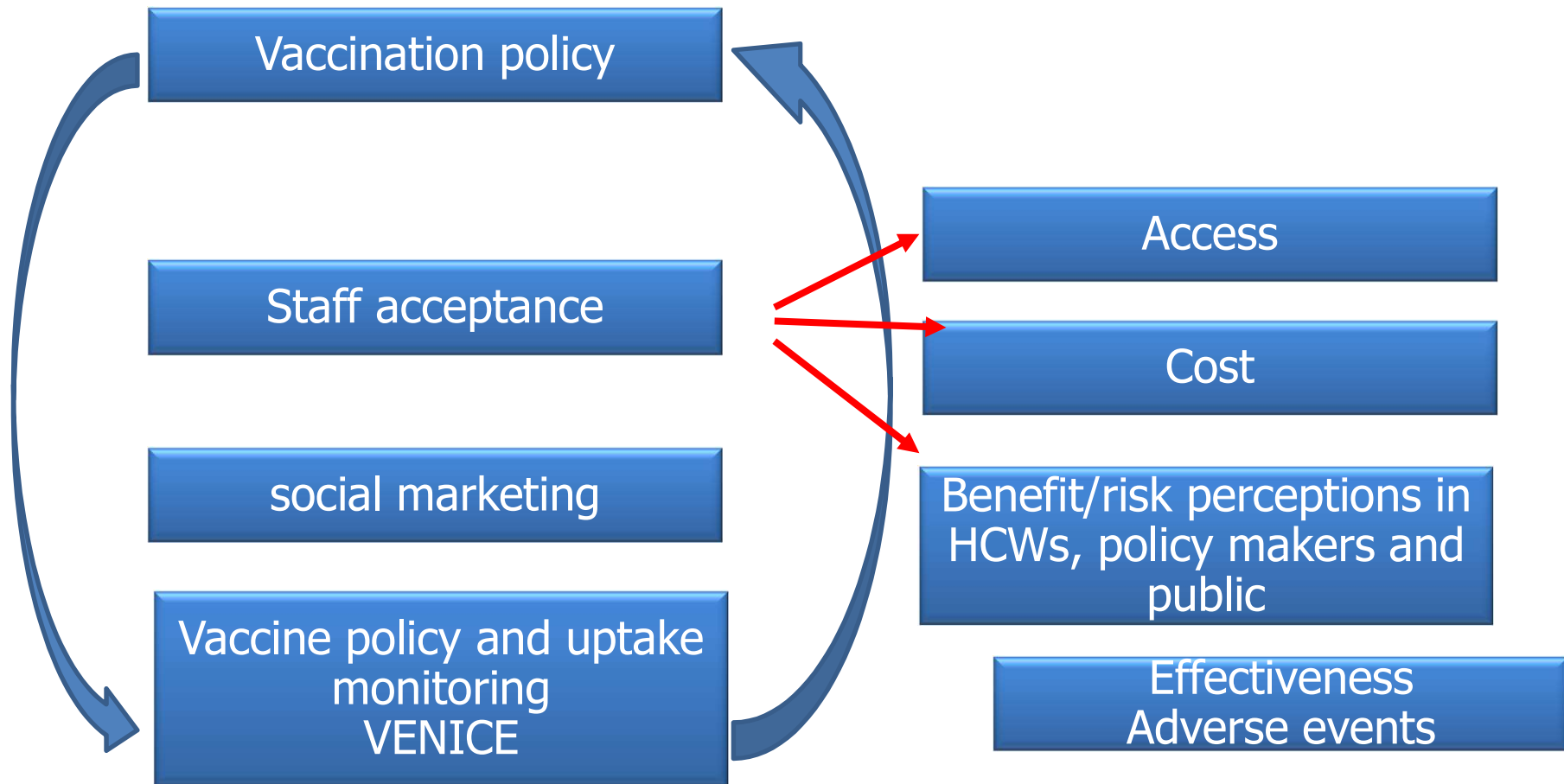
I have no conflicts of interest that relate to this presentation. HPSC receives funding from ECDC for projects including VENICE, I-Move and Euro Momo

# HCW and vaccination

## *Why are we concerned?*

- HCWs frequently implicated as the source of nosocomial VPD transmission in health care settings
  - Employees continue to work while sick
  - Unvaccinated workers who are not sick can still be infectious before diagnosed
  - HCWs have frequent contact with high risk patients
- Benefits of vaccination of HCWs:
  - Reduce risk of outbreaks in health care facilities
  - Decrease staff illness and absenteeism
  - Reduce costs resulting from loss of productivity

# vaccine Uptake in HCWs

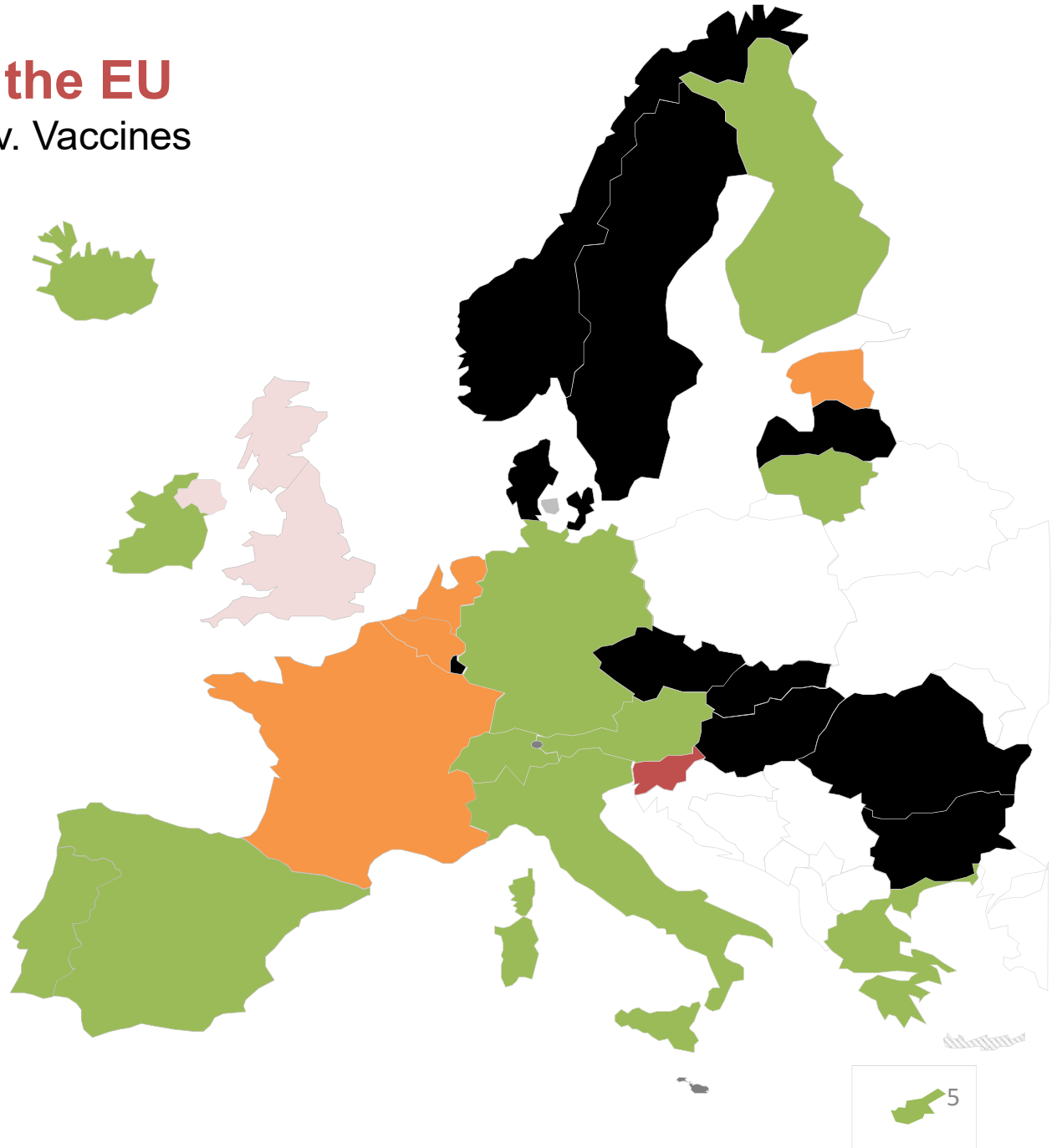
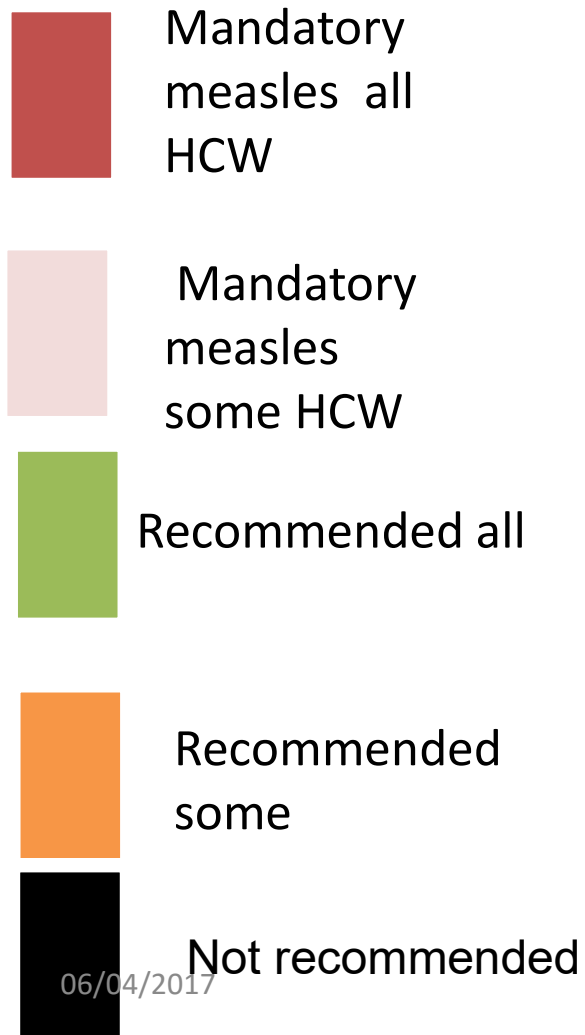


# Vaccines recommended for HCWs

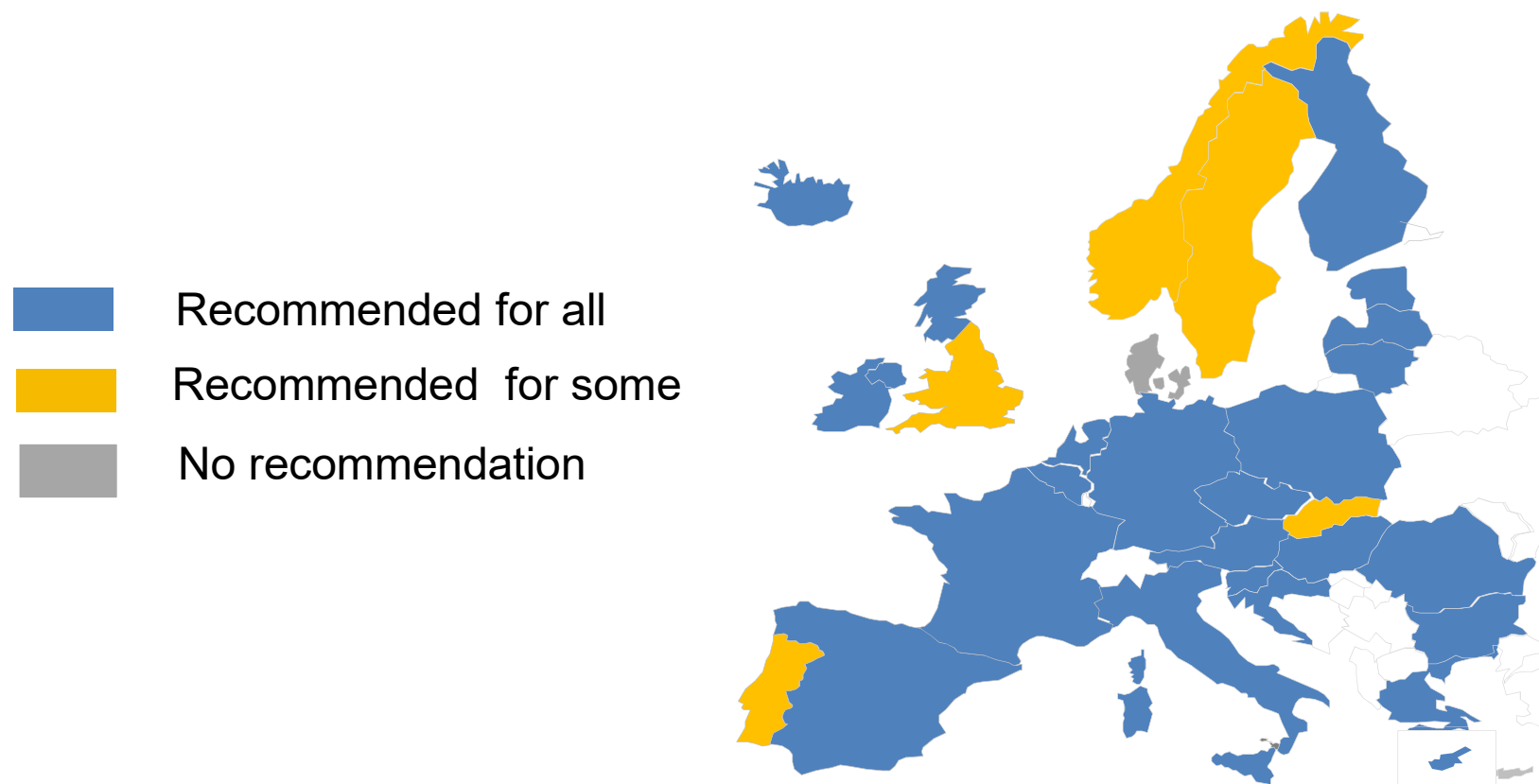
Vaccine	US	US at risk + lab	UK	UK Lab	Australia	Australia Lab
Influenza	✓		✓		✓	
Td/Tdap	✓		✓		✓	
MMR	✓		✓		✓	
Varicella	✓		✓		✓	
Herpes Zoster vaccine	✓					
Hepatitis B	✓		✓		✓	
Meningococcal		✓ +/-		✓		✓
Polio		✓	✓	✓		✓
BCG		✓ +/-	✓	✓	✓ +/-	
Rabies		✓		✓		✓
Typhoid		✓		✓		✓
Hepatitis A		✓ +/-		✓	✓	

# Measles policy in the EU

Galankis et al Expert Rev. Vaccines  
13(2), 277–283 (2014)



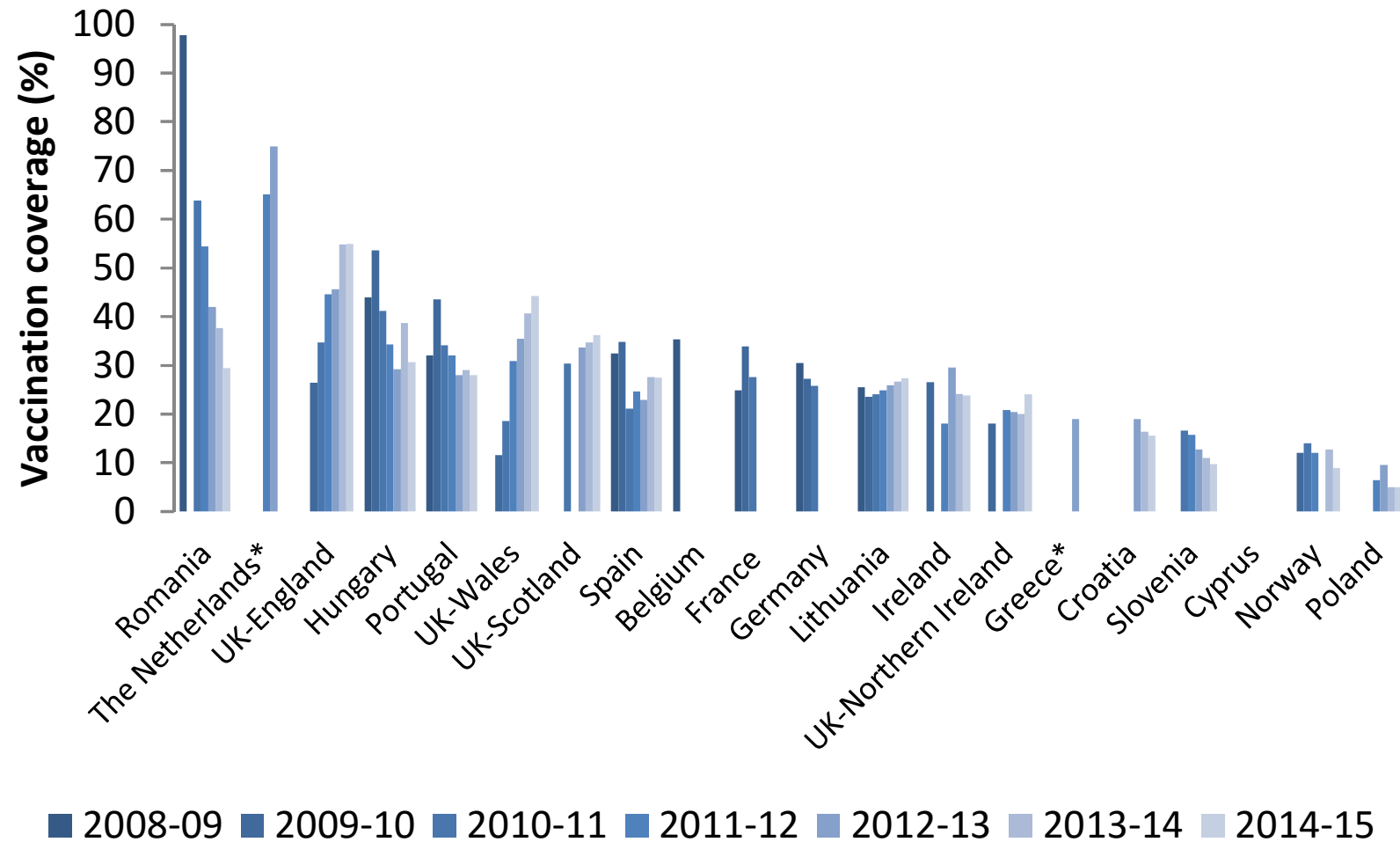
# Countries recommending seasonal influenza vaccine for HCWs (n=30)



Data refers to **2014-15 influenza season**

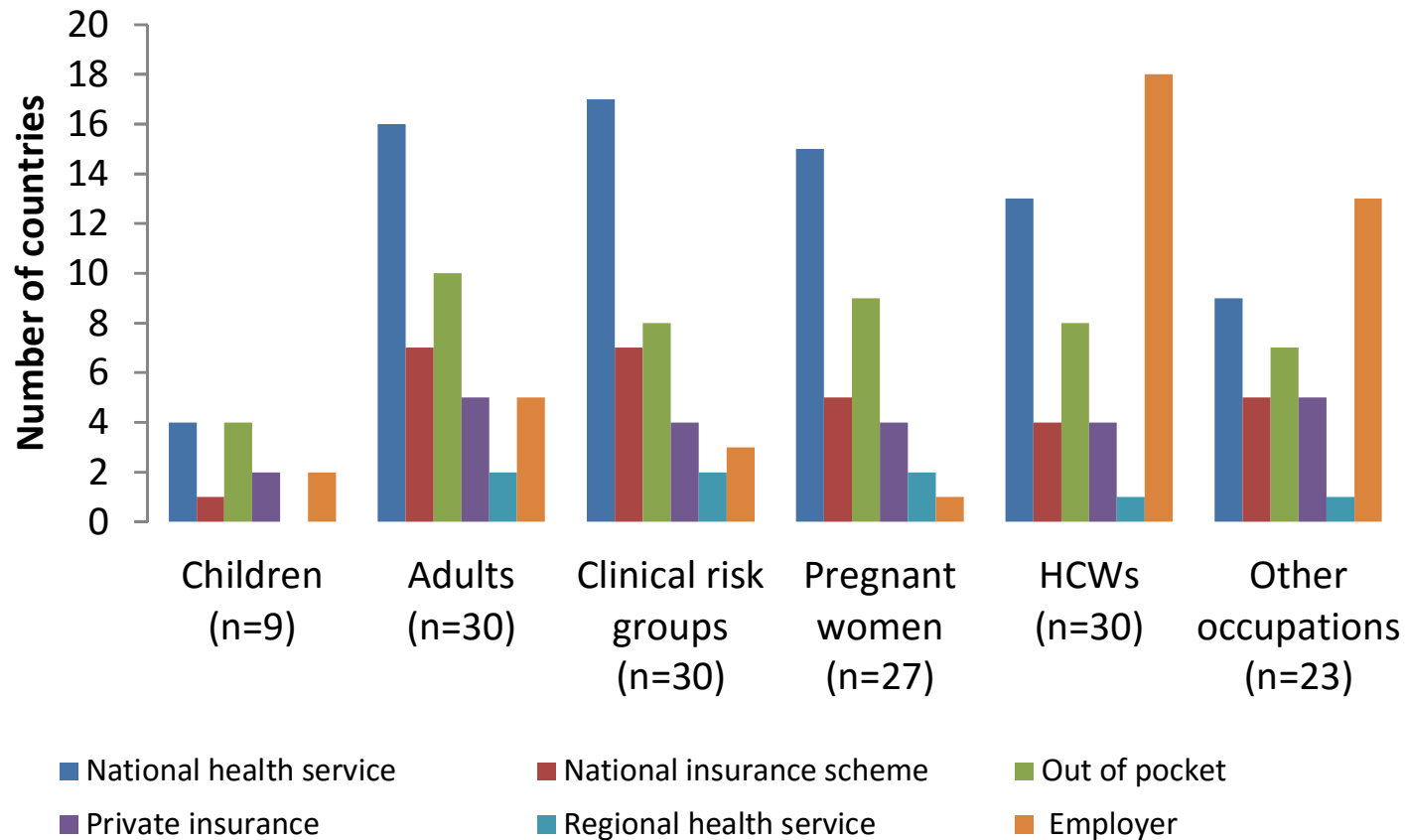
06/04/2017  
Malta, Liechtenstein - recommended for all

# Reported seasonal influenza vaccination coverage among HCWs in 17 EU/EEA MSs



## Cost

# Funding mechanism for seasonal influenza vaccine in targeted population groups in EU MSs

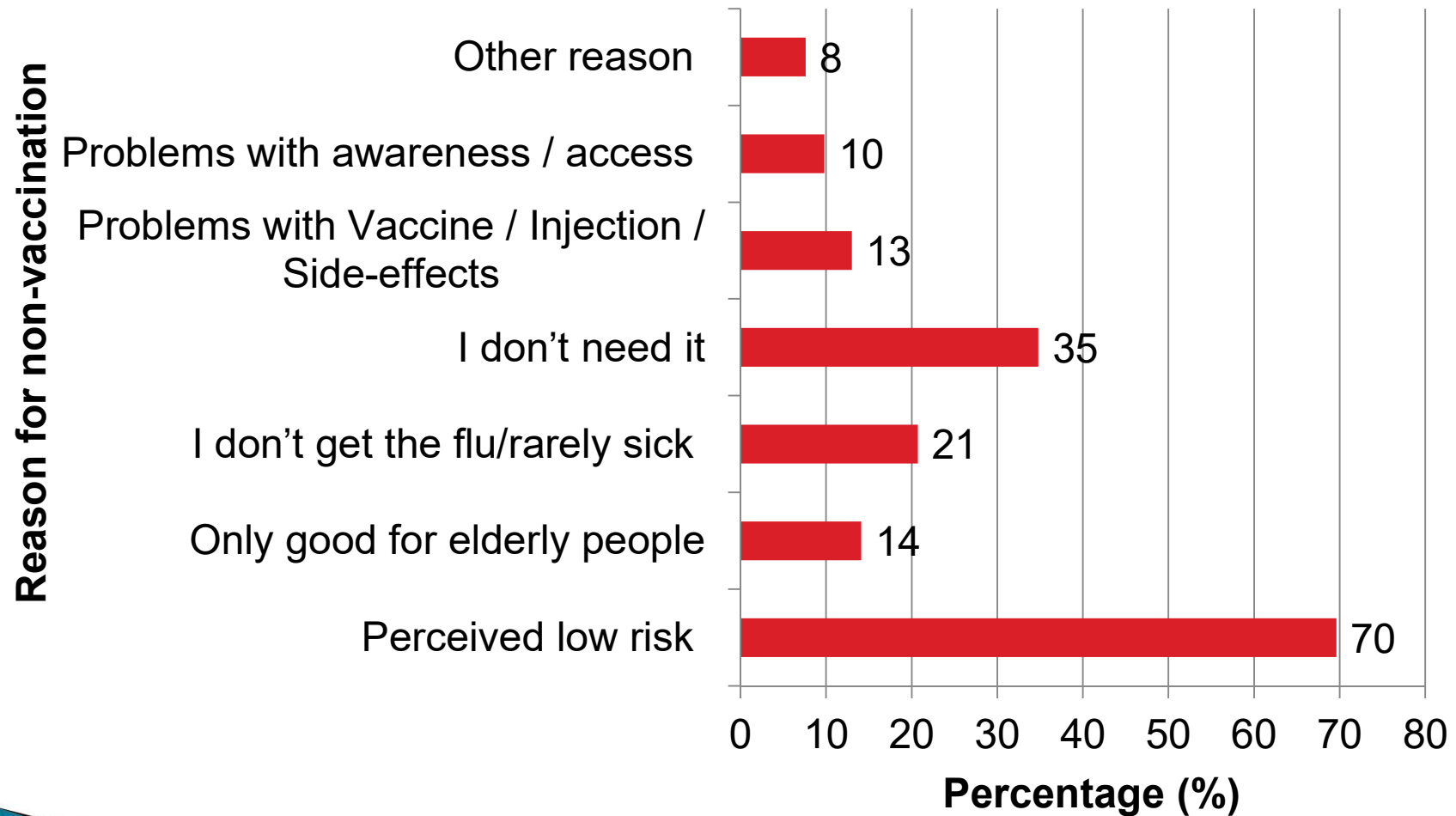


Data refers to **2014-15 influenza season**

06/04/2017  
Some countries have several funding mechanisms



## Barriers: Reasons for not getting influenza vaccine among Irish HCWs (n= 92), 2006\*



# Flu is Dangerous

When some people get the flu it may be mild, but for many others it could be fatal.

- Death 0.5-1/1000 cases (1/10,000 pop per year)  
Approximately 200-500 Irish people will die each year because of flu. In a bad year this can be up to 1000 people (2008-2009)\*

- Most of these excess deaths are in the elderly or with underlying illness

- **BUT**

- Of the 276 people admitted to **ICU** in Ireland with lab confirmed flu since 2009 - 2013 **10-25%** each year were **healthy people** with no underlying illness and 85% of those admitted to ICU were under 65 years\*\*

\*( HPSC Euromomo study) \*\* HPSC ICU influenza surveillance

# But I don't get the flu...

One serosurvey\*  
showed **23% of HCW**  
had serologic  
evidence of influenza  
virus infection during  
a single influenza  
season

***...the majority had mild  
illness  
or subclinical infection***



\*Elder G, et al. *BMJ*. 1996;313:1241–2.

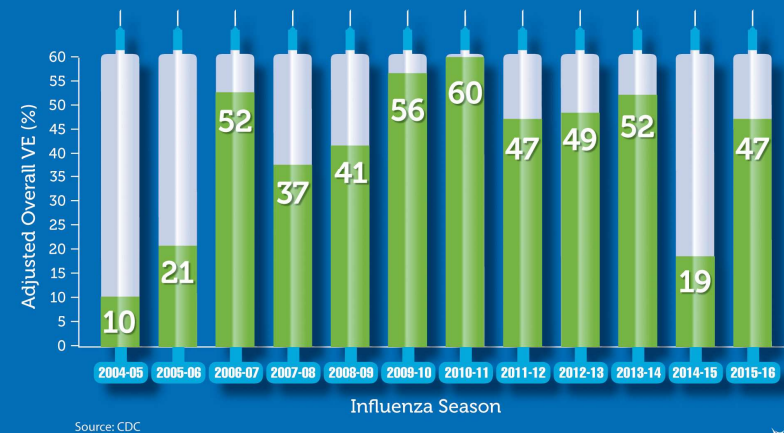
Kuster SP et al 2011. *PLoS ONE* 6(10):e26239. doi:10.1371/journal.pone.0026239

## Benefit/risk perceptions in HCWs, policy makers and public

- **Low effectiveness undermines promotion of seasonal influenza vaccine**
  - Nicoll A, Sprenger M.. Lancet Infect Dis 2013 Jan;13(1):7-9.
- Low effectiveness (often less than 60%) of seasonal influenza vaccines in the protection of risk groups.

Comparative Effectiveness of High-Dose Versus Standard-Dose Influenza Vaccines Among US Medicare Beneficiaries in Preventing Postinfluenza Deaths During 2012–2013 and 2013–2014 Shay et al JID 2017;0000:1–8

### Estimates of influenza vaccine effectiveness per season



Healio.com



High-dose vaccine recipients were

**36.4%**

**LESS LIKELY TO DIE**  
**than standard-dose recipients**

in the 2012-2013 influenza season.

Source: Shay DK, et al. J Infect Dis. 2017;215(10):1593-1601.

Healio.com

# Does the Flu Vaccine Work?

**YES!**



Systematic reviews have shown that flu vaccine has reduced the flu incidence rate from **18.7 % in unvaccinated** HCWs to **6.5% in vaccinated** HCWs

**Kuster SP et al. *Incidence of Influenza in Health adults and Health Care Workers: A systematic review and Meta –Analysis* 2011 PLoS ONE 6(10):e26239. doi:10.1371/journal.pone.0026239**

# Is Flu Vaccine Safe?

**YES!** The flu vaccine is very safe. The benefits far outweigh any possible side effects.

- Some people may have redness and soreness where they received the vaccine
- Serious side effects are rare.
  - Guillain Barré recent studies show reduced after vaccine but increased after influenza
  - Narcolepsy has not been linked to seasonal flu vaccine



# Does flu vaccine give you the flu?- NO

- It cannot cause flu
  - influenza viruses in vaccine are inactivated (killed) during manufacturing process
  - cannot cause infection
  - batches of vaccine are tested to ensure safety
- Randomised placebo (saline \* ,vaccine diluent\*\*) controlled studies have demonstrated safety
  - only differences in symptoms between vaccinated and non-vaccinated was increased soreness in the arm and redness at the injection site
  - no differences in terms of body aches, fever, cough, runny nose or sore throat.

\*Carolyn Bridges et al. (2000). *JAMA*. 284(13):1655–1663.

\*\*Kristin Nichol et al. (1995). *NEJM*. 333(14): 889-893.

# *There can be no safety without risk*

- ▶ Aaron Wildavsky 1988
- ▶ It is crucial that the medical community in general and vaccine establishment in particular work to better educate the public to the fact that virtually all beneficial interventions including vaccination come with some risk and that the key issue is to ensure that the ratio of benefit to risk is most favourable.
  - Harry Greenberg Rotavirus and Intussusception – Act Two N ENGL J Med 2011 364:24:2354-2355



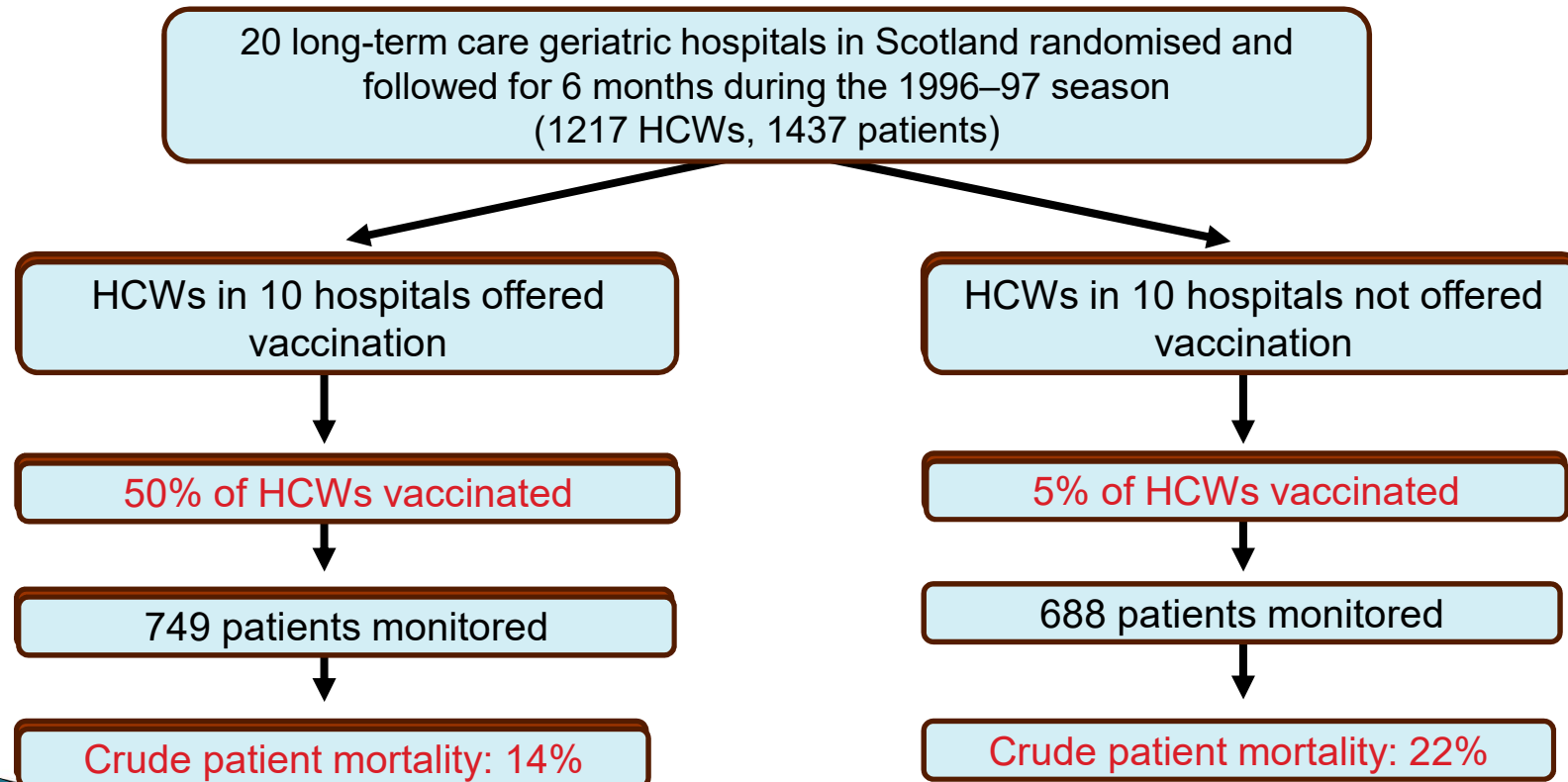
# Absenteeism of HCW

- ▶ Double blind, randomised, placebo controlled trial\*
- ▶ 2 large teaching hospitals over 3 years
- ▶ Vaccinated vs. controls
  - Vaccinated group with lower incidence of influenza (1.7%) compared to controls (13.4%)
  - Estimated vaccine efficacy against serologically defined influenza A and influenza B infection of 88% and 89%
  - Trend toward
    - fewer total respiratory illnesses (28.7 per 100 persons) vs. controls (40.6 per 100 persons)
    - Fewer days of lost work (9.9 per 100 persons) vs. 21.1 per 100 persons for controls

\*Wilde JA, McMillan JA, Serwint J, Butta J, O'Riordan MA, Steinhoff MC. Effectiveness of influenza vaccine in health care professionals: a randomized trial. JAMA 1999;281:908--13.

# Vaccinating HCWs and impact on patient mortality

Increased vaccination rates of HCWs working in long-term care geriatric hospitals have been associated with a reduction in patient mortality



Carman WF, et al. *Lancet*. 2000;355:93–7.

06/04/2017

18

## 2 Recent conflicting systematic reviews

- ▶ Thomas, Jefferson et al reported on 3 randomised controlled trials and found no reasonable evidence that vaccination of HCWs protected residents in LTCF. They did not look at all cause deaths and restricted outcomes to lab confirmed influenza or hospitalisation or death due to a lower resp tract illness
- ▶ Ahmed et al from CDC identified four cluster-randomised trials and four observational studies conducted in long-term care or hospital settings. They estimated that all cause death was reduced by 29% and ILI by 42% but no significant decrease in lab confirmed influenza or all cause hospitalisations.
- ▶ Thomas RE, Jefferson T, Lasserson TJ. Influenza vaccination for healthcare workers who care for people aged 60 or older living in long-term care institutions. *Cochrane Database Syst Rev*.2013;7:CD005187
- ▶ Faruque Ahmed et al Effect of Influenza Vaccination of Health Care Personnel on Morbidity and Mortality among Patients: Systematic Review and Grading of Evidence **Clinical Infectious Diseases Advance Access published September 17, 2013**

# Organisational issues

## ▶ National

- National action plan
- What gets measured gets done
- Standardised case definitions of a HCW
- Mandatory reporting of coverage – quality indicator and accreditation issue
  - Including right to know the vaccine status of staff

## ▶ Local

- Leadership and clear policy, Vaccine champions + Team
- Vaccine access free and in all shifts, peer vaccination
- Annual vaccine assessments ( mandatory)
- Text reminders
- Mandatory attendance at educational sessions for non-responders

# Tell Me



Strategies for increasing vaccine uptake among healthcare professionals and engaging with vaccine-resistant groups during infectious disease outbreaks.



## social marketing

- ▶ Two-way communication – listen to the concerns
- ▶ Identify opinion leaders (HCWs) with active presence in social media and definite views on public health issues.
- ▶ Empower patient societies to demand protection from HCWs.
- ▶ Address inaccuracy /misinformation quickly
- ▶ Band wagoning: celebrate departments with high vaccination rates rather than lamenting low rates
- ▶ Narratives and case stories ( Logos v Pathos)

# Strategies to improve access

- Expanding the provider base
    - Peer vaccinators, all shifts
    - Ward vaccination with mobile carts and inter-departmental competitions,,vaccination fairs
    - Pharmacies
  - Awareness : Posters, badges, lanyards, flyers
  - Incentives
    - Prizes varying from chocolate to draw for ipads
  - Extra targeting of non compliers
    - Education, DVDs
    - Declination forms (Soft mandate)
  - Costs
- Hard mandates>>soft mandates  
> awareness > increased access
  - Incentives and education not significant but combined

Interventions to increase seasonal influenza vaccine coverage in healthcare workers: A systematic review and meta-regression

- Lytras et al HUMAN VACCINES & IMMUNOTHERAPEUTICS 2016, VOL. 12, NO. 3, 671–681

06/04/2017 Free at point of delivery and time

# Vaccinate or Mask (VOM) in Canada

- ▶ National target of 80% coverage and in recent years VOM policy
- ▶ Family physicians highest at 72% and chiropractors, midwives and Natural healing practitioners lowest
- ▶ VOM increased uptake from 52% to 68%
  - Influenza immunization among Canadian health care personnel: a cross-sectional study
    - Sarah A. Buchan, Jeffrey C. Kwong
    - ***CMAJ Open* 2016. DOI:10.9778/cmajo.20160018**
- ▶ Many court challenges



# Varying results

NEWS CANADA POLITICS

## CANADA

**TRENDING** Real estate | Lotto Max | London attack | Trump | Fast Food Week | Federal budget

### B.C. union loses fight against policy forcing healthcare workers to get flu shot or wear a mask

**NP** HELEN BRANSWELL, THE CANADIAN PRESS | October 24, 2013 6:10 PM ET  
More from The Canadian Press



"[B.C.] healthcare workers do not have to immunize; they have a choice to immunize or mask during the influenza season," a judge has ruled. AP/Rogelio V. Solis/Files

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### Union says Ontario nurses can't be forced to wear masks in flu season

By Keith Leslie The Canadian Press

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Chuck Stoody / The Canadian Press

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- A A +

TORONTO — The Ontario Nurses Association says hospitals will no longer be allowed to shame health-care workers into getting a flu shot following an arbitrator's ruling striking down a "vaccinate or mask" policy.

06/04/2017



# Jab-o-meter



2016/17 current uptake  
**61.8%**

2015/16 average uptake:  
**50.8%**



## UK NHS Flufighters



**NHS**

***Most innovative campaign  
award winner***

Top 3 acute Trusts	1 Sept 2016-31 Dec 2016 (%)	1 Sept 2015-31 Dec 2015 (%)
Birmingham Children's Hospital	93	73
Aintree University Hospital	83	68
East Lancashire	82	84

# When should a public health intervention be mandatory?

- ▶ When the burden of disease is significant
- ▶ When there is clear medical value of the intervention to the individual
- ▶ When there is clear medical value of the intervention to public health
- ▶ When there is no other means to obtain the public health benefit
  - Wynia MK. Mandating Vaccination: What counts as a “Mandate” in Public Health and When should they be used? Am J Bioethics 2007 7(12) 2-6

# Conclusions

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- Increasing number of pathogens that we need to both
- protect staff and their patients
- No European countries meet HCW vaccination targets.
- An uninfected workforce helps to maintain care delivery in outbreak situations.
- Benefit to patients is difficult to prove by RCT and easier to prove benefit to the individual
- Mandatory vaccination enables quicker reach of targets with less use of resources but will be challenged in many EU countries
- BUT UK data supports organisational approaches to achieving high HCW vaccination rates without mandates ; incrementally build on year by year

# Acknowledgments

- 
- Vaccine European New Integrated Collaboration Effort (VENICE)
    - **Project gatekeepers/national experts**
  - HPSC colleagues: Dr. Suzanne Cotter Dr Jolita Mereckiene( project lead influenza vaccine monitoring VENICE)
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    - Consortium of University, Bologna, Italy
  - ECDC
    - European Centre for Disease Prevention and Control, Stockholm, Sweden
  - VENICE collaborators
    - Istituto Superiore di Sanita', Rome, Italy
    - Institut de Veille Sanitaire, Saint-Maurice, France
    - National Institute of Public Health - National Institute of Hygiene, Poland
    - Statens Serum Institut, Copenhagen, Denmark
    - Robert Koch Institute, Berlin, Germany

Thank you for your attention!