

Opinion

**Vaccination Programmes and  
Health Systems in the EU**

*Expert Panel on Effective Ways of  
Investing in Health*

*Brussels, 13 September 2018*



# Expert Panel on Investing in Health



Provides independent non-binding advice on effective ways of investing in health

Established by Commission Decision 2012/C 198/06 following the Council conclusions of June 2011 'Towards modern, responsive and sustainable health systems'; renewed in 2017.

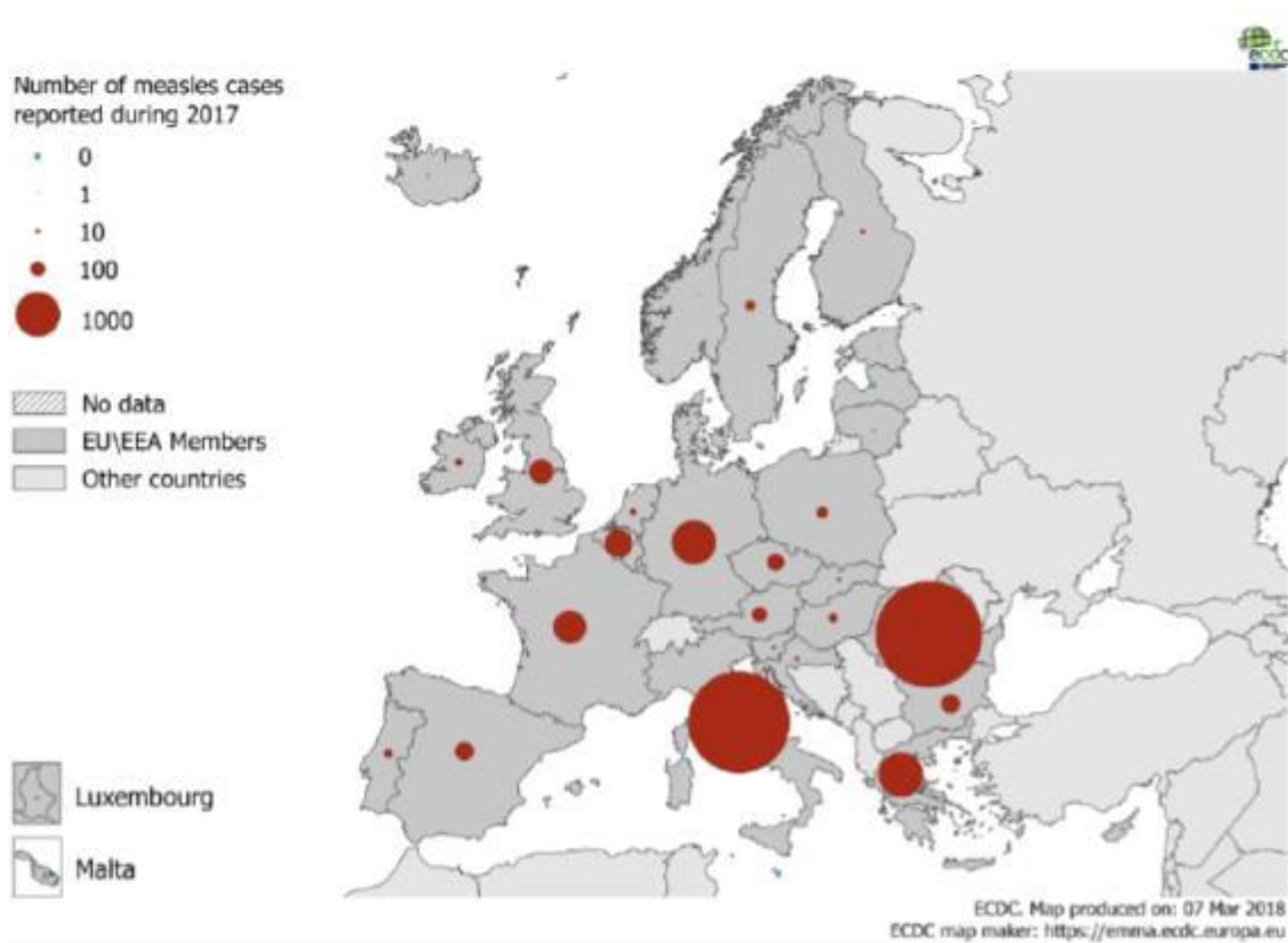
# Outline

- Background
- Factors affecting vaccination uptake
  - Overview
  - Vaccine hesitancy
  - Evidence
- Measures and actions to improve vaccination coverage
  - Inform
  - Prioritisation
  - Primary care and other interventions
- Recommendations

# Background

- Vaccination recognized as one of the most cost-effective public health interventions
- However, the EU is experiencing continuing outbreaks of diseases
  - fatalities from measles and diphtheria

## *Distribution of measles cases by country, EU/EEA, 2017 (n=14600)*



# Questions

- 1. On the basis of a literature review, identify and characterize the **main factors** (enablers and obstacles) influencing the outcomes to **vaccination uptake**
  - with a focus on child vaccination, and influenza vaccination (as an example of adult vaccination)
- 2. Based on the analysis of the main factors enabling/impeding the vaccination uptake (from 1 above), select and assess **measures** and **actions** that can be expected to improve vaccination coverage

# Factors affecting vaccination coverage

- Individual/parent decision to vaccinate
  - Individual assessment of *private* benefits
  - Individual assessment of *private* costs
- **Social** benefits
  - Positive externality, herd immunity

# Social benefits, externality, herd immunity

- High level of coverage of population is essential
  - vaccination protects individuals
  - & those not vaccinated (breaking chain of transmission)
- *Herd immunity*
- If a sufficient % population vaccinated
  - less likely that bacteria/virus will spread
  - fewer people are vulnerable



# Vaccine hesitancy

- “the delay or refusal of vaccination despite the availability of vaccine services” (WHO working group)
- **Low** perceived *benefits* / **high** perceived *costs*
  - vaccine **hesitancy**
- Drivers of vaccine hesitancy

# Drivers of hesitancy: 3 Cs

- **Complacency** relates to
  - perceived low risk from vaccine preventable diseases or low value
  - leads to *low perceived benefits from vaccination*
- **Low Confidence** reflects
  - concerns about the safety of vaccines and those who administer them
  - more broadly, lack of trust
  - leads to *high private cost from vaccination*
- **Lack of Convenience**
  - access to services is difficult
  - difficult access also *increases private cost* of vaccination

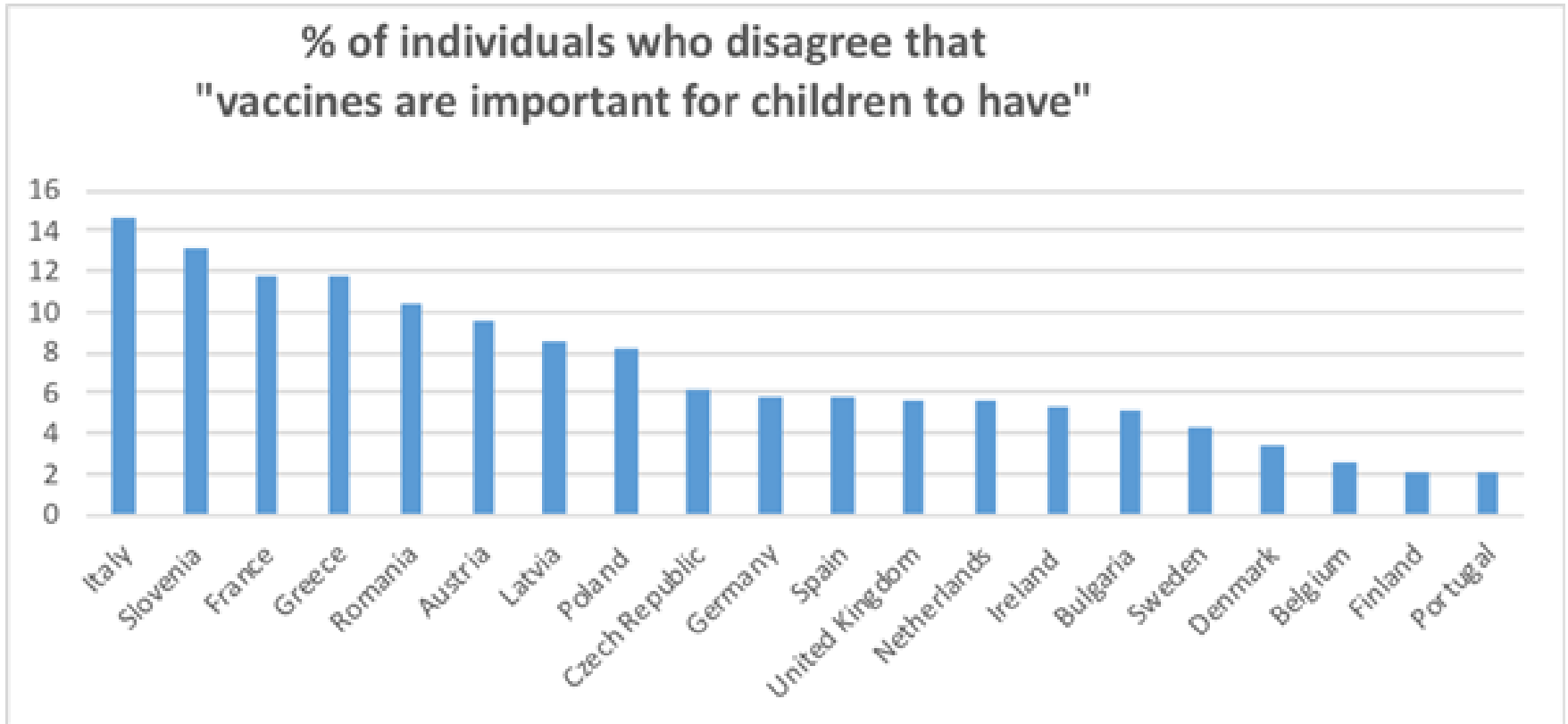
MacDonald (2015)

# 3 domains of influences which affect the decision to vaccinate

- **Contextual influences**
  - include historic, socio-cultural, environmental and political factors, health system, institutions and economy
- **Individual and group influences**
  - factors from personal perception of the vaccine
  - influences of social or peer environment, including online
- **Vaccine and vaccination-specific issues**
  - relate directly to characteristics of the vaccine or the vaccination process

Larson et al (2014)

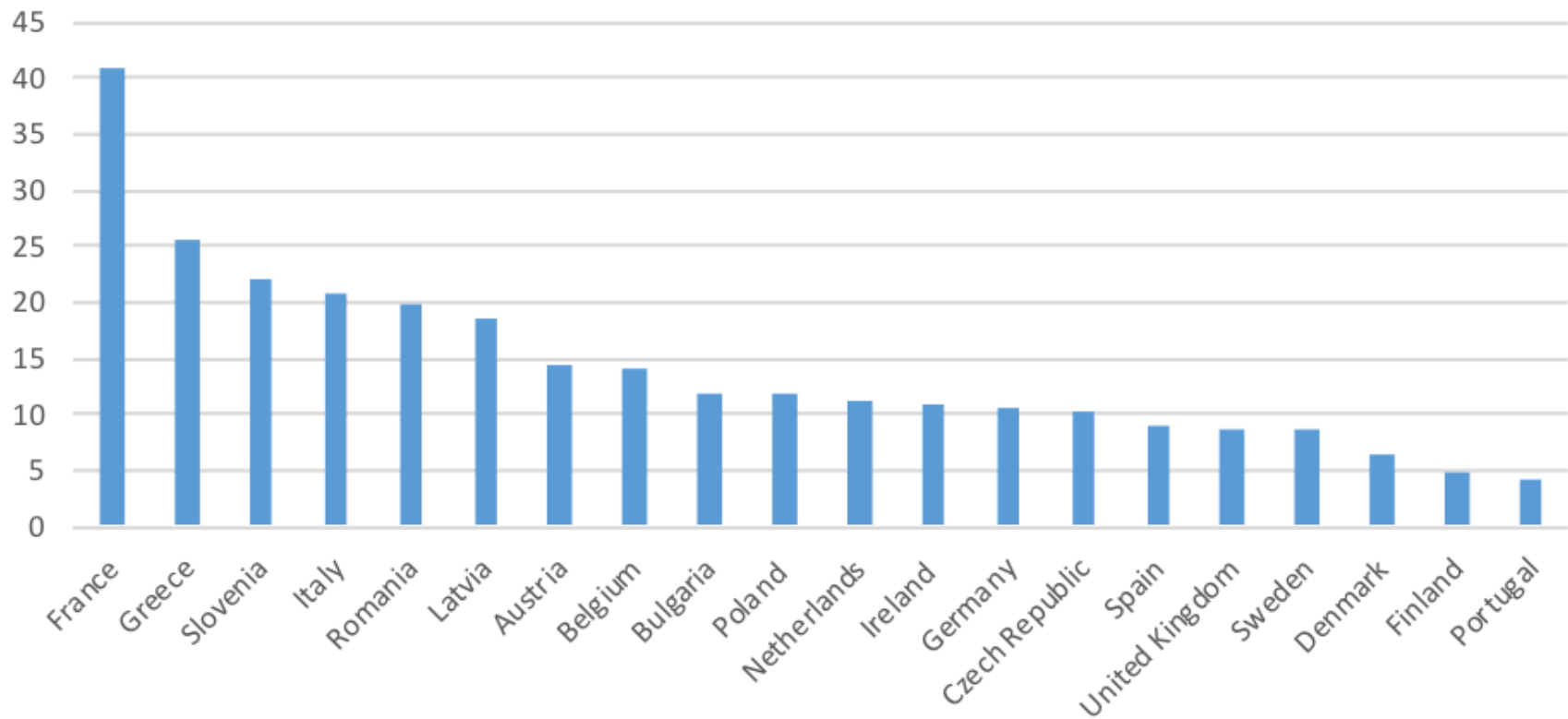
# Vaccine hesitancy in the European Union



Source: The State of Vaccine Confidence (2016) project.

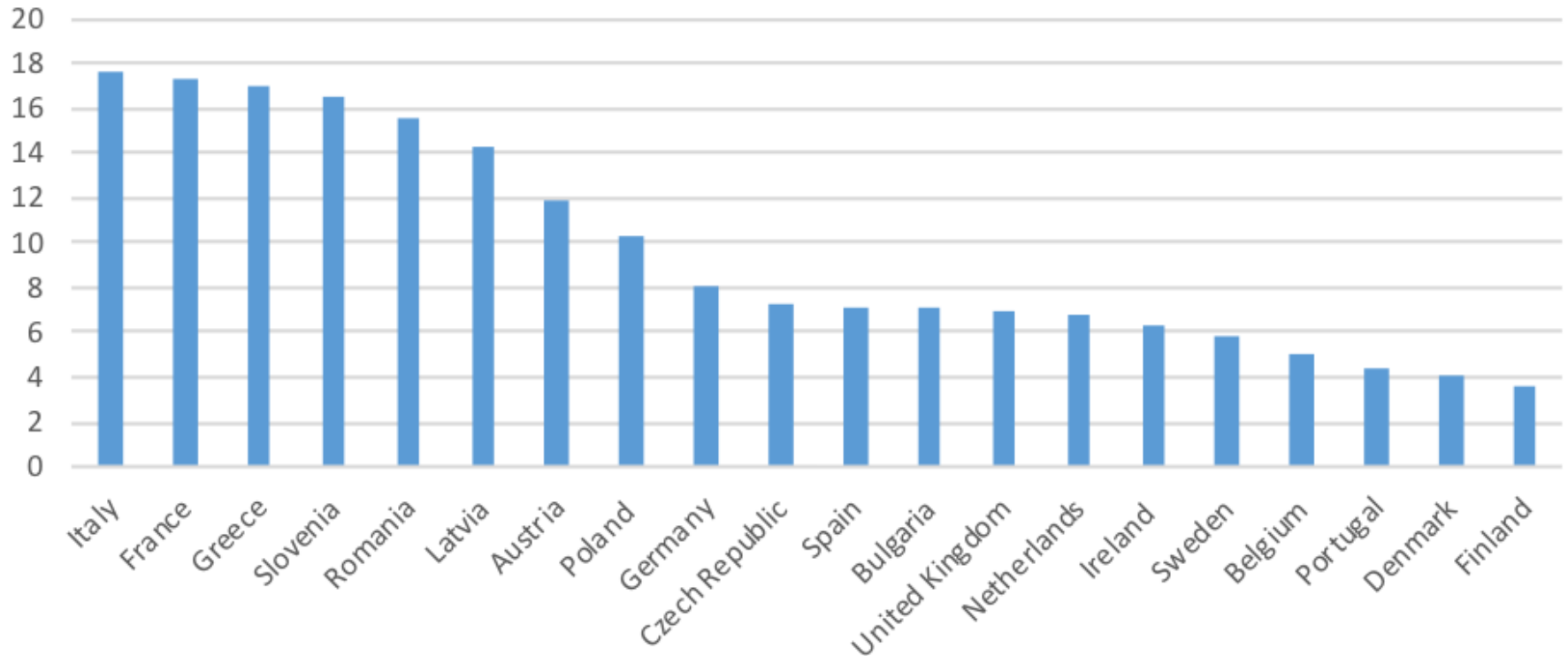
[www.vaccineconfidence.org/research/the-state-of-vaccine-confidence-2016/](http://www.vaccineconfidence.org/research/the-state-of-vaccine-confidence-2016/)

## % of individuals who disagree that "vaccines are safe"



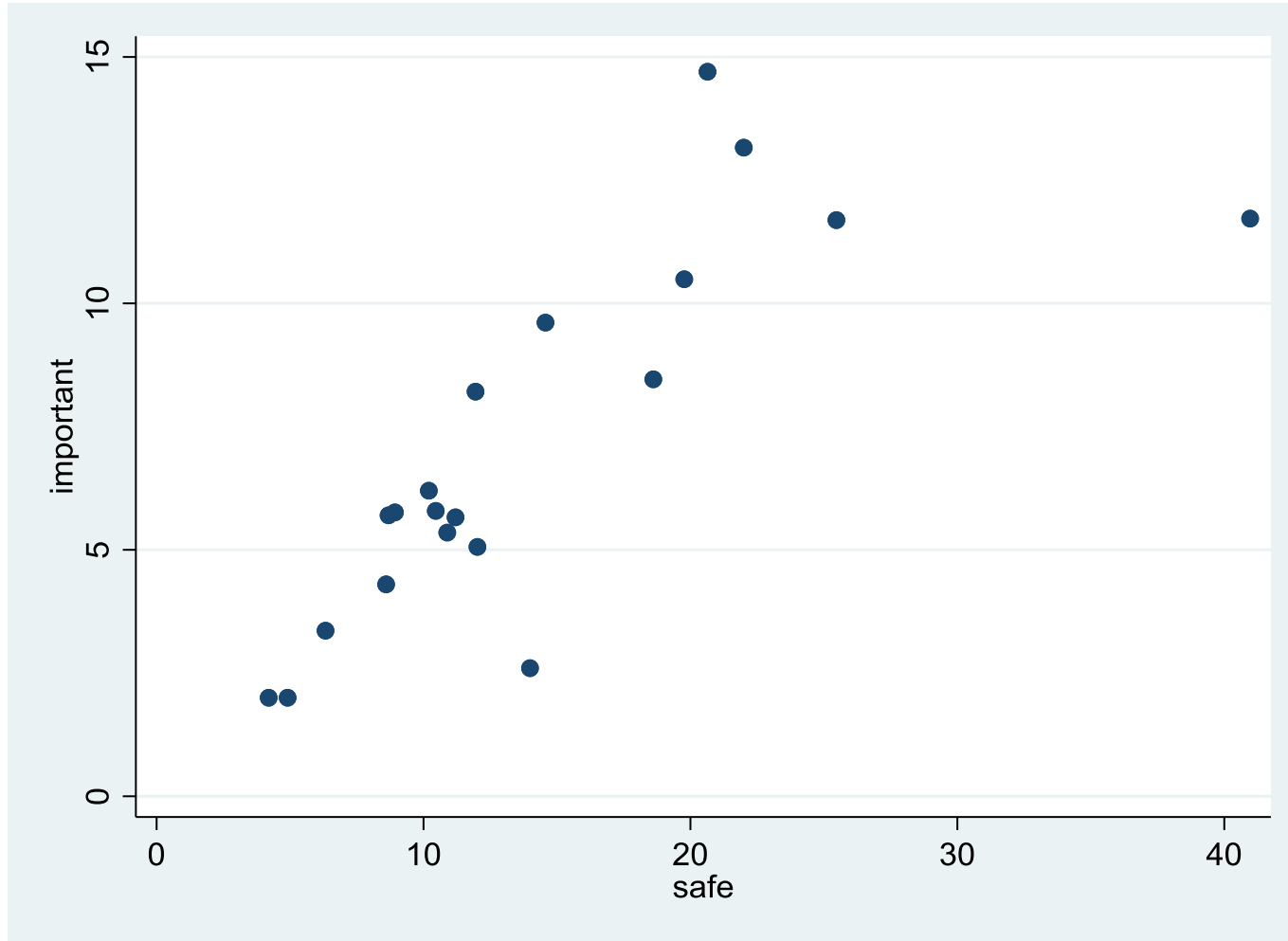
Source: The State of Vaccine Confidence (2016) project.

## % of individuals who disagree "vaccines are effective"



Source: The State of Vaccine Confidence (2016) project.

### % who disagree vaccines are important and safe, country data



Notes: the proportion of individuals who disagree vaccines are important (by country) are plotted against the proportion of individuals who disagree vaccines are safe.

Source: authors' calculations based on data from The State of Vaccine Confidence (2016) project.

# Evidence on factors affecting vaccination uptake among children

- Recent systematic review by Smith et al (2017) focuses on *psychological* factors
- Perceptions of adverse effects from vaccination
  - strong evidence in relation to *safety* and *side effects*
- Parental appraisal of illness being vaccinated against
  - perceived susceptibility of child to illness



# Evidence on factors affecting vaccination uptake among children

- General attitude from vaccination
  - refusal is higher among parents who believed that vaccination was neither necessary nor useful or disagree with it
- Role of recommendations on vaccination
  - association between being recommended to have their child immunised by a *health professional, friend, or family member*
- Parental knowledge
  - increased refusal among parents who had *incorrect knowledge* of the vaccination schedule

Smith et al (2017)

# Evidence on factors affecting vaccination uptake

- Information about the vaccine
  - Higher uptake where parents believed **information** available **was adequate** and helpful
  - Lower uptake where they felt it **was inadequate**
- Trust in healthcare professionals
  - Parents who trusted healthcare professionals were more likely to have their child vaccinated
- Parental emotions
  - *Anxiety* about vaccination and *fear of illness* was associated with refusal

Smith et al (2017)

# Evidence on factors affecting vaccination uptake

- Communication and media environment

- regular exposure to *vaccination messages* through mass media or community sources positively associated with vaccination
- exposure to *news stories about vaccination*, particularly negative ones, in the mass media reduced it
- none of the studies were from EU countries

- Socioeconomic status

- high and low socioeconomic status can be associated with lower vaccination uptake across WHO countries (Larson et al 2012)
- Across the EU, individuals with no education less likely to be vaccine confident (Larson et al 2018)

# Evidence on factors affecting vaccination uptake

- Access
  - Different types of costs have been identified as factors associated with lower vaccination uptake
  - Financial cost
  - Time cost
  - Distance to provider
  - Administrative costs
  - Accessibility of services

## **Box 1. Key obstacles and enablers of vaccination uptake**

### *Obstacles*

Lack of adequate information and perceived medical need

Concerns or fears about vaccine safety (eg can cause severe diseases and side effects)

Dissemination of false and inaccurate information

Beliefs, attitudes and misperceptions (worries, doubts, concerns) about vaccines

Lack of trust towards vaccines (especially for new vaccines)

Lack of trust towards health institutions (information coming from public bodies)

Social norms (family, friends, peers)

Negative exposure to rumours and myths about vaccines in the general media

Cultural and religious factors

Conspiracy theories (vaccines serve specific economic/political interests)

Fear of injection

Lack of adequate encouragement (recommendation, advice) from healthcare providers

Overload of children vaccination (and parents)

Access issues (co-payment, availability, distance to health facility)

# *Enablers*

## *Enablers*

Sources of reliable information for vaccination

Exposure to positive media messages

Building trust in institutions and providers

Building confidence in vaccines

Active involvement by doctors and healthcare providers

Easy access and availability of services

Ease of administration

Active involvement of healthcare providers in various settings

Targeting of high-risk groups

# Measures and actions to improve vaccination coverage

- A conceptual framework for action
- Inform
- Prioritisation
- Primary care and other interventions

# Conceptual framework for action

- **Herd immunity** as guiding objective
- Change behaviour
  - Recommendation (social marketing)
  - Removal of price barriers
  - Improving non-price dimension of access
  - Other incentives
- Mandation
  - E.g. Australia, Germany (child vaccination)
- Other options: Mandation with possibility of exception through a formal process
  - E.g. conditional on a meeting with a health professional



# *Heterogeneity* across and within countries in relation to mandating and recommending vaccination

- Out of 29 surveyed European countries (EU-27, Iceland and Norway) in 2010 (Havarkate et al, 2012):
- 14 countries had at least one mandatory vaccination
  - Polio was mandatory for both children and adults in 12 countries
  - Diphtheria and tetanus vaccination mandatory in 11 countries; Hep B in 10 countries
- All 29 countries had (as either mandatory, recommended, or reimbursed)
  - 8 vaccinations against diphtheria, Hep B, Hib (Haemophilus influenza b), influenza, MMR (measles, mumps, rubella), pertussis, polio and tetanus in their programmes
- Only 9 countries recommended rotavirus vaccination
- 15 countries (among them Austria, Germany, etc.) did not have any mandatory vaccinations, but seemed to achieve equal (or better) coverage rates as countries with mandatory (e.g., Italy, France, Poland etc.) vaccinations

# A catalogue of interventions

- ECDC (2017) developed a “catalogue” of 40 interventions
- 10 of these are **diagnostic tools**
  - to measure or monitor vaccine hesitancy
- 27 based on dialogue and **communication**
  - tools to convey information to parents or healthcare workers
- One based on an advocacy campaign
- One on a reminder-recall system
  - tools to remind patients or healthcare workers about vaccination

# Recommendation supported by communication campaigns

- Premise: people are uniformed
  - Explain benefits from vaccination
- Focus more recently shifted on people being
  - Misinformed (information is incorrect)
  - Disinformed (information spread with intention to deceive)

# Inform

- Traditional principles of communication remain valid
  - But emphasis on listening to the concerns
  - And understanding the perceptions of the public to inform risk communication

(Larson et al, 2011)

# Communication strategies

- Vaccination advocacy
  - Credible and trusted **champions** for immunisation to build support/trust
- Personalised information
  - **face-to-face exchange**
  - associated with improved uptake
- Education and training of health care workers
  - improve capacity and competencies with regard to advocacy

# Prioritisation of vaccination schemes

- Many vaccines introduced into European health systems
  - 15 – 20 vaccines listed in National Vaccine Plans
- Which vaccines to prioritise to achieve public health impact based on available evidence?
  - Analytical tools and instruments to support prioritisation
  - Health technology assessment (HTA)
- At the core of these frameworks are criteria of
  - public health relevance (burden of disease: incidence, case fatality rate, death, permanent impairment, morbidity)
  - vaccine characteristics (effectiveness, length of immunity, adverse events, doses required, costs per dose and for administration, cost-effectiveness and feasibility) (Piso and Wald, 2009)

# Primary care interventions

- Primary care well positioned to improve child vaccination rates
- Several possibly policy refinements
  - Reminder systems for providers and parents are effective tools to increase uptake
  - Electronic immunisation record
  - Financial incentives
  - Integrating public health and primary care
  - Bundling of vaccines

# Recommendations

- **Communication strategies** about benefits of vaccination remain important
  - but need to be combined with opportunities for **participatory approaches** enabling dialogue with vaccine hesitant groups
- These strategies need to be targeted at the *uninformed*
  - but also the *misinformed* (information is incorrect)
  - or *disinformed* (information spread with intention to deceive)
- At the EU level, scope for further improving advocacy and communication strategies
  - to promote the value and safety of vaccines
  - to promote effective intervention strategies, incorporating participatory methods, for addressing vaccine hesitancy



# Recommendations

- Vaccination can be mandatory or recommended as long as **high coverage** rates to achieve **herd immunity** are obtained
- Mandation can be unpopular with some individuals/ groups
  - reinforces case for good communication and advocacy strategies
- Depending on institutional/political context, a policy option is to:
  - allow individuals to opt out of vaccination
  - but only subject to a formal process that ensures that individuals and parents are fully aware of the risk of not being covered
  - (e.g., an exception process, which includes a mandatory consultation and dialogue with a healthcare worker)
- Achieving herd immunity should however remain the priority.

# Recommendations

- **Primary care** is well positioned to improve child vaccination rates given
  - trust held by doctors
  - frequent interactions with parents and children
- These interactions are opportunities to raise awareness
- Reminder systems for providers and parents have also proved successful

# Recommendations

- Primary care physicians do not have to be the exclusive providers of vaccination
- Better **access** can be achieved by improving availability of vaccines from **other providers**
  - community pharmacists
  - nurses
  - community care providers
  - other qualified providers (including within schools)
  - and outside normal working hours
- This diversity in provision requires
  - an integrated (electronic) vaccination record
  - and is particularly important to reach out remote or underserved areas

# Recommendations

- If coverage rates are low, the cost of being immunised for the individual or the parent (the price, co-payment) should be reduced as low as possible
  - ideally making vaccination free of charge

# Recommendations

- Differing lists of vaccines that are freely (heavily subsidized) provided across EU can generate scope for confusion by the public
  - Rationale for such differences needs to be articulated and explained
- There is scope for **improved coordination and consistency** across countries on issues such as
  - vaccines list and schedules
  - decision tools for prioritization
  - including HTA and an **evidence-based approach**
- Scope for strengthening evidence-based guidance on effective vaccination policies and operational plans
  - including quality assurance of vaccines
  - harmonisation of optimal vaccine schedules
  - standards and regulations, procurement mechanisms

# Recommendations

- Scope for strengthening monitoring and **surveillance** systems
  - ensure up-to-date data to guide policy and planning at regional/country level that optimises coverage and impact
- There is scope for close **co-operation**, or integration, **of public health and primary health care services**.
- **Equitable access** to vaccination has to be ensured for
  - hard-to-reach, marginalized and disadvantaged population groups, including migrants.