TiGRE Webinar Series
“Trust & Regulatory Governance in an Age of Crisis”

Trust & Vaccination

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Overview

• Part I. Vaccination and vaccine hesitancy
• Part II. Trust and the vaccination decision
• Part III. Trust, vaccination and compliance in times of crisis: empirical evidence
• Part IV. Empirical studies on trust and vaccination in light of the coronavirus crisis
• Part V. Conclusion
Part I. Vaccination and vaccine hesitancy
Vaccination, a public health achievement

• Vaccination is an important success story of modern-day medicine

• Mass vaccination programmes in the 20th century
  • Mitigating or (nearly) eliminating various infectious diseases (e.g. smallpox, poliomyelitis and MMR)
  • Herd immunity

• WHO: “Vaccinations prevent 2-3 million deaths every year”

• Economic and societal benefits
Vaccine hesitancy, a threat to global health

- High uptake levels are crucial to the success of vaccines, i.e. in order to create herd immunity
- Anti-vaccination movement challenges legitimacy, safety and necessity of vaccination
- Vaccine hesitancy
  "Delay in acceptance or refusal of vaccines despite availability of vaccine services" – WHO, 2014
  - Vaccine-specific attitude
Understanding vaccine hesitancy: 3C’s model – WHO, 2014

Complacency

The perception that risks of vaccine-preventable diseases are low and vaccination is not deemed a necessary preventive action.

Confidence

Trust in the effectiveness and safety of vaccines, the system that delivers them and the motivations of the policy-makers who decide on the needed vaccines.

Convenience

The extent to which vaccines are available, affordable, accessible and understandable.
Conceptual model of vaccine hesitancy – Dubé et al., 2013

Historic, political and socio-cultural context

Knowledge & information
Past experiences
Perceived importance of vaccination
Risk perception & trust
Subjective norm
Religious & moral convictions

Public health and vaccine policies
- Vaccination programs
- Promotion & communication
- Safety evaluation and monitoring

Health professionals’ Recommendations
- Physicians, nurses, CAM, pharmacists
- Training
- Communication Skill
- Medical and epidemiological knowledge
- May be vaccine hesitant themselves

Individual Decision-Making about vaccination
- Refusal
- Hesitancy
- Continuum
- Acceptance

Communication and media
- Traditional media/Internet & Social media
- Anti-vaccination activists

Trust
Part II.
Trust and the vaccination decision
Trust as a key factor in today’s societies

“Trust is a psychological state comprising the intention to accept vulnerability based upon the positive expectations of the intentions or behaviour of another” – Rousseau et al., 1998

• Trust as a relational concept (trustor X trusts trustee Y to do Z)
• Trust process: 3 steps (Dietz, 2011)
  1) Assessment of trustworthiness (ability, benevolence, integrity)
  2) Actual decision to trust
  3) Trust-informed actions

• Sources of trust
  • Interactions between trustor and trustee
  • Institutions: formal rules, informal routines, social norms
  • Individual predisposition: propensity to trust
Visualisation trust-vaccination relationship – Larson et al., 2018a

Out of program influencers

Historic Trust/Distrust

Product Trust

Political/System Trust

Provider Trust

Generalised Trust/Distrust

www.vaccineconfidence.org
Trust in the vaccine
– *product trust*

- **Vaccine safety concerns** (Dror et al., 2020)
  - Quality control issues, speed of development (e.g. COVID-19 vaccine)
  - Potential side effects and controversies
- **Vaccine effectiveness**
- **Vaccine importance**
- E.g. the EU has among the lowest confidence in the safety and effectiveness of vaccines worldwide (Larson et al., 2018b)
Trust in the vaccine – *product trust*

Source: de Figueiredo et al., 2020
Trust in healthcare professionals / scientific experts – provider trust

• Healthcare professionals are the most trusted source of information on vaccination (Badur et al., 2020; de Figueiredo et al., 2020; Dubé et al., 2013; van der Weerd et al., 2011)

• Healthcare professionals convey trust through their (Badur et al., 2020; Hilton et al., 2007; Simone et al., 2012)
  • Knowledge on vaccination, impartial advice
  • Attitude (e.g. endorsing vaccination)
  • Clear communication

• Structural crisis of confidence in science (Badur et al., 2020; Bocquier et al., 2018; Jamison et al., 2019; Peretti-Watel et al. 2015; Verger & Dubé, 2020)
  • Balkanisation of scientific knowledge
  • Denialism & discrediting established experts
Trust in governments / policymakers
– political/system trust

• Vaccines are regulated, and sometimes mandated, by government

• Overall positive relation between trust in government and vaccine uptake (e.g. Baumgaertner et al., 2018; Freimuth et al., 2017; Larson et al., 2018a)
  • General (dis)trust in government is extended to (dis)trust in vaccines (Larson, 2018)
  • Trust in information from government sources (Lazarus et al., 2020)
  • Trust in the government’s technical and organisation skills (Mesch & Schwirian, 2015)
Evidence for the effect of trust on vaccination (for well-known diseases)

- Overall positive relation between trust and vaccine uptake
  - Literature review by Larson et al., 2018a (35 studies)
    - Trust in the health system, healthcare professionals, the government, science or trusted others (e.g. friends, family, alternative healthcare professionals, non-official internet sources, celebrities), ...
  - Measles outbreak in 2014/2015 (Bocquier et al., 2018; Cataldi et al., 2016)
    - Parental trust in information sources shapes vaccine hesitancy
  - HPV
    - Parental trust in healthcare professionals or the government increases odds of receiving vaccination (Fu et al., 2017; Marlow et al., 2007)
    - Information on vaccination increases trust in health system... BUT too much information may reduce trust (Scherrer et al., 2016)
Part III.  
Trust, compliance and vaccination in times of crisis: empirical evidence
Vaccination as compliance issue and the role of trust in times of crisis

• During a health crisis (epidemic/pandemic), governments forge a crisis management strategy aimed at
  • controlling the spread of (rather unknown) disease
  • monitoring its evolution and infectivity
  • developing a suitable therapy and a vaccine

  → Vaccination as part of a crisis management strategy deployed by government

• The extent to which a major health crisis can be controlled depends strongly on public compliance with crisis measures, incl. vaccination

• Stopping the spread of the virus and allowing societies to return to normal will only be possible if the population is sufficiently immunised, i.e. herd immunity

• However, high pressure to develop and apply a new vaccine as quickly as possible in a context of uncertainty

• In that context: trustworthiness of government and of (scientific) expertise particularly important
Trust and compliance in general

- **Positive relationship between trust and compliance** (e.g. Ayres & Braithwaite 1992; Braithwaite & Makkai 1994; Murphy 2004; Six 2013; Six & Verhoest 2017)

  - **Tax regulation** (trust in tax authorities – e.g. Alleyne and Harris 2017)
  - **Traffic rules** (trust in police effectiveness – e.g. Bradford et al 2015)
  - **Food safety** (mutual trust between food business and government agencies – e.g. Bradford-Knox and Neighbour 2017)
Trust, compliance and vaccination in times of crisis: selected studies

van der Weerd et al., 2011

- 2009 H1N1 pandemic in the Netherlands
- Data: 16 cross-sectional telephone surveys (N = 8060)
- Trust in government measure: composed measure integrating (1) trust in government in general, and (2) crisis-related trust in government, information, measures, decisiveness in fighting the crisis.
- Results:
  - Higher levels of trust in government associated with
    - A higher intention to adopt protective measures
    - A higher intention to accept vaccination
  - Other positive significant factors: fear, vulnerability, age, education
Trust, compliance and vaccination in times of crisis

Mesch & Schwirian, 2015

• 2009 H1N1 pandemic in the US
• Data: secondary analysis of a large sample survey in Oct 2009 (N = 968)
• Trust in government measure: trust in governments' ability to deal with the H1N1 outbreak (crisis-related trust)

• Results:
  • Higher levels of trust in governments' ability to deal with the H1N1 outbreak increased the willingness to get vaccinated, just like trust in local hospitals and health agencies
  • Political partisanship matters too (Democrats more willing than Republicans)
    • Confirms Baumgaertner et al. 2018 – ideology has direct and indirect effect (through trust)
  • Other positive significant factors: risk perception, age, ethnicity
Trust, compliance and vaccination in times of crisis

Vinck et al., 2019

- 2018 Ebola outbreak in Congo
- Data: interview survey (N=961)
- Trust measure: institutional trust
  - General trust in government (trust in local authorities, city authorities, provincial authorities, national authorities)
  - Crisis-related trust (trust in government and health professionals for Ebola response)
- Results:
  - Both general and Ebola-related trust in government and trust in health professionals
    - associated with increased likelihood of adopting preventive behaviours
    - associated with increased likelihood of accepting Ebola vaccines
  - Other significant factors: risk perception (+), belief in misinformation (-)
What can we learn from these and other studies?

• Trust is an important determinant of the public’s acceptance of the government’s health crisis strategy, including vaccination

• What kind of trust?
  • Trust in government (and health care professionals/experts) in general
  • Crisis-related trust in government to control the spread of the virus/to handle the crisis in a good way
  • Trust in information sources
    • Government, hospitals, medical experts, NGOs, media...
    • The effect of trust in public information sources (from the government) not always positive (Hong & Collins, 2006)

• Role of other factors (in crisis): risk perception and vulnerability, political partisanship, age, education
Part IV.
Trust, compliance and vaccination: evidence from the coronavirus crisis
The 2020 coronavirus crisis

Number of daily reported cases and deaths in the US

Source: COVID Tracking Project

Coronavirus daily cases, hospitalisations and deaths in Belgium with restrictions and exit strategy dates

Source: Sciensano, data to 30 Sept 2020
Trust and compliance during the coronacrisis

- Trust as important factor promoting compliance with COVID-19 measures: some examples (see Devine et al. 2020)
  - US: trust in the governor who announced local lockdowns (Grossman et al., 2020)
  - France: trust in the country’s president (Brouard et al., 2020)
  - Denmark: Higher institutional trust, higher compliance (Jørgensen et al., 2020)
  - Italy: High-trusting regions decreased their mobility to non-essential travel significantly more than low-trusting regions. Based on EES survey (Bargain & Ulugbek, 2020)

- Role of science/experts: trust in science predicts compliance with COVID-19 prevention guidelines (Plohl & Musil, 2020)
  - ...
Trust and vaccination during the coronacrisis

• COVID-19 vaccination as crucial part of the crisis management strategy
• Vaccines still under development

• Studies highlight COVID-19 vaccine hesitancy
  • E.g. a multi-country European study (Neumann-Böhme et al., 2020)
    • 7.2% of respondents not wanting to get a COVID-19 vaccine and 18.9% being unsure
  • Differences between groups (Dror et al., 2020; Graffigna et al., 2020)

• The role of trust?
  • Not yet much written on the effect of trust on vaccination intention
  • Exceptions, like Lazarus et al. (2020) in a study of 19 countries find that trust in government information has a positive effect
Trust and the intention to get vaccinated against COVID19 in Belgium

Wynen, Op de Beeck, Verhoest, Glavina, Six, Van Damme, Pepermans & Hendrickx (paper close to submission)

- Corona Survey University of Antwerp (www.coronastudie.be)
  - Impact of the coronavirus crisis in Flanders (Belgium)
  - Wave: 25th of August 2020
  - Sample size: 21,604 observations (self-selection, sample limited to Flanders)

**Trust in government**
- to deal with the COVID-19 crisis in a good way (federal + regional + local gov)

**Trust in scientific experts**
- to know what the best measures to take against the crisis

**Risk perception**
- (risk proximity + risk severity + vulnerability)

**Prosocialness**
- (doing things for the benefit of others, even if disadvantages for yourself)

**Intention to get vaccinated**
- (vaccine freely offered and administered in your place of residence)
Trust and the intent to get a COVID-19 vaccine in Belgium

- Trust matters
- Trust in experts has larger effects compared to trust in government
- Extremely small effects on vaccine refusal
  - Other factors at play in case of vaccine refusal (e.g. religion)
- Effect of trust on vaccination intention is not different...
  - ... For young versus old people, with low versus high education, or with low versus high risk perception
- Positive effect of risk severity, vulnerability and prosocialness
Part V.
Conclusion
Key takeaways

• Trust, in its many forms (product, provider, political/system), is key in understanding vaccination hesitancy...

• ...but trust is definitely not the only factor

• Vaccination as a question of compliance with crisis management strategy
  • Trust in government in general and trust in government to handle the crisis
  • Trust in experts and health care professionals
  • Role of (trusted) information
  • Other relevant variables:
    • Risk perception,
    • Political partisanship,
    • Prosocial values, besides generalized trust
    • Age, education, religion...

• Interdisciplinary approach to vaccine hesitancy studies
  • Health sciences, political & policy sciences, regulatory governance, communication science, psychology/behavioural sciences, etc.
  • Future research could delve deeper in the multi-actorness of government, communication patterns, and different relations
Overcoming vaccine hesitancy

- Multicomponent and dialogue-based interventions are most successful (Jarrett et al., 2015; Lazarus et al., 2020; Wilson et al. 2019)
  - Training for healthcare professionals
    - Knowledge on vaccination + relational, participatory approach to the vaccination conversation
  - Increase vaccination knowledge and awareness
    - Traditional and social media
    - Changing healthcare institution rhetoric (e.g. ‘herd’ vs. ‘community’ immunity)
    - More in-depth, personalised vaccination discussions (in addition to traditional leaflets)
  - Directly targeting unvaccinated or under-vaccinated populations and address their concerns
  - Improve convenience and access to vaccination
  - Incentivise vaccination
  - Engage religious or other influential leaders to promote vaccination
  - Involve community and family members
- Trust-building strategies by government and experts
Q&A
Trust and distrust in multi-level governance

• Studies the dynamics, causes and effects of trust and distrust between actors in multi-level systems, with a special focus on regulatory governance

• Integrating expertise from 5 disciplines at University of Antwerp
  • Political science, communication science, law, behavioral economics and public administration

• Visit our website: [www.uantwerpen.be/govtrust](http://www.uantwerpen.be/govtrust)
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Background slide

COVID-19 Manufacturing in Fast Forward

Typical Vaccine Development Process & Timing (4-7 years on average)

COVID-19 Vaccine Development (12-18 months)

We are funding up to 12 programs but expect only 2-3 to reach licensure.

The risks we take are financial, not human safety, risk. All regulations are followed to protect human subjects.

No time for new facilities, must find existing capacity.

Source:
Presentation Dr Melanie Saville (CEPI) during General assembly Joint Action on Vaccination Sept 2020
De Grote Corona studie 2020: Stel dat er een veilig en werkzaam vaccin tegen COVID-19 komt. ... Zou je je dan laten vaccineren?

Evolutie vragen vaccin golf 15, 16, 18-20 en 23

Zeker niet
Waarschijnlijk niet
Misschien
Waarschijnlijk wel
Zeker wel

66,2%
68,6%
53,3%
50,6%
48,2%
53,4%

(14/07/2020)
(28/07/2020)
(25/08/2020)
(09/09/2020)
(22/09/2020)
(03/11/2020)

(Vraag: stel dat er een veilig en werkzaam vaccin tegen COVID-19 komt. Stel dat het vaccin wordt aangeboden voor jouw leeftijdsgroep en jou volledig gratis aangeboden en toegediend wordt in jouw woonplaats. Zou je je dan laten vaccineren?)

Grafiek: UAntwerpen - UHasselt - KU Leuven Corona studie 2020 - golf 15, 16, 18-20 en 23 (gewogen data) • Bron: UAntwerpen • Gecreëerd met Datawrapper