

# **Vaccine hesitancy: definitions, scope, context specific causes and impact**

Bruce Gellin

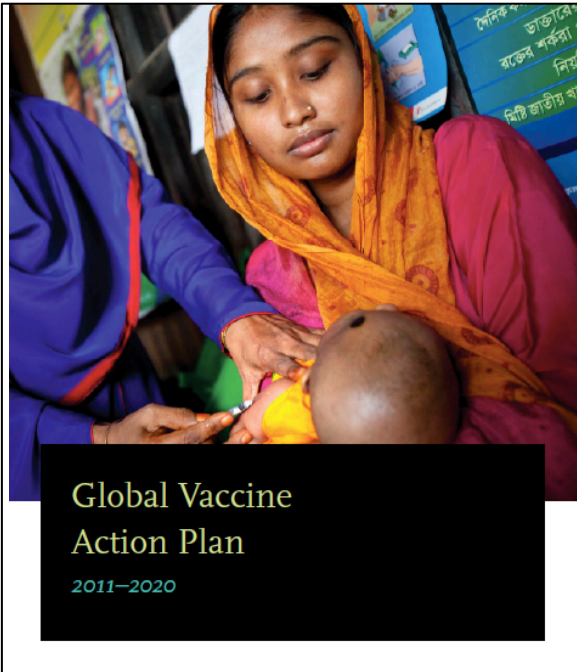


**There is nothing new under the sun  
but there are lots of old things we don't know**  
Ambrose Bierce

# Understanding Vaccine Demand

## Global Vaccine Action Plan:

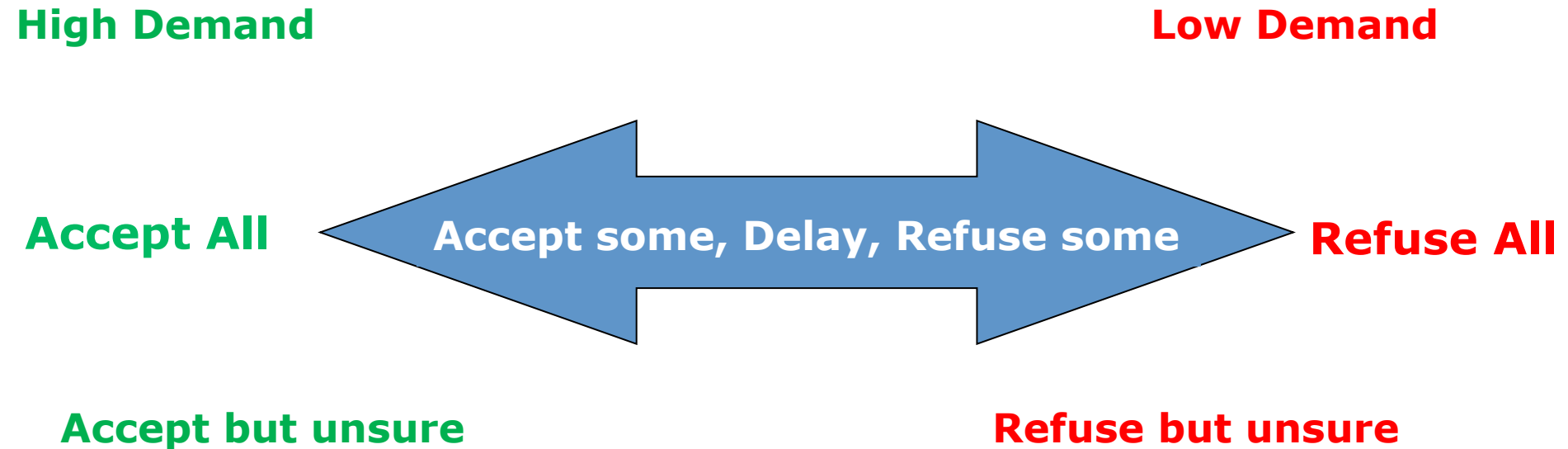
Individuals and communities understand the value of vaccines and demand immunization as both their right and responsibility



**“Communications and social research to identify the barriers to and drivers of vaccination should inform the development of context-specific messages” (...and strategies!)**

# Vaccine hesitancy in context:

## What influences vaccine acceptance and demand?



# Many reasons that vaccines are not received...

- Physical access
- Missed opportunities
- Vaccine availability/supply/cost
- Health worker knowledge/attitudes/practice
- Caregiver factors
- Community/Societal factors and influences
  - e.g., Negative media reports, cultural practices and preferences, “celebrities”

**Need for a diagnostic that differentiates hesitancy from other reasons children are un- or under-vaccinated**

# Vaccine Hesitancy: Charting the Territory

## Challenges

- Differentiating issues of hesitancy from other reasons children are un- or under-vaccinated
- Context-specific nature of vaccine hesitancy
- No established definition
- Lack of existing metrics and diagnostic tools

## Informing Strategy Development

- Redefining the scope
- Review the literature for causes, impact, and tested strategies
- Need definition
- Need to develop metrics
- Need to develop diagnostic tool

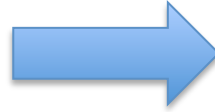
# **Vaccine(s) and/or Vaccination Hesitancy**

Assumes a vaccine is otherwise available and affordable, but there is equivocation on the decision whether or not to accept it.



# Evolution of focus/scope of work following initial SAGE discussions

## Initial focus



## Current focus

- Concerns about impact of anti-immunization lobby and allegations
- Focus on lack of confidence in vaccines/vaccination
- Emphasis on knowledge/attitudes/beliefs and vaccine safety concerns

- Vaccine hesitancy results from issues of confidence, complacency and/or convenience
- Determinants include:
  - Contextual influences
  - Individual/social group influences
  - Vaccine and vaccination-specific issues
- All vaccines are not treated equally



# Confidence

- Trust
  - In effectiveness and safety of vaccines
  - In the system that delivers them, including reliability and competence of health services and health professionals
  - In motivations of policy-makers who decide which vaccines needed and when needed

# Complacency

- Perceived risks of vaccine-preventable diseases low
  - vaccination not deemed a necessary preventive action
- Can be influenced by perceptions of risks and benefits
  - Perceptions about the threat of disease
  - Perceptions about transmission
  - Under-appreciation of the value of vaccine (effectiveness and/or safety profile)
  - Lack of knowledge

# Convenience

- Quality of the vaccination service (real and/or perceived) and degree to which delivered at a time and place and manner considered appealing, affordable, convenient and comfortable
- Convenience of vaccination services and complacency about vaccination also influence the priority that an individual places on vaccination

# Contextual Influences

- Influences arising from environmental, social, cultural, economic or political factors
  - Communication and media environment
  - Geographic barriers
  - Influential leaders, gatekeepers and prominent anti- or pro-vaccination lobby
  - Historical influences
  - Religion/culture/gender/socio-economic
  - Government policies/politics (e.g., mandates)
  - Pharmaceutical industry motivations

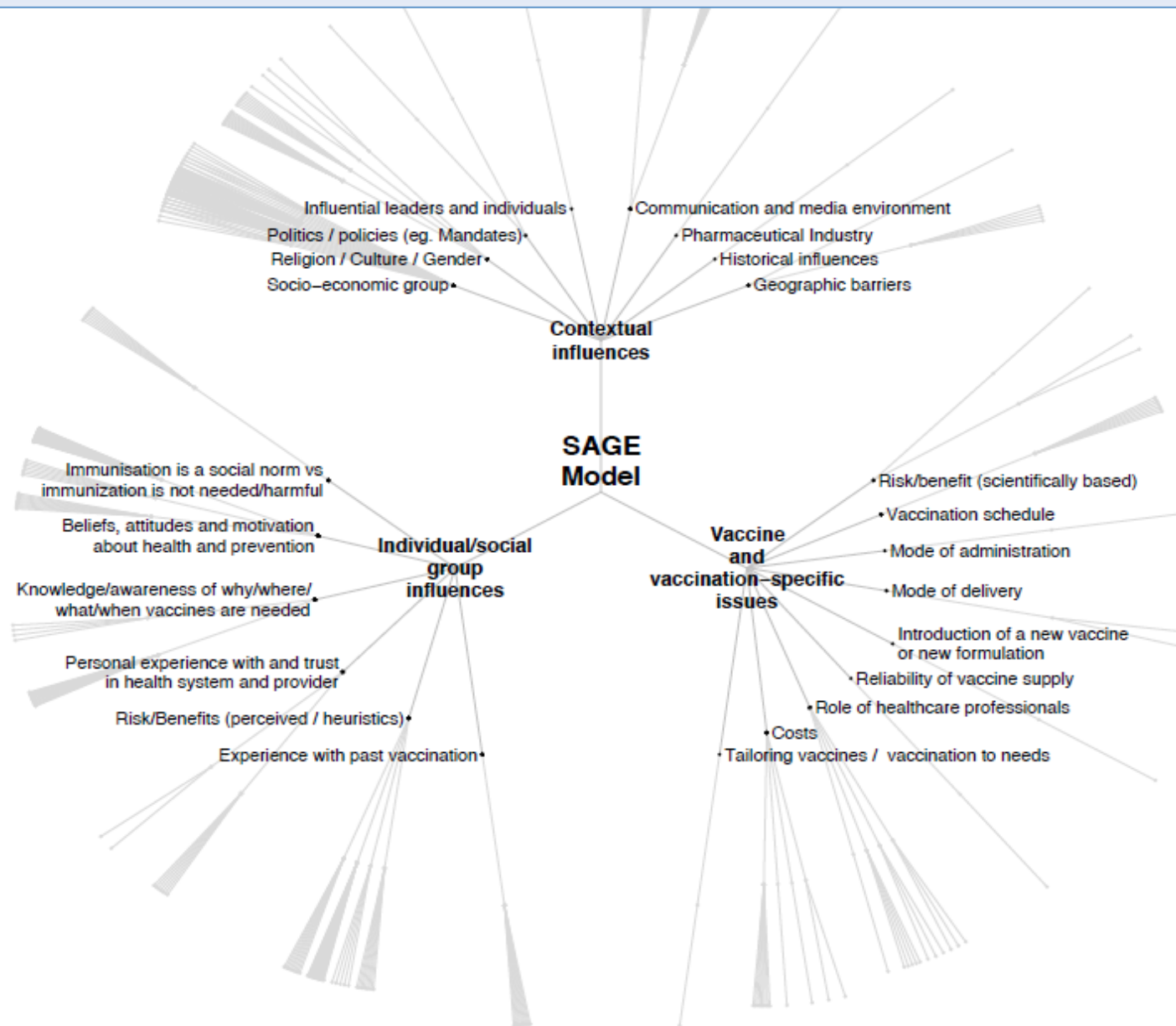
# Individual/Social Group Influences

- Influences arising from personal perception or perception of the individual social environment
  - Experience with past vaccination
  - Knowledge, beliefs, attitudes, awareness and motivation about vaccination as well as health and prevention
  - Perception or knowledge/Scientific literacy
  - Health system and providers-trust and personal experience
  - Perceptions of risks and benefits
  - Immunization as social norm (or not)

# Vaccine and Vaccination-Specific Issues

- Issues related to individual vaccine and/or vaccination in general
  - Knowledge of vaccine preventable diseases
  - Risks/Benefits of vaccines
  - Understanding the basis of new vaccine introduction
  - Mode of administration
  - Costs (willingness to pay and affordability)
  - Vaccination program logistics and venue
  - Role of healthcare worker
  - Vaccine supply
  - Vaccine schedule

# Determinants of vaccine hesitancy





# Hesitancy's impact on immunization programs

## *Vignette: Measles in the Roma population*

- Measles in Bulgaria 2009-1020
- ~25,000 cases and 24 deaths
  - Had to go beyond immunization program information and awareness messages
  - Needed to design “Roma friendly” services, as the health worker–caregiver encounter was the most significant determinant of vaccine hesitancy and uptake

# Hesitancy's impact on immunization programs

## *Vignette: The 2009 H1N1 pandemic vaccine*

- “It’s a novel virus, so it must be a novel vaccine...what do we really know about it?”
- “It was rushed into production.”
- “How many people were tested before the program was launched?”
- “Is it safe for pregnant women?”
- “Do we know the long term effects?”
- "Loads of people say that seasonal flu is not that dangerous and not that many people die per year. If the N1H1 is similar to that why make such a fuss about it?"

# Developing metrics and diagnostic tools:

## Examples of potential survey questions

<b><u>CONTEXTUAL INFLUENCES</u></b> <i>Influences arising due to historic, socio-cultural, institutional, economic or political factors</i>	<b><u>INDIVIDUAL and GROUP INFLUENCES</u></b> <i>Influences arising from personal perception or influences of the social/peer environment</i>	<b><u>VACCINE/ VACCINATION SPECIFIC</u></b> <i>Influences directly related to vaccine or vaccination</i>
<p>Who or what source do you trust the most for information on vaccines?</p> <p>Who or what source of information do you trust the least?</p>	<p>Do you believe that there are other (better?) ways to prevent vaccine preventable diseases than with a vaccine?</p>	<p>Do you feel confident that the health center or clinic will have the vaccine(s) you or your children need, when you need them?</p>
<p>Do you remember any events in the past that would discourage you from getting a vaccine(s) for yourself or your child(ren)?</p> <p>Can you describe it?</p>	<p>Do you know anyone who has a child who had a serious vaccine preventable disease because they were not vaccinated?</p>	<p>Do you believe vaccines are safe for yourself?</p> <p>For your child/children?</p>
<p>Do you trust that your government is making decisions in your best interest with respect to what vaccines are provided?</p> <p>If not, Is there a particular experience that led to your distrust?</p>	<p>Do you believe vaccine preventable diseases can be serious? Which one(s)?</p>	<p>Do you think it is possible to have too many vaccines?</p>

# Pilot testing indicators for the WHO/UNICEF Joint Reporting Form (JRF)

- Two indicators being pilot-tested on the JRF related to vaccine confidence to monitor progress in regard to the Global Vaccine Action Plan
  - *Has there been some assessment (or measurement) of the level of confidence in vaccination at subnational level in the past?*
  - *What is the % of un- and under-vaccinated in whom lack of confidence was a factor that influenced their decision?*
- These may provide an initial understanding of what assessment is taking place and an insight into the degree to which confidence affects un/under-vaccination and allow to monitor progress

# Status of JRF Pilot Testing

- Pilot testing of indicators developed by Working Group was initiated:
  - EUR- Regional JRF
  - PAHO-Regional JRF
  - AFR- Epi-managers of selected countries at regional meeting
- Plan for testing in additional countries and regions:
  - China, Indonesia, Maldives, EMR

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## Informing Strategy Development

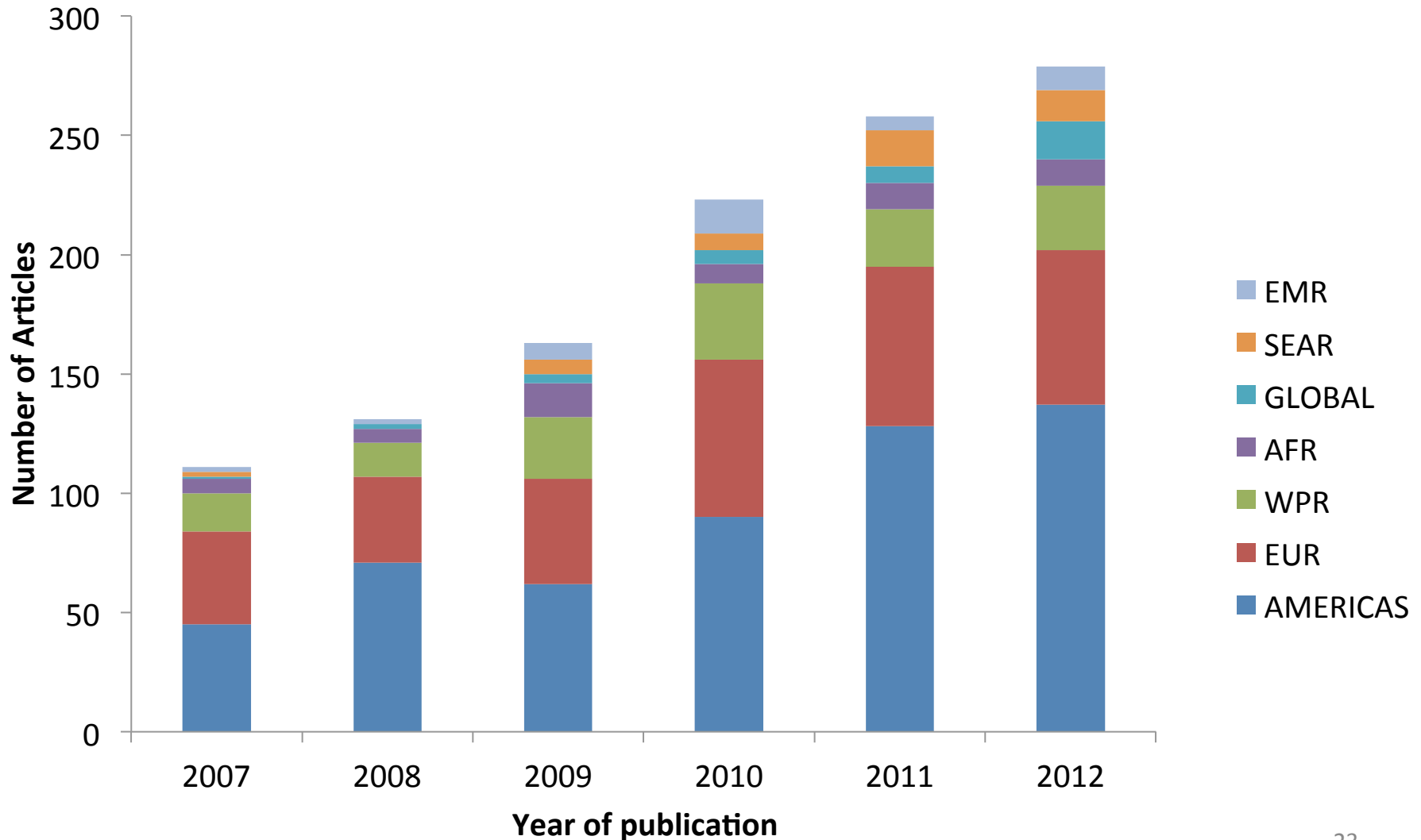
- Redefining the scope
- Review the literature for causes, impact, and tested strategies
- Define vaccine hesitancy
- Need to develop metrics
- Need to develop diagnostic tool

# Keywords used in search strategy for literature review on vaccine hesitancy

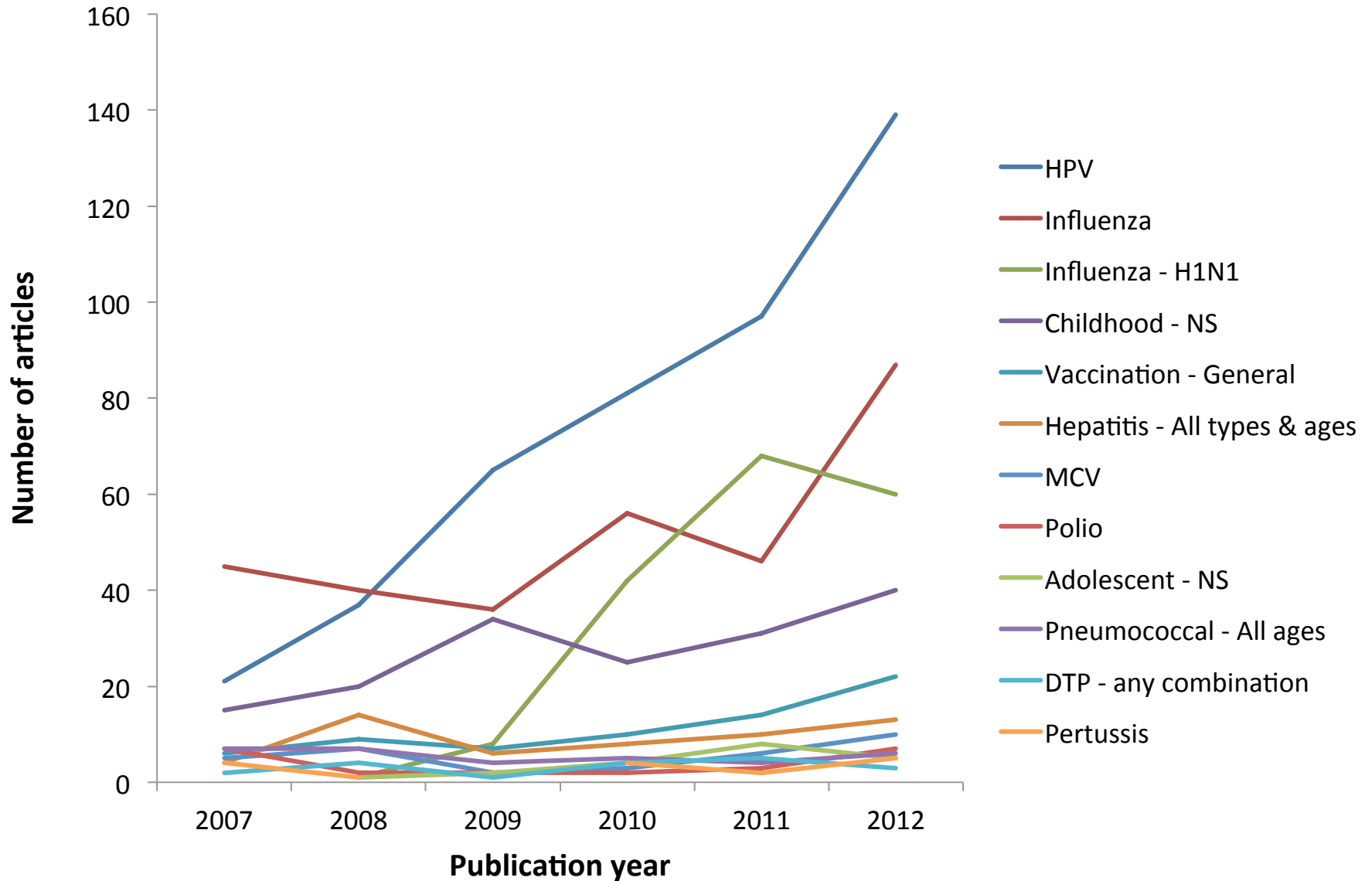
vaccin*	AND	anxiety	doubt*	trust	intent*	dilemma*
		attitude*	distrust	mistrust	controvers*	objector*
		awareness	dropout*	Perception*	misconception*	uptake
immunis*		behavi*r	exemption*	refus*	misinformation	barrier*
		belief*	fear*	rejection	opposition	choice*
immuniz*		criticis*	hesitanc*	rumo*r	delay	mandatory
		accept*	concern*	compulsory	knowledge	
		confidence	decision making	anti-vaccin*	parent* con*	



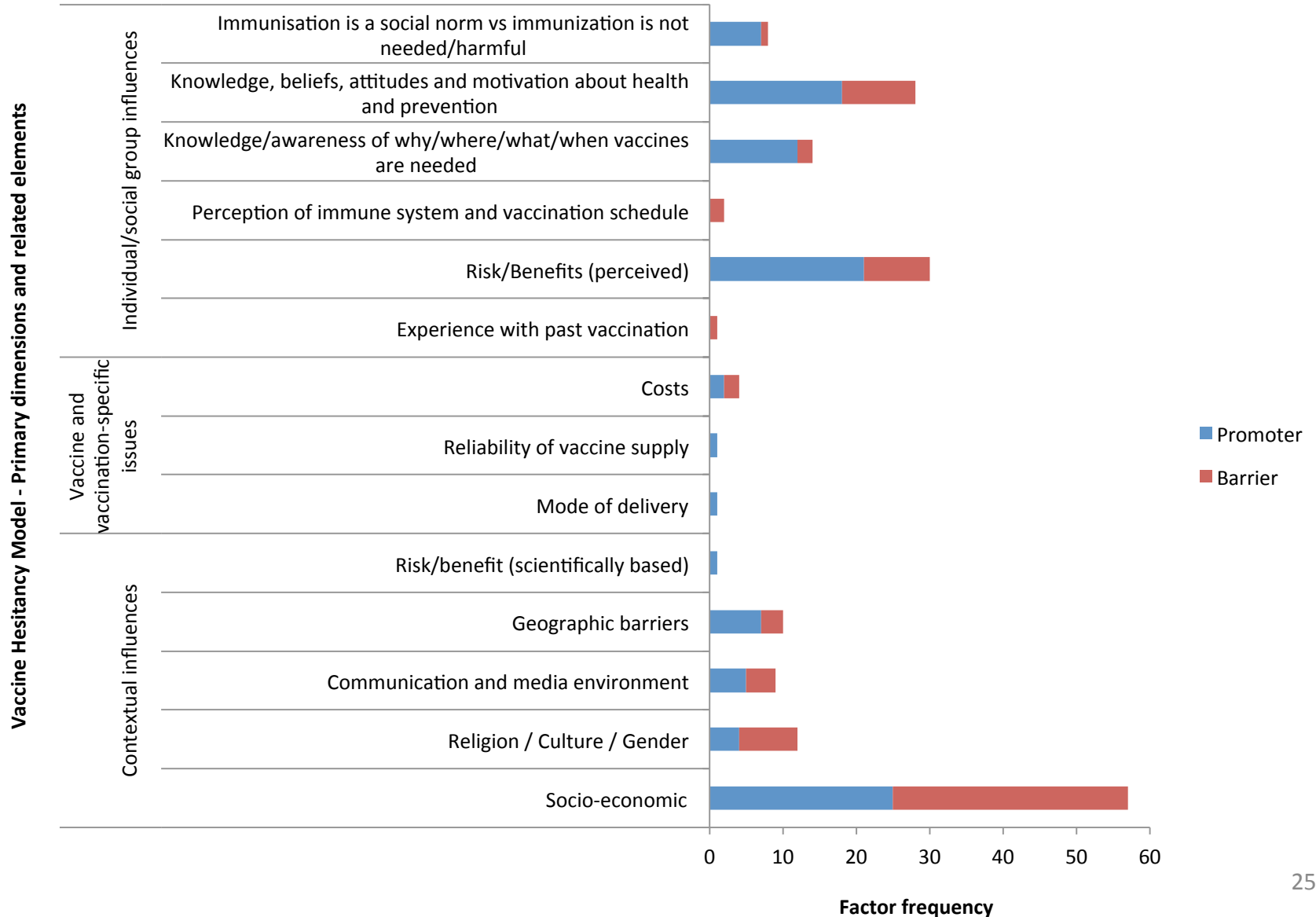
# Articles about public trust, confidence or hesitancy in vaccines by year by WHO region



# Articles on all vaccines, by year of publication



# Factors identified as barriers or promoters of childhood vaccination



# Factors identified as barriers or promoters of childhood vaccination

		ALL REGIONS		AMERICAS		EURO		WPR		AFRICA		GLOBAL		SEAR		EMRO	
		B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Individual/social group influences	Experience with past vaccination																
	Susceptibility to disease																
	Risk/Benefits (perceived / heuristics)																
	Disease severity																
	Vaccine safety																
	Vaccine efficacy																
	Personal experience with and trust in health system and provider																
	Distrust / fear of vaccine due to:																
	Satisfaction with public health system																
	Knowledge/awareness of why/where/what/when vaccines are needed																
	Knowledge - Vaccination																
	Knowledge - General Health																
	Attitude																
	Beliefs, attitudes and motivation about health and prevention																
	Beliefs																
	Motivation / Practices																
	Immunisation is a social norm vs immunization is not needed/harmful																
	Need for vaccine																

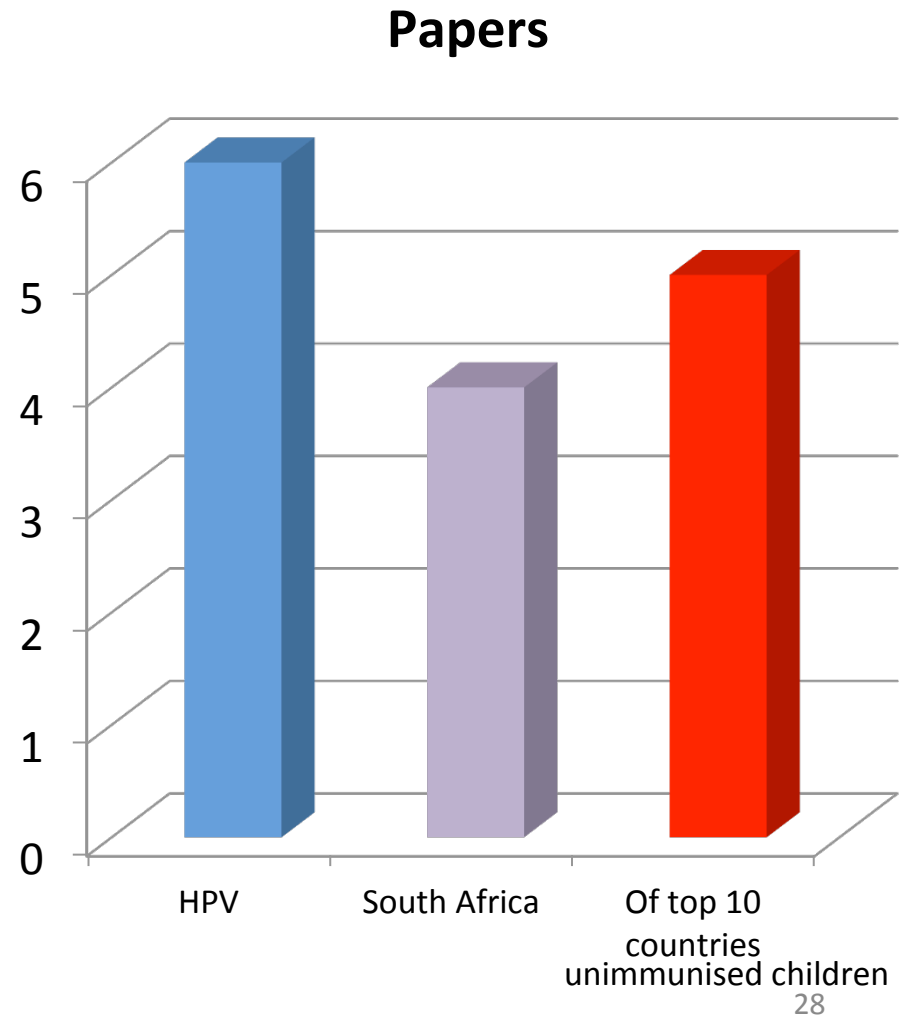
- Variety of factors dependent on context
- Varies by time, place, vaccine
- Challenge of survey bias

# Qualitative Analysis – AFR

- Paucity of papers
- Poor knowledge
- Anxiety/fear of side effects
- Willingness despite physical, social and cost barriers
- Mass campaigns not favored

# Qualitative Analysis – AFR

- “It is the mother who should really make sure your child is immunised. If you follow the man’s advice and you don’t immunise the child, when that child falls sick it is you the mother who will spend sleepless nights when the child is sick. He will be snoring and the doctors will abuse you as he is not around the hospital. Yet you followed his advice. You the mother have to stick to your guns. Let him fight with you, but after your child has been immunised.”*  
- Older mother, Kampala Uganda



# Key Findings

- Research about trust and confidence in, and hesitancy towards, vaccines and vaccination programmes has doubled in the last five years;
- Issues around trust, confidence and hesitancy are of global interest
  - studies from all WHO regions were identified
  - studies from WHO EUR and AMERICAS dominate
  - concern limited research available in regions where the majority of the world's population of children live



# Key Findings

- Identified variety of factors associated with vaccine hesitancy : Their independence and the relative strength of influence is complex and context-specific, vary across time, place and vaccines
- Literature does not yet quantify the overall impact of vaccine hesitancy
- No established metrics for vaccine hesitancy
  - Factors examined in the quantitative literature often drawn from classic social cognitive models (e.g., Health Belief Model, Theory of Planned Behaviour) and do *not* adequately account for the influence of broader contextual features
  - multi-factorial relationships limit generalizability

# Assessing the impact of vaccine hesitancy: Lessons from the literature?

- Literature does not provide a clear picture of the overall impact of vaccine hesitancy on vaccine acceptance
  - Few studies in most countries
- Questions on the JRF may help clarify impact
  - Still challenging given the lack of specific metrics and interplay between different factors that ultimately lead individuals to vaccinate or not

# Interim Conclusions (1)

- Vaccine hesitancy is one of many reasons for unvaccination or under-vaccination
- Vaccine hesitancy, its causes and its impact are complex and are context- and vaccine-specific
- Vaccine hesitancy is a global issue that can amplify weaknesses in vaccine programs
- There is no single cause of hesitancy that can be easily addressed by a simple intervention or activity

# Interim Conclusions (2)

- The field of research is evolving, making consensus on definitions and scope challenging
  - e.g. vaccine hesitancy  $\neq$  vaccine confidence, but confidence is one key determinant of hesitancy
- There is lack of standardization in the literature and a narrow focus of research both in type, region, vaccine, and impact
  - No established metrics for vaccine hesitancy
  - Difficult to quantify the impact of hesitancy
- Vaccine hesitancy has not well studied in many regions/contexts
  - Vaccine hesitancy must be measured locally with tools developed to facilitate such research