IMMUNIZATION AND COMMUNICATION:

HOW TO DEAL WITH VACCINE HESITANT AND ANTI-VACCINE FAMILIES IN A FACT-RESISTANT WORLD.

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"In 1736 I lost one of my sons, a fine boy of four years old, by the small pox. I long regretted bitterly, and still regret that I had not given it to him by inoculation. This I mention for the sake of parents who omit that operation, on the supposition that they should never forgive themselves if a child died under it; my example showing that the regret may be the same either way, and that, therefore, the safer should be chosen."

http://www.history.com/topics/american-revolution/benjamin-franklin

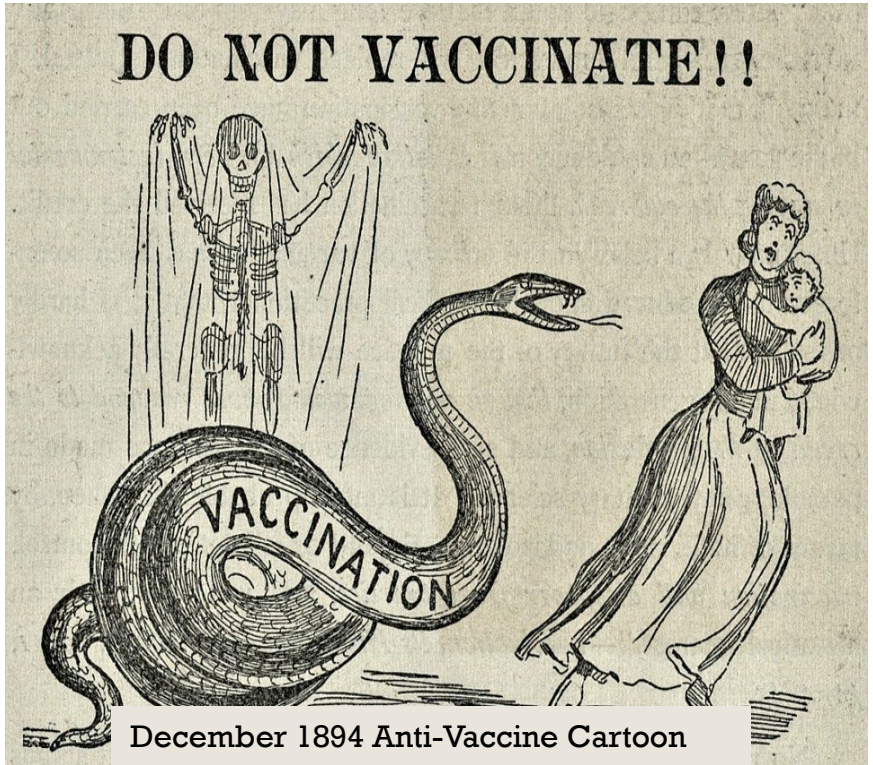
COI STATEMENT/DISCLAIMER

1. I believe in evidence-based medicine and in science.
2. Based on #1, I believe in the value of vaccines and vaccination.
3. I practice medicine based on the oaths and promises I have made as a student and a practicing physician- to *FIRST* do not harm.
4. I have vaccinated myself, my family members and my patients based on premises 1, 2 and 3…

I have no **financial** conflicts of interest.

OBJECTIVES

- Understand the differences between vaccine hesitant and anti-vaccine
- Develop strategies to assess vaccine hesitant patients/parents
- Develop communication strategies to address vaccine hesitant patients
- Apply strategies to common adult immunization scenarios



December 1894 Anti-Vaccine Cartoon

VOCAL OPPONENTS OF VACCINATION HAVE BEEN AROUND FOR AS LONG AS VACCINES…

- Dr. Edward Jenner (1749 – 1823) published *An Inquiry into the Causes and Effects of the Variolae Vaccinae, or Cow Pox* in 1798.
  - Antivaccination protests and individual objections- see Franklin comment…
- Vaccination Act of 1853 and 1857 [England] mandating child vax…
  - Anti Vaccination League and the Anti-Compulsory Vaccination League founded
- Anti Vaccination Society of America founded in 1879
  - American anti-vaccinationists waged court battles to repeal vaccination laws in several states including California, Illinois, and Wisconsin
- 1902: Smallpox outbreak >> Cambridge, MA mandates all residents be vaccinated
  - Resident Henning Jacobson refused [asserted violation of right to care for his own body] City filed criminal charges- Jacobson lost, appealed to U.S. Supreme Court. 1905, Court found in state's favor.
  - This was the first U.S. Supreme Court case concerning the power of states in public health law.

https://www.historyofvaccines.org/content/articles/history-anti-vaccination-movements

VOCAL OPPONENTS OF VACCINATION HAVE BEEN AROUND FOR AS LONG AS VACCINES…

- 1970-80's British and US DTP Controversy
  - Studies: Low risk neuro injury but nonetheless drive some Mfgr out of business.
- National Childhood Vaccine Injury Act 1986
  - Established National Vaccine Program Office and Advisory Committee
  - Requires providers to provide VIS to all who are vaccinated
  - Requires reporting of certain vaccine injuries to VAERS
  - National Vaccine Injury Compensation Program established
  - Institute of Medicine review of vaccine reactions
- 1998 Wakefield MMR 'study'
  - Since proven fraudulent, license revoked.
  - Continues to preach antivaccine message
- Increasing anti-vaccine sentiment in US (Worldwide?) over past 20 years…
  - Unfortunately, Physicians are not universally supportive…

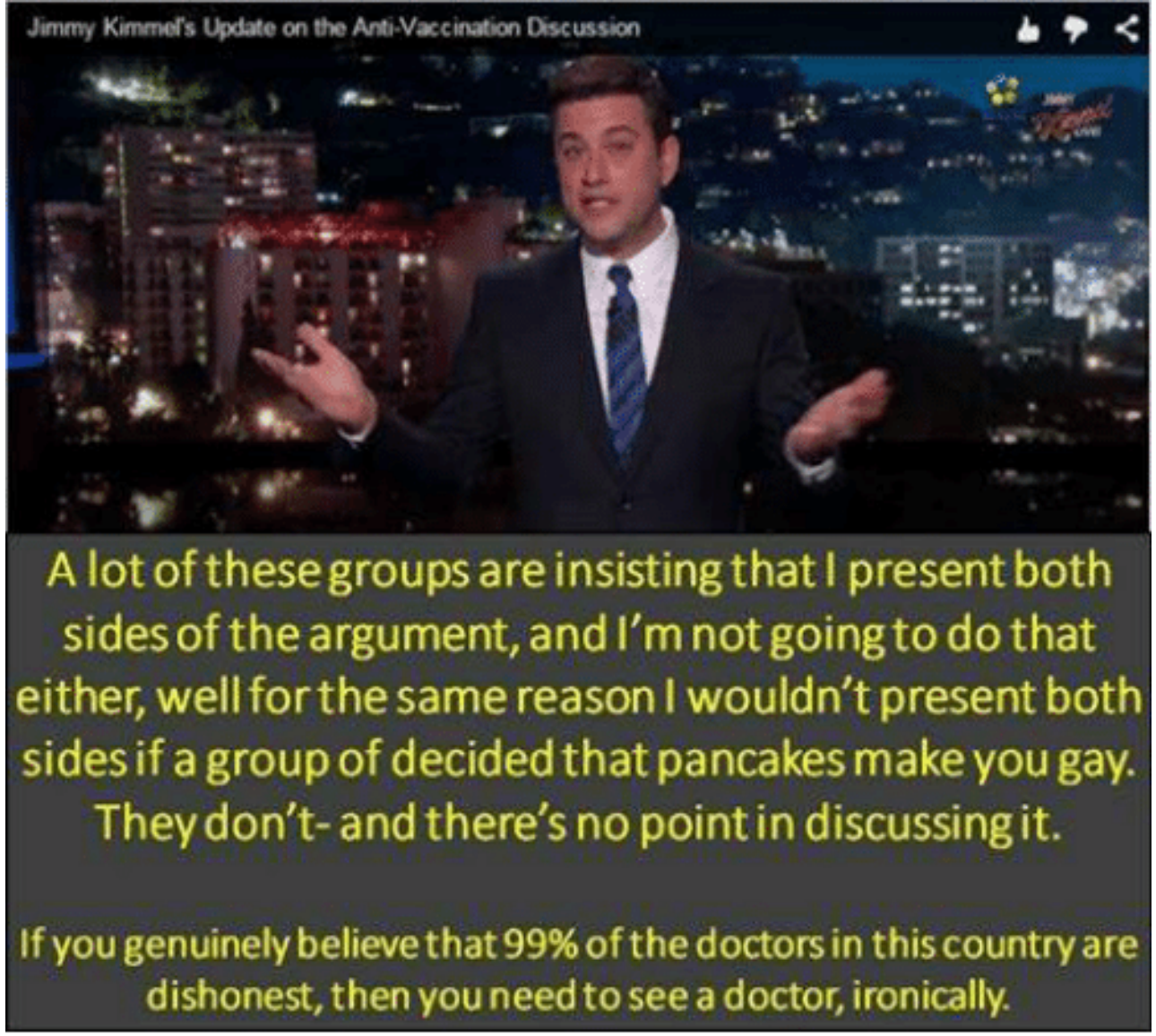
https://www.historyofvaccines.org/content/articles/history-anti-vaccination-movements

COMMON 21ST CENTURY ANTI-VAX THEMES

- Overloaded Immune System
- Diseases [Polio, others] have disappeared= no need…
  better, *no reason to take **any** risk* by vaccinating…
- More vaccinated than unvaccinated people get sick
- Vaccines are not tested for safety…
  Or are unsafe (look at package insert or VAERS!!)
- 'Hygiene and better nutrition are responsible for reduction in disease, not vaccines!!'
- Natural immunity is superior to vaccine-induced immunity

"There is good scientific evidence to refute all of these; but time is limited and all of us need to 'pick our battles.' My recommendation is to focus your efforts on those families you have a reasonable likelihood to be able to help…" RHH

https://www.historyofvaccines.org/content/articles/misconceptions-about-vaccines



Via Refutations to Anti-Vaccine Memes

CRITICAL CONCEPTS

- Vaccine hesitancy — *next slides*
- 'Anti-vaxxers' — [hard-core, 'evangelical' anti-vaccine proponents]
- Community immunity — *coming soon*
- Heuristics — [Mental shortcuts- can lead to biased decisions]
- Biases
  - Availability — [most available mental information is used for decision making]
  - Omission — [fearfully avoid action with small risk in lieu of inaction with greater risk]
  - Confirmation — [actively seek out information to confirm our beliefs]
- Motivated reasoning — [actively deflect threats to beliefs]
- Correlation ≠ Causation

VACCINE HESITANCY

"Delay in acceptance or refusal of vaccines despite availability of vaccination services. Vaccine hesitancy is complex and context specific varying across time, place, and vaccines. It includes factors such as complacency, convenience and confidence."

Hesitancy adversely impacts

Individuals- 1- Not protected as a result of decision not to vax.

2- Who are not/cannot be vaccinated (from exposure)

Society- Outbreaks occur when immunization levels fall below those needed to provide community protection. Society (ultimately) pays costs…

World Health Organization. Report of the SAGE Working Group on Vaccine Hesitancy. 2014.

COMMUNITY IMMUNITY: IMPORTANT VARIABLES

- Assumes random spread of infectious organisms thru population
- Host susceptibility to disease
- Vaccine effectiveness
- 'Transmissibility' of organism
  - Crowding
  - Other variables re: specific infectious organism

- Examples:
  - Measles — 90-95% coverage required — [most contagious virus]
  - Influenza — 80% healthy, 90% high risk — [lower efficacy vaccine]
  - Pneumococcal — 90+% coverage in kids reduces IPD across all ages

http://www.sabin.org/sites/sabin.org/files/Jennifer%20Loo_PCV%20herd%20immunity_rev.pdf

COMMUNITY IMMUNITY: TAKE HOME MESSAGES

- Highly susceptible populations can be infected even in presence of high community immunity [local, county, state, country]
  - Mumps in Arkansas and Midwest (2016)
  - Measles outbreak in Somali immigrant communities in Minnesota(2017)
- High level community immunity required to reduce likelihood of resurgence or outbreaks associated with imported cases
  - Measles outbreak (associated with Disneyland in 2015)
- Mutations/Shifts in viruses and bacteria can lead to resurgent disease despite high level community immunity
  - Pandemic Influenza associated with 2009 H1N1 reassortant virus
  - Emergence of Pneumococcus 6A in 2005-08
- Potency and duration of vaccine protection impacts risk of community outbreaks
  - Recurrent Pertussis mini-outbreaks across US since 2011

AVAILABILITY HEURISTIC (BIAS)

- When faced with making an immediate decision (vaccination in clinic) people often lack time and/or resources to examine options…
- Mentally estimate the probability of an event based on how easily it comes to mind.
  - How often do you hear about a Vaccine-preventable disease?
  - How often do you hear about a Vaccine side effect?

  As disease becomes less common and absolute number of side effects increases with absolute number of vaccine doses administered- ease of recall of adverse events may exceed recall of disease- leading to a choice to refuse vaccine.

- Physicians who graduated 1995-2002 showed less favorable impression of vaccines than those who grad in 1954-64.

COUNTERING MISINFORMATION AND BOOMERANG

- Our natural response to vaccine misinformation is to correct the info.
  - 1. Focus on key facts (avoid overwhelming them with info)
  - 2. Clearly indicate '…*the following is false…*' before myth is mentioned,
  - 3. Provide an alternative explanation to myth (to help close 'mental gap')
- Boomerang Effect:
  - Correction-based approach can backfire and may reinforce vaccine hesitance
- How to overcome Boomerang:
  - Avoid direct contradiction of misperception and focus on disease itself- focus on individual's risk for disease (risk perception), seriousness of disease and their ability to take action to reduce risk (self efficacy).
  - Some will respond and accept
  - Others may not be able to make a decision (cognitive freeze)-

    in this case setting a concrete plan to revisit decision –*and follow through on this*…

Omer SB, et.al. JAMA Pediatrics. August 14, 2017.

PRESUMPTIVE V. PARTICIPATORY COMMUNICATION

- Participatory communication: Assumes provider and patient are (near) equals in making decision
  - Note similarity in statements: '*Would you like a* (cheeseburger)?' ~~~> '*Can I give you a* flu shot?'
  - This style is more appropriate for optional service (restaurant menu) than a specific medical recommendation.
- Presumptive communication: Shape recommendation with presumption patient will accept (vaccine)
  - e.g. '*Dr. Hopkins strongly recommends flu vaccination for you today, I would like to give it now…*'
  - Demonstrated to increase vaccination in children v. use of 'participatory' style

Rhetorically: *Which of these is most appropriate*:

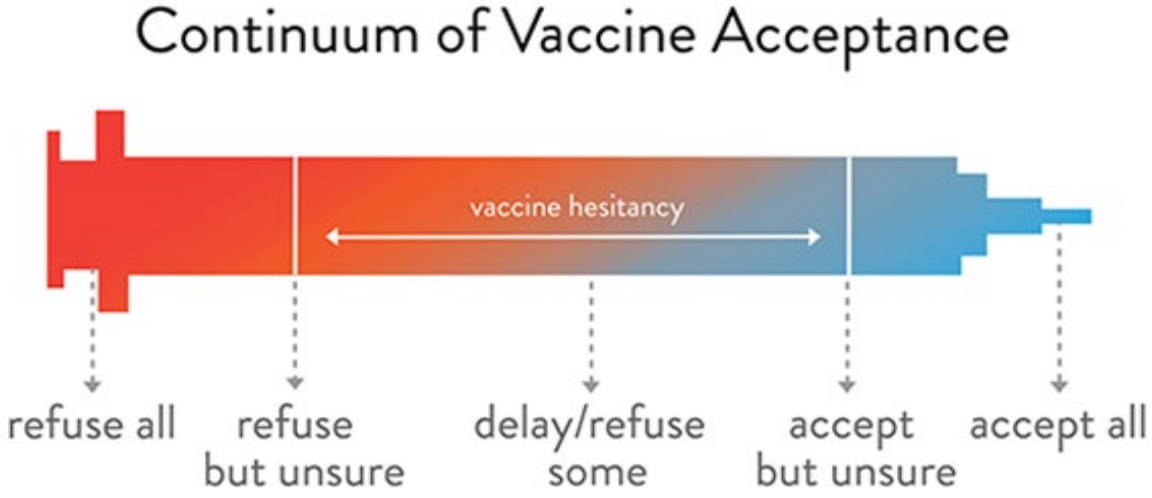
Would you like to go into the hospital for treatment of your stroke today?

We need to admit you to the hospital now for treatment of your stroke.

Omer SB, et.al. JAMA Pediatrics. August 14, 2017.

WHO CAN WE PROTECT WITH VACCINATION?

...AND WHO DO WE NEED TO PROTECT OUR PATIENTS FROM?



Tara Halle, TedX Oslo 2016. Graphic by Hannah Henry.

Anti-Vaccine Rally California 2015 [vs. SB 277]

1802 Caricature: Edward Jenner Administering Cowpox vaccine

ONGOING (PEDIATRIC) CONTROVERSY:
SHOULD YOU EXCLUDE ANTIVACCINE PATIENTS FROM PRACTICE?

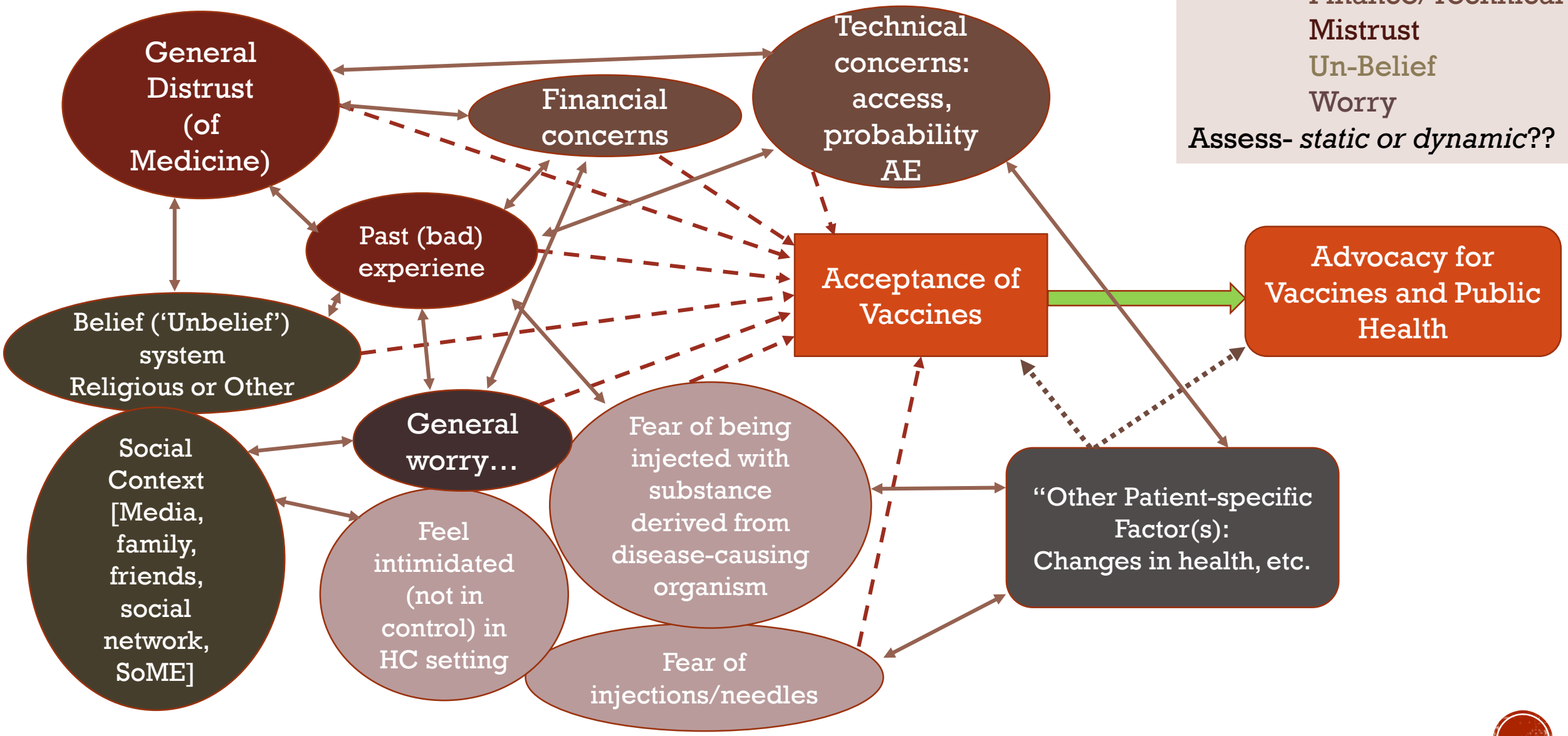
- Benefits of Exclusion:
  - Lower risk to introduce a vaccine-preventable disease to other families in practice
    especially important if many 'highest risk' patients in practice.
- Harms of Exclusion:
  - Less options for care for excluded families
  - Patient can be harmed by the objections of their parents…
  - Less chance these families can be convinced to change their minds and vaccinate
- Challenging practical and ethical decision…

Opel D, et.al. Pediatrics. April 2016. 137(4): 1-4.
https://www.aap.org/en-us/Documents/immunization_refusaltovaccinate.pdf

ACCEPTANCE V. AVERSION TO VACCINES

Themes:
- Finance/Technical
- Mistrust
- Un-Belief
- Worry

Assess- *static or dynamic*??



Adapted from http://vaccine-safety-training.org/risk-perception.html

Low Demand

High Demand

Refuse all Vaccines [Strident, evangelical 'Anti-Vaxxers']

Refuse but unsure [May be convinced]

Accept some vaccines, Refuse some, Delay some immunizations ['Strong Recommendation critical' to maximize uptake]

Accept but Unsure [*Unlikely to Accept if Vaccine is simply offered from menu…*]

Accept all vaccines RECOMMENDED

[*May not accept in the absence of a strong recommendation*]

Modified from http://nobleresearch.org/Doi/10.14312/2053-1273.2015-4
[initial concept c/o Eve Dubé, Institut National de Santé Publique du Québec, Canada]

ASSESSING THE 'VACCINE HESITANT'

Author, ref.	Least Resistant				Most Resistant
Healy, NFID 2015	Uninformed	Misinformed	Open-minded	Convinced/content	Missionary NO
Gust, AJHB 2005	Imm advocates	Go along, get along	Health advocates	Fence sitters	Worriers
Keane, Vaccine 2005	Vax believer	Cautious	Relaxed	Unconvinced	
Benin, Peds 2006	Accepters	Vaccine hesitant	Late vaccinators	Rejectors	

Take home: Many models based on individual studies
Hesitancy not directly correlated with vaccine uptake (or lack thereof)

Dube E, et.al. Human Vaccines and Immunotherapeutics. August 2013. 9(8): 1763-73.

ASSESSING THE 'VACCINE HESITANT'

Cognitive style	Main effect	Verbal expression	Approach
Denialist	Disbelieves accepted scientific facts, despite overwhelming evidence. Prone to believe conspiracy theories	"I don't care what the data show, I don't believe the vaccine is safe"	Provide consistent messaging repeatedly over time from trustworthy sources, provide educational materials, solicit questions, avoid "hard sell" approach, use motivational interviewing approaches
Innumerate	Cannot understand or has difficulty manipulating numbers, probabilities, or risks	"One in a million risk sounds high, for sure I'll be the 1 in a million that has a side effect, I'll avoid the vaccine"	Provide nonmathematical information, analogies, or comparators using a more holistic "right brain" or emotive approach
Fear-based	Decision making based on fears	"I heard vaccines are harmful and I'm not going to get them"	Understand source of fear, provide consistent positive approach, show risks in comparison to other daily risks, demonstrate risks of not receiving vaccines, use social norming approaches
Heuristic	Often appeals to availability heuristic (what I can recall equates with how commonly it occurs)	"I remember GBS happened in 1977 after flu vaccines, that must be common, and therefore I'm not getting a flu vaccine"	Point out inconsistencies and fallacy of heuristic thinking, provide educational materials, appeal to other heuristics
Bandwagoning	Primarily influenced by what others are doing or saying	"If others are refusing the vaccine there must be something to it, I'm going to skip getting the vaccine"	Understand primary influencers, point out logical inconsistencies, use social norming and self-efficacy approaches
Analytical	Left brain thinking, facts are paramount	"I want to see the data so I can make a decision"	Provide data requested, review analytically with patient

Poland and Poland. Vaccine. 29(2011): 6145-8.

CONCEPTS OF VACCINE HESITANCY:

EACH CAN BE A POSITIVE OR NEGATIVE…

- Complacency
  - Do what is the norm in my community
  - This is what my family has always done
  - Everyone on twitter says….
- Convenience
  - I will get vaccinated if it's easy
  - Cost/Insurance payment
  - Side effects
- Confidence
  - In vaccine safety
  - In my Physician, Pharmacist, Nurse…
  - In government
  - In vaccine manufacture and monitoring

Quinn S et.al. PLOS Currents 2016
Dube E, et.al. Human Vaccines and Immunotherapeutics. August 2013, 9(8): 1763-73.

PATIENT MOTIVATORS

- Risk perception
  - Perceived vulnerability
  - Perceived seriousness (severity) of disease to be prevented
  - Perceived cost of prevention (vaccine)
  - Benefit of action (vaccination) to prevent harm
- Trust
  - In Physician/provider of vaccine
  - In government/recommending authority
  - In industry producing and supplying vaccine
- Social
  - Norms
  - Pressure
  - Responsibility
- Religious and Philosophical

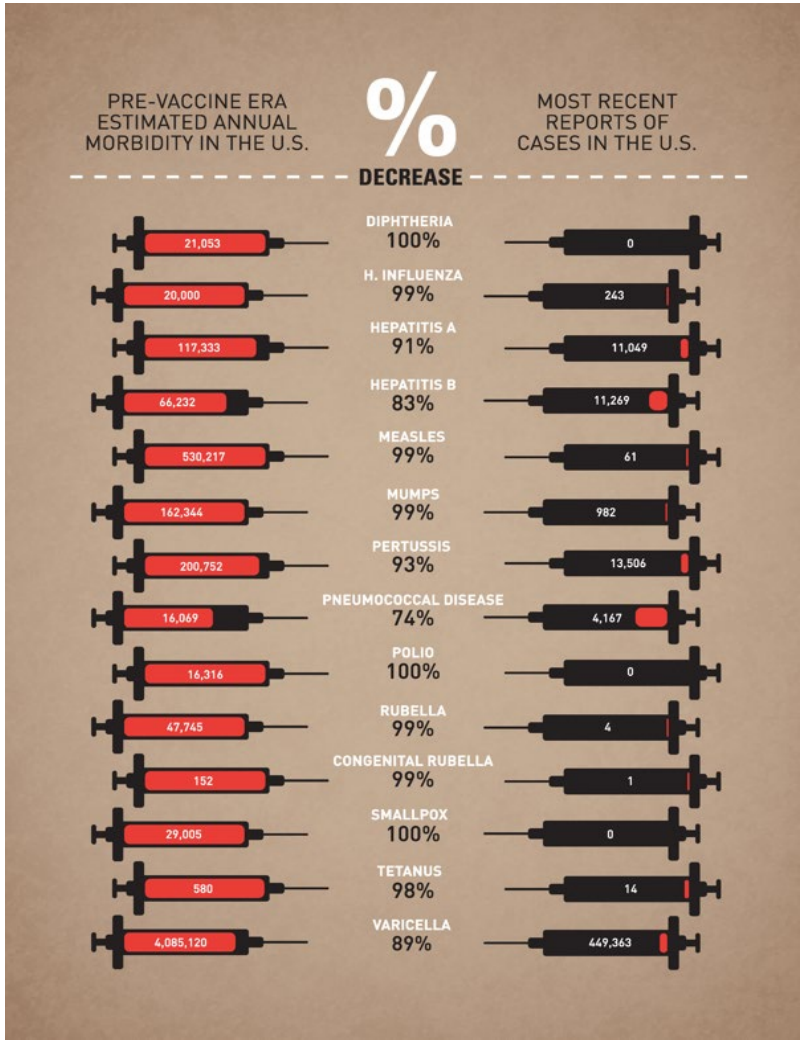
Dube E, et.al. Human Vaccines and Immunotherapeutics 2013. 9(8): 1763-73.

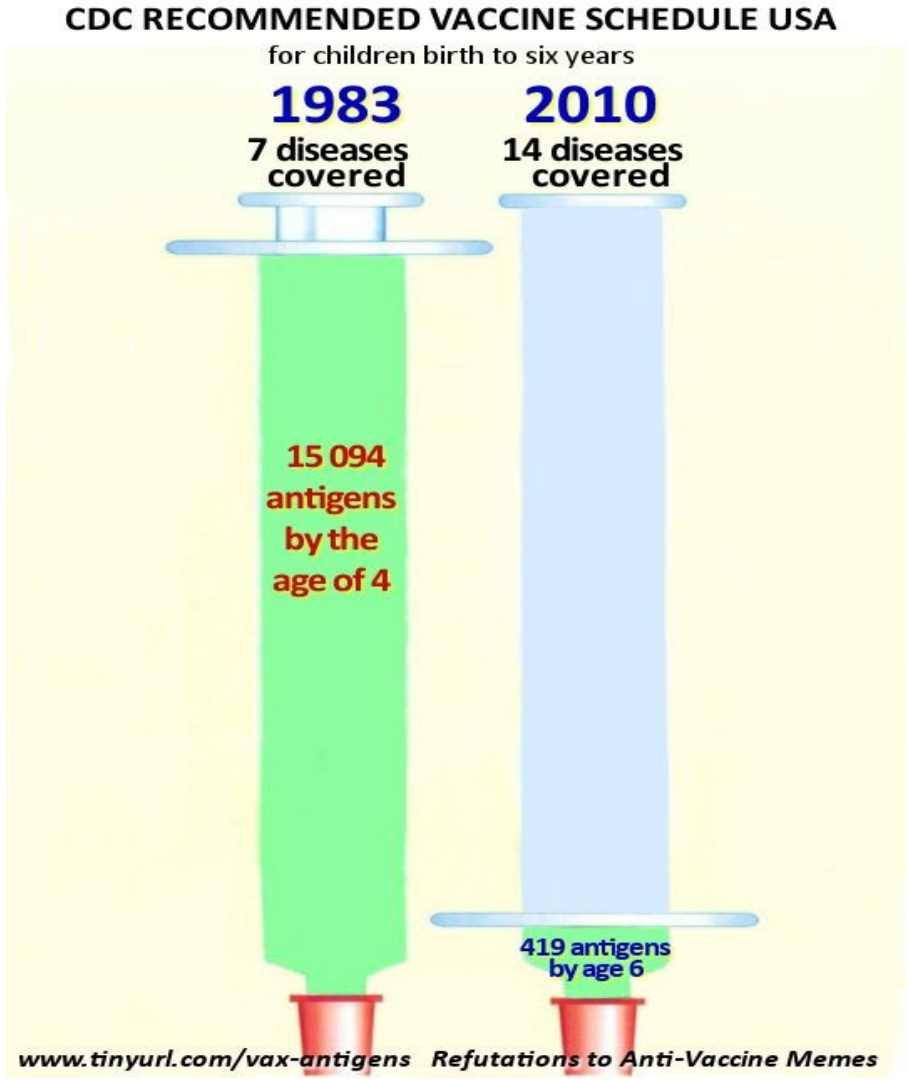
WHICH PATIENTS/PARENTS ARE MOST LIKELY TO BE VACCINE HESITANT?

- Younger age
- 'Fearful' or 'anxious' personality type
- Highly educated
- Skeptical approach to information
- Belong to a community with 'low vaccine acceptance'
- Rely on Social Media for much external information
- But… some older adults are also vaccine hesitant- risk factors:
  - Lower income and education
  - Increased cost of vaccine
  - Social isolation

Jain A, et.al. Vaccine 35(2017): 2315-28.
Eilers R, et.al. Vaccine 35(2017): 2823-30.

VACCINE FACTS 2017





https://www.forbes.com/sites/matthewherper/2013/02/19/a-graphic-that-drives-home-how-vaccines-have-changed-our-world/#408130003302
https://vaxplanations.wordpress.com/tag/gut-microbiota/

THE CHALLENGE POSED BY NEW VACCINES…

- Context / Scope of problem
- Defining risk
- The challenge of ‘new’
- Different messages may apply for different constituencies

PRACTICAL IMPLEMENTATION

‘Believe in the force, Luke…’

-Obi Wan Kenobi

Perhaps a 21st century corollary…

‘Believe in and effectively use vaccines, Physician, if you wish to protect your patients…”

-Bob Hopkins

HOW CAN WE ADDRESS VACCINE HESITANCY?

Disclaimer: Most studies in parents of children but common themes emerge

- 'Openness,' dialog, empathy and respect= keys, regardless of message
- Pro-vaccine messages do not always work as intended-
  - Effectiveness varies by vaccine attitudes of the recipient
  - Information may correct misconception of vaccine link to autism but also may reduce likelihood of vaccination in those least supportive of vaccination
- Emphasizing risk of Vaccine-preventable disease may have benefit
- 'Scare tactics,' dramatic disease narratives do not increase uptake
- No interventions consistently help increase uptake in highly vaccine resistant

Greenberg J, et.al. PLOS Currents Outbreaks 2017 Mar 3. ed.1.
Nyhan B, et.al. Pediatrics 2014. 133(4).
Jarrett C, et.al. Vaccine 2015 Aug 14; 33(34): 4180-90.

POPULATION-LEVEL INTERVENTIONS TO REDUCE HESITANCY

- Transparency in policy-making decisions re: vaccination program
- Educate providers and patients re:
  - Rigorous process required for new vaccine approval
  - Ongoing post-marketing surveillance for vaccine-related adverse events
- Active intake/listening to public concerns
  - Understand public perceptions
  - Inform risk communication
  - Include public input in planning vaccine policies and programs
- Research why patients and some HCP still have doubts re: vaccine safety, efficacy
- Research how we can best respond to these concerns

Leask J. Target the Fence-Sitters. Nature 473(2011): 443-45.
Karafilakis E, et.al. Vaccine 34(2016): 5013-20.

WHAT CAN A BUSY CLINICIAN/PRACTICE DO?

- Assure vaccine providers (staff) understand vaccine science and recommendations
- Build an immunization team in each practice setting
  - All team members on same page about vaccination
  - Applies to inpatient and outpatient
- Use tools to maximize vaccination
  - Reminder-Recall
  - Pre-visit planning
  - Standing Orders
- Physicians are the final line of defense
- Target interventions on those you have a chance to help…

Leask J. Target the Fence-Sitters. Nature 473(2011): 443-45.

INTERACTIVE!!!

SCENARIO #1

- Mary brings her 6 month old daughter Emily in to your office for 'well child care'.
- This is the first visit for this family in your practice
- Emily was born at term, has been breast-fed since and has had no health issues
- Emily has had newborn, 2 and 4 month immunizations according to WebIZ.
- During check- in, Mary tells your nurse 'she is worried about vaccines/vaccination'
- Nurse 'warns you' before you go in the room…

- How do you approach this situation??

SCENARIO #1

- [Complete usual history, developmental assessment, exam]
- I understand you are concerned about vaccines…
  - Can you tell me what your concerns are?
  - Why are you concerned?

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- Goal 1: ***Assess the situation and make a diagnosis…***
- Goal 2: ***Address motivation***
- Goal 3: ***Avoid reinforcing 'errors of fact' and Arguments***
- Goal 4: ***A firm recommendation is made in accord with motivation***
- Goal 5: ***Assemble a plan***

SCENARIO #2

- Joe brings his 12 year-old son Josh in for school physical before he starts 7th grade
- Joe and Josh have been coming to your practice for a number of years
- Josh has received all vaccinations to date (confirmed via WebIZ)
- Josh is checked in and you complete your routine history/development eval/exam
- You recommend vaccinations: Tdap, Mening, HPV and Joe pipes up…
- "WE'RE not having any of that SEX VACCINE!!!"

- How do you approach this situation?

SCENARIO #2

- I understand you are concerned about HPV vaccine…
  - Can you tell me what your concerns are?
  - Why are you concerned?

- - - - - - - - - - - - - - - - - -

- Goal 1: ***Assess the situation and make a diagnosis…***
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- Goal 4: ***A firm recommendation is made in accord with motivation***
- Goal 5: ***Assemble a plan***

SCENARIO #3

- Rochelle is 25 year old woman with asthma and diabetes who comes in for ED followup of an asthma exacerbation. She has improved with treatment but diabetes worsened with steroids prescribed to treat asthma.
- She has seen one of your partners in practice but this is first visit to you.
- Nurse strongly recommended influenza vaccination prior to seeing you based on standing order but she refused vaccine/administration.

- How do you approach this situation?

SCENARIO #3

- I understand you are concerned about flu vaccine…
  - Can you tell me what your concerns are?
  - Why are you concerned?
- [Complete usual history, developmental assessment, exam]*

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- Goal 1: ***Assess the situation and make a diagnosis…***
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- Goal 4: ***A firm recommendation is made in accord with motivation***
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* May address vaccine issue first or last but do not 'hide and ambush' your patient. If you wish to delay discussion- ask *then* say 'we'll talk about that after I complete your exam so I have complete data to go on'…The hide and ambush technique is *near certain* to result in no vaccines in arms…

SCENARIO #4

- Harry is a 72 year old who comes to your office as a new patient for a Medicare Annual Wellness visit. He has heart failure and CAD managed by a Cardiologist and COPD, OSA managed by a Pulmonologist.
- In checkin your nurse strongly recommended influenza and shingles vaccination and he loudly refused, stating ‘those damned things will kill you!!!’

- How do you approach this situation?

SCENARIO #4

- I understand you do not want either Influenza or Shingles vaccines…
  - Can you tell me what your concerns are?
  - Why are you concerned?
- [Complete usual history, developmental assessment, exam]*

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- Goal 1: ***Assess the situation and make a diagnosis…***
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VACCINE REFUSAL

- Nearly always an undesired outcome
- If approached from a compassionate perspective can be a long term opportunity
- If you get in a confrontation with patient- always will end badly for all concerned.
- Should be documented in medical record
- Next steps are key-
  - Set a specific plan to address in future
  - Maintain compassionate approach
  - Follow-through on the plan

VACCINE RECOMMENDATION

- Style is as important as the message content
  - Non-confrontational
  - Avoid scoffing, belittling, 'surprised disbelief'
  - Acknowledge patient motivations
  - Address patient concerns
- Try to understand your patient's motivations
  - Acknowledge that anti-vaccine info exists (without repeating specifics)
  - Focus on vaccine value [Protection for individual patient, her family, and community (society)]
  - Low risk
  - Low cost

PREVISIT PREPARATION

- Assure practice team has vaccine knowledge, skills
  - Previsit plan: Sets the stage and allows prioritized interventions
- Practice level: Initial vaccine recommendation
  - Who will deliver? Front desk? MA? Nurse? MD?
  - Message **must** be: Strong, Specific, Succinct
  - Follow through: Immunize vaccine acceptors immediately
    Refer those with hesitance to *THE CLOSER* (e.g. MD, APRN, Vaccine expert)
- CLOSER:
  - *Make the diagnosis* in those patients who say 'No' or 'But'

Hesitant	?
Questioning	?
Fearful	?
Anti-Vaccine zealot	.

  - *Unless unlimited time and patience, spend your resources on those who are not zealots…*

MANAGING VACCINE HESITANT

- Messaging should be targeted to 'diagnosis' (previous slide)
  a. Motivation should be addressed
  b. Maximize value to the particular individual (self protection? cost? family? other?)
  c. Make it human (Give a contextual example or 'put a face on the recommendation')
- Provide a presumptive vaccination recommendation
- Specify the vaccination plan
  - Now (This is the goal, but will not be achievable in all…)
  - If patient declines vaccine today and/or must be referred: Specify plan (to revisit or referral)
  - Verbalize and document plan to revisit or that patient refuses vaccine (+ revisit)
  - If documentation and followup not carried out as planned- you have missed an opportunity…
- Keep in mind that different people have different learning and decision-making styles
  - *While you may not achieve your goal in 1 visit: a good physician-patient relationship will go a long way in helping you ultimately reach your goal!!*

Eilers R, et.al. Vaccine, 35(2017): 2823-30.
Jain A, et.al. Vaccine, 35(2017): 2315-28.
Poland and Poland. Vaccine. 29(2011): 6145-8.

QUESTIONS??

ADDITIONAL REFERENCES

- http://vaccine-safety-training.org/home.html
- https://www.cdc.gov/vaccines/index.html
- http://www.nejm.org/doi/pdf/10.1056/NEJMp1010594
- https://www.cdc.gov/vaccinesafety/ensuringsafety/history/index.html
- https://www.niaid.nih.gov/about/vaccine-research-center-mission-and-history
- https://www.historyofvaccines.org/content/about