- Barbara DeBaun, MSN,RN, CIC
- Cynosure Health
- Montana MBQIP Webinar
- August 28, 2019

Vaccine Preventable Diseases: who is calling the shots?

Welcome to today's webinar

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BRN Contact Hours

- **To earn 1.0 BRN contact hour for attending today's webinar:**
  - Complete and submit the post webinar Survey Monkey. A link to the survey will be sent via email after the webinar concludes.
  - You must participate on the webinar for at least 50 minutes.
  - Certificates will be issued via email within one week after submitting the survey.

Learning Objectives

- Describe 3 myths associated with vaccines
- Discuss 3 approaches designed to improve vaccine acceptance rates
- Describe impact of declining vaccination rates in the U.S.

What are vaccines and how do they work?

4 main types of vaccines

- Live-attenuated
- Inactivated
- Subunit, recombinant, polysaccharide, conjugate
- Toxoid

Live-attenuated vaccines

- Measles, mumps, rubella (MMR), rotavirus, smallpox, chickenpox, yellow fever
- Use a ‘weakened’ form of the germ that causes disease
- Strong and long-lasting immune response
- Immune system and health history considerations

Inactivated vaccines

- Hepatitis A, flu shot, polio shot, rabies
- Use a killed version of the germ that causes disease
- Immunity not as strong as live vaccines
- Several doses/boosters

Subunit, recombinant, polysaccharide and conjugate vaccines

- *Haemophilus influenzae* type b (HIB), Hepatitis B, Human papillomavirus (HPV), Whooping cough (part of DTaP), Pneumococcal disease, Meningococcal disease, Shingles
- Use specific pieces of the germ
- Give a very strong response that's target to key parts of the germ
- OK to use on almost everyone
- Booster shots are needed

Toxoid vaccines

- Diphtheria, tetanus
- Use a toxin made by the germ that causes disease
- Create immunity to the parts of the germ that causes disease not to the germ itself
- Immune response is targeted to the toxin, not the whole germ
- Booster

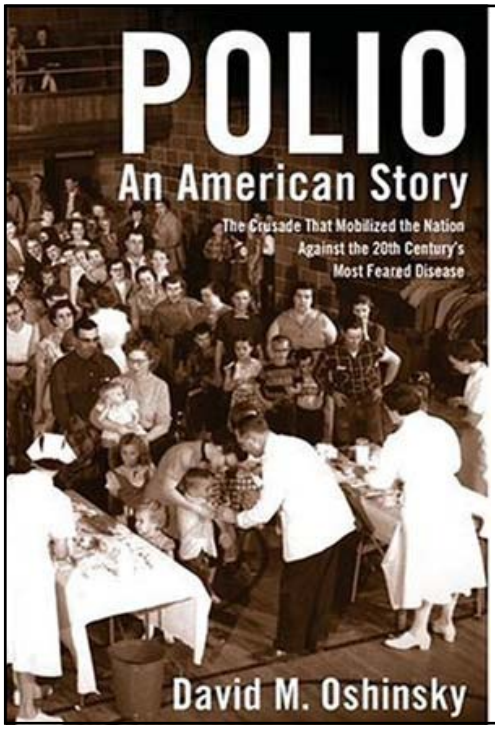
The birth of vaccination in the US

Polling Question

- Most people that I know believe:
  - Vaccines do more harm than good
  - Vaccines do more good than harm

Impact of Vaccines on Disease Prevention

- In the 20th century, the average life span of U.S. citizens was lengthened by more than **30 years**



If we totally stopped vaccinating, what would happen?

- 2.7 million measles deaths worldwide
- 600 children in the US would die from *Haemophilus influenzae* meningitis
- Polio would reappear resulting in 13,000 to 20,000 cases of paralytic polio in the US every year

If vaccines are so good, why do we only hear about the bad stuff?

- Preventative medicine is not glamorous
- We are victims of our own success
- Diseases are not seen as threats
- Adverse reactions are rare but real

Polling Question

- Most people that I have talked to in the last year believe:
  - Vaccines cause autism
  - There is no connection between vaccines and autism

The two longest living myths about vaccines

They contain mercury which causes major harm

They cause autism

Thimerisol

Autism

Lancet retracts 12-year-old article linking autism to MMR vaccines

Published at www.cmaj.ca on Feb. 4

Twelve years after publishing a landmark study that turned tens of thousands of parents around the world against the measles, mumps and rubella (MMR) vaccine because of an implied link between vaccinations and autism, *The Lancet* has retracted the paper.

In a statement published on Feb. 2, the British medical journal said that it is now clear that "several elements" of a 1998 paper it published by Dr. Andrew Wakefield and his colleagues (*Lancet* 1998;351[9103]:637-41) "are incorrect, contrary to the findings of an earlier investigation."

Dr. Richard Horton, editor of *The Lancet*, declined through a spokesperson to speak to *CMAJ* about this issue.

In the original paper, Wakefield and 12 coauthors claimed to have investigated "a consecutive series" of 12 children referred to the Royal Free Hospital

Reuters/Luke MacGregor

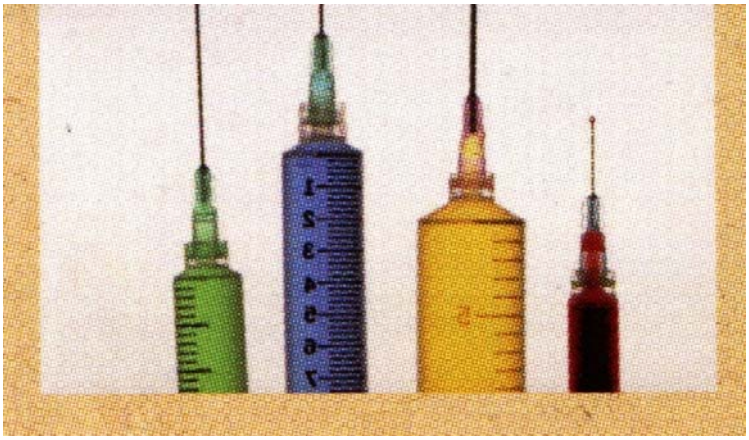
Dr. Andrew Wakefield speaks to media in London, England on Jan. 28 after the General Medical Council ruled that he acted unethically in doing his research into a link between Measles Mumps Rubella vaccinations and autism.

Vaccination Challenges

- Parents today have never seen most vaccine-preventable diseases
- Allegations of rare vaccine safety issues are hard to disprove
- Anti-vaccine organizations are well organized
- People love controversy

Are vaccines 100% 'risk free'?

- Oral Polio vaccine
- Influenza vaccine



What are the three main reasons to vaccinate?

- Some diseases are so common that a choice not to get vaccine is a choice to get disease
- Some diseases continue to infect small numbers of kids
- Some diseases have been eliminated in US but are prevalent in other regions of the world

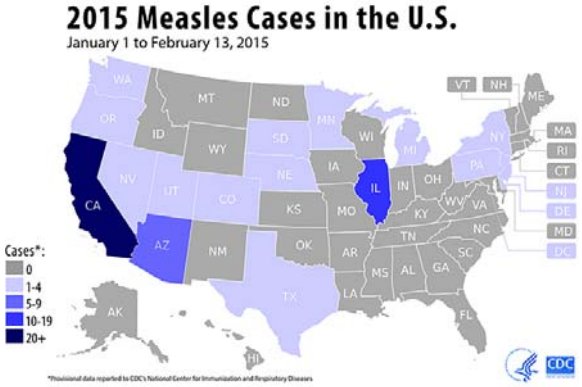
The way we were


Do You Remember the
MEASLES

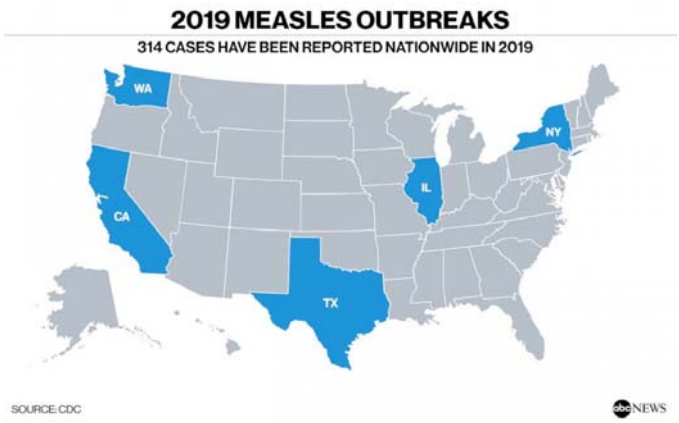
Polling Question

- I believe that measles is:
  - A thing of the past thanks to vaccines
  - A public health problem

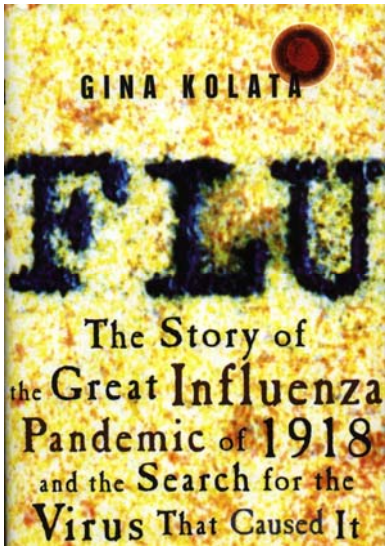
Measles 2015



We are not doing any better



Focus on Influenza



Healthcare personnel flu vaccination rates

MT Healthcare Personnel Influenza Immunization data

2015-2016	2016-2017	2017-2018	2018-2019
79%	87%	86%	88%

- 38/48 Critical Access Hospital Reporting to NHSN
- 53% of reporting facilities are at 90% or higher HCW immunization rate
- 32% of facilities have between 80% and 90% rate
- 16% of facilities fall under 76% HCW immunization rate
- 6 Facilities had a decrease of 8% or greater in their staff immunizations

Flu widespread in Montana, January 25, 2019

- In Montana, there have been 978 cases of the flu in 44 counties, with 58 hospitalizations and two deaths, including one child

Advisory Committee on Immunization Practices (ACIP) 2019

eTable. 2019 Recommended Adult Immunization Schedule for ages 19 years or older*

Vaccine	19-26 years	27-49 years	50-64 years	≥65 years
Influenza inactivated or Influenza recombinant **or** Influenza live attenuated	1 dose annually **or** 1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap, then Td booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			
Varicella	2 doses (if born 1980 or later)			
Zoster recombinant (RZV) (preferred) **or** Zoster live (ZVL)			2 doses **or** 1 dose if 60 years or older	
Human papillomavirus (HPV)	3 doses if not previously received	Consider to age 45 years		
Pneumococcal conjugate (PCV13)	1 dose if at risk			Consider if no prior dose
Pneumococcal polysaccharide (PPSV23)	1 or 2 doses depending on indication if at risk			1 dose
Hepatitis A	2 or 3 doses depending on vaccine if at risk			
Hepatitis B	2 or 3 doses depending on vaccine if at risk			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication if at risk, then booster doses every 5 years if risk remains			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine if at risk, then booster doses (see text) if risk remains			
Haemophilus influenza type b	1 or 3 doses depending on indication if at risk			

*modified from https://www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf
Yellow shading indicates vaccine is routinely recommended.

Influenza Vaccine

Influenza Vaccine 2019/2020

Routine annual vaccine recommended for all persons aged 6 months or older without contraindication

- Severe allergy to a prior dose or component of the vaccine

Case-by-case decision for persons who developed Guillain-Barre syndrome within 6 months of influenza vaccine

Three strains or four?

Trivalent formula (H1N1, H3N2 influenza A strains plus one B strain)

Quadrivalent formula (H1N1, H3N2 influenza A strains, plus two B strains)

High dose, super-charged

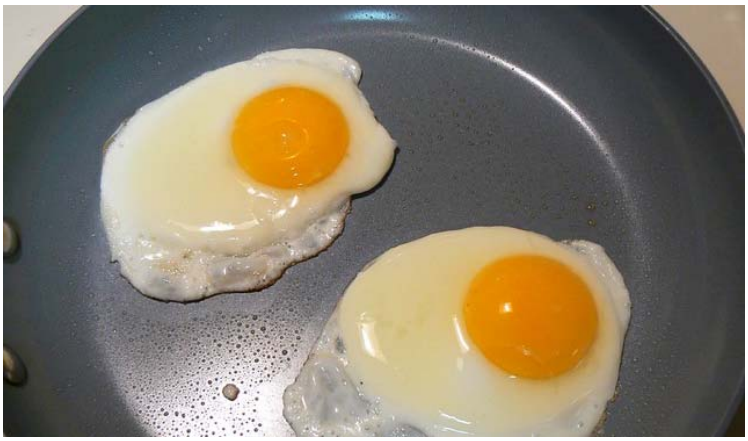
- Fluzone
- Fluad

Quadrivalent Intranasal vaccine

Healthy adults up to age 50

Polling Question

- If a person is allergic to eggs, it is unsafe to give him/her a flu shot:
  - True
  - False
  - Not sure



Facts about egg allergy

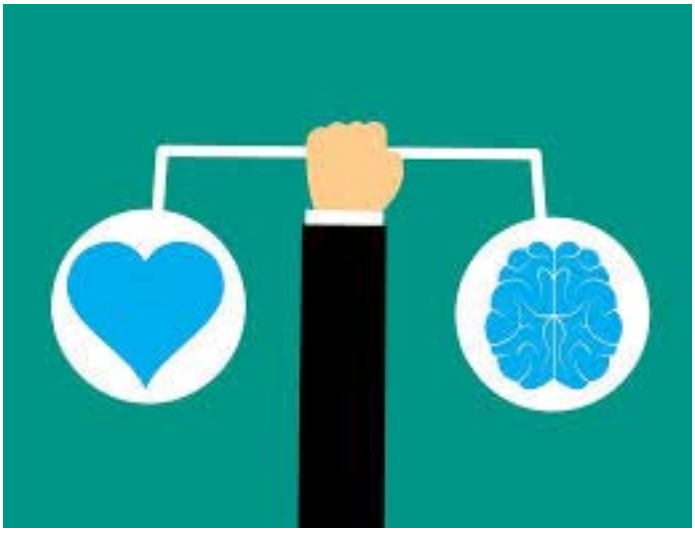
- Severe egg allergy, including anaphylaxis, is no longer a contraindication to any influenza vaccine
- However, for persons ≥18 who are allergic to eggs and decline vaccine, Flublok formulation with no egg protein is an alternative

Why do healthcare providers decline a flu shot…Is it a barrier or an excuse? ?

Barriers

Solutions to barriers

Solutions to ‘excuses’



I have never had the flu so why bother?

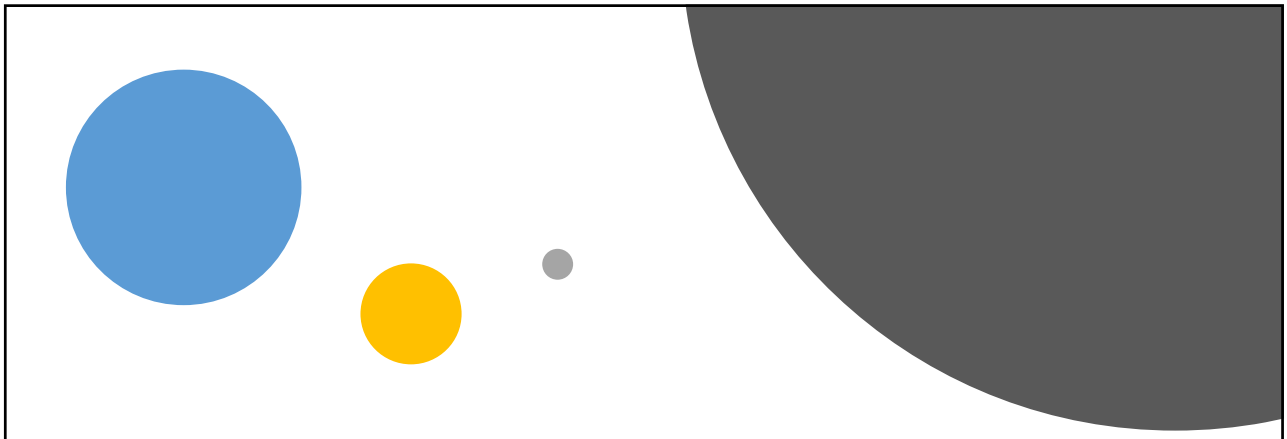
It's only 47% effective

If your loved one or friend was in the hospital, who would you want assigned to care for him/her?

What's your plan?

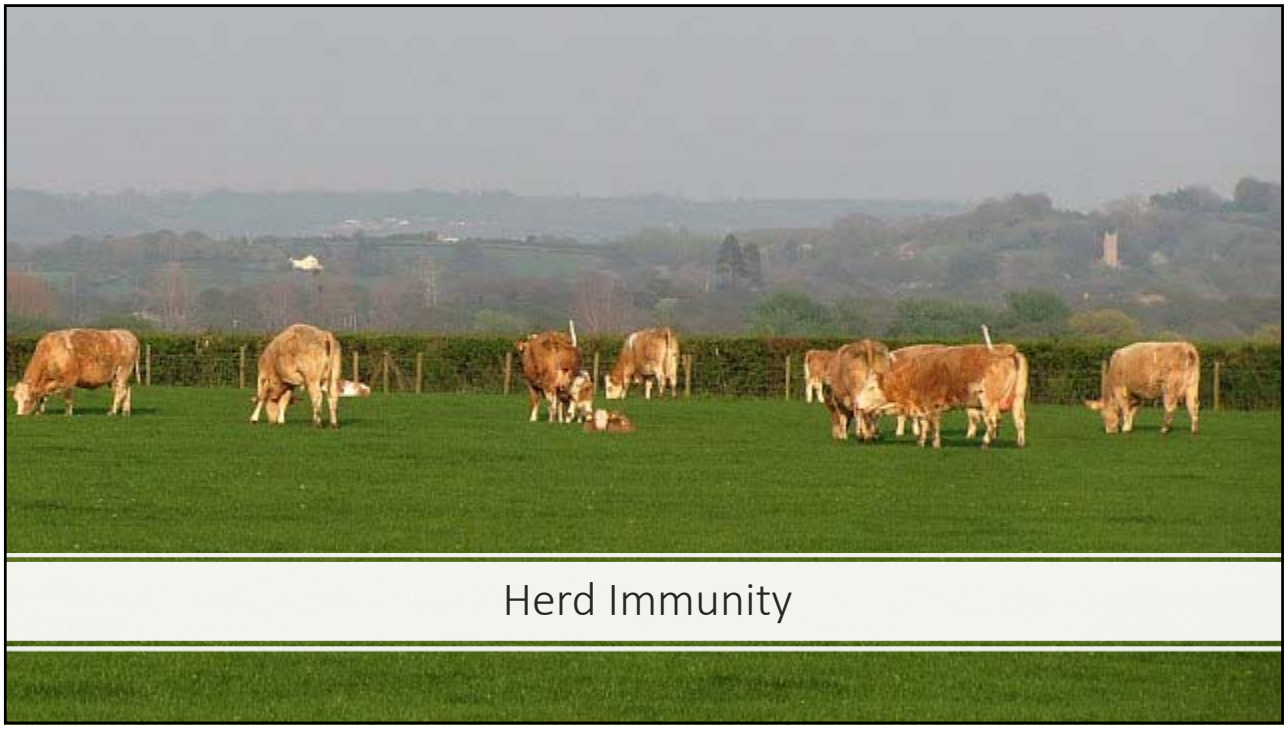
Polling Question

- We have a 'condition of employment' policy for influenza vaccination
  - Yes
  - No
  - No, but thinking about it



Badge stickers | "I Got Mine"

Community Partnerships



Herd Immunity

Customize the WAY you Communicate

SHARE INFORMATION ⟷ SHAPE BEHAVIOR

General Publications	Personal Touch	Interactive Activities	Public Events	Face-to-face
flyers	letters	telephone	Road shows	one-to-one
newsletters	cards	email	Fairs	mentoring
videos	postcards	visits	Conferences	seconding
articles		seminars	Exhibitions	shadowing
posters		learning sets	Mass meetings	
		modeling		

Adapted from Ashkenas, 1995

1:1 Conversations and Stories

Summary

https://www.surveymonkey.com/r/53WJW3D

Post Webinar Survey Link

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