Importance of School Immunization for Community Protection

A Health Watch USA℠

Healthcare Transparency &

Patient Safety

Lexington, KY

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Vaccines in Children & Adolescents

- Diptheria, tetanus, acellular pertussis & Diphtheria, tetanus vaccine
- Haemophilus influenzae type B vaccine
- Hepatitis A vaccine, Hepatitis B vaccine
- Human papillomavirus vaccine
- Influenza vaccine (inactivated) & Influenza vaccine (live, attenuated)
- Measles, mumps and rubella vaccine
- Meningococcal serogroup A,C,W,Y & M. serogroup B vaccine
- Pneumococcal 13-valent conjugate & 23-valent polysaccharide vaccine
- Poliovirus vaccine (Inactivated)
- Rotavirus vaccine
- Tetanus, diphtheria, and acellular pertussis vaccine
- Tetanus and diphtheria vaccine
- Varicella vaccine

Importance of School Immunizations

- **Promote, Prevent, Protect, Provide**
- **School vaccination requirements help safeguard children and adolescents by making sure they are protected when they get to "The Temple of Betterment."**
- **School records help to identify pockets of unvaccinated students.**
- **Herd Immunity**

5 Important Reasons to Vaccinate Your Child

- Immunizations can save your child's life.
- Vaccinations are safe and effective.
- Immunizations protect others you care about.
- Immunizations protect future generations
  - ↓ or eliminated many diseases that killed or severely disabled people a few generations ago (small pox, polio, rubella.
- Immunizations can save your family time and $.
  - Lost time from work.

Vaccine Exemptions Allowed

- Medical Reasons (all states)
- Moral or religious Reasons (18 states)
- Philosophical reasons (20 states)
- Perceived Risk Low
- Vaccine Hesitant Parents
- Loss of Herd Immunity
  - "More natural" immunity

Barriers Associated with Non- Compliance

- Concern about side effects
- Questions about effectiveness
- Questions safety
- Parent concerns
  - Cost
  - Children too young, body immature
  - Shots per session – large # of injections
  - Pain from injections
  - Ingredients in vaccine - Side effects:
    - Autism, Asthma, Multiple Sclerosis

Measures to Improve Compliance

- Increasing community demand for vaccination
- Enhanced access
- Provider-based intervention
- Health-provider intervention
- Education of community
- Economics

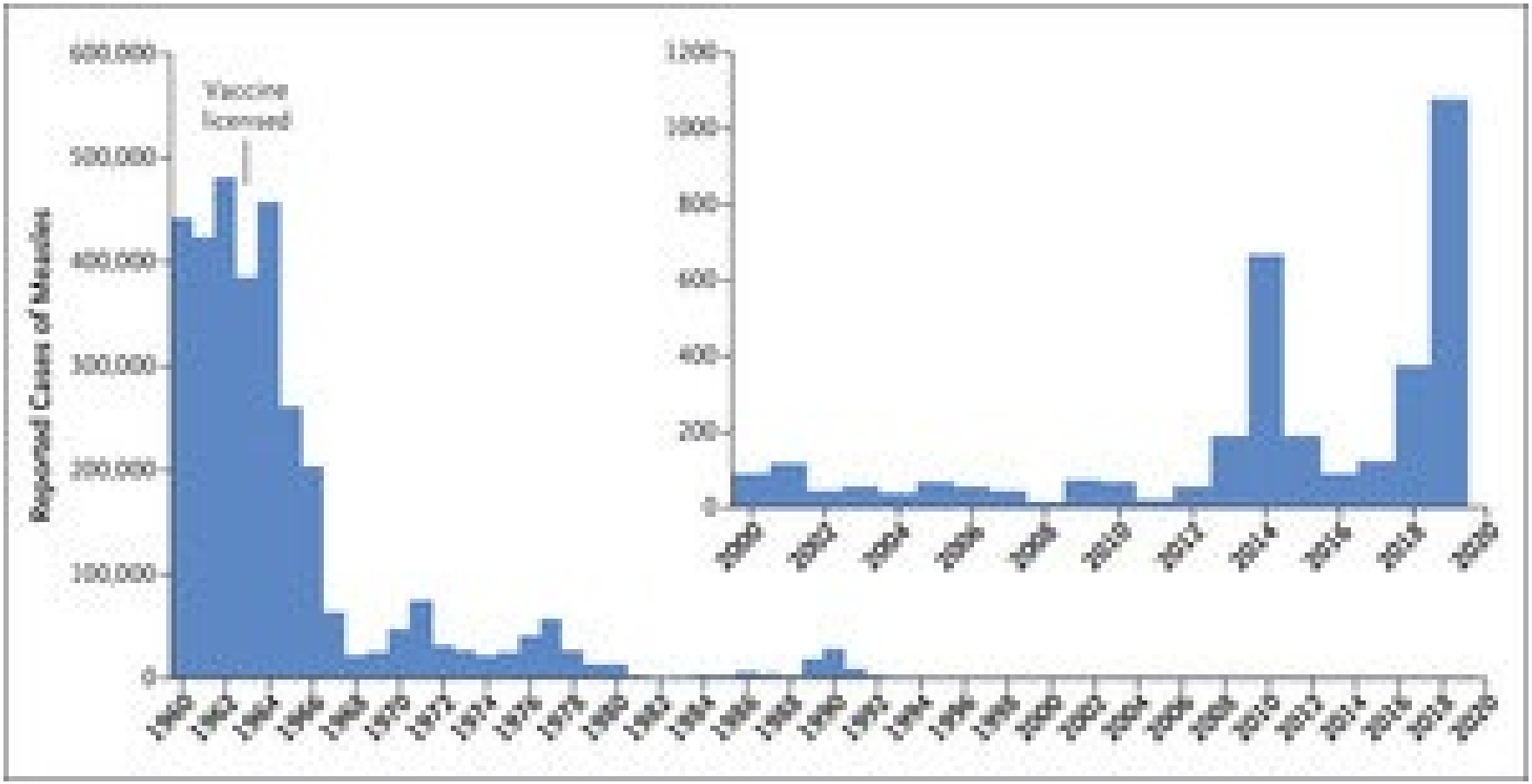
Resurgence of Outbreaks Due to Multiple Causes

- Non-compliance or refusal to vaccinate
- Incomplete vaccinations
- Waning immunity (esp. Acellular Pertusis
- Imported cases

Measles in the United States

- Measles virus is one of the most highly contagious human pathogens known.
- Since measles vaccine (licensed in 1963), incidence of measles has rapidly declined.
- Incidence decreased from 450,000 to < 100
- Deaths from measles in 2017 globally were 109,000.
- During period 2000-2017, global incidence declined 83%
  - Vaccines prevented 21.1 million deaths
- Recurrence in US is due to travel and unimmunized populations

Number of Cases of Measles Reported Each Year, US, 1960-2019



NEJM July 25, 2019 Measles

Measles Immunizations Are Safe and Effective

- 1 dose of MMR – 12-15 months – 93% effective
- 2 doses of MMR – 4 – 6 years – 97% effective
- 2 doses is the standard for the prevention of measles.

Key Clinical Manifestations

- **Prodromal 2-4 days fever, cough, coryza, conjunctivitis, rash.**
- **Rash (starts on head and spreads to rest of body).**

Manifestations of Measles in Children

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Table 1. Comparison of the Risk of Complications Associated with Measles and the Risk of Serious Adverse Events after Measles Vaccination.*

Complication or Serious Adverse Event	Risk after Natural Disease†	Risk after Vaccination‡
Otitis media	7 to 9 per 100	0
Diarrhea	8 per 100	0
Pneumonia	1 to 6 per 100	0
Subacute sclerosing panencephalitis	4 to 11 per 100,000	0
Encephalitis	0.5 to 1 per 1000	<1 per 1,000,000
Death	Approximately 1 per 1000 (1 to 15 per 100 in developing countries)	0
Febrile seizure	—§	1 per 3000
Thrombocytopenic purpura	—§	1 per 30,000
Anaphylaxis	0	2 to 14 per 1,000,000

* Information is from the Institute of Medicine[35] and Pless et al.[36]
† Risk is expressed as the number of events per number of cases of measles.
‡ Risk is expressed as the number of events per number of vaccine doses administered.
§ Complication has been described in measles case reports, but the risk is not well quantified.

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Table 2. Summary of Measles Vaccination Recommendations in the United States.*

Age Group	Vaccination Recommendation
Preschool children	
Routine childhood schedule	First dose at 12 to 15 months (MMR vaccine); second dose at 4 to 6 years (MMR-V vaccine)
Outbreak settings or before international travel	First dose may be given as early as 6 months, with repeat of first dose at 12 months; second dose given as early as 13 months†
HIV infection	First dose at 12 months; second dose given as early as 13 months†‡
Schoolchildren and adolescents	All children in kindergarten through 12th grade should have documentation of two doses of MMR unless they have other evidence of immunity§
Adults (≥18 years of age)	Documentation of receipt of at least one dose of MMR unless they have other evidence of immunity§
High-risk settings	Students and staff in colleges and other post–high school educational institutions, persons working in health care facilities, and international travelers should have documentation of receipt of two doses of measles vaccine unless they have other evidence of immunity§

* Information is from McLean et al.[29] All recommendations exclude persons for whom measles vaccination is contraindicated. MMR denotes measles–mumps–rubella, and MMR-V measles–mumps–rubella–varicella.
† Clinicians should wait at least 28 days after any dose before giving a subsequent dose.
‡ Revaccination is recommended for persons with perinatal human immunodeficiency virus infection who were vaccinated before establishment of effective antiretroviral therapy (ART) with two appropriately spaced doses of MMR vaccine after effective ART has been established.
§ Other evidence can include birth before 1957 or laboratory confirmation of disease or laboratory evidence of immunity.

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Table 3. Centers for Disease Control and Prevention Recommendations for Acceptable Evidence of Immunity to Measles in the United States.*

Type of Evidence	Age Group	Comments
Written documentation of vaccination with live measles–containing vaccine	Preschool-age children (documentation of one dose) School-age children, kindergarten through 12th grade (documentation of two doses) Adults not at high risk (documentation of one dose) Adults at high risk (documentation of two doses)	Date of vaccination should appear on the vaccination card or in medical records. Adults at high risk include all students in post–high school educational institutions, health care personnel, and international travelers.
Laboratory evidence of immunity	All ages	Immunity is indicated by positivity for measles IgG.
Laboratory evidence of prior measles	All ages	A previous case of measles should have been confirmed by measles IgM positivity, IgG seroconversion or a substantial increase in measles IgG between acute- and convalescent-phase serum specimens, or a positive PCR result.
Date of birth	Born before 1957	Persons born before 1957 are assumed to have acquired measles during childhood and therefore to be immune.

* Information is from McLean et al.[29] and Gastanaduy et al.[40] Persons who do not have at least one of the criteria listed should be vaccinated. PCR denotes polymerase chain reaction.

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If we do not change our direction,

we are likely to end up where we are headed.

Ancient Chinese Proverb

Strategies

- Educational strategies
- Access strategies
- Prevention strategies
- Intervention strategies
- Strategies of compassion
- Research strategies
- Political strategies
- Leadership strategies
  - The 5 “C”s Clarity of vision, Consistency, Competent, Commitment, Control

Prevention Depends on You
Must Care Enough to Share Responsibility

- **C – Commitment, Community, Consistency**
- **A – Aware, Advocacy, All, Action plan**
- **R – Reach out, responsible, research, risk**
- **E – Educate, Empower, Eradicate, Erroneous**

Old Ibo Saying

Not to know is bad.

Not to want to know is worse.

Not to hope is unthinkable.

But not to care is absolutely unforgivable

THE END