



Countering Anti-Vaccine Myths

November 20, 2003

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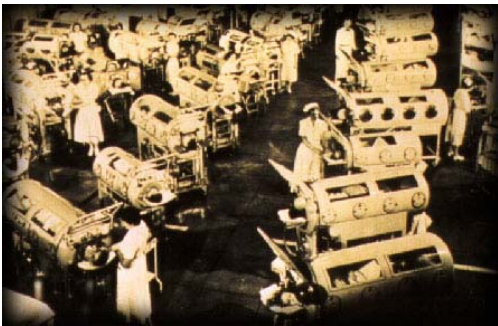
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www.albany.edu/sph/coned/t2b2.html

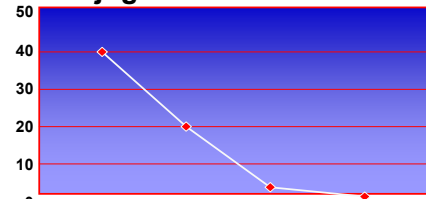


"The Cow Pock - or - the Wonderful Effects of the New Inoculation!"
J. Gillray, 1802

Fear of vaccines was present in the past, but fear of disease overshadowed it

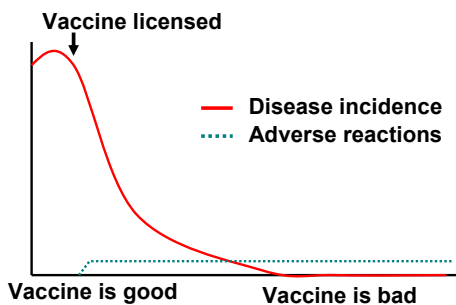


**Improvements with time:
Hib conjugate vaccine licensed 1987**



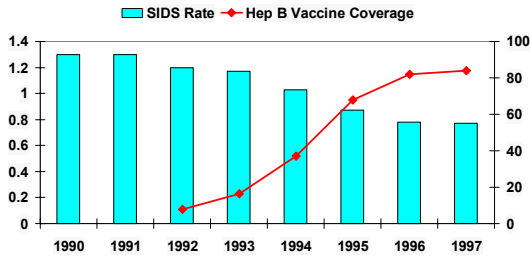
Estimated annual incidence of invasive Hib per 100,000 Children < 5 years of age, 1987-1996

Shifting Perceptions



**Sequence
Does Not Equal
Consequence**

SIDS & Hepatitis B Vaccines



Establishing cause requires information in all four boxes

		Illness or Syndrome	
		Yes	No
Vaccination	Yes	a	b
	No	c	d

Headline News? (A hypothetical case)

Illness or Syndrome

Vaccination

“We found 95 kids who got MMR & then ASD!”	
“We found very few kids with ASD who didn’t get MMR”	

Somewhere on page 22...

Illness or Syndrome

Yes No

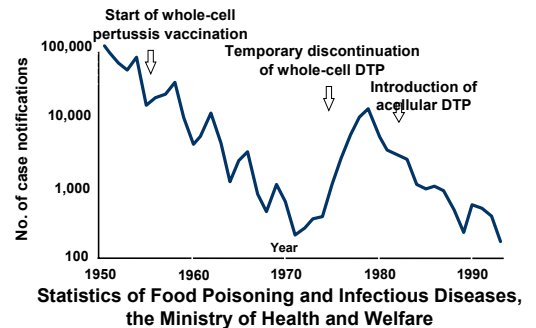
Vaccination

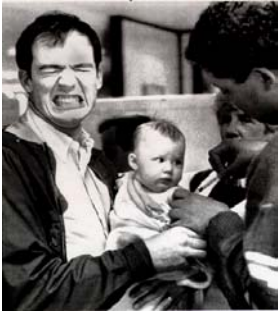
Yes	“We found 95 kids who got MMR & then ASD!”	98% of kids who got MMR developed normally
No	“We found very few kids with ASD who didn’t get MMR”	98% of kids who didn’t get MMR developed normally

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

- Controversy sells
- Preventive medicine is not glamorous

The media need to take their responsibility seriously





Vaccine Safety Questions

Do vaccines overload the immune system?

recommended vaccines

1900	1960	1980	2000
Sm.pox	Sm.pox Pert-w Diph/Tet Polio	-- Pert-w Diph/Tet Polio M, M, &R	-- Pert-a Diph/Tet Polio M, M, &R Hep B Hib Vzv PC7

antigens in recommended vaccines

1900	1960	1980	2000
Sm.pox 200	Sm.pox 200 Pert-w 3000 Diph/Tet 2 Polio 15	-- Pert-w 3000 Diph/Tet 2 Polio 15 M, M, &R 24	-- Pert-a 2 to 5 Diph/Tet 2 Polio 15 M, M, &R 24 Hep B 1 Hib 2 Vzv 69 PC7 8
≈ 200	≈ 3217	≈ 3041	≈ 123-126

Do vaccines overwhelm the immune system?

- Infants can respond to $\geq 10,000$ vaccines
- Infants respond to simultaneous vaccines in a manner similar to individual vaccines
- Vaccines do not “open the door” to more serious infections

Multiple immunizations and autoimmune disease

Large, well-controlled studies do not support the hypothesis that vaccines cause:

- MS
- Type I diabetes
- Autoimmunity

Offit PA and Hackett CJ. *Pediatrics* 2003; 111:653-659

Immune Dysfunction IOM Report

- Evidence is inadequate to accept or reject a causal relationship between multiple immunizations and an increased risk of allergic disease, particularly asthma

February 29, 2002

**Vaccines show no association with asthma:
Vaccine Safety Data Link Study
Relative risk of asthma (95% CI)**

	2 or more visits	Any or no visits
DTP	0.9 (0.6-1.2)	0.8 (0.6-1.2)
OPV	0.9 (0.6-1.2)	1.1 (0.7-1.4)
MMR	0.8 (0.6-1.0)	0.8 (0.6-1.1)
Hib	1.1 (0.7-1.6)	1.2 (0.8-1.8)
Hep B	1.1 (0.9-1.3)	1.2 (0.95-1.4)

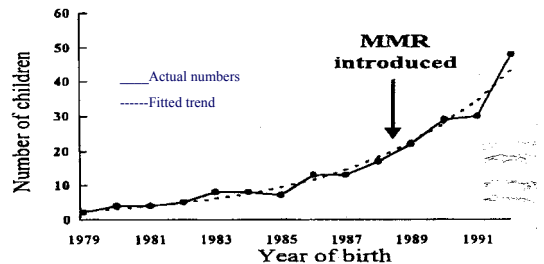


**MMR and Autism
England**

- Population-based study in North East Thames region to investigate trends in the incidence of autistic disorders before & after introduction of MMR in October 1988
- 498 cases of autism identified

Taylor et al. Lancet 1999;353:2026

**Cases of autism under 60 months of age in
North East London by year of birth**



**MMR and Autism
England**

- Steady increase in cases by year of birth with no “step-up” or change in trend line after introduction of MMR
- No difference in age at diagnosis between cases vaccinated before or after 18 months of age and those never vaccinated

Taylor et al. Lancet 1999;353:2026

**MMR and Autism
England**

- Children with autism were not more likely to be vaccinated than children without autism
- Developmental regression did not cluster in the months after vaccination
- If there is an association between MMR and autism, “it is so rare that it could not be identified”

Taylor et al. Lancet 1999;353:2026

MMR and Autism California

- Retrospective analysis of MMR immunization coverage rates among children born in 1980-1994
- Retrospective analysis of autism cases among children born in those years
- Trend analysis shows no apparent correlation between MMR coverage and cases of autism

Dales et al. JAMA 2001;285:1193

IOM Report on MMR and Autism

- Evidence favors rejection of a causal relationship in the population level
- Consistent body of epidemiological evidence shows no association
- No proven biological mechanism that would explain such a relationship

MMR & Autism – Other Reports

- Danish study
- Independent, exhaustive review by American Academy of Pediatrics
- Other statements
 - World Health Organization
 - American Medical Association

If Immunization Levels Fall . . .

- In Ireland >1600 cases of measles (resulting in 3 deaths) in 2000
- Outbreaks of measles & mumps in England



Does thimerosal
cause autism,
ADHD, or
Language Delay?



Background

- Federal Act to reduce Hg exposure
- Thimerosal -Hg based preservative
- Vaccine schedule prior to 1999 for some infants could exceed 1 federal guideline
- No evidence of harm
- No thimerosal used as preservative in peds vaccines

Thimerosal & Autism

IOM Report

- “The hypothesis that thimerosal exposure through . . . childhood immunization[s] . . . has caused neurodevelopmental disorders is not supported by clinical or experimental evidence”
- The hypothesis is biologically plausible

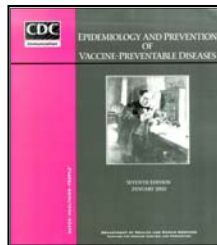
October 1, 2001

Notes

- Mercury levels in vaccinated children
- Danish study
(Autism rates increased since thimerosal removed from vaccines there)
- Law suits

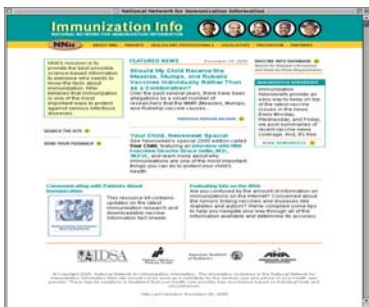
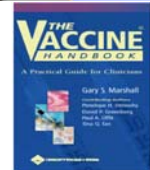
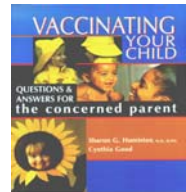
CDC National Immunization Program

- Immunization hotline
800-232-2522
- Email questions to
nipinfo@cdc.gov
- Website www.cdc.gov/nip
- “The Pink Book” available
free online
- “Parents Guide”
- Adult “Call to Action”



Books

- Vaccinating your child -
Questions and answers for the
concerned parent
Humiston & Good
- Vaccines- What every parent
should know
Offit & Bell
- The Vaccine Handbook
Marshall



www.immunizationinfo.org