

Is It Safe to Send Your Child to School?

Vaccine Preventable Diseases

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California Conference of Local Health Officers
Sacramento, CA – October 24th, 2013

Full Disclosure

- Personal Bias
 - Potable Drinking Water
 - Sanitary Waste Disposal
 - Vaccines

The greatest Public Health achievements of the past several centuries.



New York State Department of Health Photograph



TIME

THE WEEKLY NEWSMAGAZINE

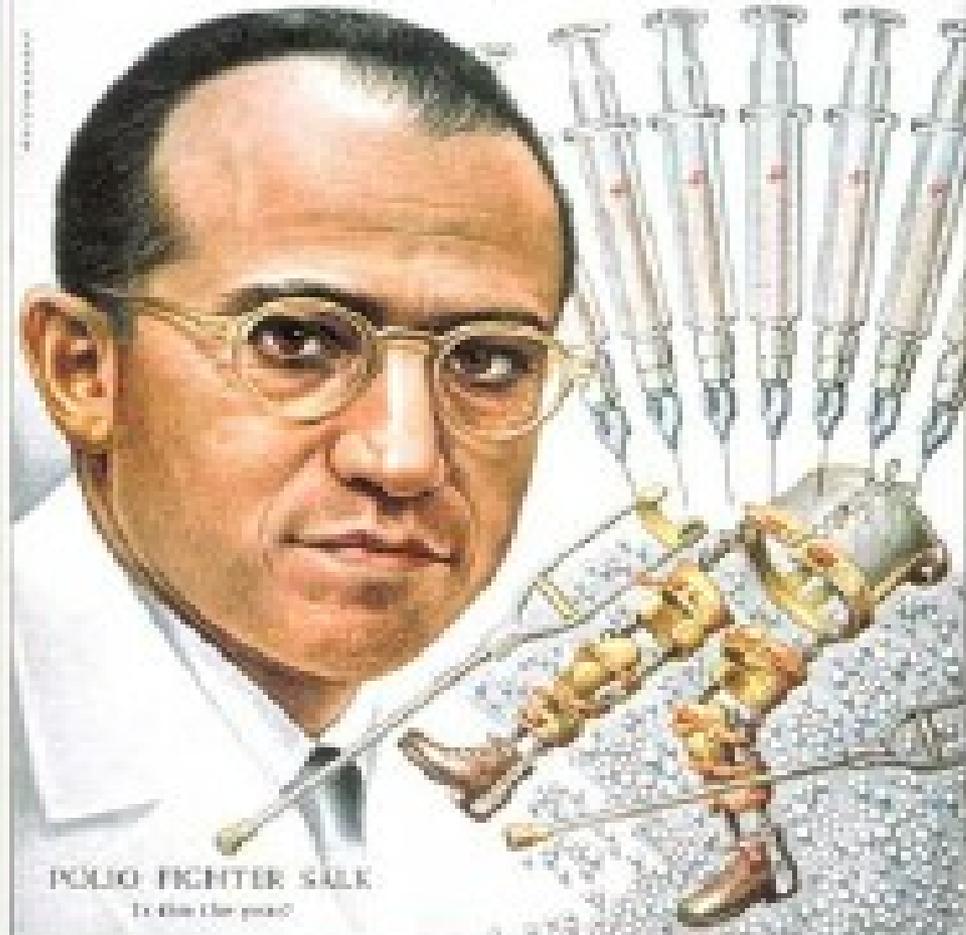


Illustration by [unreadable]

POLIO FIGHTER SALK

To Win the year!

The Pentagon Strategy to Hammer Saddam

**How to Use
Ritalin the
Right Way**

**Microsoft's
Pesky Rival**

U.S. News & WORLD REPORT

NOVEMBER 23, 1998

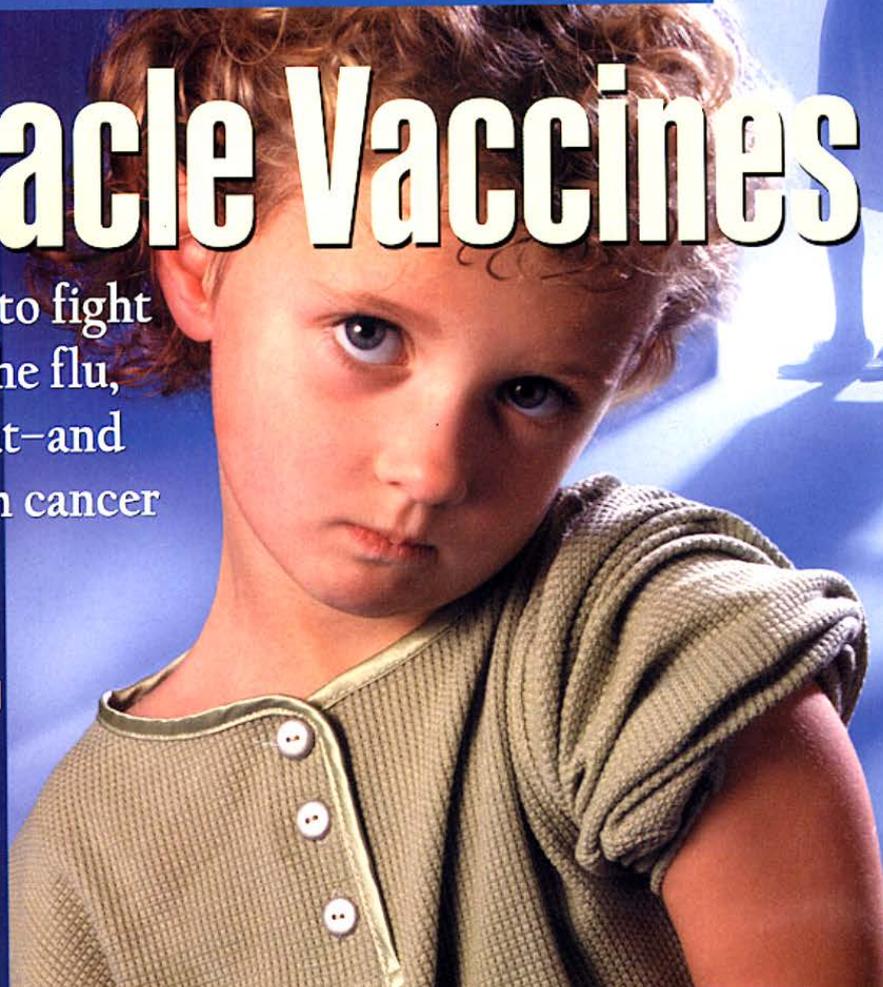
www.usnews.com

Miracle Vaccines

New ways to fight
earaches, the flu,
strep throat—and
maybe even cancer

EXCLUSIVE:
Investigating
the Embassy
Bombings

**Dumbing
Down the
Military**



Comparison of 20th Century Annual Morbidity and Current Vaccine Preventable Disease Morbidity

Disease	20th Century Annual Morbidity [†]	2012 Reported Cases ^{††}	Percent Decrease
Smallpox	29,005	0	100%
Diphtheria	21,053	1	> 99%
Measles	530,217	55	> 99%
Mumps	162,344	229	> 99%
Pertussis	200,752	48,277	76%
Polio (paralytic)	16,316	0	100%
Rubella	47,745	9	> 99%
Congenital Rubella Syndrome	152	3	98%
Tetanus	580	37	94%
<i>Haemophilus influenzae</i>	20,000	30*	> 99%

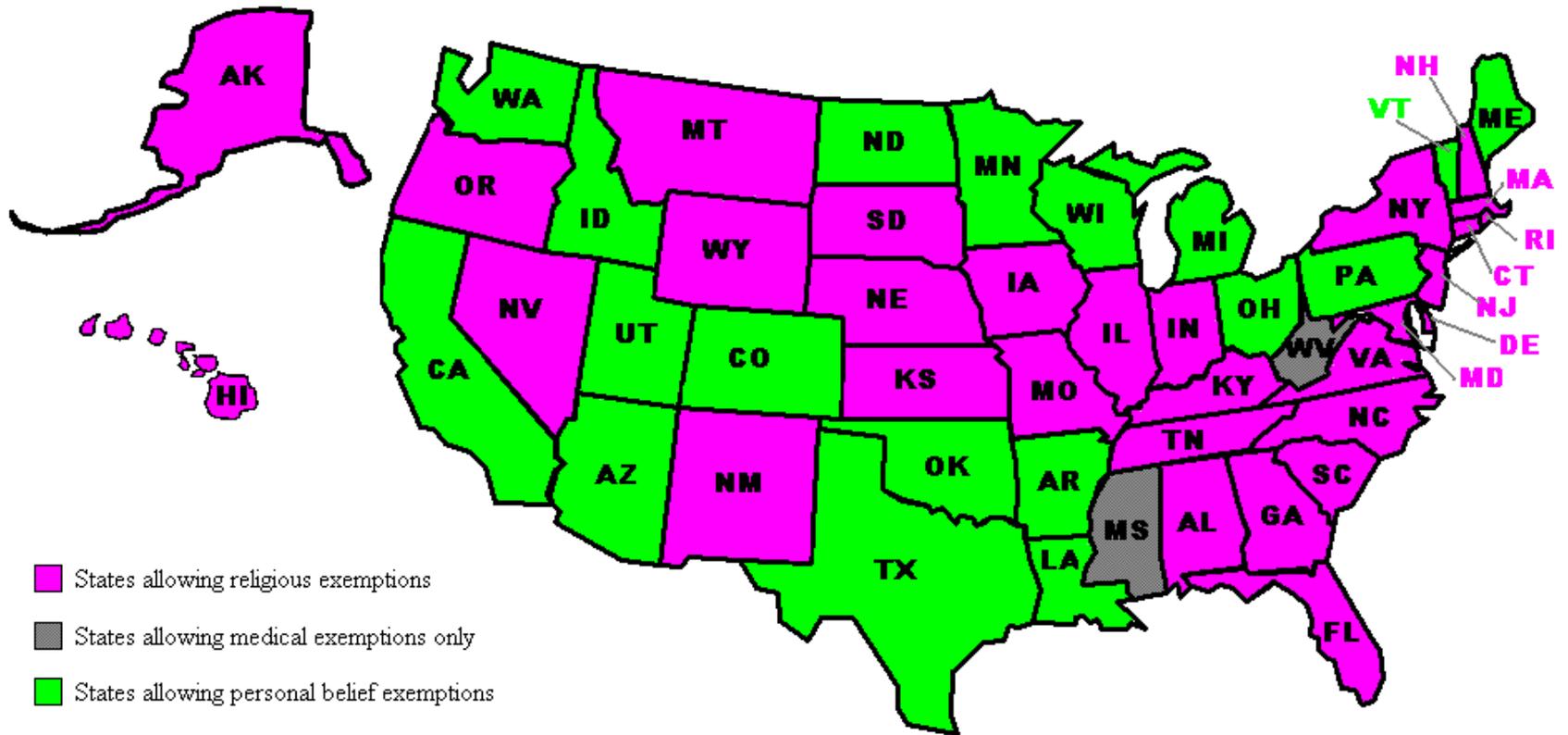
California Law Mandates Immunization

- No Shots – No School
- All 50 States Require Specified Vaccines for Students
- BUT ITS COMPLICATED...

Exemptions:

- Permanent Medical Exemptions
- Personal Belief/Philosophical Exemptions
- Religious Exemptions

Exemptions by State



Many reasons that vaccines are not received...

- Physical access
- Missed opportunities
- Vaccine availability/supply/cost
- Health worker knowledge/attitudes/practice
- State laws: ease of exemption
- Caregiver and Community/Social factors
 - Influences on the *perception* of vaccines (efficacy, safety, value)

Vaccine Hesitancy/ Avoidance

- Beliefs
 - Perception of personal risk of disease
 - Perception of risk of vaccine
 - Peer behavior, pressure and expectation
 - Information/misinformation
 - Internet
 - Wakefield Report
 - Hollywood Star Power

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Wakefield Report
Hollywood Star Power



Smallpox Vaccine: 1802



The Cow-Pock — or — the Wonderful Effects of the New Inoculation! — vide the Publications of the Anti-Vaccine Society.

Early report

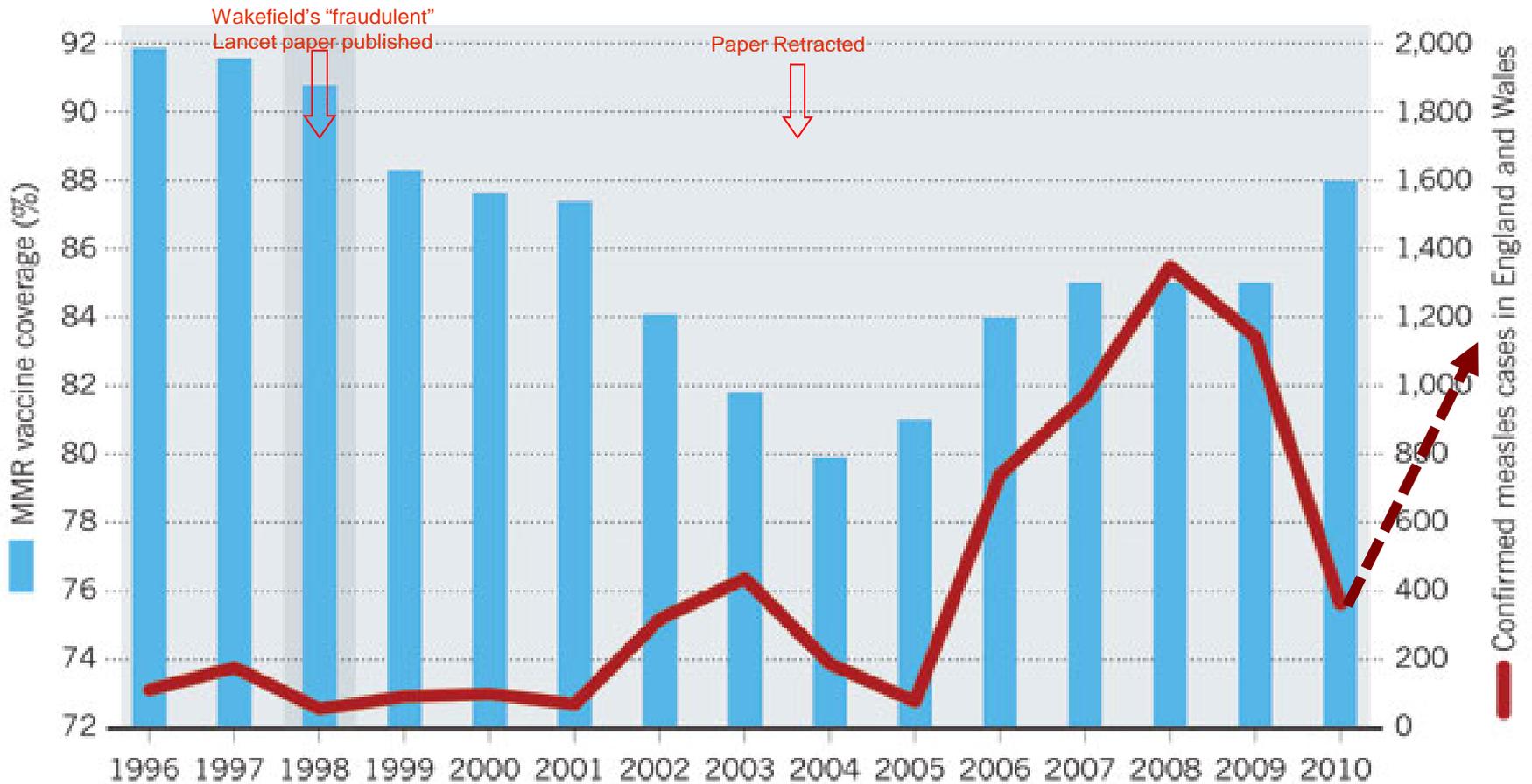
Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

A J Wakefield, S H Murch, A Anthony, J Linnell, D M Casson, M Malik, M Berelowitz, A P Dhillon, M A Thomson, P Harvey, A Valentine, S E Davies, J A Walker-Smith

Vaccination perception: Why worry?

THE COST OF A SCARE

In the wake of the now-debunked claims in 1998 of a link between the measles, mumps and rubella vaccine and autism, vaccination dropped and measles cases rose in England and Wales.



Early report

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Summary

Background We investigated a consecutive series of children with chronic enterocolitis and regressive developmental disorder.

Methods 12 children (mean age 6 years [range 3–10], 11 boys) were referred to a paediatric gastroenterology unit with a history of normal development followed by loss of acquired skills, including language, together with diarrhoea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment and review of developmental records. Ileocolonoscopy and biopsy sampling, magnetic-resonance imaging (MRI), electroencephalography (EEG), and lumbar puncture were done under sedation. Barium follow-through radiography was done where possible. Biochemical, haematological, and immunological profiles were examined.

Findings Onset of behavioural symptoms was associated by the parents, with measles, mumps, and rubella vaccination in eight of the 12 children, with measles infection in one child, and otitis media in another. All 12 children had intestinal abnormalities ranging from lymphoid nodular hyperplasia to granulomatous inflammation. Histology showed patchy chronic inflammation in seven, in 11 children and reactive ileal lymphoid hyperplasia in seven, but no granulomas. Behavioural disorders included autism (nine), disintegrative psychosis (one), and possible postviral or vaccinal encephalitis (two). There were no focal neurological abnormalities and MRI and EEG tests were normal. Abnormal laboratory results were significantly raised urinary methylmalonic acid compared with age-matched controls ($p=0.003$), low haemoglobin in four children, and low serum IgA in four children.

Interpretation We identify associated gastrointestinal disease and developmental regression in a group of previously normal children, which was generally associated in time with possible environmental triggers.

Lancet 1998; **351**: 637–41

See Commentary page

Inflammatory Bowel Disease Study Group, University Departments of Medicine and Histopathology (A J Wakefield FRCS, A Anthony MB, J Linnell PhD, A P Dhillon MRCPsib, S E Davies MRCPsib) and the **University Departments of Paediatric Gastroenterology** (S H Murch MB, D M Casson MRCP, M Malik MRCP, M A Thomson FRCP, J A Walker-Smith FRCP), **Child and Adolescent Psychiatry** (M Berelowitz FRCPsych), **Neurology** (P Harvey FRCP), and **Radiology** (A Valentine FRCS), **Royal Free Hospital and School of Medicine, London NW3 2QG, UK**

Correspondence to: Dr A J Wakefield

Introduction

We saw several children who, after a period of apparent normality, lost acquired skills, including communication. They all had gastrointestinal symptoms, including abdominal pain, diarrhoea, and bloating and, in some cases, food intolerance. We describe the clinical findings, and gastrointestinal features, of these children.

Patients and methods

12 children, consecutively referred to the department of paediatric gastroenterology with a history of a pervasive developmental disorder with loss of acquired skills and intestinal symptoms (abdominal pain, bloating and food intolerance), were investigated. All children were admitted to the ward for a week, accompanied by their parents.

Clinical investigations

We took histories, including details of immunisations and exposure to infectious diseases, and assessed the children. In 11 cases the history was obtained by the senior clinician (JW-S). Neurological psychiatric assessments were done by consultant staff (PH, MB) with HMS-4 criteria.¹ Developmental assessments included a review of prospective developmental records from parents, health visitors, and general practitioners. Four children did not undergo psychiatric assessment in hospital; all had been assessed professionally elsewhere, so these assessments were used as the basis for their behavioural diagnosis.

After bowel preparation, ileocolonoscopy was performed by SHM or MAT under sedation with midazolam and pethidine. Paired frozen and formalin-fixed mucosal biopsy samples were taken from the terminal ileum; ascending, transverse, descending, and sigmoid colons, and from the rectum. The procedure was recorded by video or still images, and were compared with images of the previous seven consecutive paediatric colonoscopies (four normal colonoscopies and three on children with ulcerative colitis), in which the physician reported normal appearances in the terminal ileum. Barium follow-through radiography was possible in some cases.

Also under sedation, cerebral magnetic-resonance imaging (MRI), electroencephalography (EEG) including visual, brain stem auditory, and sensory evoked potentials (where compliance made these possible), and lumbar puncture were done.

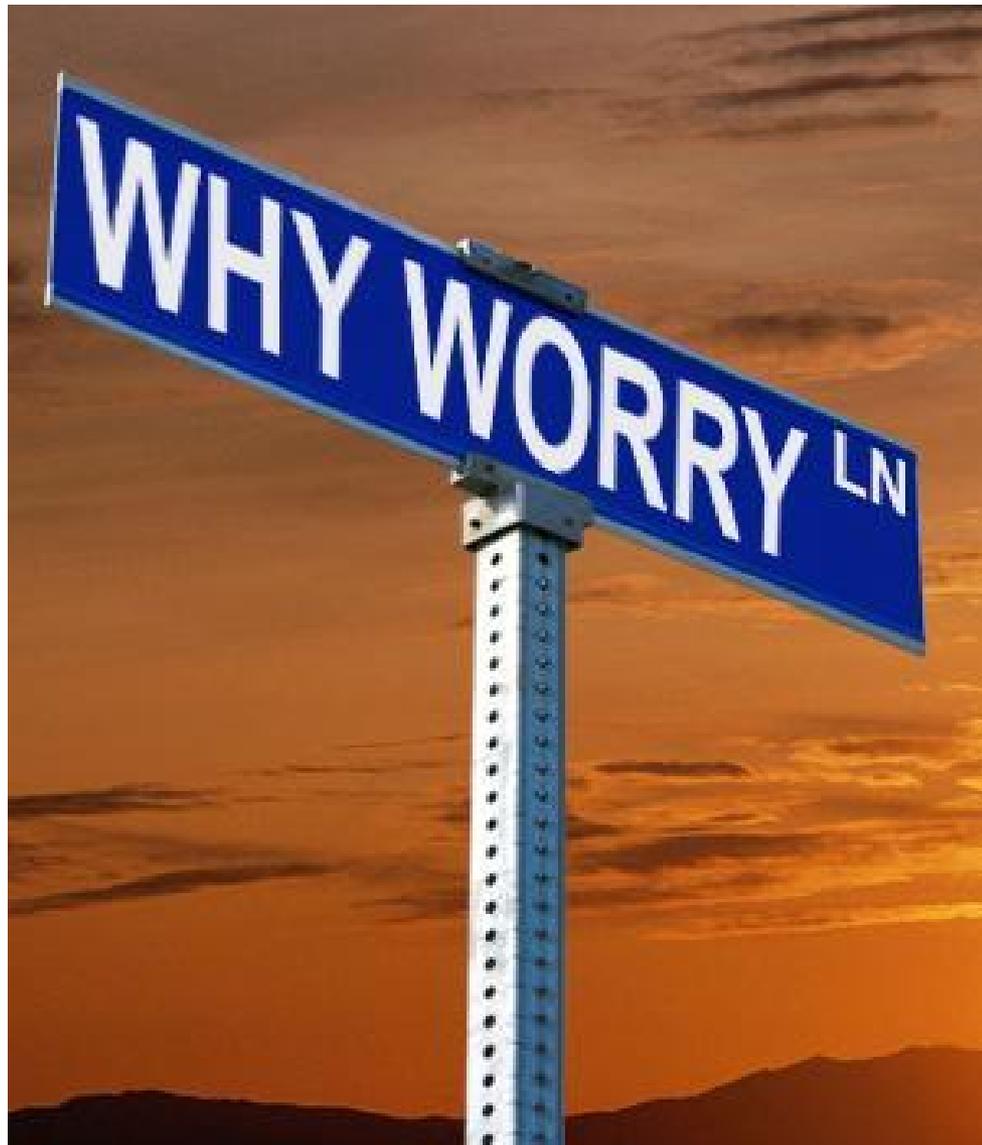
Laboratory investigations

Thyroid function, serum long-chain fatty acids, and cerebrospinal-fluid lactate were measured to exclude known causes of childhood neurodegenerative disease. Urinary methylmalonic acid was measured in random urine samples from eight of the 12 children and 14 age-matched and sex-matched normal controls, by a modification of a technique described previously.² Chromatograms were scanned digitally on computer, to analyse the methylmalonic-acid zones from cases and controls. Urinary methylmalonic-acid concentrations in patients and controls were compared by a two-sample *t* test. Urinary creatinine was estimated by routine spectrophotometric assay.

Children were screened for antientomysal antibodies and boys were screened for fragile-X if this had not been done

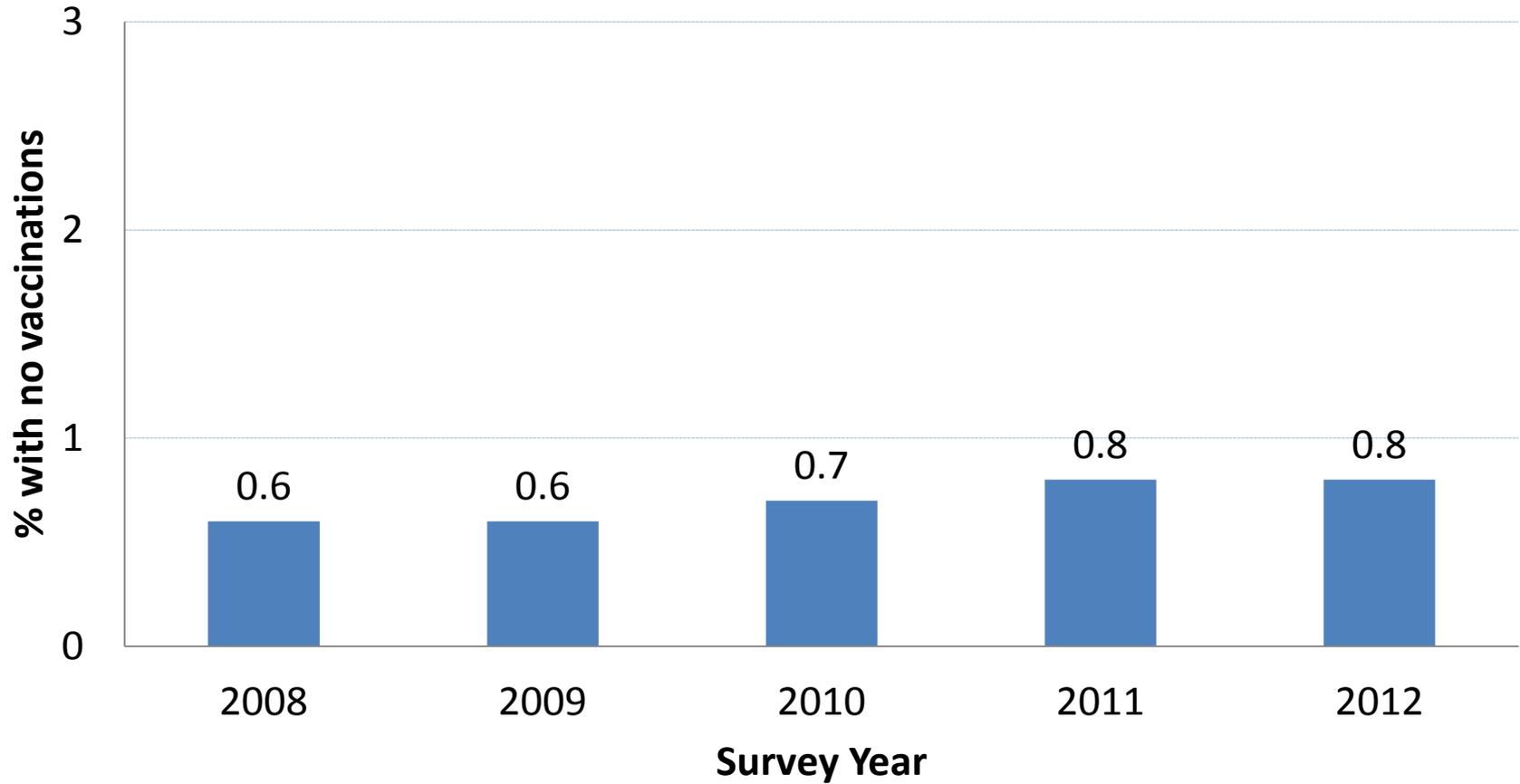
Falsehood flies and the
truth comes limping after

Jonathan Swift





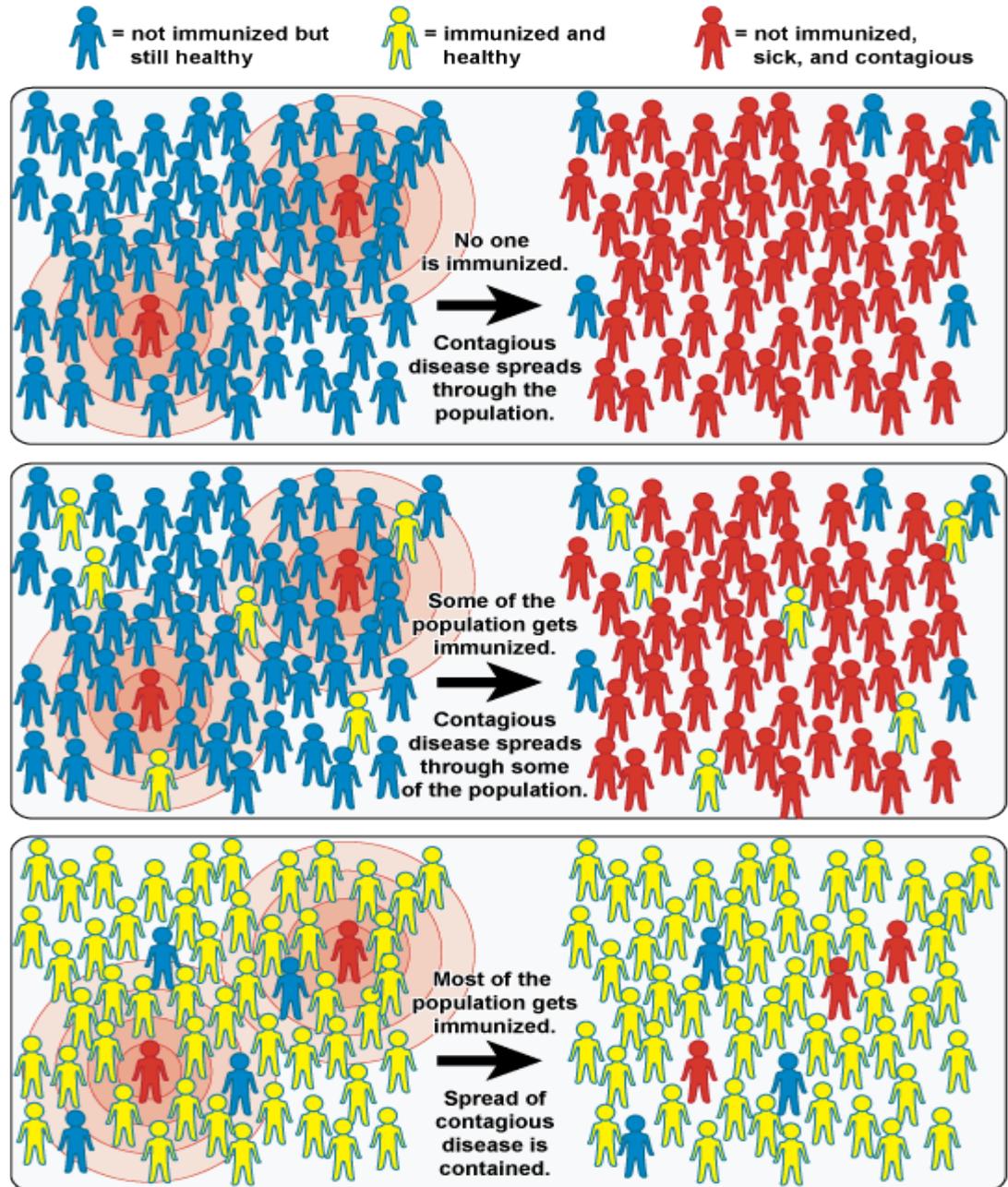
Children 19-35 Months Who Received No Vaccinations, 2008-2012, U.S.

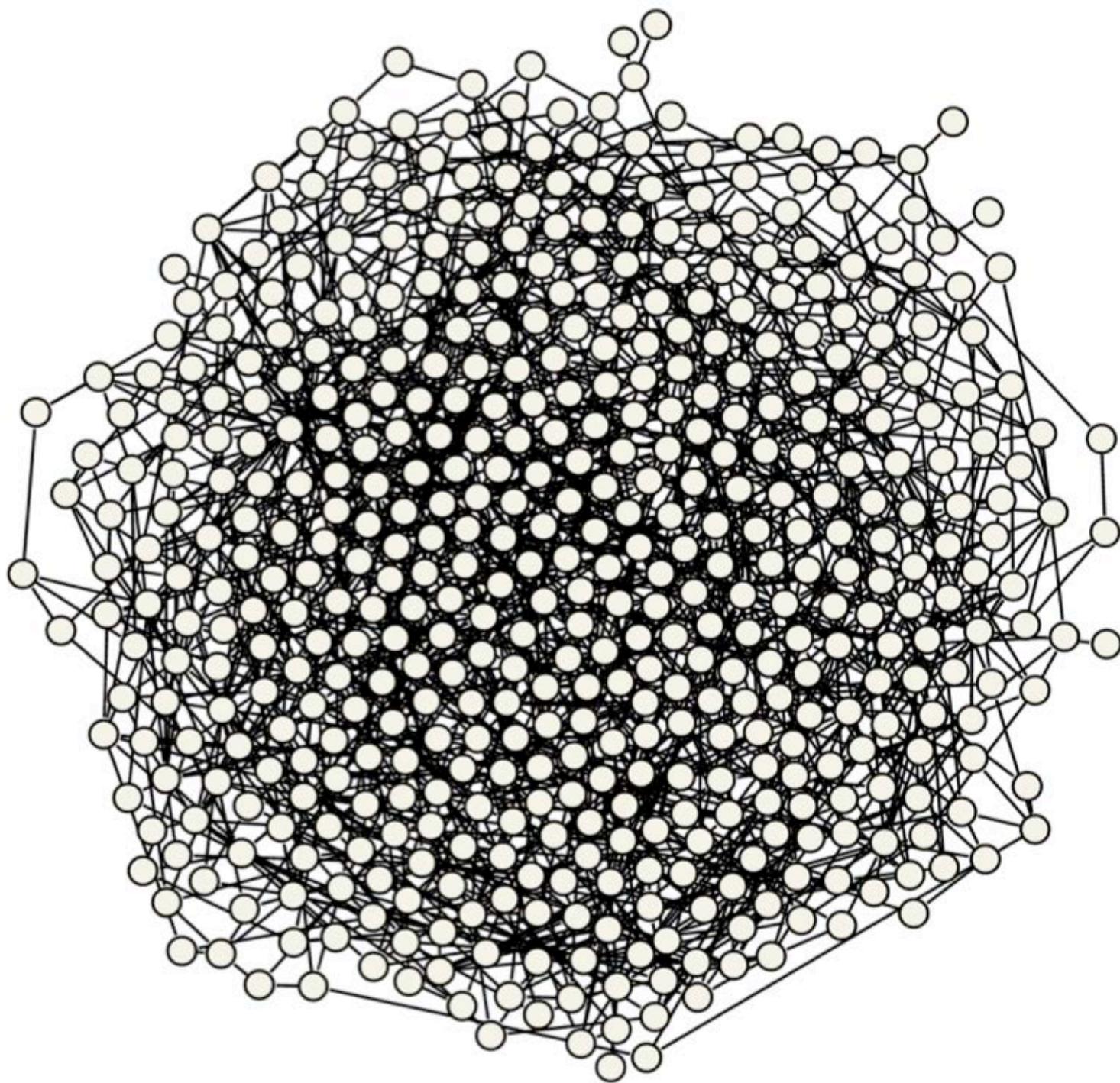


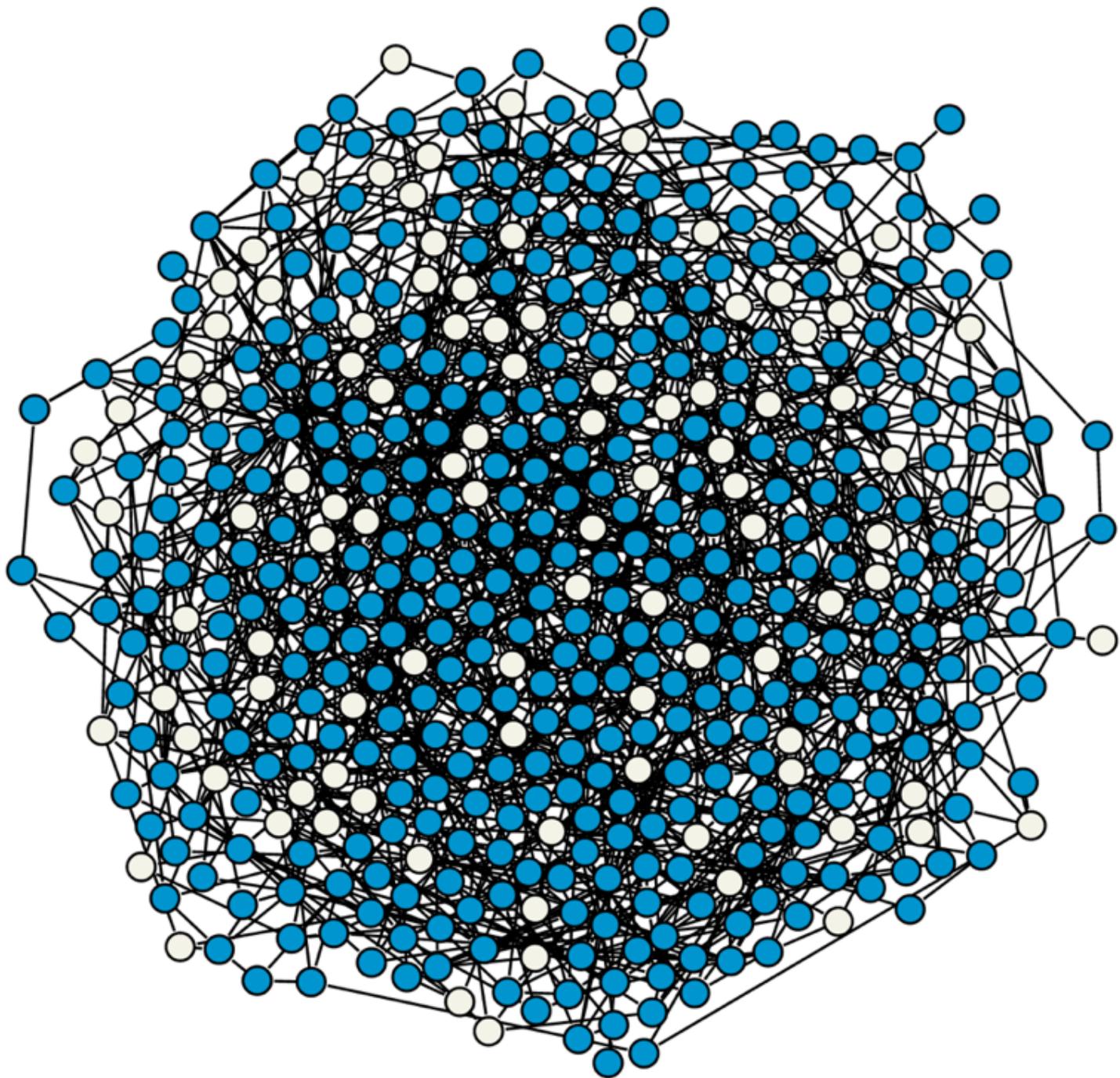
Source: National Immunization Survey

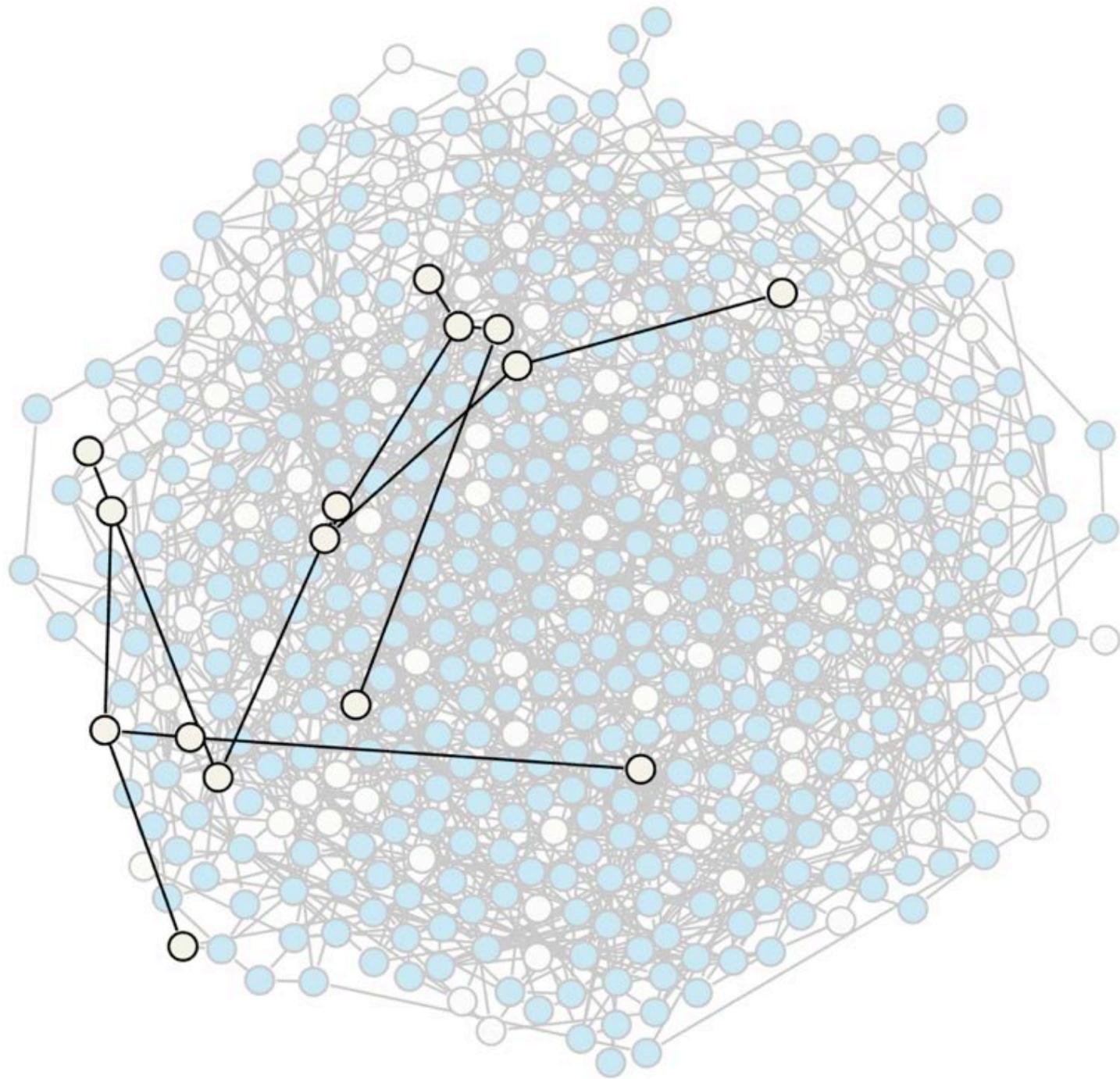
Herd (Community) Immunity:

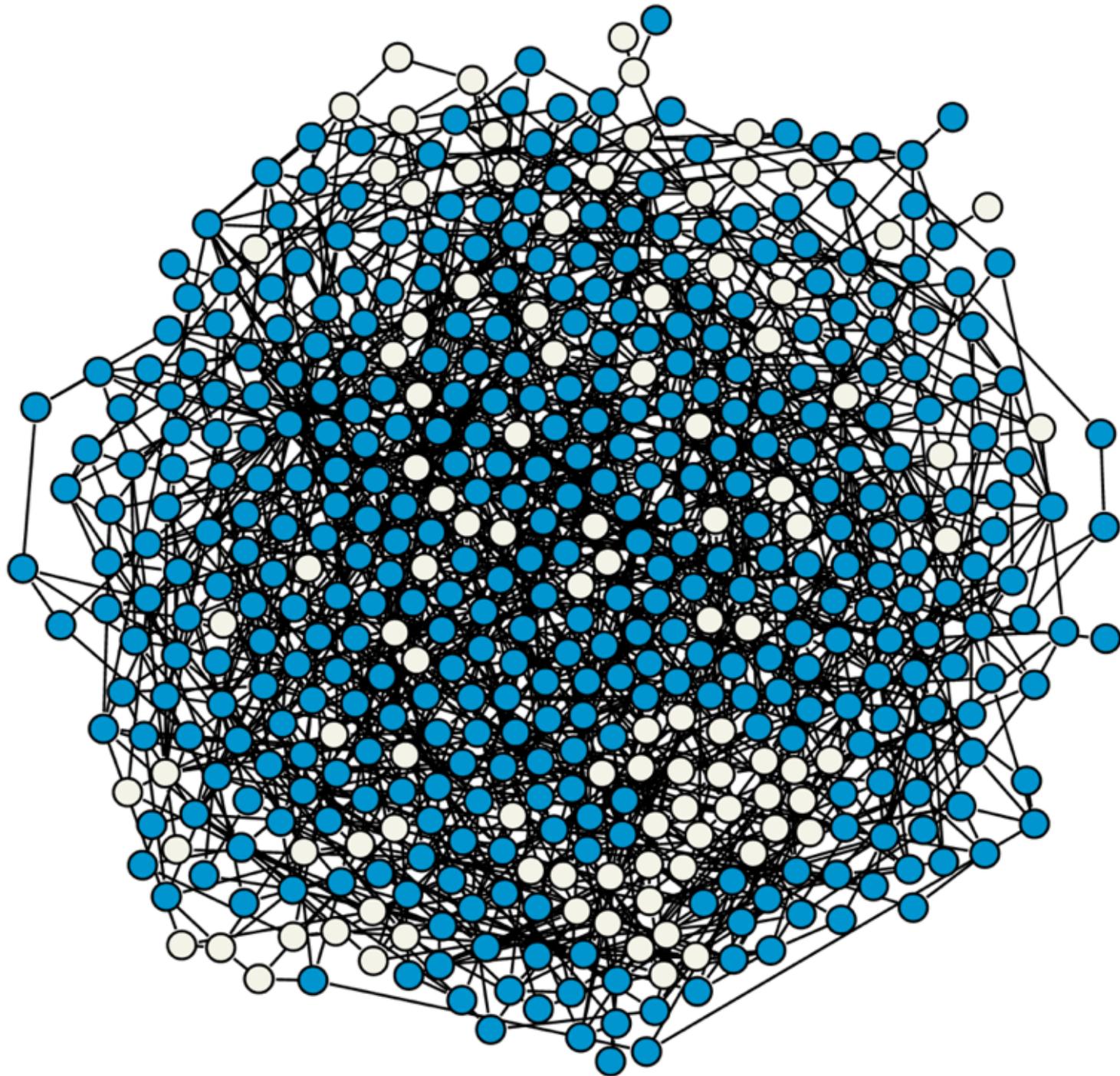
Why vaccine
coverage
matters

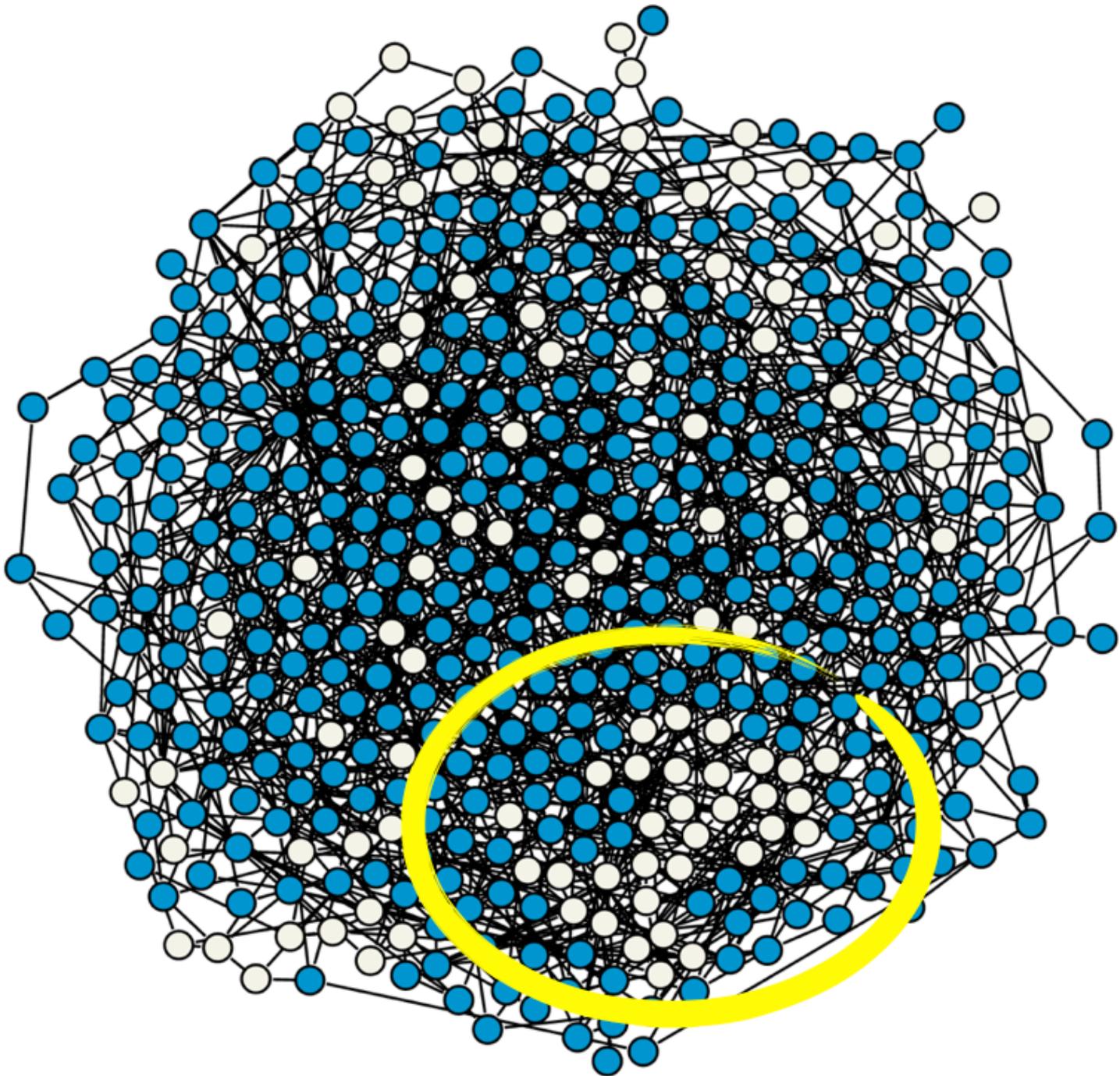


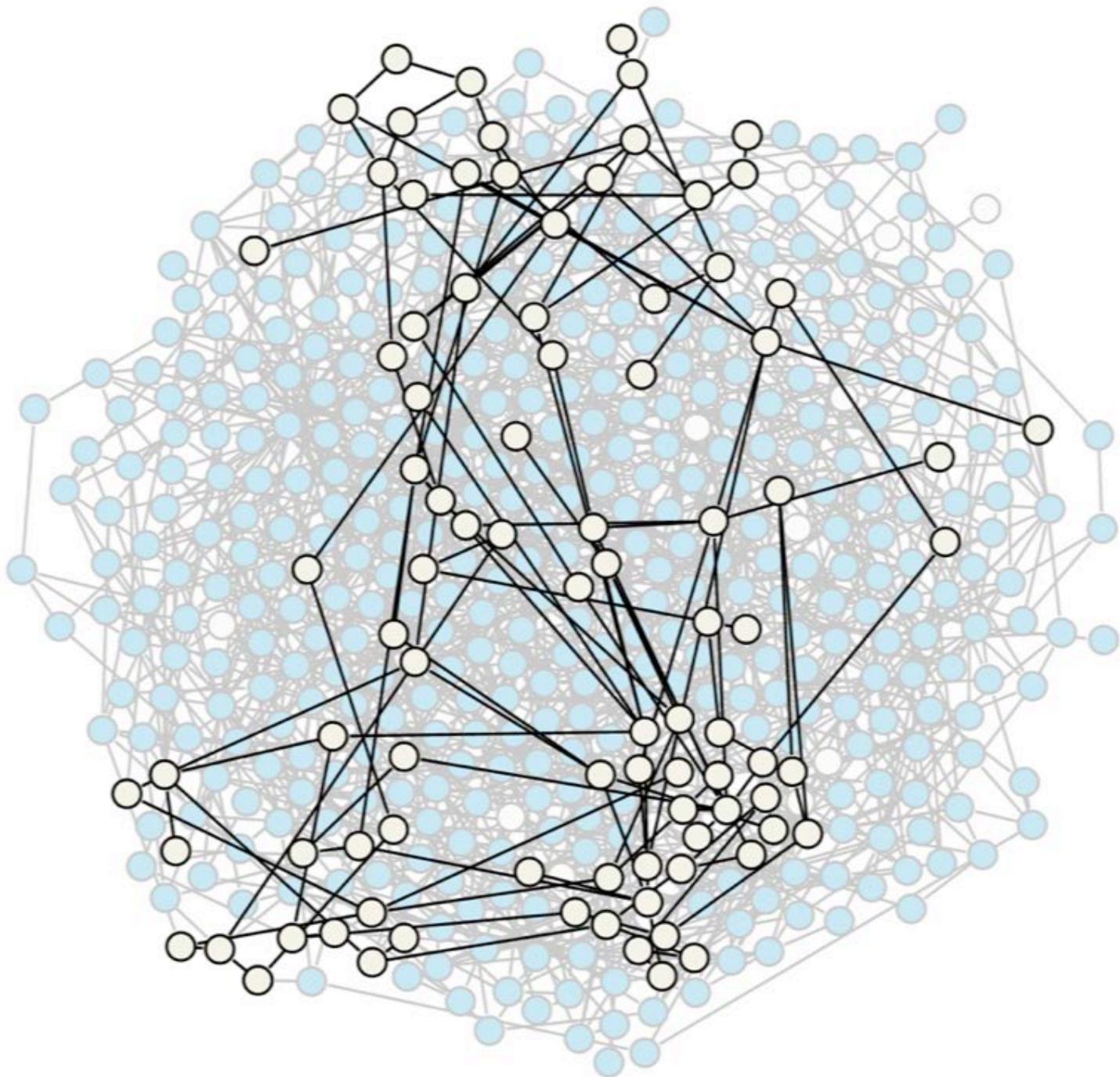




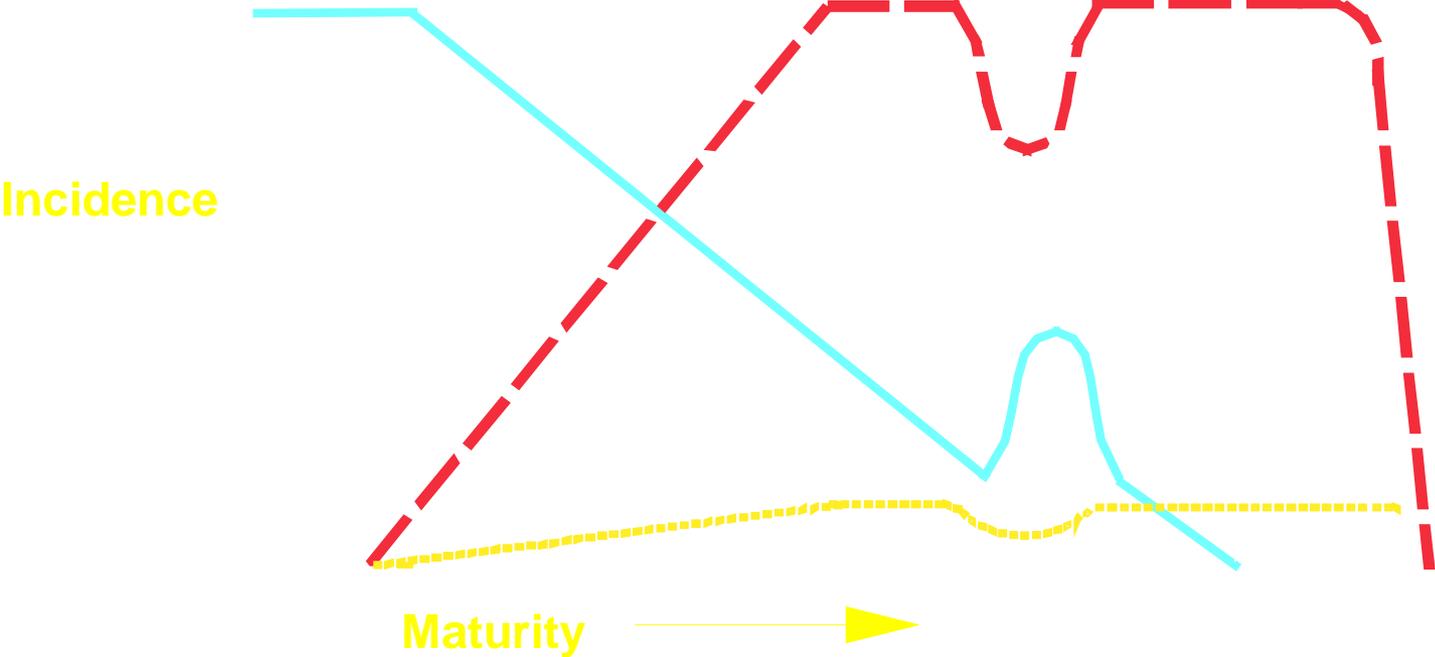




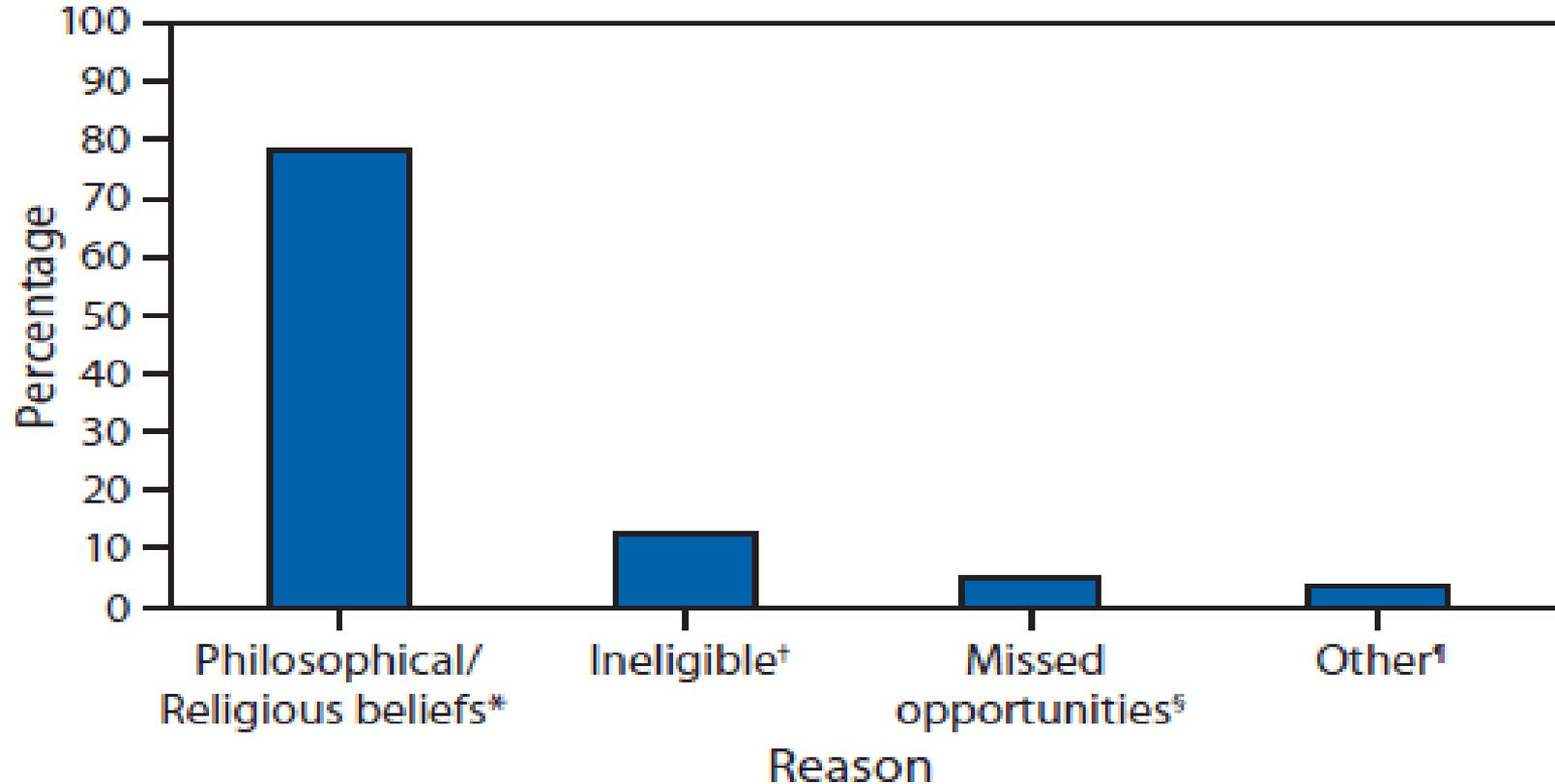




Evolution of Immunization Program and Prominence of Vaccine Safety



Measles in the US: 2001-2013



13%: infants aged <12 months who were not eligible for vaccination

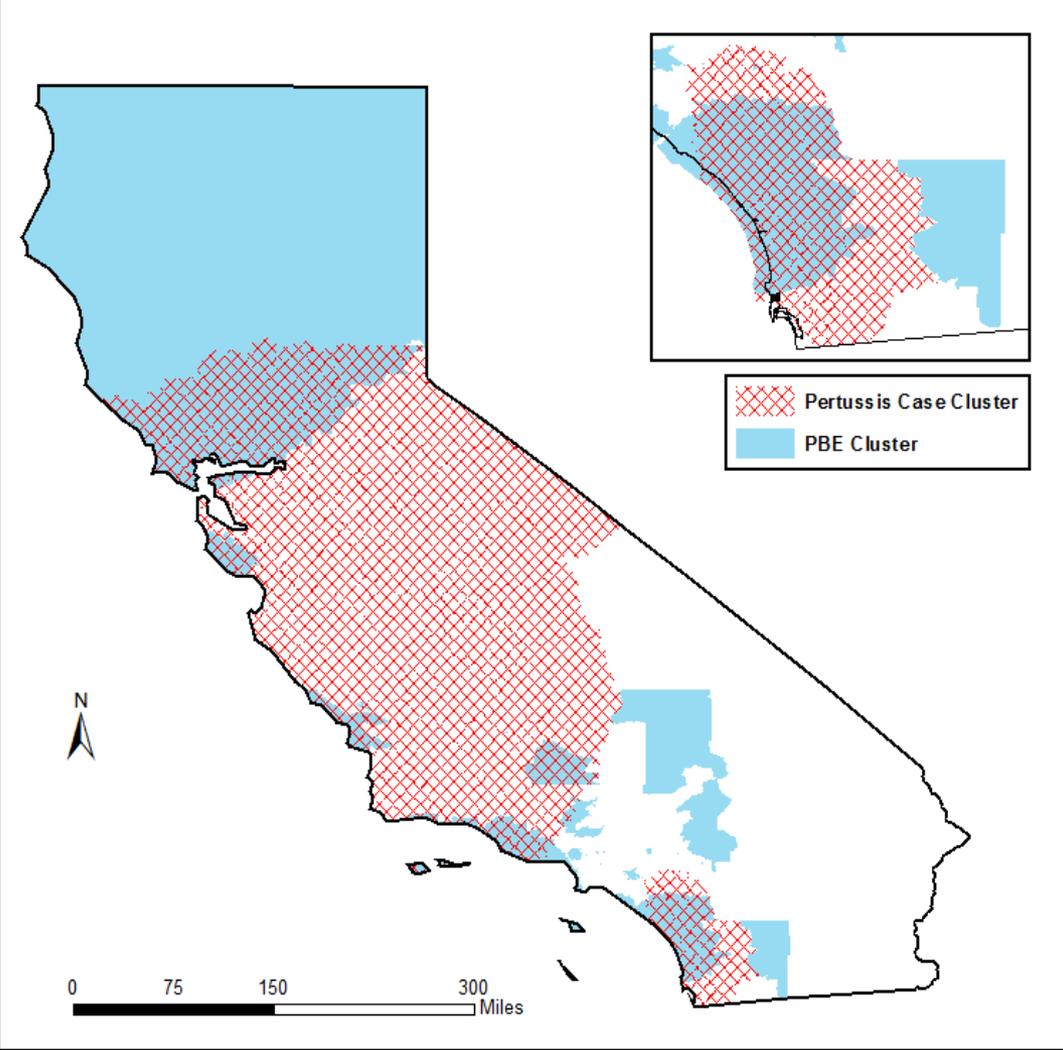
More than 25% of Parents Delay Some or All Vaccines

National Immunization Survey 2009

The reasons:

- ❑ **27% said too many shots were recommended**
- ❑ **26% questioned whether vaccines really worked**
- ❑ **25% cited worries that vaccines might cause autism**
- ❑ **24% worried about side effects**

Relative Locations of Pertussis Space-time Clusters & Exemptions Spatial Clusters –California (2010)



Omer, 2008

CDPH – Co By County Data

KINDERGARTEN ASSESSMENT - CALIFORNIA, 2012-2013

TABLE 2: TOTAL ENROLLMENT AND ADMISSION STATUS

BY COUNTY

	TOTAL STUDENTS	ENTRANTS WITH ALL REQ. IMMUN.		CONDITIONAL ENTRANTS		ENTRANTS WITH PME		ENTRANTS WITH PBE	
	NUMBER	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
STATE TOTAL	530,397	478,743	90.26%	35,948	6.78%	915	0.17%	14,791	2.79%
COUNTY									
ALAMEDA	19,433	16,951	87.23%	2,142	11.02%	19	0.10%	321	1.65%
ALPINE	19	16	84.21%	1	5.26%	0	0.00%	2	10.53%
AMADOR	285	258	90.53%	5	1.75%	0	0.00%	22	7.72%
BUTTE	2,663	2,343	87.98%	162	6.08%	5	0.19%	153	5.75%
CALAVERAS	404	316	78.22%	44	10.89%	1	0.25%	43	10.64%
COLUSA	408	395	96.81%	8	1.96%	2	0.49%	3	0.74%
CONTRA COSTA	14,713	13,781	93.67%	600	4.08%	10	0.07%	322	2.19%
DEL NORTE	301	258	85.71%	10	3.32%	0	0.00%	33	10.96%
EL DORADO	2,480	2,159	87.06%	115	4.64%	3	0.12%	203	8.19%
FRESNO	17,320	16,372	94.53%	680	3.93%	5	0.03%	263	1.52%
GLENN	401	389	97.01%	6	1.50%	0	0.00%	6	1.50%
HUMBOLDT	1,614	1,221	75.65%	206	12.76%	2	0.12%	185	11.46%
IMPERIAL	2,747	2,585	94.10%	155	5.64%	1	0.04%	6	0.22%
INYO	212	206	97.17%	1	0.47%	2	0.94%	3	1.42%
KERN	15,806	14,838	93.88%	572	3.62%	120	0.76%	276	1.75%
KINGS	2,516	2,447	97.26%	49	1.95%	1	0.04%	19	0.76%
LAKE	746	641	85.92%	62	8.31%	0	0.00%	43	5.76%
LASSEN	356	295	82.87%	35	9.83%	0	0.00%	26	7.30%
LOS ANGELES	132,142	115,779	87.62%	13,682	10.35%	194	0.15%	2,487	1.88%
MADERA	2,566	2,384	92.91%	121	4.72%	2	0.08%	59	2.30%
MARIN	3,449	2,829	82.02%	348	10.09%	2	0.06%	270	7.83%
MARIPOSA	137	109	79.56%	11	8.03%	1	0.73%	16	11.68%
MENDOCINO	1,136	916	80.63%	115	10.12%	6	0.53%	99	8.71%
MERCED	4,775	4,526	94.79%	195	4.08%	9	0.19%	45	0.94%
MODOC	115	106	92.17%	5	4.35%	0	0.00%	4	3.48%
MONO	147	136	92.52%	2	1.36%	2	1.36%	7	4.76%
MONTEREY	6,677	6,188	92.68%	380	5.69%	9	0.13%	100	1.50%
NAPA	1,738	1,629	93.73%	42	2.42%	0	0.00%	67	3.86%
NEVADA	869	580	66.74%	93	10.70%	1	0.12%	195	22.44%

KINDERGARTEN ASSESSMENT - CALIFORNIA, 2012-2013

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BY COUNTY

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	NUMBER	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
ORANGE	42,679	38,122	89.32%	3,136	7.35%	127	0.30%	1,294	3.03%
PLACER	5,577	4,756	85.28%	360	6.46%	7	0.13%	454	8.14%
PLUMAS	204	173	84.80%	12	5.88%	0	0.00%	19	9.31%
RIVERSIDE	34,198	32,078	93.80%	1,292	3.78%	36	0.11%	792	2.32%
SACRAMENTO	19,660	16,601	84.44%	2,160	10.99%	49	0.25%	850	4.32%
SAN BENITO	909	871	95.82%	30	3.30%	1	0.11%	7	0.77%
SAN BERNARDINO	32,275	30,354	94.05%	1,063	3.29%	37	0.11%	821	2.54%
SAN DIEGO	42,787	38,759	90.59%	2,305	5.39%	65	0.15%	1,658	3.88%
SAN FRANCISCO	6,733	6,004	89.17%	619	9.19%	17	0.25%	93	1.38%
SAN JOAQUIN	11,196	10,812	96.57%	263	2.35%	8	0.07%	113	1.01%
SAN LUIS OBISPO	3,045	2,691	88.37%	177	5.81%	4	0.13%	173	5.68%
SAN MATEO	9,574	8,779	91.70%	576	6.02%	18	0.19%	201	2.10%
SANTA BARBARA	5,978	5,508	92.10%	208	3.48%	9	0.15%	255	4.27%
SANTA CLARA	24,854	23,220	93.43%	1,154	4.64%	61	0.25%	419	1.69%
SANTA CRUZ	3,580	2,941	82.15%	286	7.99%	9	0.25%	344	9.61%
SHASTA	2,161	1,757	81.30%	219	10.13%	5	0.23%	180	8.33%
SIERRA	23	23	100.00%	0	0.00%	0	0.00%	0	0.00%
SISKIYOU	510	414	81.18%	33	6.47%	1	0.20%	62	12.16%
SOLANO	5,403	5,110	94.58%	201	3.72%	8	0.15%	84	1.55%
SONOMA	6,604	5,912	89.52%	271	4.10%	3	0.05%	418	6.33%
STANISLAUS	8,552	8,044	94.06%	154	1.80%	7	0.08%	347	4.06%
SUTTER	1,696	1,492	87.97%	54	3.18%	5	0.29%	145	8.55%
TEHAMA	913	847	92.77%	19	2.08%	2	0.22%	45	4.93%
TRINITY	113	91	80.53%	4	3.54%	0	0.00%	18	15.93%
TULARE	8,663	8,220	94.89%	330	3.81%	4	0.05%	109	1.26%
TUOLUMNE	489	366	74.85%	63	12.88%	0	0.00%	60	12.27%
VENTURA	12,173	10,841	89.06%	873	7.17%	28	0.23%	431	3.54%
YOLO	2,427	2,215	91.26%	122	5.03%	2	0.08%	88	3.63%
YUBA	1,246	1,091	87.56%	117	9.39%	5	0.40%	33	2.65%



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Childhood Vaccines

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More California Parents Opting Out of Vaccines; Look Up Your School Online

By [Olivia Hubert-Allen](#) and [Lisa Aliferis](#)

Despite the overwhelming medical evidence that childhood vaccinations are exceptionally effective at preventing disease, a growing number of parents are opting out of having their children vaccinated. While state law requires that children be fully vaccinated to enter kindergarten, California parents can get around this requirement simply by filing a personal belief exemption, or PBE, a signed statement saying that vaccines are counter to their beliefs.

PBE rates vary across the state, including by county (Marin has the highest **personal belief exemption rate** in the Bay Area at 7.8 percent), and also by individual school. The California Department of Public Health **compiles vaccination rates** and PBE rates statewide. Below, we've made it easy for you to look up your own child's school and see what the PBE rate is. You can also look at the data by county, city or school district. (PBE data for some schools was not provided.)

The column to the far right – "%PBE" – shows the percentage of children at a kindergarten with a personal belief exemption on file. Ideally, that number should be zero, as it is at many schools statewide. Look up your child's school in the search box:

Show entries Search:

County	City	School Type	School District	School Name	%PBE
NAPA	NAPA	PRIVATE		KOLBE ACADEMY	100
SANTA BARBARA	GOLETA	PRIVATE		WALDORF SCHOOL OF SANTA BARBARA, THE	87
MENDOCINO	CALPELLA	PRIVATE		WALDORF SCH. OF MENDOCINO CO.	86
SISKIYOU	MOUNT SHASTA	PUBLIC	SISKIYOU COUNTY OFFICE OF EDUCATION	GOLDEN EAGLE CHARTER	83
LOS ANGELES	PACIFIC PALISADES	PRIVATE		WESTSIDE WALDORF SCH.	82
NEVADA	NEVADA CITY	PUBLIC	NEVADA COUNTY OFFICE OF EDUCATION	YUBA RIVER CHARTER	81
MENDOCINO	WILLITS	PUBLIC	WILLITS UNIFIED	LA VIDA INDEPENDENT STUDY CHARTE	80
SONOMA	SEBASTOPOL	PUBLIC	TWIN HILLS UNION ELEMENTARY	SUNRIDGE CHARTER	75
MARIN	SAUSALITO	PRIVATE		NEW VILLAGE SCHOOL, THE	74
SONOMA	SEBASTOPOL	PUBLIC	SEBASTOPOL UNION ELEMENTARY	SEBASTOPOL INDEPENDENT CHARTER	73

Showing 1 to 10 of 7,637 entries
Source: California Department of Public Health

Audio and Transcripts of the Hearings



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- [Court Gives States Ammunition In Health Care Battle July 9, 2012](#)
- [Did Roberts Flip On The Health Care Decision? July 3, 2012](#)
- [Assessing The Supreme Court's Recent Term July 2, 2012](#)

Questions Answered

KQED – State of Health

County rates – p. 8-9

<http://www.cdph.ca.gov/programs/immunize/Documents/2012-2013%20CA%20Kindergarten%20Immunization%20Assessment.pdf>

Public vs. private - p. 1 of same link

School rates –

<http://www.cdph.ca.gov/programs/immunize/Pages/ImmunizationLevels.aspx> - go to 2012-13 CA Kindergarten Data

KQED search engine

<http://blogs.kqed.org/stateofhealth/2013/09/06/more-california-parents-opting-out-of-vaccines-look-up-your-school-online/>

AB 2109

- Mandates speaking to a physician/healthcare provider and obtaining physician/provider signature before obtaining PBE.... has been subverted in its intent by Gov. Brown, who instructed the CDPH to add a separate religious exemption on the form to avoid need for health care practitioner signature.

- Individual Responsibility & Social Responsibility are needed to maintain community immunity.

Is It Safe?

- It Depends On:
 - Your child's medical status
 - The school you choose
 - The maintenance of Community Immunity
 - Family by Family
 - Classroom by Classroom
 - School by School
 - Neighborhood by Neighborhood

Acknowledgements:

- Kathleen Harriman and Rob Schechter – California Dept. of Public Health, IZ Branch
- Catherine Martin – California Immunization Coalition
- Marcel Salathé – Center for Infectious Disease Dynamics, Penn State University
- Bruce Gellin – Deputy Assistant Secretary for Health, US Dept. of Health & Human Services, Washington DC
- Matt Willis - Health Officer, Marin County