

The Potential Negative Impact of a Vaccine Tracking System on Children's Health in Colorado

**A Scientific Rationale Concerning
Colorado Senate Bill 087
And Colorado House Bill 1161**

**Philip F. Incao, M.D.
1624 Gilpin Street
Denver, Colorado 80218
303-321-2100**

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As a family practice physician for the past thirty five years, with an abiding interest in the health and well-being of children, I am prompted by my concern for the children of Colorado to write this report on proposed Colorado legislation that would expand and fund a vaccine tracking system to include telephoning of parents.

In 1999, a blue-ribbon panel of public health experts led by former secretary of HHS Louis Sullivan, M.D. issued a report to the nation titled *Health and the American Child*.¹ (see page 3)

This report credits vaccinations with helping to reduce deaths from infectious diseases down to the present low of 1% of all children's deaths, while noting that since 1980 asthma cases and deaths in children have doubled, "with no satisfactory explanations" (p. 61). Today children's deaths from asthma are 1% of the total, equal to infectious diseases. One possible cause mentioned in the report for this 100% increase in asthma deaths in children is "the decrease in respiratory and other infections in children (which could help make children more immune to asthma)..." (p. 61). This raises the possibility that when a vaccine influences a child's immune system to prevent infections it has the unintended consequence of making the child more susceptible to allergies and asthma. (see page 7)

Colorado Senate Bill 087 is based on the premise that children's health will benefit if we push the vaccination rate higher from its current level of 90% or more. But there is no evidence for this assumption. If vaccinations behave like other biologic phenomena, then there is an optimum level of vaccinations in a population where you have your best effect, defined as your lowest overall death rate in children. Then, if you push the vaccination rate higher than the optimum, you start to get a trade off – you start getting increasing deaths and disabilities in children from other causes. That would explain why children's death rates in the U.S. are higher than they are in thirty-six countries which vaccinate less than we do. (see page 10)

It would also explain why statistics from the annual National Health Interview Survey show that disabilities from chronic conditions in children under 17 have more than tripled since 1960 when vaccines began to be widely used.² In 1960, 1.8 percent of American children had a major disability caused by a chronic condition like asthma or a neurological dysfunction. Today 6.7 percent of US children are disabled by such conditions. (see page 9)

¹ "Health and the American Child Part 1: A Focus on Mortality among Children" Public Health Policy Advisory Board Washington D.C., May 1999.

² Newacheck, PW, et al. An epidemiologic Profile of Children with Special Health Care Needs. PEDIATRICS, Vol. 10, No. 1, July 1998.

The only way to prove or disprove the possibility that vaccinations have an optimum rate beyond which there's an increasing trade-off to other diseases is to take large groups of vaccinated and unvaccinated children and compare them. That was done in 2000 *for the first time in the U.S.* by Dr. Eric Hurwitz at the UCLA School of Public Health and he found that the vaccinated children had twice as much asthma as the unvaccinated children.³ (see page 11)

Asthma is a serious problem in the U.S. It is causing increasing hospitalizations and deaths, and it has doubled in the last 25 years. We ought to be very concerned about any research that suggests that vaccinated kids get more asthma than unvaccinated kids.

The public health experts who wrote *Health and the American Child* issued nineteen recommendations in their report, the eleventh of which is to research possible causes for the "alarmingly high rate" of increase in children's deaths from asthma. (p. 77) The research of Dr. Hurwitz from the UCLA School of Public Health suggests that vaccinations might modify children's immune systems to make them more likely to develop allergies and asthma. Researchers are understandably reluctant to pursue this question, because it might undermine public confidence in our national vaccination program.

In *Health and the American Child*, former Surgeon General David Satcher, M.D. comments "For immunizations, the goal is to raise the rate from 55% to 75% by 2010 (p. D-18). We have already surpassed that goal in Colorado. Therefore SB-087 and HB-1161 are unnecessary and wasteful of money and human resources. And the overall health of Colorado's children will certainly not improve if increasing their vaccination rate has the unintended side effect of increasing their asthma rate.

So besides the privacy problems and the individual rights problems of a universal vaccine tracking system in Colorado, there is also an important scientific question, i.e. where is the evidence that boosting our vaccination rate a few percentage points higher with a costly and problematic tracking system will improve the overall health of children in our state? We don't have that evidence.

Until we do, there are more pressing problems of children's health that deserve our attention, such as the increasing rates of chronic conditions like asthma, diabetes, allergies, autism and neurological and learning disorders in our children.

³ Hurwitz, EL, Morgenstern, II. Effects of Diphtheria-Tetanus-Pertussis or Tetanus Vaccination on Allergies and Allergy-Related Respiratory Symptoms Among Children and adolescents in the United States. *Journal of Manipulative and Physiological Therapeutics*, Volume 23, No. 2, February 2000.



Health *and the* American Child

Part 1: *A Focus on Mortality among Children*

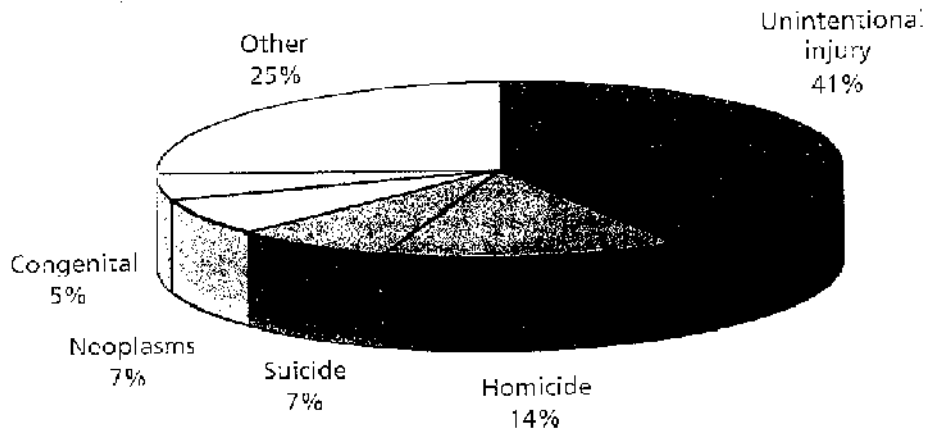
Risks, Trends, and Priorities for the Twenty-First Century



*A Report to the Nation from the
Public Health Policy Advisory Board (PHPAB), Inc.*

Washington, D.C. • May 1999

Figure 3: Percent Distribution of Mortality in Children (Age 1-19) by Cause, 1995



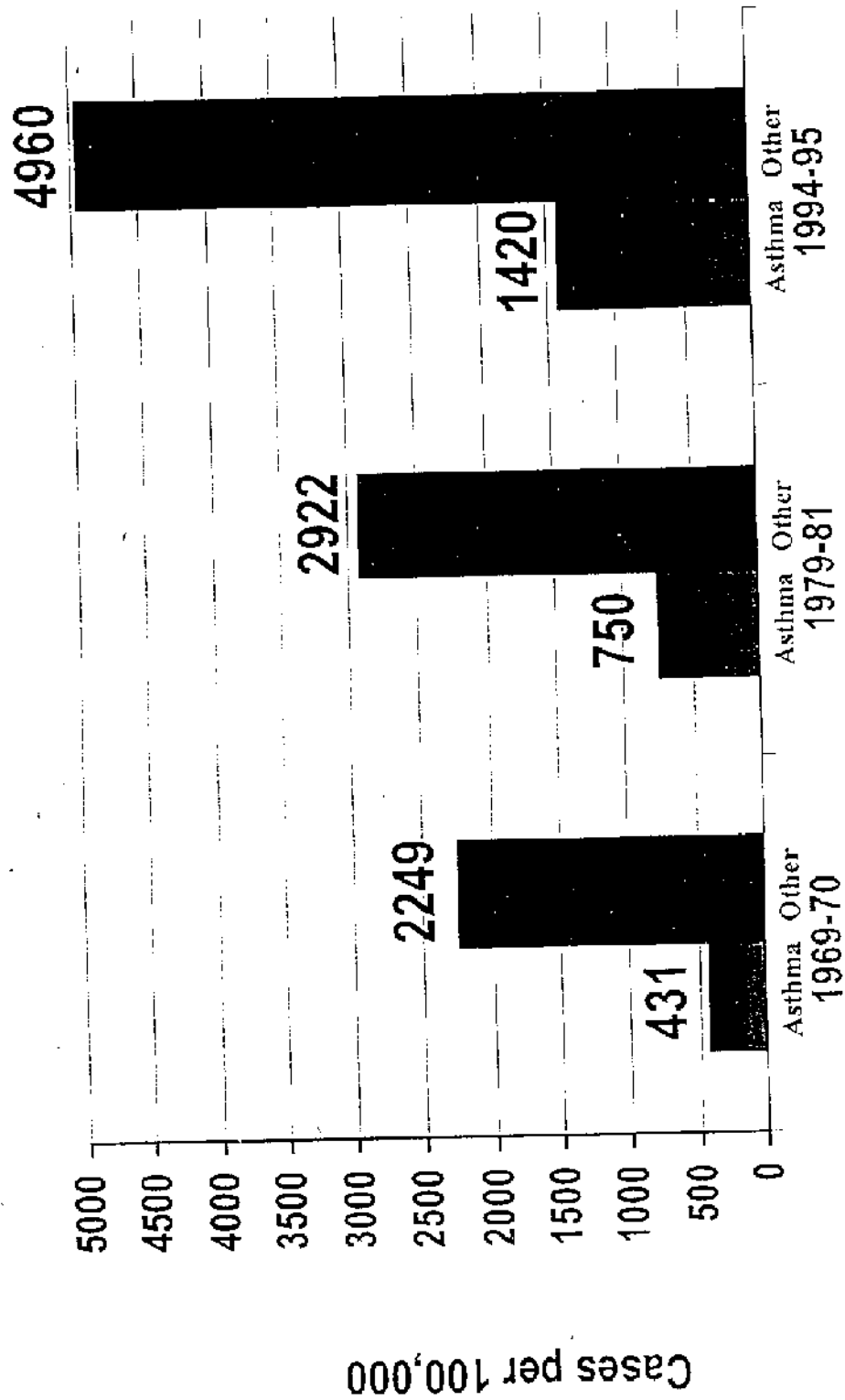
Source: CDC Wonder Mortality Statistics: Centers for Disease Control and Prevention; 1998.

Table 4: Top Ten Causes of Death in Children Ages 1-19, Number and Percent Distribution, 1995

Cause of Death	ICD Codes	Number of Deaths	Percent of Total Deaths
1. Unintentional injury	800-849	12,447	41.4
2. Homicide	960-969	4,275	14.2
3. Suicide	950-959	2,227	7.4
4. Cancer	140-208	2,205	7.3
5. Congenital anomalies	740-759	1,395	4.6
6. Heart conditions	390-398/ 402 /404-429	944	3.1
7. HIV	042-044	455	1.5
8. Pneumonia/influenza	480-487	367	1.2
9. Chronic obstructive pulmonary disease	490-496	312	1.0
10. Cerebrovascular disease	038	176	0.6
All other causes		5,270	17.5
Total		30,078	100.0

Source: CDC Wonder Mortality Statistics: Centers for Disease Control and Prevention; 1998.

Figure 3. Trends in Prevalence of Disability Due to Asthma and Other Conditions



Note: Prevalence data are annualized.

Source: National Health Interview Survey

Proportion of Deaths Attributable to Major Actual Causes of Death

Considering the population of children and adolescents as a single group (ages 0-19 years), approximately 43% of the deaths can be attributed to one of the identified actual causes of death (Table 6). Alcohol use accounts for about 10% of the deaths, followed in order by motor vehicle crashes (nine percent), drug use (eight percent), firearms (five percent), tobacco use (three percent), and diet (three percent). The remaining factors each account for relatively small additional proportions of death and together account for about three additional percent of the deaths: infectious/microbial agents (one percent), inadequate medical care (one percent), exposure to toxic agents (one percent), and sexually transmitted diseases (less than one percent).

The analyses for individual age groups show several

striking patterns. First, the percentage of deaths accounted for by the identified risk factors increases with each age group. The percentage of deaths attributable to an identified risk factor is just 30% in infancy, while the percentage of deaths in older teenagers attributable to an identified risk factor is 70%. Second, the increase in the percentage of deaths accounted for is due mainly to an increase in several specific factors: alcohol (from four percent to 13%), motor vehicle crashes (from zero to 22%), drugs (from eight percent to 11%), and firearms (from zero to 17%). All these factors have strong behavioral components.

In further considering the age-related patterns, it is extremely important to distinguish between risk brought about because of the actions of others in the child's environment and risks attributable to the behavior of the child or adolescent. With increasing age, the risk increasingly involves the behavior of the child or adolescent. This dis-

Table 6: Number and Percent of Total Deaths Attributable to Various Actual Causes of Death, by Age Group, 1995

Cause of Death	Age Group										All ages	
	<1		1-4		5-9		10-14		15-19		Total Number	Total Percent
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Alcohol	1,259	4%	662	10%	445	12%	650	13%	2,674	18%	5,630	10%
Motor vehicles	116	0%	536	8%	590	16%	763	15%	3,359	22%	5,347	9%
Drugs	2,276	8%	415	6%	256	7%	381	8%	1,666	11%	4,997	8%
Firearms	7	0%	65	1%	63	2%	375	8%	2,588	17%	3,096	5%
Tobacco	1,739	6%	91	1%	52	1%	57	1%	84	1%	2,032	3%
Diet/Physical activity	1,064	6%	59	1%	36	1%	36	1%	47	0%	1,844	3%
Infectious/Microbial agents	4/6	2%	157	2%	74	2%	58	1%	95	1%	840	1%
Lack of medical care	8/6	3%	4	0%	3	0%	0	0%	0	0%	843	1%
Exposure to toxic agents	350	1%	83	1%	52	1%	57	1%	84	1%	665	1%
Sexually transmitted diseases	17	0%	63	2%	37	1%	20	0%	28	0%	165	0%
Total deaths accounted for	8,759	30%	2,135	33%	1,610	43%	2,378	49%	10,678	70%*	25,510	43%
Total Deaths	29,583		6,393		3,790		4,810		15,088		59,661	

*Due to rounding, the sum of percentages for individual causes may not equal the total.

Source: PHPAB analysis, 1999, based on references cited in footnotes.

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Increase in asthma rate linked to fewer infections

Childhood diseases help 'train' immune system for allergens, study says

By Paul Recer

Associated Press

WASHINGTON — The incidence of asthma has doubled in the United States and other developed countries in the past 20 years. A study suggests the reason may be that the young are suffering fewer childhood infections.

In effect, the study suggests that some childhood infections may train the immune system not to react to irritants such as pollen and dust mites. Lacking the infections, the body remains sensitive to the allergens, which can cause asthma and other allergic reactions, the research says.

The study, published today in the journal *Science*, reports the rate of asthma among Japanese children who reacted strongly to a tuberculosis vaccine was only about a third of the asthma rate among children who showed only a mild TB reaction.

Children in Japan often are given tuberculosis vaccine shots at birth and at ages 6 and 12. The vaccine causes the immune system to produce antibodies and other proteins that combat TB. The reactions vary in intensity from

IN COLORADO

In Colorado, asthma has "increased in both frequency and severity" in recent years, said Dr. David Pearlman, a clinical professor of pediatrics at the University of Colorado Health Sciences Center.

Pearlman, who practices at the Colorado Allergy and Asthma Center, said experts estimate that about 5% of the population is affected — or 195,000 men, women and children in Colorado. Each year, about 100 of the estimated 57,000 Colorado children with asthma die.

Though only about 5% of the general population has asthma, that rate, Pearlman notes, is higher in children — as many as 9% of youngsters ages 6 to 15.

— *Michael Romano*

child to child, indicating a range of sensitivities to TB.

The researchers found that among children who reacted strongly to the tuberculin vaccine, there was only about one-third as much asthma as among children who reacted weakly.

The study found that asthmatic children who reacted strongly to the TB vaccine were six to nine times more likely to end asthma symptoms by the age of 12 than were those who reacted to the TB vaccine only weakly.

Study: 18% of U.S. children suffer chronic conditions

By DENISE MANN

An estimated 18% of U.S. children under age 18, or 12.6 million individuals, had special health-care needs in 1994, according to a recent analysis based on a new definition for classifying and characterizing such children.

These children suffered from chronic physical, developmental, behavioral or emotional conditions.

Previously, there was no uniform definition used to classify such youngsters, and earlier estimates of the proportion of children in the United States with special health-care needs ranged from 5% to 30%.

Older children, boys, African-American children and youths from low-income and single-parent households were among the children most likely to have special

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Study: 18% of U.S. children suffer chronic conditions

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health-care needs, researchers led by Paul W. Newacheck, Dr.P.H., of the Institute for Health and Policy Studies in San Francisco, reported in *Pediatrics* (1998;102:117-121).

Children with existing special health-care needs had three times as many bed days and school absence days as other children, the study revealed.

Researchers based their estimates on 30,032 medical interviews conducted with children in 1994. They classified children using the new definition of children with special health-care needs developed by the federal Maternal and Child Health Bureau in Washington, D.C.

"A substantial number of kids have special health-care needs and require a careful look," said study co-author, Margaret McManus, co-director of the Maternal and Child Health Policy Research Center in Washington, D.C.

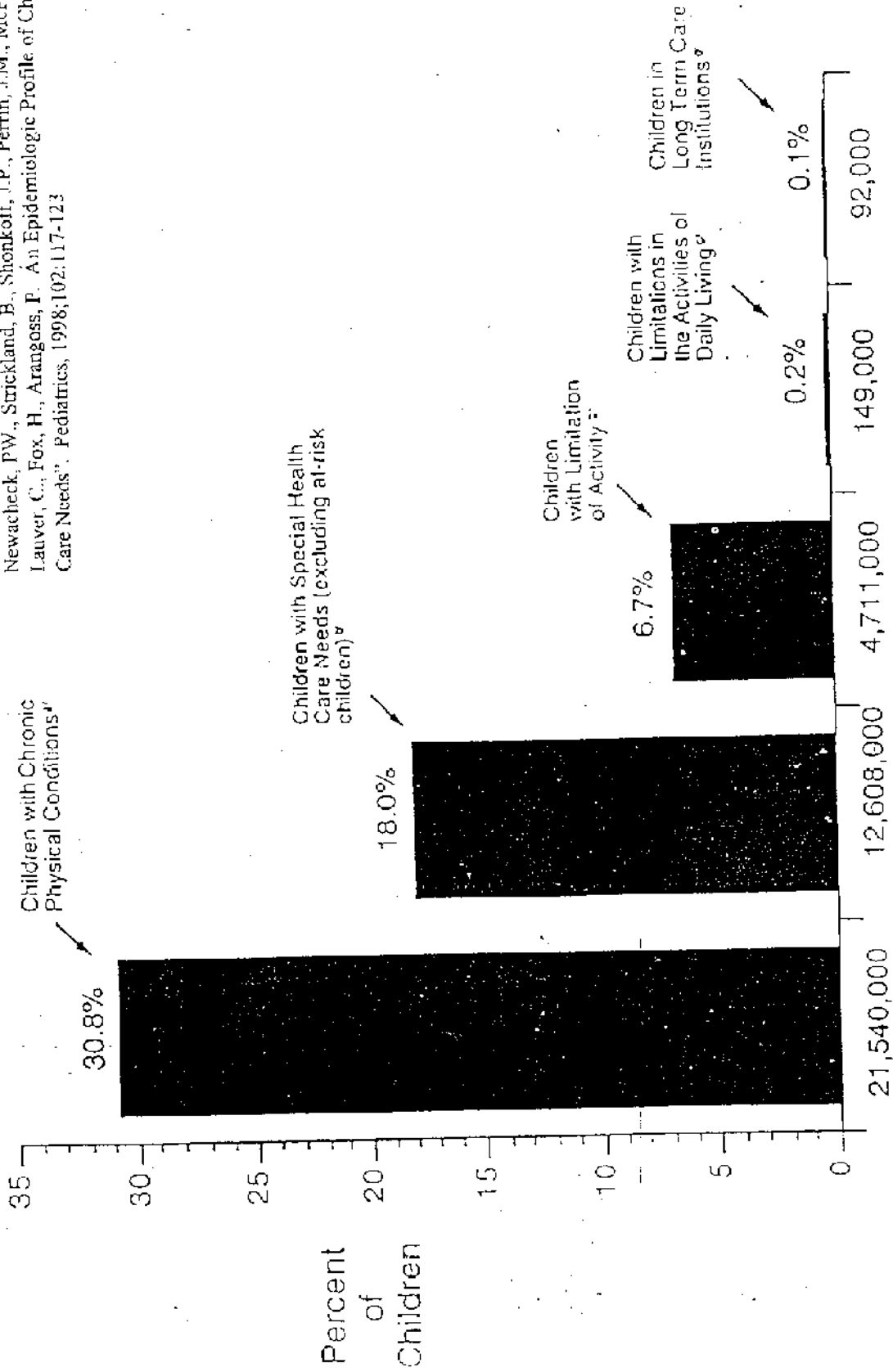
"Children with special health-care needs have the need for multiple services and it is very important that there be a medical home to coordinate care and make sure that the children are getting the services that they need," she said in an interview.

According to the American Academy of Pediatrics, all children—especially those with special health-care needs—should have access to a "medical home."

The new report "helps underscore the reality that primary care is insufficient to deal with children who are medically underserved," agreed Irwin Redlener, M.D., director of community pediatrics and an associate professor of pediatrics at Montefiore Medical Center in New York.

Such children need access to an integrated medical system with specialists, sub-specialists and social workers, as opposed to office-based practices, explained Dr. Redlener, also the president of The Children's Health Fund, a non-profit child health advocacy group based in New York.

Fig 1. Chronic conditions, special needs, and disability for children <18 years of age.
 Newacheck, P.W., Strickland, B., Shonkoff, J.P., Perrin, J.M., McPherson, M., McManus, M.,
 Lauver, C., Fox, H., Arangoss, F. An Epidemiologic Profile of Children With Special Health
 Care Needs. Pediatrics, 1998;102:117-123



- Sources:
- * 1988 National Health Interview Survey
 - † 1994 National Health Interview Survey
 - ‡ 1979-80 National Health Interview Survey
 - § 1990 Census of the Population

Statistical Tables from UNICEF's Mortality Rankings for Children Under Five Years Old. Top 37 Countries with lowest under-five death rates as of 2003.

<http://www.unicef.org>

<u>COUNTRY</u>	<u>RANK</u>
Singapore	1
Sweedcn	2
Czech Republic	3
Denmark	4
Iceland	5
Italy	6
Japan	7
Monaco	8
Norway	9
Spain	10
Slovenia	12
Belgium	13
Cyprus	14
Finland	15
France	16
Germany	17
Greece	18
Korea, Republic of	19
Luxembourg	20
Netherlands	22
San Marino	23
Switzerland	24
Australia	25
Brunei Darussalam	26
Canada	27
Ireland	28
Israel	29
Malta	30
New Zealand	31
United Kingdom	32
Andorra	33
Croatia	34
Malaysia	35
Poland	36
United States	37



Effects of Diphtheria-Tetanus-Pertussis or Tetanus Vaccination on Allergies and Allergy-Related Respiratory Symptoms Among Children and Adolescents in the United States

Eric L. Hurwitz, DC, PhD,^{a,b} and Hal Morgenstern, PhD^{a,b}

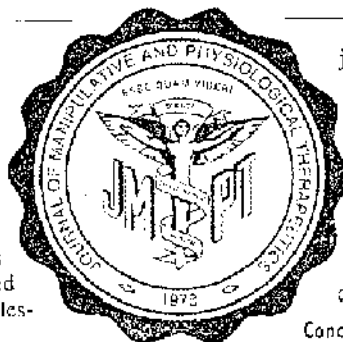
ABSTRACT

Background: Findings from animal and human studies confirm that diphtheria and tetanus toxoids and pertussis (DTP) and tetanus vaccinations induce allergic responses; associations between childhood vaccinations and subsequent allergies have been reported recently.

Objective: The association of DTP or tetanus vaccination with allergies and allergy-related respiratory symptoms among children and adolescents in the United States was assessed.

Methods: Data were used from the Third National Health and Nutrition Examination Survey on infants aged 2 months through adolescents aged 16 years. DTP or tetanus vaccination, lifetime allergy history, and allergy symptoms in the past 12 months were based on parental or guardian recall. Logistic regression modeling was performed to estimate the effects of DTP or tetanus vaccination on each allergy.

Results: The odds of having a history of asthma was twice as great among vaccinated subjects than among unvaccinated sub-



jects (adjusted odds ratio, 2.00; 95% confidence interval, 0.59 to 6.74). The odds of having had any allergy-related respiratory symptom in the past 12 months was 63% greater among vaccinated subjects than unvaccinated subjects (adjusted odds ratio, 1.63; 95% confidence interval, 1.05 to 2.54). The associations between vaccination and subsequent allergies and symptoms were greatest among children aged 5 through 10 years.

Conclusions: DTP or tetanus vaccination appears to increase the risk of allergies and related respiratory symptoms in children and adolescents. Although it is unlikely that these results are entirely because of any sources of bias, the small number of unvaccinated subjects and the study design limit our ability to make firm causal inferences about the true magnitude of effect. (*J Manipulative Physiol Ther* 2000; 23:81-90)

Key Words: Vaccination; Immunization; Asthma; Allergic Rhinitis; Sinusitis; Allergic Hypersensitivity

INTRODUCTION

The prevalence of allergic disorders has increased 50% to 100% among adults and more than doubled among children during the past 20 years.¹⁻⁴ Asthma and other allergies currently affect 30 to 50 million persons in the United States.^{5,6} An estimated 17.3 million persons had symptomatic physician-diagnosed asthma in 1998.⁷ Asthma and allergic rhinitis, accounting for 9.1 and 8.4 million office visits, respectively, in 1996, are 2 of the 20 most common principal diagnoses given to patients of office-based physicians.⁸ Asthma is also one of the primary reasons for visiting a hospital outpatient department,⁹ with 900,000 visits. Chronic sinusitis, which is often associated with asthma and allergic rhinitis, is the most common chronic condition in the United States,¹⁰ resulting in 14.3 million office visits per year.⁸ Allergic rhinitis, sinusitis, and asthma are 3 of the 5 most common principal diagnoses given to children and adolescents (aged 15 years and younger) in ambulatory care, accounting for 9.4 million visits annually and 5.8% of all visits.¹¹ The total cost of asthma care alone was estimated as

\$6.21 billion in 1990.¹² Although there is speculation about the causes of the increased prevalence of asthma and other allergic conditions,¹⁻⁴ no agent or set of agents has been shown to be responsible for the increase. In addition, the upward trend is probably not entirely a result of the increased public recognition of allergies, diagnostic coding, measurement error, or other nonclinical factors.¹³⁻¹⁶

Studies in animals and human beings have demonstrated that components of diphtheria and tetanus toxoids and pertussis (DTP) and tetanus vaccines have adjuvant effects¹³⁻¹⁵ and are associated with elevated levels of total and specific immunoglobulin E antibodies.¹⁶⁻¹⁸ There is evidence that these components cause a Th1 to Th2 shift in CD4 cells,^{19,20} resulting in interleukin-4 (IL-4) production and greater stimulation of mast cells, subsequent release of histamine and other inflammatory mediators, and allergic symptomatology.²¹ Pertussis and DTP vaccines have also been shown to enhance rodents' and human beings' sensitivity to histamine.^{22,23}

The biologic plausibility of a causal vaccination-allergy association is bolstered by cases of anaphylaxis immediately after immunization with the DTP and tetanus vaccines (2 cases per 100,000 injections or 6 per 100,000 children given 3 doses of DTP)²⁴ and the high incidence of local immediate hypersensitivity reactions to tetanus toxoids,²⁵⁻²⁸ diphtheria,²⁹ and the development of IgE antibodies after tetanus and diphtheria toxoids vaccinations.^{30,31} Two committees convened by the Institute of Medicine (the Committee to Review the Ad-

^aUCLA School of Public Health, Department of Epidemiology, Los Angeles, Calif.

^bLos Angeles College of Chiropractic, Whittier, Calif.

Submit reprint requests to: Eric L. Hurwitz, DC, PhD, UCLA School of Public Health, Department of Epidemiology, Box 951772, Los Angeles, CA 90095-1772; ehurwitz@ucla.edu.