February 7, 2017

President Donald J. Trump
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20500

Dear Mr. President:

On behalf of organizations representing families, providers, researchers, patients, and consumers, we write to express our unequivocal support for the safety of vaccines. Vaccines protect the health of children and adults and save lives. They prevent life-threatening diseases, including forms of cancer. Vaccines have been part of the fabric of our society for decades and are one of the most significant medical innovations of our time.

Because of the introduction of mass vaccinations, smallpox was declared eradicated from the world in 1977. Polio, a disease that routinely afflicted 13,000 to 20,000 Americans every year in the United States before the availability of the vaccine, was officially eliminated from the Western Hemisphere in 1991. Globally, vaccines prevent the deaths of roughly 2.5 million children per year.[1] And, data shows that just for children born in the United States in 2009, routine childhood immunizations will prevent approximately 42,000 early deaths and 20 million cases of disease with savings of more than $82 billion in societal costs.[2]

Although vaccines are the safest and most cost-effective way of preventing disease, disability and death, this country still witnesses outbreaks of vaccine-preventable diseases, as highlighted by the measles outbreak at Disneyland in 2014. In 2012, 48,277 cases of pertussis (whooping cough) were reported to the Centers for Disease Control and Prevention (CDC), including 20 pertussis-related deaths.[3] This was the most reported cases of pertussis since 1955. In addition, each year, more than 200,000 individuals are hospitalized and 3,000-49,000 deaths occur from influenza-related complications.[4]

Claims that vaccines are unsafe when administered according to expert recommendations have been disproven by a robust body of medical literature, including a thorough review by the National Academy of Medicine (formerly known as the Institute of Medicine). Attached to this letter is a non-exhaustive list of studies demonstrating the safety of vaccines. Delaying vaccines only leaves our nation's citizens at risk of disease, particularly children. As a nation we should

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[1] UNICEF. Immunization: Keeping Children Alive and Healthy.
https://www.unicef.org/immunization/files/Immunization_brochure.pdf

[2] Economic Evaluation of the Routine Childhood Immunization Program in the United States, 2009
Fangjun Zhou, Abigail Shefer, Jay Wenger, Mark Messonnier, Li Yan Wang, Adriana Lopez, Matthew Moore, Trudy V. Murphy, Margaret Cortese, Lance Rodewald. *Pediatrics* Apr 2014, 133 (4) 577-585; DOI: 10.1542/peds.2013-0698.

[3] Centers for Disease Control and Prevention. 2012 Final Pertussis Surveillance Report.
https://www.cdc.gov/pertussis/downloads/pertuss-surv-report-2012.pdf

[4] Centers for Disease Control and Prevention. Questions & Answers: Seasonal Influenza.
http://www.cdc.gov/flu/about/qa/disease.htm. Accessed August 26, 2015.

redouble our efforts to make needed investments in patient and family education about the importance of vaccines in order to increase the rate of vaccination among all populations.

Put simply: Vaccines are safe. Vaccines are effective. Vaccines save lives. Our organizations welcome the opportunity to meet with you to share the robust, extensive scientific evidence supporting vaccine safety and effectiveness.

Sincerely,

National Organizations

Academic Pediatric Association
Academy of Nutrition and Dietetics
African American Ministers In Action
AIDS Alliance for Women, Infants, Children, Youth & Families
The AIDS Institute
Alliance for Aging Research
American Academy of Allergy, Asthma & Immunology
American Academy of Family Physicians
American Academy of Neurology
American Academy of Pediatrics
American Academy of Physical Medicine and Rehabilitation
American Academy of Physician Assistants
American Association for Dental Research
American Association for the Study of Liver Disease
American Association of Child and Adolescent Psychiatry
American Association of Colleges of Osteopathic Medicine
American Association of Colleges of Pharmacy
American Association of Immunologists
American Association of Occupational Health Nurses
American Association of Poison Control Centers
AASA, The School Superintendents Association
American Association on Health and Disability
American College of Osteopathic Family Physicians
American College of Osteopathic Internists
American College of Physicians
American College of Preventive Medicine
American Congress of Obstetricians and Gynecologists
American Dental Association
American Group Psychotherapy Association
American Lung Association
American Medical Association
American Nurses Association

American Osteopathic Association
American Pediatric Society
American Pediatric Surgical Association
American Pharmacists Association
American Psychological Association
American Public Health Association
American School Health Association
American Sexual Health Association
American Society for Microbiology
The American Society of Clinical Oncology
American Society of Hematology
American Society of Pediatric Otolaryngology
American Thoracic Society
Americans for Democratic Action
The Andrew McDonough B+ Foundation
The Arc of the United States
Asian & Pacific Islander American Health Forum
Association for Ambulatory Behavioral Healthcare
Association for Asian Pacific Community Health Organizations
Association for Professionals in Infection Control and Epidemiology
Association of American Medical Colleges
Association of Community Health Nursing Educators
Association of Educational Service Agencies
Association of Immunization Managers
Association of Maternal & Child Health Programs
Association of Medical School Pediatric Department Chairs
Association of Public Health Laboratories
Association of School Business Officials International
Association of Schools and Programs of Public Health
Association of Women's Health, Obstetric and Neonatal Nurses
Association of University Centers on Disabilities
Autism Science Foundation
Autistic Self Advocacy Network
Autism Speaks
AVAC (AIDS Vaccine Advocacy Coalition)
Birth Defects Research and Education Foundation
Bridge the Gap- SYNGAP Education and Research Foundation
Center for Hunger-Free Communities - Drexel University
ChangeLab Solutions
Child Welfare League of America
Children and Adults with Attention-Deficit Hyperactivity Disorder (CHADD)
Children's Brain Tumor Foundation
Children's Cause for Cancer Advocacy

Children's Defense Fund
Children's Dental Health Project
The Children's Partnership
CJ First Candle
Coalition on Human Needs
Commissioned Officers Association of the U.S. Public Health Service, Inc.
Community Catalyst
Doctors for America
Easterseals
Every Child By Two
EveryLife Foundation for Rare Diseases
Families Fighting Flu
Family Voices
Federation of Associations in Behavioral and Brain Sciences
First Focus
Franny Strong Foundation
Generations United
Global Alliance for Behavioral Health and Social Justice
Health Resources in Action
Healthcare Ready
Hep B United
Hepatitis B Foundation
Hepatitis Education Project
HIV Medicine Association
Immunization Action Coalition
Infectious Diseases Society of America
Learning Disabilities Association of America
Lurie Institute for Disability Policy
March of Dimes
Mended Little Hearts
National Alliance of State & Territorial AIDS Directors
National Alliance to Advance Adolescent Health
National Association for Children's Behavioral Health
National Association for the Dually Diagnosed
National Association of Community Health Centers
National Association of County and City Health Officials
National Association of County Behavioral Health and Developmental Disability Directors
National Association of EMS Physicians
National Association of Pediatric Nurse Practitioners
National Association of School Nurses
National Association of State Emergency Medical Services Officials
National Birth Defects Prevention Network
National Blood Clot Alliance

National CMV Foundation
National Foundation for Infectious Diseases
National Health Law Program
National Hispanic Medical Association
National Meningitis Association, Inc.
National Network of Public Health Institutes
National Organization for Rare Disorders
National Partnership for Women & Families
National Physician's Alliance
National PKU Alliance, Inc.
National Rural Education Advocacy Consortium
National Rural Education Association
National WIC Association
NETWORK Lobby for Catholic Social Justice
The North American Society for Pediatric Gastroenterology, Hepatology and Nutrition
The Organization of Teratology Information Specialists
Ounce of Prevention Fund
PACER Center
Parent to Parent USA
Parents of Kids with Infectious Diseases
Partnership for America's Children
PATH
Pediatric Infectious Diseases Society
Pediatric Policy Council
Physicians for Reproductive Health
PreemieWorld
Prevent Blindness
Prevention Institute
Project Inform
Public Advocacy for Kids
Public Health Advocates
Public Health Institute
Quad Council Coalition of Public Health Nurses
Rally Foundation for Childhood Cancer Research
RESULTS
RetireSafe
St. Baldrick's Foundation
Salaam Legal Network & Citizens Council for Human Rights
The Sargent Shriver National Center on Poverty and Law
School-Based Health Alliance
Scientific Technologies Corporation
Secular Coalition for America
Sexuality Information and Education Council of the United States

Society for Adolescent Health and Medicine
Society for Developmental and Behavioral Pediatrics
Society for Healthcare Epidemiology
Society for Maternal-Fetal Medicine
Society for Pediatric Research
Society for Public Health Education
Society for Reproductive Investigation
Society for the Study of Reproduction
Society of Thoracic Surgeons
Society of Pediatric Psychology
Spina Bifida Association
Teratology Society
Trust for America's Health
Vaccine Education Center at Children's Hospital of Philadelphia
Voices for Vaccines
Zero to Three

State-Based Organizations

AAUW-New York State, Inc.
Advocates for Children and Youth of Maryland
Advocates for Children of New Jersey
Alabama Chapter of the American Academy of Pediatrics
Alaska Chapter of the American Academy of Pediatrics
All Alaska Pediatric Partnership
Ann & Robert H. Lurie Children's Hospital of Chicago
Arizona Chapter of the American Academy of Pediatrics
Arkansas Advocates for Children and Families
Arkansas Chapter of the American Academy of Pediatrics
Asian Services In Action of Ohio
ATSU/Kirksville College of Osteopathic Medicine
Baltimore City Health Department
Black Children's Institute of Tennessee
Bridgeport Child Advocacy Coalition
Burrell College of Osteopathic Medicine
California Chapter 1 of the American Academy of Pediatrics
California Chapter 2 of the American Academy of Pediatrics
California Chapter 3 of the American Academy of Pediatrics
California Chapter 4 of the American Academy of Pediatrics
California Children's Hospital Association
California Public Health Association-North
California School-Based Health Alliance

Child and Family Policy Center of Iowa
Children Now of California
Children's Defense Fund – California
Children's Defense Fund – New York
Children's Hospitals and Clinics of Minnesota
Children's Oncology Group, Children's Hospital of Philadelphia
Children's Specialty Care Coalition of California
The Community Health Outreach Work to Prevent AIDS Project (CHOW Project) of Hawaii
Colorado Chapter of the American Academy of Pediatrics
Colorado Children's Campaign
Community Action Agency of Somerville, Inc.
Community Clinic Consortium of Contra Costa and Solano Counties
Community Health Initiative Napa County
Community Resource Exchange of New York
Connecticut Chapter of the American Academy of Pediatrics
Cook County Health and Hospitals System
County Health Executives Association of California
Delaware Chapter of the American Academy of Pediatrics
Delaware Family Voices
Department of Child Health, University of Missouri-Columbia School of Medicine
District of Columbia Chapter of the American Academy of Pediatrics
Dominican Sisters of Houston
Equitas Health of Ohio
EverThrive Illinois
Family Voices of Illinois
Family Voices of New Jersey
Family Voices of Tennessee
Fayette County Board of Education
FeedMore of Virginia
Florida Chapter of the American Academy of Pediatrics
Florida Legal Services, Inc
Foster Adopt Connect Inc. of Missouri
Foundation for Healthy Generations of Washington
Georgia Chapter of the American academy of Pediatrics
Goldsboro (North Carolina) Pediatrics PA
Greater New York Labor Religion Coalition
Hawaii Association of Osteopathic Physicians and Surgeons
Hawaii Chapter of the American Academy of Pediatrics
Hawaii Children's Action Network
Health and Education Alliance of Louisiana
Heartland Alliance for Human Needs & Human Rights
Hep Free Hawaii
Holy Cross Ministries of Utah

Idaho Chapter of the American Academy of Pediatrics
Idaho Parents Unlimited
Illinois Academy of Family Physicians
Illinois Association of Public Health Administrators
Illinois Chapter of the American Academy of Pediatrics
Illinois Public Health Association
Illinois State Medical Society
Immunization Action Coalition of Washington
Immunization Coalition of Delaware
Indiana Chapter of the American Academy of Pediatrics
Infectious Disease Society of Ohio
Iowa Chapter of the American Academy of Pediatrics
Iowa Public Health Association
Johns Hopkins Center for Health Security
Kansas Chapter of the American Academy of Pediatrics
Kansas City (Missouri) Health Department
Kelsey-Seybold Clinic - Houston
Kentucky Chapter of the American Academy of Pediatrics
Lancaster City Housing Authority
Lawyers For Children of New York
Legal Council for Health Justice of Chicago
Livingston County (Michigan) Health Department
Local Public Health Association of Minnesota
Louisiana Chapter of the American Academy of Pediatrics
Louisiana Public Health Institute
Maine Chapter of the American Academy of Pediatrics
Maine Children's Alliance
Maryland Chapter of the American Academy of Pediatrics
Maryland United for Peace and Justice
Massachusetts Chapter of the American Academy of Pediatrics
Massachusetts Infectious Diseases Society
Michigan Chapter of the American Academy of Pediatrics
Michigan Council for Maternal and Child Health
Michigan Council of Nurse Practitioners
Michigan Osteopathic Association
Minnesota Chapter of the American Academy of Pediatrics
Mississippi Center for Justice
Mississippi Chapter of the American Academy of Pediatrics
Missouri Chapter of the American Academy of Pediatrics
Montana Chapter of the American Academy of Pediatrics
Montana Hospital Association
Montana Public Health Association
National Association of Social Workers – Rhode Island Chapter

Nebraska Association of Local Health Directors
Nebraska Chapter of the American Academy of Pediatrics
Nemours Children's Health System
Nevada Association of Local Health Officials
Nevada Chapter of the American Academy of Pediatrics
New Directions for Maine Families
New Hampshire Pediatric Society
New Jersey Chapter of the American Academy of Pediatrics
New Mexico Medical Society
New Mexico Pediatric Society
New Mexico Voices for Children
New York State Chapter 1 of the American Academy of Pediatrics
New York State Chapter 2 of the American Academy of Pediatrics
New York State Chapter 3 of the American Academy of Pediatrics
North Carolina Association of Local Health Directors
North Carolina Citizens for Public Health
North Carolina Pediatric Society
North Carolina Public Health Association
North Dakota Chapter of the American Academy of Pediatrics
North East Medical Services of San Francisco
Northern Illinois Public Health Consortium
Northern Michigan Vaccine Preventable Disease Task Force
Northwest Health Law Advocates
Northwestern Access to Health Project, Center for International Human Rights, Northwestern Pritzker School of Law
NYIT College of Osteopathic Medicine at Arkansas State
Ohio Asian American Health Coalition
Ohio Chapter of the American Academy of Pediatrics
Oklahoma Chapter of the American Academy of Pediatrics
Oregon Health & Science University
Oregon Public Health Association
Oregon Pediatric Society
Pacific Northwest University of Health Sciences College of Osteopathic Medicine
Parent Voices California
Pennsylvania Chapter of the American Academy of Pediatrics
Prevent Child Abuse New York
‘r Kids Family Center New Haven, Connecticut
Respiratory Health Association of Chicago
RESULTS Metro Maryland
RESULTS Texas
Rhode Island Chapter of the American Academy of Pediatrics
Rhode Island Society of Osteopathic Physicians and Surgeons
Rocky Vista University College of Osteopathic Medicine

Schenectady Inner City Ministry
School-Based Health Alliance of Arkansas
South Carolina Chapter of the American Academy of Pediatrics
South Carolina Osteopathic Medical Society
South Dakota Chapter of the American Academy of Pediatrics
Statewide Parent Advocacy Network of New Jersey
Tennessee Chapter of the American Academy of Pediatrics
Tennessee Justice Center
Texas Pediatric Society
The Children's Agenda of New York
The Connecticut Osteopathic Medical Society
The Latino Health Insurance Program, Inc. of Massachusetts
The Los Angeles Trust for Children's Health
United Way of Illinois
Utah Chapter of the American Academy of Pediatrics
Vermont Chapter of the American Academy of Pediatrics
Virginia Chapter of the American Academy of Pediatrics
Voices for Children of San Antonio
Voices for Ohio's Children
Voices for Virginia's Children
Washington Chapter of the American Academy of Pediatrics
West Valley Neighborhoods Coalition of Arizona
West Virginia Chapter of the American Academy of Pediatrics
West Virginia School of Osteopathic Medicine
Wisconsin Association of Local Health Departments and Boards
Wisconsin Chapter of the American Academy of Pediatrics
Wisconsin Council on Children and Families
Wisconsin Public Health Association
Wyoming Chapter of the American Academy of Pediatrics

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Vaccine Studies: Examine the Evidence

The safety and effectiveness of vaccines are under constant study. Because vaccines are designed to be given routinely during well-child care visits, they must be extraordinarily safe. Safety testing begins as soon as a new vaccine is contemplated, continues until it is approved by the FDA, and is monitored indefinitely after licensure. The American Academy of Pediatrics (AAP) works closely with the Centers for Disease Control and Prevention (CDC) to make recommendations for vaccine use.

Over the past decade, questions have been raised regarding a relationship between autism and vaccines. Along with general safety
concerns, parents have wondered about:

- too many vaccines overwhelming the immune system;
- the measles, mumps, rubella combination vaccine (MMR); and
- the preservative thimerosal, which was never present in MMR but was present in several vaccines used in the 1990s, but has
  since been removed from all routinely used childhood vaccines with the exception of flu.

Research has been conducted on all of these topics, and the studies continue to find vaccines to be a safe and effective way to prevent serious disease. This document lists those studies and provides links to the publications to allow parents and all those who administer or recommend vaccines to read the evidence for themselves. These studies do not show any link between autism and MMR vaccine, thimerosal, multiple vaccines given at once, fevers or seizures. This is not an exhaustive list-vaccine safety studies are constantly being conducted and published and may not be reflected here.

Please examine the evidence for yourself. If you have any questions, speak with your pediatrician

Studies about general safety and number of vaccines:

Increasing Exposure to Antibody-Stimulating Proteins and Polysaccharides in Vaccines is Not Associated with Risk of Autism

DeStefano F, Price CS, Weintraub ES. *Journal of Pediatrics*. 2013

This case-control study of more than 1,000 children compared the total exposure of antibody-stimulating proteins and polysaccharides in children with autism spectrum disorder (ASD), autistic disorder (AD), or ASD with regression to the total exposure in children who were not diagnosed with any form of autism. The children included in the study were aged 6-13 years, but authors studied their exposures from vaccines during the first 2 years of life. Results showed that the odds of developing any of the three forms of autism studied did not rise with increased exposure to antibody-stimulating proteins and polysaccharides.

AUTHOR CONCLUSION: The authors concluded that parents' concern that "too many vaccines too soon" could lead to autism is not supported. There was no indication that children with autism were more likely to have been exposed to more antigens through vaccines either in a single doctor's visit, in the first 3 months of life, the first 7 months of life, or the first 2 years of life than were children without any diagnosis of ASD, AD or ASD with regression. The authors also pointed out that while children today may receive more vaccines than the children in this study, some of the children in this study were exposed to far more antigens (by thousands) than children today. This is because whole-cell pertussis vaccine is no longer used.

- http://jpeds.com/webfiles/images/journals/ympd/JPEDSDeStefano.pdf

On-time Vaccine Receipt in the First Year Does Not Adversely Affect Neuropsychological Outcomes

Smith M and Woods C, *Pediatrics*. Vol. 125 No. 6 June 2010, pp. 1134-1141

The study of data on more than 1,000 children born between 1993 and 1997 looked at their vaccination schedules up to 1 year of age, and studied their performance 7 to 10 years later on 42 different neuropsychological outcomes. Timely vaccination was associated with better performance on numerous outcomes. The less-vaccinated children did not do significantly better on any of the outcomes.

AUTHOR CONCLUSION: This comparison of children vaccinated on time with children whose vaccinations were delayed or incomplete found no benefit in delaying immunizations during the first year of life. For parents who are concerned that children receive too many vaccines too soon, these data may provide reassurance that timely vaccination during infancy has no adverse effect on long-term neuropsychological outcomes.

- http://pediatrics.aappublications.org/cgi/content/abstract/125/6/1134

Evaluation of Immunization Rates and Safety Among Children With Inborn Errors of Metabolism

Klein N, et al., Pediatrics. 2011; 127(5), e1139-46

Researchers studied children in Northern California to determine whether 77 infants with inborn errors of metabolism who received vaccines were more likely to experience adverse events following vaccination, than 1540 matched controls (infants born without inborn errors of metabolism). Authors did not find any association between vaccination of children with inborn errors of metabolism and an increase in hospitalizations or emergency-department visits within 30 days of vaccination.

AUTHOR CONCLUSION: On-time receipt of vaccines is not associated with increased risk for serious adverse events in the 30 days after vaccination, even in children who have metabolism conditions. This should provide reassurance that children with inborn errors of metabolism who are vaccinated routinely do not experience adverse effects.

- http://pediatrics.aappublications.org/content/127/5/e1139

Measles-Containing Vaccines and Febrile Seizures in Children Age 4 to 6 Years

Klein N, et al., Pediatrics. 2011; 129(5): 809-14

Researchers chose to perform cohort study and included 715,484 children aged 48-83 months of age who received a dose of MMRV, a dose of MMR on the same day as a dose of Varicella injected separately, or MMR alone or Varicella alone to determine the risk of post-vaccination seizure in these groups. Results showed that more fevers and seizures did occur in children who had received the MMRV vaccine, compared with children who had received MMR + Varicella, or MMR or Varicella separately, though this finding was not statistically significant. The study did not find any peak in seizure or fever activity in any of the study groups in the 7-10 post-vaccination period. Of the 4 febrile seizures observed in the 7-10 days in the post-vaccination period for children receiving MMRV, only one febrile seizure could be confirmed, resulting in authors claiming the rate of febrile seizure after MMRV to be 1 in 86,750 doses.

AUTHOR CONCLUSION: Overall researchers found no increased risk of febrile seizures in any of the study groups within 6 weeks of vaccination.

- http://pediatrics.aappublications.org/content/129/5/809

Studies looking at measles, mumps, and rubella (MMR) vaccine:

No Evidence for Measles, Mumps, and Rubella Vaccine-Associated Inflammatory Bowel Disease or Autism in a 14-year Prospective Study

Peltola H et al. *Lancet.* 1998; 351:1327-8

Prospective study of 3 million adverse events in temporal relation to MMR vaccine. A form was filled and posted to the data collectors, followed by another form with further information 2-3 weeks later. Researchers traced subjects who developed gastrointestinal symptoms or signs lasting 24 hours or more at any time after MMR vaccination (apart from within the first hour). Researchers also checked hospital and health center records or interviewed the local public-health nurses.

AUTHOR CONCLUSION: Over a decade's effort to detect all severe adverse events associated with MMR vaccine could find no data supporting the hypothesis that it would cause pervasive developmental disorder or inflammatory bowel disease.

- http://www.freenetpages.co.uk/hp/gingernut/lancet/Finland%20May%201998.pdf

Autism and Measles, Mumps, and Rubella Vaccine: No Epidemiological Evidence for a Causal Association

Taylor B et al. *Lancet.* 1999;353 (9169):2026-9

Researchers looked for a change in trend in incidence or age at diagnosis associated with the introduction of measles, mumps and rubella (MMR) vaccination to the United Kingdom in 1988. The study identified 498 cases of autism (261 of core autism, 166 of atypical autism, and 71 of Asperger syndrome) in children born in the UK since 1979. There was a steady increase in cases by year of birth with no sudden "step-up" or change in the trend line after the introduction of MMR vaccination. There was no difference in age at diagnosis between the cases vaccinated before or after 18 months of age and those never vaccinated. There was no temporal association between onset of autism within 1 or 2 years after vaccination with MMR. Developmental regression was not clustered in the months after vaccination.

AUTHOR CONCLUSION: Data do not support a causal association between MMR vaccine and autism. If such an association occurs, it is so rare that it could not be identified in this large regional sample.

- http://tinyurl.com/5bgvwg

Mumps, Measles, and Rubella Vaccine and the Incidence of Autism Recorded by General Practitioners: A Time Trend Analysis

Kaye JA et al. *British Medical Journal*. 2001; 322:460-63

Study compared prevalence of measles, mumps and rubella (MMR) vaccination among children in the United Kingdom to rising prevalence of autism diagnoses for children.

AUTHOR CONCLUSION: The data provide evidence that no correlation exists between the prevalence of MMR vaccination and the rapid increase in the risk of autism over time.

- http://www.bmj.com/cgi/content/full/322/7284/460

MMR and autism: further evidence against a causal association

Farrington CP, et al. *Vaccine*. 2001; Jun 14; 19(27):3632-5

Data from an earlier measles, mumps and rubella (MMR) vaccine study (Taylor et al, 2000) were reanalyzed to test a second hypothesis.

AUTHOR CONCLUSION: Results provide further evidence against a causal association between MMR vaccination and autism.

- http://tinyurl.com/5lb3w7

Time Trends in Autism and in MMR Immunization Coverage in California

Dales L et al. *Journal of the American Medical Association*. 2001; 285(9):1183-5

Scientists looked for correlation between increases in the rate of autism diagnoses and increases in the rate of measles, mumps and rubella (MMR) vaccination in children born between 1980 and 1994.

AUTHOR CONCLUSION: These data do not suggest an association between MMR immunization among young children and an increase in autism occurrence.

- http://jama.ama-assn.org/cgi/content/abstract/285/9/1183

Measles-Mumps-Rubella and Other Measles-Containing Vaccines Do Not Increase the Risk for Inflammatory Bowel Disease: A Case-Control Study from the Vaccine Safety Datalink Project

Davis RL et al. *Archives of Pediatric and Adolescent Medicine*. 2001;155(3):354-9

A case control study of 155 persons with inflammatory bowel disease with up to five controls each. Neither past vaccination nor age at vaccination with other MCV was associated with increased risk for Crohn's disease, ulcerative colitis, or IBD. Risk for Crohn's disease, ulcerative colitis, or IBD was not elevated in the time immediately following vaccination with either vaccine.

AUTHOR CONCLUSION: Vaccination with MMR or other MCV, or the timing of vaccination early in life, did not increase the risk for IBD.

- http://archpedi.ama-assn.org/cgi/content/abstract/155/3/354

No Evidence for a New Variant of Measles-Mumps-Rubella-Induced Autism

Fombonne E et al. *Pediatrics.* 2001;108(4):E58

Study compared 96 children with a pervasive developmental disorder (PDD) born between 1992 and 1995 and who had received the measles, mumps and rubella (MMR) vaccine, to PDD patients who did not receive MMR.

AUTHOR CONCLUSION: No evidence was found to support a distinct syndrome of MMR-induced autism or of "autistic enterocolitis." These results add to the largescale epidemiologic studies that all failed to support an association between MMR and autism at population level. These findings do not argue for changes in current immunization programs and recommendations.

- http://tinyurl.com/5adckj

Measles, Mumps, and Rubella Vaccination and Bowel Problems or Developmental Regression in Children with Autism: Population Study

Taylor B et al. *British Medical Journal*. 2002; 324(7334):393-6

Population study of 278 children with core autism and 195 with atypical autism, born between 1979 and 1998. The proportion of children with developmental regression (25% overall) or bowel symptoms (17%) did not change significantly during the 20 years from 1979, a period which included the introduction of measles, mumps and rubella (MMR) vaccination in October 1988.

AUTHOR CONCLUSION: Data provide no support for an MMR associated "new variant" form of autism with developmental regression and bowel problems, and further evidence against involvement of MMR vaccine in the initiation of autism.

- http://tinyurl.com/6oqsfc

Relation of Childhood Gastrointestinal Disorders to Autism: Nested Case Control Study Using Data from the UK General Practice Research Database

Black C et al. *British Medical Journal*. 2002; 325:419-21

Nested case control study of 96 children diagnosed with autism and 449 controls. The estimated odds ratio for a history of gastrointestinal disorders among children with autism compared with children without autism was 1.0 (95% confidence interval 0.5 to 2.2).

AUTHOR CONCLUSION: No evidence was found that children with autism were more likely than children without autism to have had defined gastrointestinal disorders at any time before their diagnosis of autism.

- http://tinyurl.com/csudoy

Neurologic Disorders after Measles-Mumps-Rubella Vaccination

Makela A et al. *Pediatrics*. 2002; 110:957-63

Study of 535,544 1- to 7-year-old children who were vaccinated between November 1982 and June 1986 in Finland.

AUTHOR CONCLUSION: Data do not support an association between measles, mumps and rubella (MMR) vaccination and encephalitis, aseptic meningitis or autism.

- http://tinyurl.com/6ybfjr

A Population-Based Study of Measles, Mumps, and Rubella Vaccination and Autism

Madsen KM et al. *New England Journal of Medicine*. 2002; 347(19):1477-82

Compared relative risk of Autism Spectrum Disorder (ASD) in children vaccinated with measles, mumps and rubella (MMR) vaccine and unvaccinated children born in Denmark between 1991 and 1998. Of the 537,303 children in the cohort, 82% had received the MMR vaccine. Researchers identified 316 children with a diagnosis of autism and 422 with a diagnosis of other ASDs. There was no association between the age at the time of vaccination, the time since vaccination, or the date of vaccination and the development of autism.

AUTHOR CONCLUSION: This study provides strong evidence against the hypothesis that MMR vaccination causes autism.

- http://tinyurl.com/5eob5k

Prevalence of Autism and Parentally Reported Triggers in a North East London Population

Lingam R et al. *Archives of Disease in Childhood*. 2003; 88(8):666-70

Study of reported age of onset of Autism Spectrum Disorder (ASD) among 567 children in northeast London born between 1979 and 1998. The age at diagnosis of ASD was estimated to have decreased per five-year period since 1983, by 8.7% for childhood autism and by 11.0% for atypical autism.

AUTHOR CONCLUSION: The data suggest that a rise in autism prevalence was likely due to factors such as increased recognition, a greater willingness on the part of educators and families to accept the diagnostic label, and better recording systems. The proportion of parents attributing their child's autism to MMR appears to have increased since August 1997.

- http://adc.bmj.com/cgi/content/abstract/88/8/666

MMR Vaccination and Pervasive Developmental Disorders: A Case-Control Study

Smeeth L et al. *Lancet* 2004; 364(9438):963-9

Matched case-control of 1,295 people born in 1973 or later who had first recorded diagnosis of pervasive developmental disorder while registered with a contributing general practice between 1987 and 2001. Controls (4,469) were matched on age, sex and general practice. 1,010 cases (78.1%) had measles, mumps and rubella (MMR) vaccination recorded before diagnosis, compared with 3,671 controls (82.1%) before the age at which their matched case was diagnosed,

AUTHOR CONCLUSION: Data suggest that MMR vaccination is not associated with an increased risk of pervasive developmental disorders.

- http://tinyurl.com/8wlhfj

Age at First Measles-Mumps-Rubella Vaccination in Children with Autism and School-Matched Control Subjects: A Population-Based Study in Metropolitan Atlanta

DeStefano F et al. *Pediatrics* 2004; 113(2): 259-66

Study compared ages at first measles, mumps and rubella (MMR) vaccination between children with autism and children who did not have autism in the total population and in selected subgroups, including children with regression in development.

AUTHOR CONCLUSION: Similar proportions of case and control children were vaccinated by

the recommended age or shortly after (ie, before 18 months) and before the age by which atypical development is usually recognized in children with autism (ie, 24 months).

- http://pediatrics.aappublications.org/cgi/content/abstract/113/2/259

No evidence for links between autism, MMR and measles virus

Chen W et al, *Psychological Medicine* 2004 April;34(3):543-53

Study compared 2,407 persons with autism born between 1959 and 1993; to 4,640 Down syndrome subjects born between 1966 and 1993.

AUTHOR CONCLUSION: No increased risk of autism was found following exposures to wild measles and vaccinations with monovalent measles, and Urabe or Jeryl-Lynn variants of measles, mumps and rubella (MMR) vaccine.

- http://tinyurl.com/5msou2

No effect of MMR withdrawal on the incidence of autism: a total population study

Honda H et al, *Journal of Child Psychology and Psychiatry* 2005 June; 46(6):572-9

Study examined incidence of Autism Spectrum Disorders (ASD) to age 7 for children born between 1988 and 1996 in Yokohama, Japan. The measles, mumps and rubella (MMR) vaccination rate in Yokohama declined significantly in the birth cohorts of years 1988-92, and no MMR vaccines were administered in 1993 or thereafter. In contrast, cumulative incidence of ASD up to age 7 increased significantly in the birth cohorts of years 1988 through 1996 and most notably rose dramatically beginning with the birth cohort of 1993.

AUTHOR CONCLUSION: MMR vaccination is not likely to be a main cause of ASD, and cannot explain the rise over time in the incidence of ASD. Withdrawal of MMR in countries where it is still being used cannot be expected to lead to a reduction in the incidence of ASD.

- http://tinyurl.com/d8f3lg

Immunization Safety Review: Vaccines and Autism

Institute of Medicine, The National Academies Press: 2004

The IOM's Committee on Immunization Safety Review was convened in the fall of 2000 to provide an independent review of increasingly prominent vaccine safety concerns. The 15 committee members with expertise in pediatrics, internal medicine, immunology, neurology, infectious diseases, epidemiology, biostatistics, public health, risk perception, decision analysis, nursing, genetics, ethics and health communications analyzed over 200 relevant studies.

AUTHOR CONCLUSION: The committee rejected a causal relationship between the MMR

vaccine and autism as well as a causal relationship between thimerosal containing vaccines and autism.

- http://books.nap.edu/catalog.php?record_id=10997#description

Relationship between MMR Vaccine and Autism

Klein KC, Diehl EB. *The Annals of Pharmacotherapy*. 2004; 38(7-8):1297-300

Ten articles that specifically evaluated the possible relationship between the measles, mumps and rubella (MMR) vaccine and autism were identified. Review articles, commentaries, and evaluations of a link between gastrointestinal symptoms in autistic children and MMR immunization were excluded.

AUTHOR CONCLUSION: Based upon the current literature, it appears that there is no relationship between MMR vaccination and the development of autism.

- http://tinyurl.com/chdjrk

Is there a 'regressive phenotype' of Autism Spectrum Disorder associated with the measles-mumps-rubella vaccine? A CPEA Study

Richler et al. *Journal of Autism and Developmental Disorders*. 2006

A multi-site study of 351 children with Autism Spectrum Disorders (ASD) and 31 typically developing children used caregiver interviews to describe the children's early acquisition and loss of social-communication milestones. For the majority of children with ASD who had experienced a regression, pre-loss development was clearly atypical.

AUTHOR CONCLUSION: No evidence that onset of autistic symptoms or of regression was related to measles, mumps and rubella vaccination.

- http://tinyurl.com/66gtk2

Pervasive Developmental Disorders in Montreal and Quebec, Canada: Prevalence and Links with Immunizations

Fombonne E et al. *Pediatrics*. 2006; 118(1):e139-50

Study of thimerosal and measles, mumps and rubella (MMR) vaccine uptake in 28,000 Canadian children born between 1987 and 1998, of whom 180 were identified with a pervasive developmental disorder.

AUTHOR CONCLUSION: The data rule out an association between pervasive developmental

disorder and either high levels of ethyl mercury exposure comparable with those experienced in the United States in the 1990s or 1- or 2-dose MMR vaccinations.

- http://tinyurl.com/5c27nu

Immunizations and Autism: A Review of the Literature

Doja A, Roberts W. *The Canadian Journal of Neurological Sciences* 2006; 33(4):341-6

Literature review found very few studies supporting an association between vaccines and autism, with the overwhelming majority showing no causal association between the measles, mumps and rubella (MMR) vaccine and autism. The vaccine preservative thimerosal has alternatively been hypothesized to have a possible causal role in autism. No convincing evidence was found to support an association between the vaccine preservative thimerosal and autism, nor for the use of chelation therapy in autism.

AUTHOR CONCLUSION: With decreasing uptake of immunizations in children and the inevitable occurrence of measles outbreaks, it is important that clinicians be aware of the literature concerning vaccinations and autism so that they may have informed discussions with parents and caregivers.

- http://tinyurl.com/ddnqq7

No Evidence of Persisting Measles Virus in Peripheral Blood Mononuclear Cells from Children with Autism Spectrum Disorder

D'Souza Y et al. *Pediatrics* 2006; 118(4):1664-75

Peripheral blood mononuclear cells were isolated from 54 children with Autism Spectrum Disorders (ASD) and 34 developmentally normal children, and up to 4 realtime polymerase chain reaction assays and 2 nested polymerase chain reaction assays were performed. No sample from either ASD or control groups was found to contain nucleic acids from any measles virus gene. In the nested polymerase chain reaction and in-house assays, none of the samples yielded positive results. Furthermore, there was no difference in anti-measles antibody titers between the autism and control groups.

AUTHOR CONCLUSION: There is no evidence of measles virus persistence in the peripheral blood mononuclear cells of children with ASD.

- http://tinyurl.com/dcb79o

MMR-Vaccine and Regression in Autism Spectrum Disorders: Negative Results Presented from Japan

Uchiyama T et al. *Journal of Autism and Developmental Disorders*, 2007; 37(2):210-7

Study of 904 patients with Autism Spectrum Disorders (ASD). During the period of measles, mumps and rubella vaccine (MMR) usage, no significant difference was found in the incidence of regression between MMR-vaccinated children and nonvaccinated children. Among the proportion and incidence of regression across the three MMR-program-related periods (before, during and after MMR usage), no significant difference was found between those who had received MMR and those who had not. Moreover, the incidence of regression did not change significantly across the three periods.

AUTHOR CONCLUSION: The data do not support an association between MMR and autism.

- http://tinyurl.com/6c6o4r

Measles Vaccination and Antibody Response in Autism Spectrum Disorders

Baird G et al., *Archives of Disease in Childhood* 2008; 93(10):832-7

Case-control study of 98 vaccinated children aged 10-12 years in the UK with autism spectrum disorder (ASD) and two control groups of similar age: 52 children with special educational needs but no ASD and 90 children in the typically developing group. No difference was found between cases and controls for measles antibody response. There was no dose-response relationship between autism symptoms and antibody concentrations.

AUTHOR CONCLUSION: No association between measles vaccination and ASD was shown.

- http://tinyurl.com/dn6yy8

Lack of Association between Measles Virus Vaccine and Autism with Enteropathy: A Case-Control Study

Hornig M et al., *PLoS ONE* 2008, 3(9): e3140 doi:10.1371/journal.pone.0003140

Researchers looked for measles virus in the guts of 25 children with both autism and gastrointestinal disorders, and another 13 children with the same gastrointestinal disorders but no autism. The virus was detected in one child from each group.

AUTHOR CONCLUSION: This study provides strong evidence against association of autism with persistent measles virus RNA in the gastrointestinal tract or with measles, mumps and rubella (MMR) vaccine exposure

- http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0003140

Lack of Association Between Measles-Mumps-Rubella Vaccination and Autism in Children: A Case-Control Study

Budzyn D, et al. *The Pediatric Infectious Disease Journal*. Vol. 29, No. 5, May 2010

Researchers in Poland compared vaccination history and autism diagnosis in 96 children with autism, ages 2 to 15, as well as 192 children in a control group. For children diagnosed before a diagnosis of autism, the autism risk was lower in children who received MMR vaccine than in non-vaccinated children. A similar result was achieved for the single-antigen measles vaccine.

AUTHOR CONCLUSION: The study provides evidence against the association of autism with either MMR or a single measles vaccine.

- http://www.ncbi.nlm.nih.gov/pubmed/19952979

Court Decisions

U.S. Court of Federal Claims decision in Omnibus Autism Proceeding

On Feb. 12, 2009, the "vaccine court" ruled in three test cases on the theory that MMR vaccine and the vaccine preservative thimerosal are linked to autism. The court found the scientific evidence is overwhelmingly contrary to this theory.

- http://www.uscfc.uscourts.gov/node/5026

Studies looking at thimerosal:

Association Between Thimerosal-Containing Vaccine and Autism

Hviid et al., *Journal of the American Medical Association*, 2003; 290(13):1763-6

Study of 467,000 children born in Denmark between 1990 and 1996 compared children who were vaccinated with a thimerosal-containing vaccine to children who received a thimerosal-free formulation of the same vaccine. The risk of autism and other autism spectrum disorders did not differ significantly between children vaccinated with thimerosal-containing vaccine and children vaccinated with thimerosal-free vaccine.

AUTHOR CONCLUSION: The results do not support a causal relationship between childhood vaccination with thimerosal-containing vaccines and development of autistic-spectrum disorders.

- http://tinyurl.com/5rtzjd

Thimerosal Exposure in Infants and Developmental Disorders: A Prospective Cohort Study in the United Kingdom Does Not Support a Causal Association

Heron et al., *Pediatrics*. Vol. 114 No. 3, 2004, pp. 577-583

The researchers monitored the thimerosal exposure of more than 14,000 children born in the UK between 1991 and 1992. The age at which doses of thimerosal-containing vaccines were administered was recorded, and measures of mercury exposure by 3, 4 and 6 months of age were calculated and compared with measures of childhood cognitive and behavioral development covering from 6 to 91 months of age.

AUTHOR CONCLUSION: No convincing evidence was found that early exposure to thimerosal had any deleterious effect on neurologic or psychological outcome.

- http://pediatrics.aappublications.org/cgi/content/abstract/114/3/577

Thimerosal and the Occurrence of Autism: Negative Ecological Evidence From Danish Population-Based Data

Madsen et al., *Pediatrics*; Vol. 112 No. 3, 2003, pp. 604-606

Analyzed data from the Danish Psychiatric Central Research Register recording all psychiatric admissions since 1971, and all outpatient contacts in psychiatric departments in Denmark since 1995. There was no trend toward an increase in the incidence of autism during that period when thimerosal was used in Denmark, up through 1990. From 1991 until 2000 the incidence increased and continued to rise after the removal of thimerosal from vaccines, including increases among children born after the discontinuation of thimerosal.

AUTHOR CONCLUSION: The discontinuation of thimerosal-containing vaccines in Denmark in 1992 was followed by an increase in the incidence of autism. The data do not support a correlation between thimerosal-containing vaccines and the incidence of autism.

- http://tinyurl.com/5omq4u

Autism and thimerosal-containing vaccines: Lack of consistent evidence for an association

Stehr-Green P et al., *American Journal of Preventive Medicine*. 2003; 25(2):101-6

Study compared the prevalence/incidence of autism in California, Sweden and Denmark from the mid-80s to the late 90s with average exposures to thimerosal containing vaccines. In all three countries, the incidence and prevalence of Autism Spectrum Disorders began to rise in the 1985-1989 period, and the rate of increase accelerated in the early 1990s.

AUTHOR CONCLUSION: The data is not consistent with the hypothesis that increased exposure to thimerosal-containing vaccines is responsible for the apparent increase in the rates of autism in young children being observed worldwide.

- http://www.ncbi.nlm.nih.gov/pubmed/12880876

Thimerosal Exposure in Infants and Developmental Disorders: A Retrospective Cohort Study in the United Kingdom Does Not Support a Causal Association

Andrews N et al., *Pediatrics*. Vol. 114 No. 3, 2004, pp. 584-591

Study analyzed thimerosal exposure and possible development delays in 109,863 children born in the United Kingdom from 1988-97. Exposure was defined according to the number of DTP/DT doses received by 3 and 4 months of age and also the cumulative age-specific DTP/DT exposure by 6 months.

AUTHOR CONCLUSION: With the possible exception of tics, there was no evidence that thimerosal exposure via DTP/DT vaccines causes neurodevelopmental disorders.

- http://tinyurl.com/7rvj6m

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developmental disorder.

AUTHOR CONCLUSION: The data rule out an association between pervasive developmental disorder and either high levels of ethyl mercury exposure comparable with those experienced in the United States in the 1990s or 1- or 2-dose measles-mumps-rubella vaccinations.

- http://tinyurl.com/5c27nu

Early Thimerosal Exposure and Neuropsychological Outcomes at 7 to 10 Years

Thompson, et al. 2007, *New England Journal of Medicine*. 357:1281-1292

Study compared early exposure to thimerosal-containing vaccines to 42 neuropsychological outcomes in 1,047 children between the ages of 7 and 10 years. Exposure to mercury from thimerosal was determined from computerized immunization records, medical records, personal immunization records and parent interviews.

AUTHOR CONCLUSION: The study does not support a causal association between early exposure to mercury from thimerosal-containing vaccines and immune globulins and deficits in neuropsychological functioning at the age of 7 to 10 years.

- http://tinyurl.com/5ndvpe

Mercury Levels in Newborns and Infants After Receipt of Thimerosal-Containing Vaccines

Pichichero, et al., *Pediatrics*. Vol. 121 No. 2, 2008, pp. e208-e214

Study assessed blood mercury levels of 216 healthy children prior to immunization with thimerosal-containing vaccines, and 12 hours to 30 days after. The blood mercury half-life was calculated to be 3.7 days and returned to prevaccination levels by day 30.

AUTHOR CONCLUSION: The blood half-life of intramuscular ethyl mercury from thimerosal in vaccines in infants is substantially shorter than that of oral methyl mercury in adults. Increased mercury levels were detected in stools after vaccination, suggesting that the gastrointestinal tract is involved in ethyl mercury elimination. Because of the differing pharmacokinetics of ethyl and methyl mercury, exposure guidelines based on oral methyl mercury in adults may not be accurate for risk assessments in children who receive thimerosal-containing vaccines.

- http://pediatrics.aappublications.org/cgi/content/full/121/2/e208

Continuing increases in autism reported to California's developmental services system: mercury in retrograde

Schechter and Grether, 2008, *Archives of General Psychiatry*. 65(1):19-24

Study analyzed autism client data from the California Department of Developmental Services between 1995 and 2007. Even though thimerosal was absent from scheduled childhood vaccines after 2002, cases of autism continued to climb quarter by quarter.

AUTHOR CONCLUSION: The California DDS data do not show any recent decrease in autism in California despite the exclusion of more than trace levels of thimerosal from nearly all childhood vaccines. The data do not support the hypothesis that exposure to thimerosal during childhood is a primary cause of autism.

- http://www.ncbi.nlm.nih.gov/pubmed/18180424?ordinalpos=44&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum

Prenatal and Infant Exposure to Thimerosal From Vaccines and Immunoglobulins and Risk of Autism

Price C et al., *Pediatrics*. Vol. 126 No. 4 October 2010, pp. 656-664

Researchers reviewed managed care organization records and conducted interviews with the parents of 256 children who were verified to have ASD according to a standardized personal evaluation. Children with ASD were further categorized as having autistic disorder or ASD with regression. Another 752 children without autism, matched to the ASD children by birth year, gender and managed care organization, were also studied. For none of the autism outcomes was prenatal or early life receipt of thimerosal-containing vaccines and immunoglobulins significantly greater among children with ASD than among children without ASD.

AUTHOR CONCLUSION: These results add to the evidence that thimerosal containing vaccines do not increase the risk of autism.

- http://pediatrics.aappublications.org/cgi/content/full/126/4/656

Investigative Reporting:

How the case against the MMR vaccine was fixed

Deer B, British Medical Journal. 2011; 342: 77-84

British journalist Brian Deer investigates Dr. Andrew Wakefield (the man who initially claimed a link between autism and the MMR vaccine), his practices during the study that was published

on this alleged connection, and uncovers truths that lead to the revocation of Dr Wakefield's medical license and to the retraction of the article he published on the subject.

- http://www.bmj.com/content/342/bmj.c5347.full

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