

# WHY ARE SO MANY CHILDREN SICK?

## A Review of Selected Controversies in Autism and the Role of the Institute of Medicine

Meeting with Drs. Raub and Fineberg

October 20, 2006



# DISCUSSION AGENDA

The emerging consensus within the autism community

Criticism of the Institute of Medicine and the larger institutional response

- *Support for epidemic denial*
- *Irrational and wasteful resource allocation*
- *Scientific censorship in environmental science*
- Support for ongoing exposure risks for newborns
- Failure to mobilize science and medicine in productive fashion

Positive steps forward

# AUTISM PARENTS ARE CRYING OUT FOR A CHANGE IN THE PARADIGM GOVERNING AUTISM SCIENCE AND TREATMENT

**From**

**A rare tragic disorder**

- constant prevalence

**Clear, if complex, genetic causes**

**Outcomes are inevitably determined in utero**

**A neuro-genetics problem**

**The best (and only) treatment is behavioral therapy**

**“Your children are defective”**



**To**

**An alarmingly frequent disease**

- rising incidence

**An environmental disease, with possible genetic vulnerability factors**

**Outcomes result from preventable events in otherwise normal children**

**A multi-disciplinary problem, spanning toxicology, epidemiology, neurology, immunology, gastroenterology, etc.**

**Many opportunities for prevention, treatment and recovery**

**“Our children are sick”**

# DISCOVERING AUTISM: LEO KANNER IN 1943

## An Extremely Rare Disorder

“Since 1938, there have come to our attention a number of children whose condition differs so markedly and uniquely from anything reported so far that each case merits—and, I hope will eventually receive—a detailed consideration of its fascinating peculiarities....

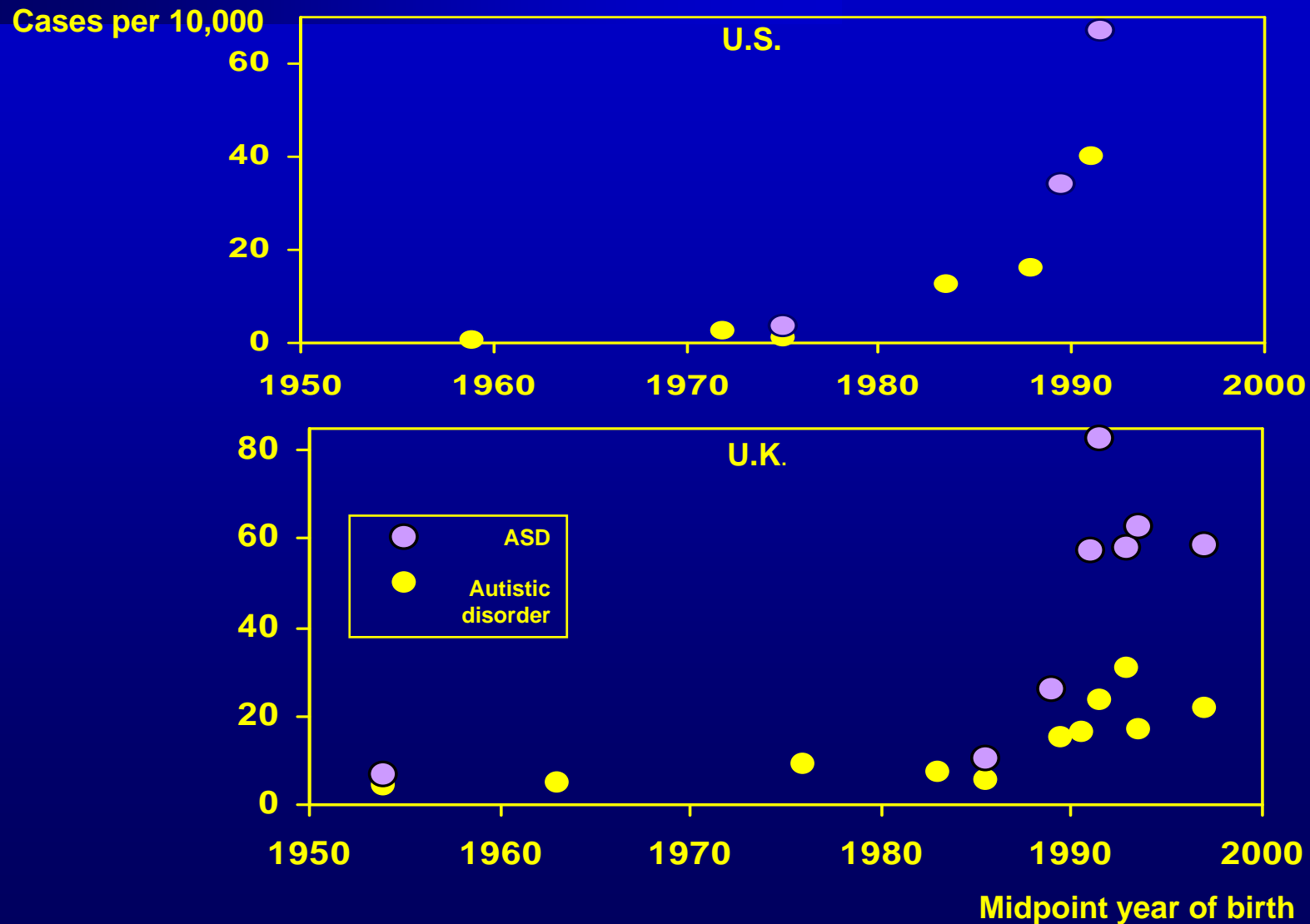
“These characteristics form a unique “syndrome”, not heretofore reported, which *seems to be rare enough*, yet is probably more frequent than is indicated by the paucity of observed cases.”

-Leo Kanner, “Autistic disturbances of affective contact”, *Nervous Child*, 1943

“The fact that an average of not more than eight patients per year [over twenty years] could be diagnosed with reasonable assurance as autistic in a center serving as a sort of diagnostic clearinghouse, speaks for *the infrequency of the disease*, especially if one considers that they recruit themselves from all over the North American continent...”

-Leo Kanner, “The specificity of early infantile autism”  
*Acta Paedopsychiatrie*, 1958

# WHAT'S GOING ON? THE QUESTION OF TIME TRENDS: RATE INCREASES IN U.S. AND U.K. AUTISM SURVEYS



# AUTISM RATES HAVE INCREASED IN THE UNITED STATES BY AT LEAST TENFOLD

	<u>Location</u>	<u>Birth years</u>	<u>Rates of autistic disorder (per 10K)</u>	<u>Rates of PDD (per 10K)</u>
<b>Early surveys</b>				
■ Treffert, '70	Wisconsin	1949-69	0.7	3.1 (exc. AS)
■ Ritvo et al, '87	Utah	1960-84	2.5	--
■ Burd et al, '89	N. Dakota	1967-91	1.2	3.3 (exc. AS)
■ CA DDS '03	California	1960-80	2.6→5.3	--
<b>Recent surveys</b>				
■ Bertrand et al, '01	Brick, NJ	1988-95	40	67
■ Yearginn-Allsopp et al, '03	Atlanta, GA	1986-93	--	34
■ CA DDS, '03	California	1970-97	5.3→35.4	--
■ Gurney et al, '03	Minnesota	1988-93	--	20→66
<b>Selected IDEA results</b>				
■ Wisconsin	Wisconsin	1995	51	--
■ Utah	Utah	1994	32	--
■ N. Dakota	N Dakota	1993	25	--
<b>Recent: early rate ratio</b>			<u>(vs. PDD-AD)</u> <b>16-73X</b> <b>13X</b> <b>8-21X</b> <b>14X</b>	
■ Wisconsin				
■ Utah				
■ N. Dakota				
■ California				

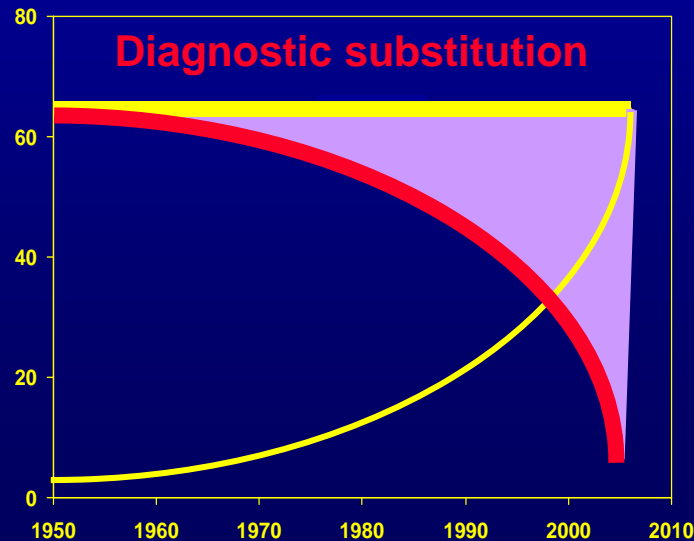
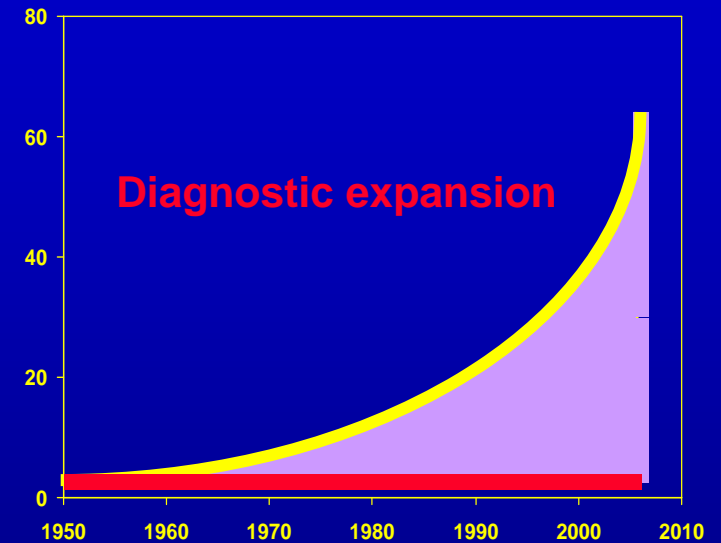
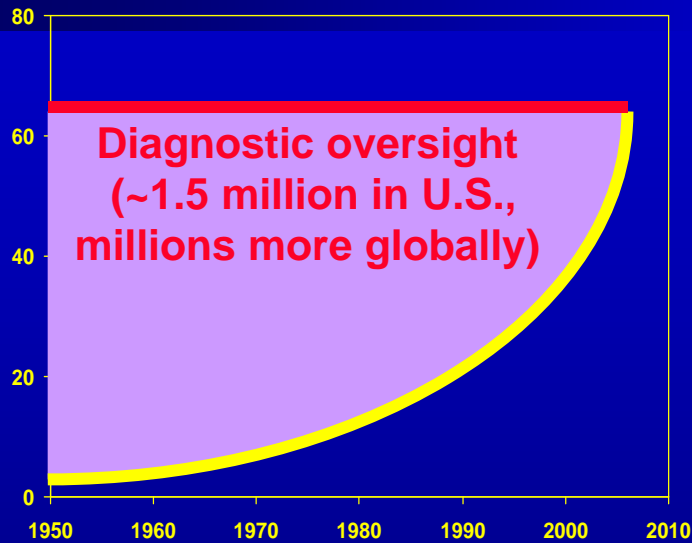
## **IN YOUR OWN WORDS: SUPPORT FOR EPIDEMIC DENIAL**

### **DR. HARVEY FINEBERG:**

**There's definitely a huge number of cases diagnosed with autism, Tim. What is clear is that number recognized has increased dramatically. It's also clear that the definition was broadened markedly in the 1980s and 1990s, and there were increased incentives to recognize children from increased awareness and availability of services. No one knows with certainty what part of the increase is genuine, a genuine increase in numbers, and what part is from increased recognition of people who were already there but not previously recognized. Remember we're talking about a spectrum of diagnoses here, autism spectrum diseases, which range in severity from relatively mild to relatively severe.**

**-Meet the Press: August 7, 2005**

# THREE (AND ONLY THREE) POSSIBLE SOURCES OF DIAGNOSTIC ERROR



# DIAGNOSTIC OVERSIGHT: THE “HIDDEN HORDE” THEORY HAS BEEN TESTED AND PROVEN FALSE

## Tests of the diagnostic oversight hypothesis

1. Burd et al, 2000, International Journal of Circumpolar Health, 59(1):74-86

- “the original...methodology identified 98% of the cases...in the population”

2. Gillberg et al, 1991, Br J Psychiatry 1991;158:403-9

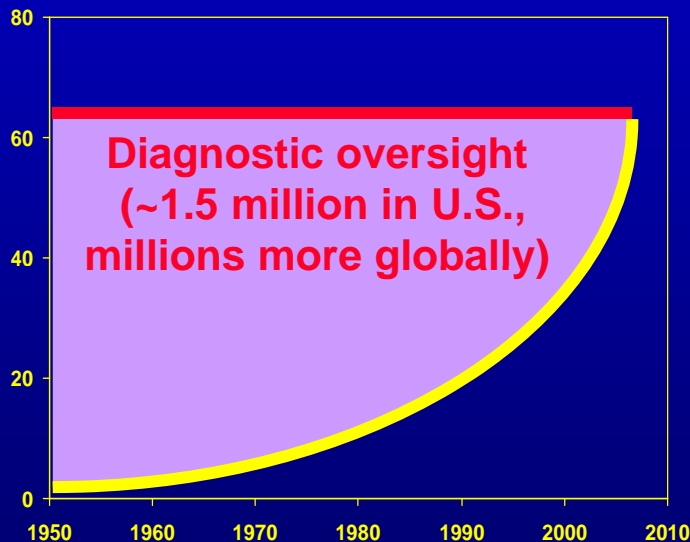
- no new cases found after 4 years, adjusting for immigration, in 11-13 vs. 7-9 year olds

3. Nylander and Gillberg, 2001, Acta Psychiatrica Scandinavia, 103:428-434

- <1% of outpatient population screened received diagnosis, only 2.7 per 10,000

4. Chang et al, 2003, Gen Hosp Psychiatry, 2003(4):284-8

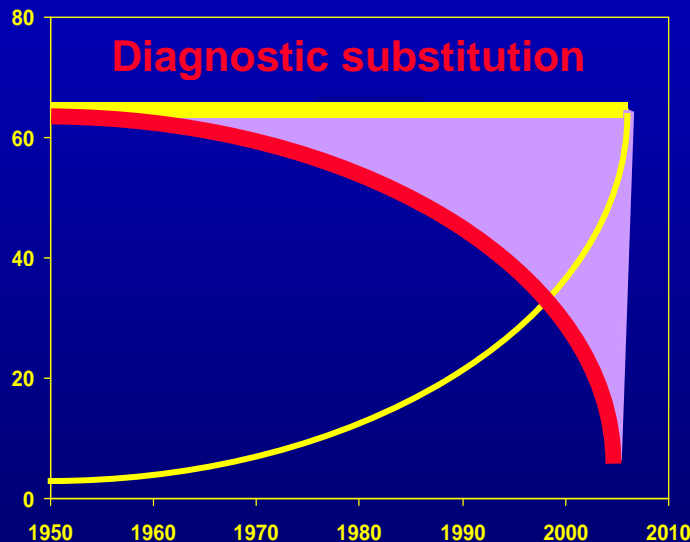
- <1% of outpatient population screened received diagnosis, <1 per 10K



# DIAGNOSTIC SUBSTITUTION: A DISCREDITED THEORY, BUT IT KEEPS COMING BACK

## Tests of the diagnostic substitution hypothesis

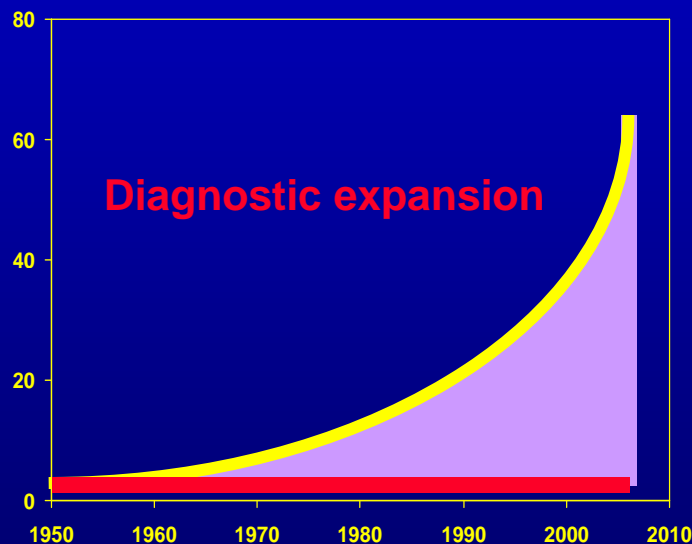
1. **California, claim retracted** by authors
  - Croen et al, J Autism Dev Disord. 2002;32(3):207-15.
  - Blaxill et al, J Autism Dev Disord. 2003;33(2):223-6
2. **UK, argument disavowed** by authors
  - Jick H, Kaye JA. Pharmacotherapy. 2003;23(12):1524-30. Erratum later
  - Blaxill, Pharmacotherapy. 2004;24(6):812-3
3. **Minnesota, investigated, not found**
  - Gurney et al, Arch Pediatr Adolesc Med. 2003;157(7):622-7
  - Barbaresi et al, Arch Pediatr Adolesc Med. 2005;159(1):37-44
4. **U.S. IDEA statistics, findings disputed**
  - Newschaffer et al, Pediatrics. 2005;115(3):e277-82
  - Shattuck, Pediatrics. 2006;117(4):1028-37
  - Blaxill et al, submitted



# DIAGNOSTIC EXPANSION: NO EVIDENCE HAS EVER SUPPORTED THIS THEORY

## Tests of the diagnostic expansion hypothesis

1. Intent of the designers: "The change from DSM-III to DSM-III-R is an example of the broadening of the concept of autism; from DSM-III-R to DSM IV, a corrective narrowing occurred."  
-Volkmar et al, 1997
2. Analysis of diagnostic criteria: adding Asperger's Syndrome is only change to the PDDs  
-Blaxill, 2004
3. Cohort comparisons: no difference in false positive rate in California autistic population between 1983-85 and 1993-95  
-Byrd et al, 2002
4. Broader criteria for "research identified autism" fail to locate older children with looser criteria  
-Barbaresi et al, 2005



## BAYESIAN INFERENCE GONE BERSERK

“I also believe that the time has come to accept that, given the behavioral basis of the autism diagnosis, the lack of knowledge about autism’s underlying etiology, and *the limitations of retrospective analyses*, we are not likely to develop a conclusive body of evidence to either fully support or fully refute the notion that there has been some real increase in autism risk over the past 2 decades.”

Craig Newschaffer [Department of Epidemiology, Center for Autism and Developmental Disabilities Epidemiology, Johns Hopkins Bloomberg School of Public Health], Investigating Diagnostic Substitution and Autism Prevalence Trends, *Pediatrics*. 2006;117(4):1436-37

# NO PROSPECTIVE STUDIES?

## Results of Prospective NIH Collaborative Perinatal Study

55,908 pregnancies with births from 1959-66 followed up in formal examinations at several points (Niswander & Gordon, 1972), including

- Psychological exams at 8 months, 4 years and 7 years
- Neurological exams at 1 year and 7 years
- Speech and hearing tests at 3 years and 8 years

Prospective birth sample used to study perinatal events in autism

- 30,000 computerized case records (Torrey et al, 1975)
- 200 cases of abnormal development reviewed closely
- 14 cases of infantile autism, 6 additional cases close in symptoms
- rate of 4.7 per 10,000 for infantile autism, 6.7 per 10K ASD

*“Although the authors make no claim to having identified every autistic child among the 30,000 children, the prevalence rate of 4.7 per 10K live births is almost identical to that reported by Wing et al (1967), thus leading us to believe that most such children were included.”*

# WHY DOES THE EPIDEMIC MATTER?

## Statement

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*Autism rates are 1 in 166, and ...*

**We don't know** how much of the increases have come from increased awareness

**It doesn't matter** whether autism rates have increased

**Let's rule out** inconvenient hypotheses such as vaccines and their preservatives, e.g., thimerosal

**We have a crisis** and the explosion in rates is a national emergency

## Implication

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No need for changes of any kind in funding or science strategy

Only need is to increase overall funding, not its direction

Impose blinders on investigation by mandating selective ignorance in research scope

Urgent need to increase environmental/treatment research and respect plausible theories of causation

# CHALLENGING THE IRRATIONAL AND WASTEFUL ALLOCATION OF SCIENTIFIC RESOURCES

	Environment	Genetics
Treatment	<p><i>“Our kids are sick”</i></p> <ul style="list-style-type: none"> <li>- Explosion in numbers</li> <li>- Where dollars should go</li> <li>- DAN!, Thoughtful House, James, ICDRC, etc.</li> <li>- Many examples of recovery, helping living children</li> </ul>	<p><i>...so we can't do much to help</i></p> <ul style="list-style-type: none"> <li>- Behavioral therapy</li> <li>- Pharmaceutical drugs</li> </ul>
Cause	<p><i>Regressive autism is real, so...</i></p> <ul style="list-style-type: none"> <li>- Mercury</li> <li>- Vaccines</li> <li>- Heavy metals</li> <li>- Viruses</li> <li>- Susceptibility factors</li> </ul>	<p><i>“Your kids are defective”</i></p> <ul style="list-style-type: none"> <li>- Epidemic denial</li> <li>- Where dollars have gone</li> <li>- Hidden Hordes, Diagnostic substitution, Roaming Reference Ranges and other theories</li> <li>- Grim prognosis, no recovery</li> </ul>

# SCIENTIFIC CENSORSHIP IN AUTISM RESEARCH: ELEMENTS OF A FAIR TRIBUNAL

Open and transparent determination of the docket

Disinterested, competent judges

Consistent and fair trial procedures

- Rules of evidence
- Standards of proof
- Impartiality in proceedings
- High standards of judicial conduct

Mechanisms for error correction and appeal

# THE INSTITUTE OF MEDICINE IMMUNIZATION SAFETY REVIEW: VACCINES AND AUTISM

## Docket management

The IOM Immunization Safety Review Committee (The Committee) had a clear charter, but its charter changed over time amidst conscious efforts to influence its findings

## Disinterested, competent judges

The Committee itself was skewed in composition, financially conflicted and biased

## Consistent rules of evidence

The Committee considered evidence of (flawed) epidemiology alone, ignored relevant evidence and precluded consideration of case study evidence entirely in its autism findings

## Consistent standard of proof

The Committee changed the standard of proof in the vaccine safety review criteria from Biological Plausibility to Biological Mechanisms in order to favor an outcome that would fully reject any causation hypothesis

## Impartiality in proceedings

The Committee adjusted its agenda to serve the interests of its client, the CDC, an interested party in the controversy

## Standards of conduct

The Committee displayed a pervasive bias in its private discussions to suppress relevant science

# DOCKET MANAGEMENT: AN IMPARTIAL JUDICIAL BODY VS. THE COMMITTEE'S PRACTICES

<b>Docket management in a court of law</b>	<b>Management of The Committee's agenda</b>
Funding for court is independent of parties to a dispute	The CDC funded The Committee as a client of the IOM
Standing body	Three year term, but with a specific extension for Vaccines and Autism topic
Clear criteria for convening hearings and trials	Committee agenda and specific charge set at the discretion of a single interested party
Opportunity for appeal based on judicial misconduct	No recourse for aggrieved parties
Timing of hearings independent of evidence	Final meeting timed to coincide with publication of a handful of epidemiology studies on thimerosal

# THE CDC FUNDED THE PROJECT AND PAID \$2 MILLION TO SUPPORT THE COMMITTEE

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control and Prevention  
**INTER/INTRA-AGENCY AGREEMENT (IAA)**  
Payable Agreements (CDC is Procuring Agency)

1. CDC IAA #: (10 to 13 digits) 00FED17358	2. PARTICIPATING AGENCY IAA #: Y3-AI-0488-01	3. TYPE OF AGREEMENT <input checked="" type="radio"/> New <input type="radio"/> Modification <input type="radio"/> Administrative Modification Number:
4. TITLE OF PROJECT: Vaccine Safety Review Panel		
5. DESCRIPTION OF WORK: (Please attach) see attached	6. AMOUNT: (Not to exceed without written modification) \$2,043,000.00	
7. NAME AND ADDRESS OF PARTICIPATING FEDERAL AGENCY: National Institute of Health 6700-B Rockledge Drive MSC-7600, Room 1131 Bethesda, MD. 20892-7600	LIAISON NAME: Keith Lamirande EMAIL ADDRESS: KLAMIRANDE@nih.gov	PHONE #: (301) 496-7151 FAX #: (301) 402-0520
8. NAME AND ADDRESS OF CDC, CENTER, INSTITUTE OR OFFICE: Centers for Disease Control and Prevention National Immunization Program 1600 Clifton Road, MS E-61 Atlanta, Ga. 30333	LIAISON NAME: Shelia Jones EMAIL ADDRESS: clj1@cdc.gov	PHONE #: (404) 639-8766 FAX #: (404) 639-8616

## COMMITTEE SURPRISED AT LEARNING CDC'S ROLE IN CONTROLLING MEETING TOPICS AND TIMING

**Dr. Berg:** ...I am interested in the general methodology that this panel is going to use. This may be our only chance, I understand, to talk about methodology. What general methods are we going to prune the tree. How are we going to decide that issue X is more worthy of our time than issue Y.

**Dr. Stratton:** Actually, you don't have to make that decision. We don't have to make that decision. CDC will tell us which topic we will address when.

**Dr. Johnston:** That is news to me.

Source: 1/12/01 closed door meeting transcript, p. 50

## COMMITTEE SURPRISED AT LEARNING CDC'S ROLE IN CONTROLLING MEETING TOPICS AND TIMING

**Dr. Stratton:** All of a sudden, Jeff Copeland and Walt Orenstein and the Surgeon General and everybody is (sic) being beat (sic) over the heads and they need to try to resolve something. We don't have to make that decision. *Whether we like it or not* - - and there are pros and cons of letting them determine the topic - to be expedient, it is better that they determine it.

**Dr. Medoff:** *They* are paying for it.

**Dr. Stratton:** A lot of times we don't actually care about that, within reason. This is a case where it was decided that their need for what to be addressed next was primary. We probably could object if we thought something was totally ridiculous, and we can shape it a little. We have -- you know, what are the boundaries. Does that make you feel any better?

**Dr. Berg:** Now I am curious what other parts of the methods the CDC has figured out for us.

**Dr. Stratton:** None.

**Dr. Berg:** Thank you.

Source: 1/12/01 Transcript, pp. 51-52 (emphases added)

# DO VACCINES CAUSE AUTISM? A QUESTION POSED BY THE IMMUNIZATION PROMOTION AGENCY

Numerous alternative questions are more relevant to childhood health

- What's going on? The question of time trends in autism
- Why are so many children sick? The role of environmental factors in autism and related neuro-developmental disorders
- What is the role of cumulative mercury exposure in autism? Including,
  - Environmental mercury, via air, water or unknown ingestion paths
  - Dietary mercury, via maternal fish consumption during pregnancy
  - Dental amalgams, via maternal inhalation during pregnancy
  - Thimerosal in immune globulins, via Rho D, hep B, or other immune globulins
  - Thimerosal in vaccines, including infant and maternal influenza vaccines
- What is the potential contribution of vaccine exposures to patterns of specific neuro- and gastrointestinal inflammation known to be present in autism?
- What is the safety profile of the expanded vaccine program when comparing fully vaccinated to unvaccinated children in terms of total health outcomes?

## **DISINTERESTED, COMPETENT JUDGES: PANEL SKEWED, FINANCIALLY INTERESTED AND IDEOLOGICALLY BIASED**

Committee membership was heavily weighted toward public health and pediatric representatives, had no toxicologists or environmental scientists and only a single immunologist, who failed to attend critical meetings

Four committee members (McCormick, Parkin, Davis-Anthony, Wilson) had financial conflicts of interest, including ties to the CDC and stock ownership in vaccine manufacturers that should have disqualified them from participation.

At least one committee member (Berg) was on record as promoting the vaccine schedule he was now being asked to evaluate, a statement that should have disqualified him from participation

An additional three (Gatsonis, Horak and Medoff) reported making vaccine policy statements to the rest of the committee. Such statements (unknown at this time) could have disqualified them from participation

Committee composition varied by topic based on attendance and was associated with differences in findings.

# COMMITTEE ATTENDANCE BY DISCIPLINE

<b>Meeting</b>	<b>Public Health**</b>	<b>Pediatrics</b>	<b>Statistics</b>	<b>Neurology</b>	<b>Internal Medicine</b>	<b>Immunology</b>	<b>Other</b>
<b>MMR, 4/01</b>	Bayer Foxman Horack Parkin	Berg Casey Kaback Johnston*	Gatsonis Cohen Goodman	Shaywitz	Medoff	--	Davis- Anthony
<b>Thimerosal &amp; NDDs, 10/01</b>	Bayer Parkin	Berg Casey Kaback Johnston*	Gatsonis Cohen	Shaywitz	Medoff	Wilson	--
<b>Multiple antigens, 2/02</b>	Bayer Foxman Horack Parkin	Berg Kaback Johnston*	Gatsonis Cohen Goodman	Shaywitz	Medoff	Wilson	Davis- Anthony
<b>Hep B &amp; DND, 5/02</b>	Bayer Horack Parkin	Berg Casey Kaback Johnston*	Gatsonis Cohen Goodman	Shaywitz	Medoff	--	--
<b>SV40 &amp; cancer, 10/02</b>	Foxman Parkin	Kaback Johnston*	Gatsonis Cohen Goodman	Shaywitz	--	Wilson	--
<b>SIDS, 3/03</b>	Bayer Foxman Horack Parkin	Berg Casey Kaback Johnston*	Gatsonis Cohen	Shaywitz	Medoff	Wilson	--
<b>Flu and CNS, 10/03</b>	Bayer Foxman Horack Parkin	Berg Casey Johnston*	Goodman	--	Medoff	Wilson	--
<b>Vaccines &amp; Autism, 5/04</b>	Bayer Foxman Horack Parkin	Berg Casey Kaback Johnston*	Gatsonis Cohen Goodman	Shaywitz	--	--	--

\* Ex officio member

\*\*Marie McCormick attended all meetings

# COMMITTEE PARTICIPATION INFLUENCED OUTCOMES, AS VACCINE RISKS WERE ACCEPTED/REJECTED WITH LOW/HIGH PUBLIC HEALTH/PEDIATRIC PARTICIPATION

Meeting	Absent	Public Health and Pediatrics Presence and Outcomes
#2 MMR and Autism	Wilson	<b>69% (9/13) No connection</b>
#3 Thimerosal and Neuro-developmental Disorders	Davis-Anthony, Foxman, Goodman, Horak	<b>60% (6/10) Connection biologically plausible</b>
#4 Multiple Immunizations and Immune Dysfunction	Casey	62% (8/13) Insufficient info on allergies, switch to biological mechanisms, some mechanisms are strong
#5 Hep B vaccine and demyelinating disorders	Foxman, Wilson, Davis-Anthony	64%(7/11) Insufficient evidence, weak biological mechanisms
#6 Polio, SV40 virus and cancer	Bayer, Berg, Casey, Horak, Medoff, Davis-Anthony	<b>50%(4/8) Insufficient evidence, biological mechanisms strong/moderate</b>
#7 Vaccines and SIDS	Bayer, Goodman, Davis-Anthony	64% (7/11) Ranging between reject to favoring acceptance
#8 Influenza vaccines and neurological complications	Cohen, Gatsonis, Kaback, Shaywitz, Davis-Anthony	<b>78% (7/9) Ranging between reject to favoring acceptance</b>
#9 Vaccines and autism	Medoff, Wilson, Davis-Anthony	<b>73% (8/11) Reject all hypotheses</b>

# FINANCIAL CONFLICTS OF INTEREST AMONG COMMITTEE MEMBERS

*Committee members were not to possess any financial, professional or personal conflicts of interest with the contracting agencies or regarding the topics to be considered. In reality, such conflicts were common...*

## McCormick

- CDC hired Dr. Mary Jean Brown, an assistant professor in the Harvard School of Public Health Department of Maternal and Child Health (then chaired by Dr. McCormick) to serve as Chief of the Lead Poisoning Prevention branch in the National Center for Environmental Health in 2003. Dr. Brown maintained an adjunct appointment at Harvard after beginning her new position at CDC.
- The department Dr. McCormick chaired at Harvard (Maternal and Child Health) received a grant from the CDC 4 months prior to the issuance of the 5/17/04 report on vaccines and autism.

## Parkin

- Former CDC employee
- Received grant money from the CDC during the course of the committee's deliberations.

## Davis-Anthony

- Owned stock in vaccine manufacturer Merck

## Wilson

- Served in the Public Health Service (which has oversight for the CDC) during the 1970's

# **CONSISTENT RULES: THE COMMITTEE CHANGED AND VIOLATED THE RULES OF EVIDENCE AND IGNORED RELEVANT EVIDENCE DURING ITS PROCEEDINGS**

Changes in the rules of evidence, as set forth in their 1994 guidelines, were permitted

All committee findings were based on large scale epidemiology studies in opposition to prior guidelines and specific findings

The thimerosal controversy was addressed through consideration of only five flawed epidemiology papers, four of which were written by authors employed by potentially liable vaccine manufacturers, only one of which was conducted in the US and three of which were duplicative and written by overlapping author groups

Epidemiology studies supporting an association with thimerosal and autism were summarily rejected

Case study evidence was not considered

Committee leadership discouraged committee members from considering case study evidence and failed to pursue opportunities to make such evidence available to the committee

# CHANGES IN THE “RULES OF EVIDENCE “OVER THE COURSE OF COMMITTEE DELIBERATIONS

	<b>1994 Criteria</b>	<b>Meeting 2 – MMR</b>	<b>Meeting 9 - thimerosal</b>
<b>Evidence Basis</b>	In the absence of epidemiology studies favoring a causal relationship, individual case reports and case series were relied upon, along with presence or absence of demonstrated “biologic plausibility.”	The absence of epidemiologic studies favoring a causal relationship was the sole basis for the rejection of a causal relationship between MMR and ASD.	Causality was determined by epidemiologic studies favored by the committee, only one of which was completed using the U.S. vaccine schedule on children in the U.S.
<b>Role of Epidemiology</b>	Case control studies are the only feasible research design for rare events.	Lack of relationship in epidemiologic studies was used to reject a causal relationship.	Epidemiologic studies that were inconclusive or that did not show a relationship were the sole basis to reject causality.  The committee rejected several studies providing support for a causal relationship.
<b>Case Studies</b>	Absence of case studies cannot be used to reject causality. Challenge-rechallenge studies have a major effect on the causality assessment.	Case studies “uninformative.” The existence of challenge-rechallenge cases was not pursued further.	Despite the existence of such data, no case studies regarding thimerosal exposure were considered by the committee.

# SEVERE PROBLEMS WITH EPIDEMIOLOGY EVIDENCE IN 5 CITED STUDIES

Study (population)	Author conflicts: Vaccine makers	Author Conflicts: Policy makers	Data problems (selected)	Model problems (selected)
Verstraeten et al '03 <i>Pediatrics</i> (U.S. VSD)	Verstraeten (GSK, undisclosed)	DeStefano (CDC) Rhodes (CDC) Chen (CDC)	Exclusion of cases with high exposures and outcomes	Systematic reduction of risk findings over report generations
Stehr-Green et al '03 <i>AJPM</i> (Denmark, Sweden)	Stellfeld (SSI)	Simpson (CDC) Stehr-Green (CDC consultant)	Registrations confused with incidence	Observation period overlapped major registration changes
Hviid et al '03 <i>JAMA</i> (Denmark)	Hviid (SSI) Stellfeld (SSI) Melbye (SSI) Wohlfahrt (SSI)		Lost cases unexplained	Years of birth chosen to obscure MMR effect
Madsen et al '03 <i>Pediatrics</i> (Denmark)	Plesner (SSI)	Thorsen (CDC)	Registrations confused with incidence	Observation period overlapped major registration changes
Andrews et al '04 <i>Pediatrics</i> (U.K.) [cited as Miller 2004 by IOM ISR]		Andrews (CDSC) Miller (CDSC) Grant (CDSC)	Positive health effects of mercury exposure	Multicollinearity Regression results hidden

# SUMMARY OF FINDINGS FROM 1994 IOM REPORT

TABLE 1-1 Summary of the Evidence For or Against a Determination of a Causal Relationa

Vaccine and Adverse Event	Biologic Plausibility <sup>b</sup>	Case Reports, Case Series, and Uncontrolled Observational Studies	Controlled Observational Studies and Controlled Clinical Trials
<i>Diphtheria and Tetanus Toxoids<sup>c</sup></i>			
Encephalopathy	Demonstrated	Indeterminate	Against (DT) No data (Td, T)
Infantile spasms <sup>d</sup> (DT only)	Theoretical only	No data	Against
Residual seizure disorders other than infantile spasms	Theoretical only	Indeterminate (DT, T) No data (Td)	No data
Demyelinating diseases of the central nervous system	Demonstrated	For	No data
Guillain-Barré syndrome	Demonstrated	For (T) Indeterminate (DT, Td)	No data
Mononeuropathy	Theoretical only	Indeterminate (T, Td)No data (DT)	No data
Brachial neuritis	Theoretical only	For (T) Indeterminate (Td) No data (DT)	No data

Source: Stratton et al. 1994, p. 6

This committee found that there was a causal relationship between the tetanus toxoid vaccination and Guillain-Barre syndrome, despite the lack of any controlled observational studies.

Thus, epidemiology is *not necessary* to prove a causal relationship.

# WEIGHT OF CASE STUDIES IN DETERMINING CAUSALITY (STRATTON ET AL. 1994)

Although *Can It?* causality is usually addressed from epidemiologic studies, an affirmative answer can occasionally be obtained from individual case reports. *Thus, if one or more cases have clearly been shown to be caused by a vaccine (i.e., Did It? can be answered strongly in the affirmative), then Can It? is also answered, even in the absence of epidemiologic data*

**Susceptibility of the vaccine recipient (i.e., rechallenge):** *Has he or she received the vaccine in the past? If so, how has he or she reacted? Does his or her genetic background or previous medical history affect the risk of developing the adverse event as a consequence of vaccination?*

**Characteristics of the adverse event:** *Are there any available laboratory tests that either support or undermine the hypothesis of vaccine causation? For live attenuated virus vaccines, has the vaccine virus (or a revertant) been isolated from the target organ(s) or otherwise identified? Was there a local reaction at the site at which the vaccine was administered? How long did the adverse event last?*

**Rechallenge:** *Was the vaccine readministered? If so, did the adverse event recur?*

## THE COMMITTEE CHAIR'S GENERAL ATTITUDE OF SKEPTICISM REGARDING “CAN IT?” CASE INFORMATION

**Dr. Johnston:** Barbara Loe Fisher [NVIC] could give you names. Mrs. Fisher said she had cases. I think she came up to say if you needed any cases to demonstrate the points, you could have them.

**Dr. McCormick:** *She was demonstrating causality.\*\** She was taken by your case series that you did—the Guillaume Barre (*sic*) and whatever, the tetanus. She was all ready to get you cases to prove causality.

**Dr. Wilson:** Well, let's see them.

**Dr. McCormick:** *Let's not do that.* Do you have a free weekend that you want to plod through them?

-Source: pp 149-150, IOM ISR Meeting 1 closed door meeting transcript, 1/12/01, emphasis added

\*\*i.e., 1994 IOM Report – Stratton et al.1994

## ON THE SPECIFIC CONTRIBUTION OF WAKEFIELD'S CASE STUDIES

**Dr. Goodman:** I actually have a problem with verified. I think that is a very loaded term. It's a coded word of saying everything else, Wakefield, anything we don't like is unverified.

**Dr. Gatsonis:** *Well, we need to say something. For instance, what are we going to do about the 11 challenge/rechallenge cases? Do we believe in it? It was evidence. It was published in some sense. Do we say published evidence?*

**Dr. Goodman:** Yes, I think published evidence.

**Dr. Gatsonis:** We also had unpublished things in our evidence.

**Dr. Goodman:** Yes, the Fombonne.

**Dr. Foxman:** He did have published reviews though.

**Dr. Gatsonis:** We need some words.

**Dr. Medoff:** Based on the available data. **Did Wakefield give us data? \*\***

Source: 3/10/01 Closed Door transcript, p. 34, (emphases added)

**\*\*This question was not answered by the committee officials (McCormick and Stratton), who had the authority and responsibility to request additional information.**

## WAKEFIELD'S 11 RECHALLENGE CASE STUDIES

After his original presentation to the IOM ISR on 3/8/01, in which he reported data on 11 rechallenge case studies, Wakefield was asked to provide his data to the committee on 3/9/01 (2002 Latitudes, 5[3] p. 6).

Closed door deliberations on 3/10/01 make it clear that committee members wanted additional information but committee leadership chose not to request such data from Wakefield.

Despite the comprehensive data provided and the deliberations by the committee, Wakefield's case study information was mentioned only in passing in the 4/23/01 report on MMR and autism,

"The committee is aware that there might be some cases of rechallenge that could be assessed (Wakefield, 2001). If well-documented and reviewed by appropriate clinicians, these reports and similar data could provide evidence in favor, but not necessarily prove causality, of the hypothesized relationship in a small number of children."

-Source: 4/23/01 Report on MMR and Autism, p. 57.

# CONSISTENT STANDARDS: THE COMMITTEE RAISED THE STANDARD OF PROOF FROM BIOLOGICAL PLAUSIBILITY TO BIOLOGICAL MECHANISMS

Biological plausibility has long been the standard for assessing hypothesized vaccine adverse events

The Committee began its deliberations using this clear standard of proof

The Committee chose to change its standards immediately subsequent to issuance of its report on thimerosal and NDDs

There was no public discussion, recognition or authorization of this unilateral change

The change in standards had material consequences on subsequent findings

Raising its standard of proof strongly suggests that Committee leadership sought to influence the likely outcome of future reports rather than comply with its original charter as an unbiased review body

## THE COMMITTEE SWITCHED TO *BIOLOGICAL MECHANISMS* IN MEETING #3 (FEBRUARY 2002)

“The examination of experimental evidence for biological mechanisms has been referred to in previous reports of this committee (IOM, 2001a, 2001b) and others (IOM, 1991, 1994) as an assessment of ‘biological plausibility.’ The committee has noted, however, that the term is a source of confusion on at least two fronts. First, it is associated with a particular set of guidelines (sometimes referred to as the Bradford Hill criteria) for causal inference from epidemiological evidence; and second, readers sometimes regard the term with a degree of certainty or precision the committee never intended. For example, a relationship between immunization and a particular adverse event may be found to be biologically plausible at the same time that the epidemiological evidence is found to be inadequate to accept or reject a causal relationship.”

Given the resulting lack of clarity, the committee believes that the adoption of new terminology and a new approach to its discussions of experimental biological data are warranted. The committee will thus review evidence regarding ‘biological mechanisms’ that might be consistent with the proposed relationship between immunization and a given adverse event. This biological assessment section of the report is written distinct from any argument regarding the causality of such relationships. Beginning with this report, the committee will summarize the biological mechanisms as theoretical only, or as having derived from either experimental evidence in animals or *in vitro* systems or from mechanism-related, biological evidence in humans of response to vaccine or infectious disease antigen. If there is either experimental evidence (e.g., from animals) or evidence in humans for a mechanism, the committee will designate it as weak, moderate, or strong. Though the committee tends to judge biological evidence in humans to be ‘stronger’ than experimental evidence, the strength of the evidence also depends on other factors, such as experimental design and sample size. The conclusions drawn from this review will depend both on evidence and scientific judgment.”

Source: pp. 2-3, report executive summary, emphases added

## MEANWHILE, PARENT GROUPS HAD PRAISED THE OCTOBER 2001 REPORT ON THIMEROSAL AND NDDS

“Safe Minds Applauds IOM Recommendations -- Asks for Recall of All Childhood Vaccines Containing Mercury”

“Safe Minds is pleased that the IOM report acknowledges the *biological plausibility* that mercury in vaccines is linked to neurological problems and that children should not be exposed to it in vaccines or any other product, but its recommendations do not go far enough,” said Sallie Bernard, executive director of Safe Minds. “We believe that no child should get any mercury-containing vaccines. We are renewing our call for the immediate removal of remaining stocks of childhood thimerosal-containing vaccines still on pharmaceutical and pharmacists shelves. In addition, we are asking that research be conducted into how to identify and repair mercury damage in children.”

“Safe Minds is pleased that the IOM Committee has recommended a comprehensive and ambitious research program to determine the role of thimerosal in neuro-developmental disorders,” said Mrs. Bernard. “This is what we have been asking for for over a year. Some of these studies are already happening as a result of Safe Minds’ and other parent advocate’s initiatives. But much more is needed, including a strong commitment from the NIH to fund extensive studies on this issue. We are calling for studies that include treatment for affected children as part of the comprehensive research agenda.”

-Source: SafeMinds press release, 10/01/01 (emphasis added)

# WHY SWITCH FROM BIOLOGICAL PLAUSIBILITY TO BIOLOGICAL MECHANISMS?

**Previous conclusions regarding thimerosal and neurodevelopmental disorders (NDDs),**

- “The committee concludes that although the hypothesis that exposure to thimerosal-containing vaccines could be associated with neurodevelopmental disorders is not established and rests on indirect and incomplete information, primarily from analogies with methylmercury and levels of maximum mercury exposure from vaccines given in children, *the hypothesis is biologically plausible.*” (Committee Report 10/1/01 regarding thimerosal and NDDs).

**Possible concerns raised by the CDC contract representative after the 10/1/01 report was issued**

**Also, unlike those of autism, the biological mechanisms for the adverse events considered in the 2/2002 report (i.e. diseases involving immune dysfunction) were well known.**

# THE SWITCH TO BIOLOGICAL MECHANISMS WAS LESS NOTABLE IN IMMUNE DYSFUNCTION COMMITTEE REPORT, 2/2002

Table 5 based on non-vaccine antigens known to produce same or similar autoimmune response considered as adverse events each with *defined mechanisms* (p. 83)

Thus, biological mechanisms for disorders considered in this meeting had been well established scientifically.

TABLE 5 Putative Examples of Molecular Mimicry in Human Autoimmune Disorders with Proposed Cross-Reactive Autoantigens and Infection-Derived Antigens

Disease	Organ/ Autoantigen	Infection/ Antigen	Cross reaction on:
Lyme arthritis	Joints/LFA-1	<i>Borrelia burgdorferi</i> / Osp A	T cells
Rheumatoid arthritis	Joints/Hsp60	Mycobacteria/ Hsp65	T cells
Multiple sclerosis	Brain/Myelin basic protein	Papillomavirus/ L2	T cells
Type I diabetes	Pancreatic $\beta$ -cells/GAD	Coxsackie B/ P2-C	T cells
Stiff man syndrome	GABA-ergic neurons/GAD	hCMV/DNA binding protein	T cells
Primary biliary cirrhosis	Bile duct/pyrdeH complex	<i>E. coli</i> /PDC-E2	T cells
Rheumatoid arthritis	Joints/DRB1*0401	<i>E. coli</i> /DNAJ/ EBV/gp110	T cells/Antibody
Multiple sclerosis	Brain/Myelin basic protein	EBV/capsid	T cells/Antibody
Myocarditis	Heart/myosin	Chlamydia/60kD protein	T cells/Antibody
Rheumatic fever	Heart/cardiac myosin/heart valves/kidney/ CNS	Streptococci/ M protein b	Antibody
Chagas disease	Heart/B-1 adrenergic receptor	<i>Trypanosoma cruzi</i> /ribosomal protein	Antibody
Myasthenia gravis	Muscle/ acetylcholine receptor	Herpes simplex/gpD	Antibody
Guillain-Barré syndrome	Peripheral nerve gangliosides	<i>Campylobacter jejuni</i> LPS	Antibody

Source: Adapted from Marrack et al., 2001; Wucherpfennig, 2001

# THE SWITCH FROM BIOLOGICAL PLAUSIBILITY TO BIOLOGICAL MECHANISMS WAS MORE CONSEQUENTIAL IN THE FINAL COMMITTEE REPORT, 5/16/04

## Basis Change:

“Given the resulting lack of clarity, the committee adopted a new terminology and a new approach to its discussions of experimental biological data in its third report (IOM, 2002). The committee now reviews evidence regarding “*biological mechanisms*” that might be consistent with the proposed relationship between immunization and a given adverse event. The biological mechanism evidence reviewed in this report comes from human, animal, and *in vitro* studies of biological or pathophysiological processes”

Source: Committee Report #9, 5/16/04, Executive summary, p. 2

**Rather than evaluating that a hypothesis is plausible (*which was the charter mandated by initial contract*), the exposure must now be found to be mechanistically consistent with the adverse event (i.e., autism)**

**This is an impossibly high standard of proof to meet if the mechanisms of the adverse event are unclear (e.g., autism, ADHD, etc.)**

# THE CHANGE TO BIOLOGICAL MECHANISMS HAD THE EXPECTED EFFECT ON CONCLUSIONS IN THE FINAL COMMITTEE REPORT ON VACCINES AND AUTISM: PLACING BLINDERS ON AUTISM RESEARCH

## **Biological *Mechanisms* recommendation...**

“In the absence of experimental or human evidence that vaccination (either the MMR vaccine or the preservative thimerosal) affects metabolic, developmental, immune, or other physiological or molecular mechanisms that are causally related to the development of autism, the committee concludes that the hypotheses generated to date are theoretical only.”

Source: Committee 5/16/04 Report, p. 8.

## **And, since Biological *Mechanisms* are not yet understood...**

“Research should be directed towards better understanding the etiology or etiologies of autism [i.e., cause of the disease, added] and on treatments for autism.”

Source: *ibid.*, p. 9

**Thus, any experimental evidence supporting the vaccination/autism hypotheses were considered theoretical only and rejected as material evidence.**

# **FURTHER NOTES ON THE SHIFT FROM BIOLOGICAL PLAUSIBILITY TO BIOLOGICAL MECHANISMS IN THE FINAL COMMITTEE REPORT, 5/16/04**

## **The Committee acted without precedent**

- **No peer reviewed publications or policy literature provides any standard for defining vaccine adverse events in terms of their invention: “biological mechanisms.”**

**In the absence of established biological mechanisms for autism, the committee consciously restricted its potential findings for proposed mechanisms linking vaccine exposures and an adverse event leading to autism**

- **any positive finding would necessarily be “theoretical only”**

**Nowhere is the reasoning for this change made transparent or its implications for the legitimacy of the review process considered**

- **the best available explanation for the change was that The Committee leadership had a deliberate intent to produce findings favorable to its client, the CDC**

# **IMPARTIALITY: THE COMMITTEE ADJUSTED ITS AGENDA TO SERVE THE INTERESTS OF THE CDC, AN INTERESTED PARTY IN THE CONTROVERSY**

The CDC was the funding agency for The Committee, and Committee leadership discussed the CDC more as a client than as an interested party to a dispute

Committee members expressed concern over CDC's influence over their deliberations

The CDC requested an extension of The Committee's tenure and charter to deal specifically with the topic *Vaccines and Autism*

The timing of this request coincided with the near simultaneous publication of several epidemiology studies on thimerosal and autism

The management of The Committee's agenda was clearly orchestrated by the CDC to achieve policy goals rather than an objective and thorough review of a scientific controversy

The role of the IOM as an impartial panel of scientific experts was thus compromised and designed to serve a specific agency of the government rather than the public interest

## ATTEMPTS BY DR. STRATTON TO SWAY THE COMMITTEE: *HER JUSTIFICATION FOR LYING TO THE PUBLIC*

**Dr. Stratton:** I think that as Alicia just point (sic) out is I think when CDC was thinking about significance and we were thinking about, it's more is this such a concern, and the risk of putting it rest (sic), or not putting it to rest does not relate to a recommendation to change the schedule, *but parent decisions and actions to vaccinate or not vaccinate.*

So I think it is not would there be a policy recommendation about it, but do we have reason to believe, or is even a theoretical concern that this is not put to rest. And more and more parents are going to follow this, and get involved, and stop getting immunized, therefore the risk of disease will go up. So it's not a policy recommendation that would lead to measles going up, but the true on the street worry about this. *And is there a benefit to putting to rest no matter what?*

Source: 3/9/2001 Closed-Door Meeting Transcripts,  
pp. 120-1 (emphases added).

**Stratton suggests that the committee might put to rest the MMR-autism vaccine hypothesis based solely on (unsubstantiated) fears over drops in vaccination coverage, regardless of any plausibility finding.**

# PARENT GROUPS PRIVATELY PROTESTED DR. MCCORMICK'S BIAS IN PUBLIC DISCUSSIONS OF COMMITTEE REPORTS

“Dear Dr. Shine

“We at SafeMinds would like to express our support for the detailed and thoughtful report prepared by the IOM Immunization Safety Review Committee entitled "Thimerosal-Containing Vaccines and Neurodevelopmental Disorders" (NDDs). At the same time, we are writing to you specifically to express our concern over a pervasive pattern of misrepresentation displayed by the committee chairperson, Dr. Marie McCormick, in the press conference announcing the report. Taken individually, these misrepresentations speak poorly of Dr. McCormick's ability to represent the committee's findings. Taken together, they call into question Dr. McCormick's fitness to serve in the position of Chair of the Immunization Safety Review Committee.

“We have a transcript of the press conference announcing the report's findings on October 1. In the space of a half hour, we noted at least eleven separate misrepresentations...”

-Source: SafeMinds private letter to Kenneth  
Shine MD, President of the IOM  
October 23, 2001

# CLEAR CDC PRESSURE, SUPPORTED BY IOM STAFF, TO PREDETERMINE OUTCOMES OF COMMITTEE MEETINGS

**Dr. McCormick:** ...CDC..wants us to declare, well, these things are pretty safe on a population basis

Source: 1/12/01 closed door meeting transcript, p. 33

**Dr. Stratton:** ...The point of no return, the line we will not cross in public policy is pull the vaccine, change the schedule.

We could say it is time to revisit this, but we would never recommend that level. Even recommending research is recommendations for policy.

We wouldn't say compensate, we wouldn't say pull the vaccine, we wouldn't say stop the program.

Source: *ibid.*, p. 74

**Dr. McCormick:** ...we are not ever going to come down that [autism] is a true side effect...

Source: *ibid.*, p. 97

## CONTINUED EXCHANGE IN THE SECOND MEETING REGARDING THE CDC'S MANDATE

**Dr. Medoff:** You just want us to say the evidence favors rejection of the hypothesis?

**Dr. McCormick:** Yes, that's what they want to say.

Source: 3/10/01 closed door meeting transcript, p. 81

# STANDARDS OF CONDUCT: EVIDENCE OF PERVASIVE BIAS IN COMMITTEE TRANSCRIPTS

Ad hominem attacks on Dr. Wakefield and others

Consistent advocacy by Committee leadership to reject causal arguments

Further committee bias toward unscientific positions: deliberate vagueness and concern over public debate

Inappropriate CDC influence on deliberations

Pervasive CDC advocacy against autism-vaccine hypotheses accepted without criticism

## DR. MCCORMICK'S DISMISSAL OF CONCERN BASED ON A HOSTILE ATTITUDE TOWARDS WAKEFIELD, REP. DAN BURTON AND "VOCAL" PARENT GROUPS

**Dr. McCormick:** It's how far up on its radar screen should this be? Is this a significant problem that they should pay some attention to? And how do we decide that? *Might your criteria involve **media savvy** advocate like Andrew Wakefield, and have congressional pressure, which is Dave Burton?*

Source: 3/9/2001 closed-door meeting transcripts, p. 78, (emphases added)

**Dr. McCormick:** *We know there is a very **mediagenic** advocate who is out there, Andrew Wakefield. We know there is congressional concern, whatever the logic of its basis.*

Source: *ibid.*, p. 131, (emphases added)

**Dr. McCormick:** *We've got a number of pressures from vocal groups and the **mediagenic** Wakefield and congressional pressure.*

Source: *ibid.*, p. 133, (emphases added)

# THE COMMITTEE'S SOLE IMMUNOLOGIST WEIGHS IN, IN ABSENTIA: CHRIS WILSON ON WAKEFIELD'S WORK

**CHRISTOPHER B. WILSON, M.D., Professor and Chair, Department of Immunology, University of Washington. Dr. Wilson conducted an independent review of Wakefield's hypotheses and research to date for the rest of the committee.**

*"In summary, I find the epidemiology data argue against an association between the rise in the prevalence of autism and MMR vaccine. However, the evidence is not sufficient to refute such an association."*

*"Since the argument that MMR is linked to autism is substantially founded on these (i.e., Wakefield's) findings, I believe the committee should recommend that studies seeking to replicate these findings should be commissioned. It is my view that until this evidence is obtained in a convincing manner from two or more groups of unbiased, careful and qualified investigators, we will have to conclude that evidence sufficient to reject this hypothesis is lacking."*

Source: Wilson review, p. 1 (emphasis added)

**Dr. Wilson was absent at the closed door meetings 3/9/01 and 3/10/01 to discuss the findings of Wakefield. In addition, Dr. Wilson's review was not provided for consideration by The Committee prior to its deliberations.**

# DR. COHEN AND DR. MEDOFF DISCUSS WAKEFIELD'S HYPOTHESIS

**Dr. Medoff:** If he does find antigen, and his PCRs are positive, then that makes it biologically plausible.

Source: closed-door meeting transcripts, 3/9/01, p. 93

**Dr. Cohen:** I just think it's real important that we make it very clear that in fact we haven't really been asked one question in this case. We are not dealing with monolithic autism. *I mean suppose that Andrew Wakefield next month comes back with great PCR data, and then fills in a bunch of other blanks in everything, and it's like wow, this looks really biologically plausible.*

Source: *ibid.*, p. 89

**After this meeting, Dr. Wakefield was able to isolate antigen as well as confirm via PCR that the measles strains in the intestinal nodules of patients were of the same vaccine strain given in the MMR (Uhlmann et al. 2002, Mol Pathol. 2002 55:84). The statements of Dr. Medoff and Dr. Cohen above would suggest that such information should have been obtained by the project officers.**

# **SUMMARY: THE COMMITTEE PROCEDURES CHANGED OVER THE COURSE OF ITS DELIBERATIONS IN A CONSCIOUS EFFORT TO INFLUENCE ITS FINDINGS**

<b>Starting Point (ISRC Contract)</b>	<b>By Meeting #9</b>
Interim review until more solid research has been completed for a given adverse event	Meeting #9 constituted a final review essentially closing the door on further research into the vaccine/autism hypotheses
Independent, not as an agent of the government	The government (i.e., CDC) predetermined the meeting outcomes
Summarize currently available literature	Specific literature and investigators were omitted from consideration
Biologic plausibility of the hypothesis based on current knowledge of adverse event	Biological mechanisms consistent with disease etiology
Overall causality	Causality at an epidemiological level only
Recommend further research, surveillance and changes in vaccine use	Comments from closed door session #1 preclude recommendations for additional research or vaccine schedule changes
No financial, professional or personal conflict of interest	Committee members have numerous financial, professional and personal conflicts of interest
Standard method to determine appropriate level of scientific concern	Methods for determining scientific concern changed drastically starting in meeting #4
Agree on criteria the panel will use to assess relative value strengths and weaknesses of the assessed materials	Assessment criteria changed drastically starting in meeting #4

# CONCLUSIONS OF ISR COMMITTEE CRITIQUE

The Committee, intended as a competent, disinterested and unbiased panel, was instead skewed, financially conflicted and biased

Epidemiological studies are not necessary to determine a causal relationship between an adverse event and particular vaccination (Stratton et al. 1994)

Epidemiology, when considered alone, is insufficient to determine causality (ibid.)

Change of basis from “biological plausibility” to “biological mechanisms” was inappropriate for autism as an adverse effect since biological mechanisms (i.e., etiology) of this disorder are poorly understood (IOM VSR Committee 5/18/04 report).

Relevant case studies of autism as related to vaccines were not provided and in most cases inappropriately dismissed (e.g., 1/12/01 and 3/10/2001 closed door meeting transcripts and omission of Wakefield from the final open meeting).

A pervasive bias was apparent in The Committee to reject causal relationships between vaccines and autism (rather than rule that the evidence was insufficient) based on policy issues rather than the available science (e.g., 1/12/01 and 3/10/01 closed door meeting transcripts, among numerous other citations).

The CDC and the IOM ISR Project Officers exerted inappropriate influence on the IOM ISR Committee in order to assure that a causal relationship between vaccines and autism would be rejected.

## POSITIVE STEPS FORWARD

Declare autism a top national health priority: it's an emergency

Hold a White House conference to mobilize scientific and treatment resources to address the autism epidemic

Redirect NIH funding to autism generally (with or without Barton's CAA strike) and specifically to environmental causation and biomedical treatments, the only rational research focus

Recommend thimerosal free influenza vaccines during pregnancy and infancy

Throw out the verdict of the 2004 IOM report, remove selective research blinders and censure scientific intimidation of responsible scientists

Get the Institute of Medicine out of the fee-for-judicial-service business

Provide a mechanism for appeal: convene and independently fund new IOM panel with charter and focus determined by autism parent community