Abortion and Prematurity: A Pseudo-Epidemic

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Infant deaths: Searching for answers in Mississippi

By Elizabeth Landau, CNN
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Babies in Mississippi are less likely to reach their first birthday than babies in any other state, according to CDC data.

STORY HIGHLIGHTS

- For years, Mississippi's infant mortality rate has ranked last in the U.S.
- Experts point to several contributing factors, including obesity, poverty and teen births
- Top 10 CNN Hero Catalina Escobar is fighting the same problem in Colombia

(CNN) -- The room was lined with baby after baby, and it was almost too warm for Keri Dykes to tolerate.

She remembers squeezing between the incubators to see her son Jesse, who had been born only 25 weeks into her pregnancy.

A neonatal intensive care unit in Tupelo, Mississippi, is where Jesse spent his brief life in 2008 -- a life cut short by an infection that got into his bloodstream and lungs.
AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS

• No mention of any adverse effect on future childbearing

• ACOG patient education pamphlet “Induced abortion,” August 2011

• October 2012 Bulletin “Prediction and Prevention of Preterm Birth”
  – No mention of abortion as a risk factor
AMERICAN ACADEMY OF PEDIATRICS

- No mention of any adverse effects on future childbearing in AAP policy statements
- Opposition to mandatory parental notification laws
- “...evidence that such legislation may have an adverse impact on some families and that it increases the risk of medical and psychological harm to the adolescent.”

Pediatrics 1996;97:746
The medical risks of legal first-trimester abortion likewise are extremely low. Mortality risks seem to be five times greater for teenagers who continue their pregnancies than they are for teens who terminate them. Morbidity rates and medical complications from continuing a pregnancy are more adverse than those from abortion at all stages of gestation.
The scientific evidence indicates that legal abortion results in fewer deleterious sequelae for women compared with other possible outcomes of unwanted pregnancy. There is no rational basis for policies that put barriers in the way of an adolescent’s selection of abortion because of concerns about physical or psychological consequences.”
AMERICAN PUBLIC HEALTH ASSOCIATION

- No mention of any adverse effect on future childbearing
- APHA. Call to action to reduce global maternal, neonatal, and child morbidity and mortality. Policy statement 201113, November 1, 2011
CENTERS FOR DISEASE CONTROL AND PREVENTION

• No adverse effects on future fertility
No mention of abortion in 28 page report
“...there is insufficient evidence to imply causality.”

November 2011
Published 2012
No mention of prematurity in 134 pages
WORLD HEALTH ORGANIZATION

• “The vast majority of women who have a properly performed induced abortion will not suffer any long-term effects on their general reproductive health”

• “Research shows no association between safely induced first trimester abortion and adverse outcomes in subsequent pregnancies”
Legislative Interference with the Patient–Physician Relationship

Steven E. Weinberger, M.D., Hal C. Lawrence III, M.D., Douglas E. Henley, M.D., Errol R. Alden, M.D., and David B. Hoyt, M.D.

Increasingly in recent years, legislators in the United States have been overstepping the proper limits of their role in the health care of Americans to dictate the nature and content of patients’ interactions with their physicians. Some have acted as if they must decide what should be included in a patient’s medical record. Practitioners who violated the law were potentially subject to severe disciplinary action, including fines and loss of licensure. The concerns we have about this law were well explained by U.S. District Judge Marcia K. Ceccarelli.

New England Journal of Medicine 2012;367:1557
WHY THE SPORADIC REPORTS LINKING ABORTION AND PREMATURITY?

1. Poor quality research, especially with administrative databases
2. Improper interpretation of weak associations
3. Confounding by indication (bias), also known as the “healthy mother effect”
Epidemiologic Research Using Administrative Databases
Garbage In, Garbage Out

Administrative databases stem from claims made for services by health care providers and institutions.\(^1\) Simply put, they are billing systems. These databases were created for reasons other than epidemiologic research—a key limitation. Data fields commonly include only basic demographic information, drug dispensing, provider visits, and hospitalization. Examples of administrative databases often used by researchers include Medicare, Medicaid, and those of health maintenance organizations such as Kaiser Permanente.

Vital records, such as birth certificates, represent another administrative database commonly used for epidemiologic research.\(^2\)\(^3\) Again, these data are collected for civil and legal purposes, not for research.

Research using administrative databases has important strengths and weaknesses. Sample sizes are often large, which provide power to find differences. Those enrolled may be representative of the community of interest. Recording of drug prescriptions occurs contemporaneously, which

Obstetrics and Gynecology 2010;116:1018
The Reliability and Validity of Birth Certificates
Sally Northam and Thomas R. Knapp

Objectives: To summarize the reliability and validity of birth certificate variables and encourage nurses to spearhead data improvement.

Data Sources: A Medline key word search of reliability and validity of birth certificate, and a reference review of more than 60 articles were done.

Study Selection: Twenty-four primary research studies of U.S. birth certificates that involved validity or reliability assessment.

How reliable are birth certificate data? How valid? A limited, but growing, body of literature has examined these questions, but the widespread use of synonyms rather than the words “reliability” and “validity” complicates both accessing the articles and understanding the problems. The authors’ objectives in the present article are to summarize the reliability and validity of birth certificate variables and encourage data improvement.
Workshop on Guidelines to the Epidemiology of Weak Associations

Introduction

ERNST L. WYNDER, M.D.

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Epidemiology, from the days of scurvy, smallpox, and childbed fever to those of lung cancer and coronary artery disease, has made the definitive contributions to identifying causative factors in disease—an identification that contributed to appropriate public health measures and disease reduction. Epidemiology, therefore, is not only a science concerned with the discovery of risk factors that contribute to human disease but is also the basis from which preventive approaches are being launched: Its ultimate goal is the eradication of those diseases affected by specific causative factors.
An Epidemic of False Claims

False positives and exaggerated results in peer-reviewed scientific studies have reached epidemic proportions in recent years. The problem is rampant in economics, the social sciences and even the natural sciences, but it is particularly egregious in biomedicine. Many studies that claim some drug or treatment is beneficial have turned out not to be true. We need only look to conflicting findings about beta-carotene, vitamin E, hormone treatments, Vioxx and Avandia. Even when effects are genuine, their magnitude frequently fails to match the original claims.

Scientific American 2011;304:16
Why Most Published Research Findings Are False
John P. A. Ioannidis

Summary
There is increasing concern that most current published research findings are false. The probability that a research claim is true may depend on study power and bias, the number of other studies on the same question, and, importantly, the ratio of true to no relationships among the relationships probed in each scientific field. In this framework, a research finding is less likely to be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater number and lesser preselection of tested relationships; where there is greater flexibility in designs, definitions, outcomes, and analytical modes; when there is greater financial and other factors that influence this problem and some corollaries thereof.

Modeling the Framework for False Positive Findings
Several methodologists have pointed out [9–11] that the high rate of nonreplication (lack of confirmation) of research discoveries is a consequence of the convenient, yet ill-founded strategy of claiming conclusive research findings solely on the basis of a single study assessed by formal statistical significance, typically for a $p$-value less than 0.05. Research is not most appropriately represented and summarized by $p$-values, but, unfortunately, there is a widespread notion that medical research articles is characteristic of the field and can vary a lot depending on whether the field targets highly likely relationships or searches for only one or a few true relationships among thousands and millions of hypotheses that may be postulated. Let us also consider, for computational simplicity, circumscribed fields where either there is only one true relationship (among many that can be hypothesized) or the power is similar to find any of the several existing true relationships. The pre-study probability of a relationship being true is $R/(R + 1)$. The probability of a study finding a true relationship reflects the power $1 – \beta$ (one minus the Type II error rate). The probability of claiming a relationship when none...
False Alarms and Pseudo-Epidemics
The Limitations of Observational Epidemiology

David A. Grimes, MD, and Kenneth F. Schulz, PhD, MBA

Most reported associations in observational clinical research are false, and the minority of associations that are true are often exaggerated. This credibility problem has many causes, including the failure of authors, reviewers, and editors to recognize the inherent limitations of these studies. This issue is especially problematic for weak associations, variably defined as relative risks (RRs) or odds ratios (ORs) less than 4. Such associations, commonly reported in the medical literature, are more likely to be attributable to bias than to causal association. All observational research has bias (which can include selec-

False alarms and pseudo-epidemics are common in observational research. The net effect is a modern “Chicken Little syndrome,” an “epidemic of apprehension” about the “menace of daily life.” Perhaps this nervousness is justified, because none of us gets out of this alive. Regrettably, most published research findings, ranging from randomized controlled trials to molecular studies, are wrong. Indeed, “any claim coming from an observational study is most likely to be wrong.” Of the reported associations that are correct, most are exaggerated.
Polluted water and cholera

Smoking and death from lung cancer

Fig. 4. Zones of potential bias and potential interest in a cohort study. Threshold of potential interest starts at 2 or 3 (dashed line) for increased risk and 0.5 or 0.33 (dashed line) for decreased risk.

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CONFOUNDING
(A MIXING OF EFFECTS)

- Confounder: factor related to the exposure (abortion) and the outcome (prematurity), but not involved in the causal pathway
EXAMPLE OF CONFOUNDING

Yellow finger tips

Heart attack
CONFOUNDING

Abortion → Prematurity

Poverty
Obesity
Lack of education
Smoking
Drug or alcohol abuse
Domestic violence
Medical illness
Psychiatric illness
THE “HEALTHY MOTHER” EFFECT

Women who are healthy: more likely to continue pregnancy
Women who are sick, abused, poor: more likely to abort pregnancy
CONSENSUS ON THE EVIDENCE

• American College of Obstetricians and Gynecologists
• American Academy of Pediatrics
• American Public Health Association
• Centers for Disease Control and Prevention
• National Center for Health Statistics
• Royal College of Obstetricians and Gynaecologists
• World Health Organization

No effect of abortion on prematurity
IF THE PRIOR SPEAKERS ARE CORRECT.....

Then ACOG, AAP, APHA, CDC, NCHS, RCOG, WHO are:

1. **CLUELESS**
   Ignorant of evidence or incapable of interpreting it

2. **MALEVOLENT**
   Aware of risk but engaged in international conspiracy to hide it and thus hurt women
THREATS TO INFANTS AND CHILDREN

- Poverty
- Poor educational attainment of mother
- Short inter-pregnancy intervals
- Malnutrition
- Smoking
- Drug/alcohol abuse
- Domestic violence
- Guns in house
FEAR-MONGERING

• Widely rejected in the recent election by the American public
• North Carolinians should reject it as well
• Abortion: a solution, not a problem
• True problem: unwanted and abnormal pregnancies
NO BOOGIE MAN UNDER THE BED
“However, these findings should be interpreted with caution since few of the reviewed studies controlled for important confounders associated with preterm birth (such as socioeconomic status), and the associations have not yet been shown to have a causal relationship.”

RCOG. The care of women requesting abortion. 2011
Letters to the Editor

Coleman, Coyle, Shuping, and Rue make false statements and draw erroneous conclusions in analyses of abortion and mental health using the National Comorbidity Survey