



FEATURE

MEDICINE AND THE MEDIA

Reporting flu vaccine science

Many news articles about a study of influenza vaccine and miscarriages raised good questions—but for questionable reasons, reports **Rob Wipond**

Rob Wipond *freelance journalist, Calgary, Alberta, Canada*

When reporting on medical studies, the popular press has a habit of sensationalising. So the muted response to a recent research paper reporting increased risk of miscarriage with influenza vaccines was at first sight surprising.

The study, funded by the Centers for Disease Control and Prevention, found that women who had received an influenza vaccine containing the 2009 pandemic strain pH1N1 and who were also vaccinated in the next flu season had a statistically significant, 7.7-fold higher odds of spontaneous abortion within 28 days of the second vaccination.¹ (Absolute risk increase could not be calculated because it was a case-control study.) The concerning odds ratio fostered extensive discussion in the paper. But the news media projected an air of calm, highlighting the observational study's many limitations.

The headline on the health news website *STAT* read: "Study shows miscarriage risk may have increased after flu shots, puzzling researchers"²—as if the increased risk was in doubt. A widely syndicated Associated Press story ran with the headline, "Study prompts call to examine flu vaccine and miscarriage,"³ discounting the fact that this had been the purpose of the reported study. The *Washington Post* initially declared: "Researchers find hint of a link between flu vaccine and miscarriage"—but within hours that headline was softened to, "What to know about a study of flu vaccine and miscarriage."⁴

None of the articles mentioned the 7.7 odds ratio, a curious omission for an industry with a reputation for eye catching overdramatisations of odds ratios from observational studies that loosely "link" sunshine levels with suicides, video games with violence, oral sex with cancer, or just about anything with anything else.

When it came to the influenza vaccine and miscarriage study, even the word "link" was apparently too strong a term. Journalists variously reported that the findings "suggest a link"⁵ or "suggest a potential association."⁶ or that the study "appears to link"⁷ or gives "a hint of a possible link."⁴

Why all this happened is ultimately impossible to know. But it is clear that the CDC had a hand in shaping the message.

Hand picked journalists

Led by James Donahue of the Marshfield Clinic Research Institute, the vaccine study was coauthored by CDC scientists and experts from other major institutions, some of whom declared financial relations with vaccine manufacturers.

Ahead of publication, the study authors and CDC were concerned about the possible media coverage and public reaction. So instead of issuing a general press release, the authors invited three selected journalists for exclusive early access: Mike Stobbe of Associated Press, Helen Branswell at *STAT*, and Lena Sun of the *Washington Post*.

"These were people that others [on the team] had had good history with," study lead Donahue told *The BMJ*. "We wanted to make sure that they got a full story on this, and carried the right messages—the messages that we think are important."

Donahue described influenza vaccine safety as a "hot button" topic and clarified two of the team's key public messages. Firstly, the 7.7-fold odds ratio was not very "informative," except as something worthy of further investigation. "We were treating this [finding] as a signal," said Donahue, who pointed to the large confidence interval (adjusted odds ratio 2.2 to 27.3). And a second vital message, added Donahue, was that pregnant women should still "get protected with the vaccine."

These messages evidently got conveyed. In their ensuing articles, the three selected journalists—and slew of syndicated copies and derivative articles—all omitted the 7.7-fold odds ratio and suggested that no knowledgeable person could reasonably interpret the study as a serious cause for concern.

They also all included many reminders that most experts consider influenza vaccines to be safe and pregnant women should still get vaccinated. The Associated Press article included four such reminders, and the *Washington Post* nine such assurances and recommendations. Some outlets even embedded the CDC's recommendations in their headlines, like the *Philadelphia Inquirer Daily News*: "Experts advise flu shot for pregnant women, despite miscarriage concern."⁸

Double standards?

The CDC was clear to convey that the study did not “prove” anything. “This study ... does not prove that flu vaccine was the cause of the miscarriage,” it wrote on its website,⁹ and a similar statement appeared in the abstract of the published study.

But one risk communication expert described that as unfair, suggesting the point exhibited a double standard.

“Of course it’s perfectly true that observational studies can’t prove (or disprove) causality,” Peter Sandman wrote in his blog.¹⁰ “That’s a drawback of virtually all of epidemiology—and of most of the studies that are said to ‘prove’ that vaccines are effective at reducing vaccine-preventable illness. Much of what we know about the value of vaccination we know from observational studies. The [public health profession] rightly trusts well-designed observational research right up until it runs into a study with findings it doesn’t like, and then it suddenly decides that ‘merely’ observational findings can safely be shrugged off.”

Vaccination decisions not always straightforward

Others questioned the media’s warnings that despite these uncertainties about the vaccine, contracting influenza during pregnancy also has risks.

Comparing the risks of vaccinating with the risks of influenza may be helpful in some cases, acknowledges Chris Del Mar, professor of public health at Australia’s Bond University and coordinating editor of a Cochrane group that has conducted several systematic reviews of influenza vaccines. However, he says a balanced medical decision for many average, healthy women would more appropriately weigh any potential harms of the vaccine against its slim potential benefits.

“Public health experts around the world overpromote influenza vaccine,” Del Mar told *The BMJ*, noting that he strongly supports many vaccines, but not so much for influenza. “It’s a terrible vaccine. Its efficacy is tiny.”

Del Mar pointed out that although contracting influenza during pregnancy has been associated with increased spontaneous abortion, one possible cause is the fever that comes with influenza—and fever is also a known side effect of influenza vaccine. Other factors that a pregnant woman should consider in making a decision to be vaccinated, he said, include understanding that influenza-like illnesses abound, but most

people contract actual influenza only once per decade. At the same time, simple barrier methods such as hand washing and encouraging ill friends and coworkers to stay home can reduce an expectant mother’s risk of contracting influenza. “There are other things that we should do that may be much more effective than vaccination,” said Del Mar.

None of the news articles cited reminded pregnant women of the importance of hand washing or other barrier methods.

The media often takes heat for not critically questioning or discussing limitations of medical studies and instead just reporting from press releases, and some may consider its reporting on the influenza vaccine study a victory for improved, more responsible standards in health reporting. But what on the surface seemed to be a more vigorous commitment to critiquing the findings of medical studies may have been little more than a minor evolution from journalism based on press releases.

Competing interests: I have read and understood BMJ policy on declaration of interests and have no relevant interests to declare.

Provenance and peer review: Commissioned; not externally peer reviewed.

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