### **Vaccines in Pregnancy**

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Last update: February 175, 2023

#### 1. **ALTHOUSE 2015**:

#### Asymptomatic Transmission and the Resurgence of Bordetella Pertussis

- Pertussis is increasing. The vaccine is not effective.
- The authors recommend vaccinating pregnant women or going back to the original DPT vaccine.

#### 2. ATKINS 2016

## Cost-Effectiveness of Pertussis Vaccination During Pregnancy in the United States

- It is cost effective to vaccinate mothers during pregnancy, but not the rest of the family.
- NOTE: Recommending DPT booster EVERT pregnancy resulting in tetanus shots too close together for moms who choose 2 years between babies.
   Funded by the vaccine industry.

#### 3. **AYOUB 2008**

Influenza Vaccination During Pregnancy: A Critical Assessment of the Recommendations of the Advisory Committee on Immunization Practices (ACIP)

- Even topical thimerosal can cause abortions.
- Flu shots with mercury in pregnancy is "ill-advised and unsupported by current scientific literature, and it should be withdrawn."
- Most flu inserts SAY this shot should not be given to pregnant women.

#### 4. **BALLESTER 2018**

Prenatal Exposure to Mercury and Longitudinally Assessed Fetal Growth: Relation and Effect Modifiers

- Mercury exposure in pregnancy was associated with reduction in the baby's skull size
- Mercury from diet (but not vaccines) was considered

#### 5. **BROPHY 2018**

Summary of the NACI update on immunization in pregnancy with tetanus toxoid, reduced diphtheria toxoid and reduced acellular pertussis (TDaP)

- Recommend TDaP to all pregnant women from 13 weeks to delivery
- o The only references used are their own NACI literature reviews.

#### 6. CHERRY 2014b

Tetanus-Diphtheria-Pertussis immunization in pregnant women and the prevention of pertussis in young infants

- Author complains that in US vaccinating pregnant women is often not covered by insurance
- He says we have the opportunity to "prevent all pertussis deaths and severe disease in young infants" if we just vaccinate the mothers.
- He is a consultant for GSK & Sanofi-Pasteur

#### 7. CHERRY 2015

Epidemic pertussis and acellular pertussis vaccine failure in the 21<sup>st</sup> century

- He says the old DPT was not really better, and ALL pregnant women must receive Tdap in EACH pregnancy
- NOTE: This would create a situation where women were getting tetanus shots much too often
- Cherry is a consultant for GSK & Sanofi-Pasteur

#### 8. CHERRY 2015a

The effect of Tdap vaccination of pregnant women on the subsequent antibody responses of their infants

- Cherry says Tdap in ALL pregnant women will prevent ALL pertussis deaths in infants.
- He says any "blunting" of the baby's immune response later is not important.
- He is a consultant & speaker for Sanofi-Pasteur & GSK.

#### 9. **CHERRY 2016**

#### Pertussis in young infants throughout the world

- He describes symptoms, diagnosis & treatment of babies.
- Recommends giving ALL pregnant women the vaccine in the second or third trimester.
- He is a consultant & speaker for Sanofi-Pasteur & GSK.

#### 10. **DONZELLI 2017**

Influenza vaccination in the first trimester of pregnancy & risk of autism spectrum disorder

- o Reply to ZERBO 2017b
- Says Zerbo used inappropriate stats but still got borderline significance for flu shot & autism
- Vaccinating in the first trimester of pregnancy will lead to 4 additional cases of autism per 1,000 women

#### 11. **DONZELLI 2018**

Influenza vaccinations for all pregnant women? Better evidence is needed

 While the flu shot should be offered to pregnant women, tell them of the uncertainties

#### 12. **DONZELLI 2019**

Influenza vaccination in pregnancy: Careful assessment confirms safety concerns for the offspring

- Evidence does not support a flu vaccine in pregnancy
- Offspring have <u>excess death & serious infections</u>
- Several authors of the reviewed studies have financial ties to vaccine producers
- Parents should be given this info to make an informed choice

#### 13. **DONZELLI 2019**a

Influenza vaccination for all pregnant women? So far the less biased evidence does not favour it

- A Cochrane review shows local adverse effects and serious adverse effects with limited protection against flu
- Other studies in Africa & Asia show <u>more offspring deaths in the vaxxed</u> group
- The shot can be offered in trimester 2 or 3 (only), but with warnings & promotion of other protective behaviors

#### 14. **GEIER 2007a**

A prospective study of thimerosal-containing Rho(D)-immune globulin administration as a risk factor for autistic disorders

- Children with ASD are more likely than controls to have Rh-negative mothers
- Each of these mothers received Rho(D) with mercury during pregnancy

#### 15. **GUEVARA 2019**

Maternal transfer of anti- HPV 6 and 11 antibodies upon immunization with the 9-valent HPV vaccine

 21 women given HPV who also got pregnant were studies. From the cord blood it was seen that their babies were seropositive, so the HPV vaccine passes the placenta

#### 16. **HEIKKINEN 2012**

Safety of MF59-adjuvanted A/H1N1 influenza vaccine in pregnancy: A comparative cohort study

- No risk was observed in 2,295 vaccinated vs. 2,213 unvaccinated pregnant women
- Protection against premature birth was reported, but miscarriages would have been missed
- o NOTES:
  - 1. All the women were already vaccinated before entering the study.
     Thus any with vaccine-related problems would not be there
  - 2. Half of them did not enroll until after delivery; Thus, any who miscarried would not have been enrolled in this study
- The babies were only followed for 3 months, so there was no information on their development or milestones or health
- Conflict of interest: Authors consult and/or work for Novartis

#### 17. **HOOKER 2017**

Influenza vaccination in the first trimester of pregnancy and risk of autism spectrum disorder

- Letter to Editor: Re ZERBO 2017b
- Hooker says the Bonferroni adjustment was not appropriate
- Changing the first semester flu shot to "chance" should not have been done.
   Besides, that is the trimester most suspected to be problematic

#### 18. **HUTCHEON 2016**

Detectable Risks in Studies of the Fetal Benefits of Maternal Influenza Vaccination

- Flu vaccine. pregnancy. "small magnitude of detectable effect size ... "
   Canada
- The "large fetal benefits" from flu vaccine seen in epidemiology studies are "not likely to be real."

#### 19. **HUTTON 2016**

Does Rubella Cause Autism: A 2015 reappraisal?

- Yes, even in vaccinated women
- o 5% of pregnant women get Rubella, even if vaccinated. The vaccine wanes

#### 20. **HVIID 2016**

Association between pandemic influenza A(H1N1) vaccination in pregnancy and early childhood morbidity in offspring

- Only live-born children were included, so any miscarriages were missed
- No difference in hospitalizations until 5 years
- Mean age was 4.6 years, so some were not followed to 5
- Funded by WHO & Novo Nordisk Fdn (pharma, vaccines)

#### 21. KOCHHAR 2019

Immunization in pregnancy safety surveillance in low and middle-income countries – field performance and validation of novel case definitions

- Only 3 adverse events were considered: preterm birth, stillbirth, and hypertension
- NOTE: I asked the author how results were compared. No Answer
- Funded: GCRF Networks in Vaccine Research & Dev

#### 22. LARCOMBE 2019

Hyperimmune bovine colostrum reduces gastrointestinal carriage of uropathogenic Escherichia coli (E Coli)

- Animal study. Antibiotic doesn't prevent recurrent UTI, and germs get resistant. So vaccinating pregnant cows can produce specific anti-UTI colostrum. So far this was only studied in mice
- Funded by Immuron (pharm. microbiome industry) and Australian Govt Research Training Program
- NOTE:. Other research shows bovine colostrum is protective against all sorts
  of pathogens, which makes me wonder why we are trying to force them to
  make antibodies to specific germs.

#### 23. LIMA 2019

Acquisition of specific antibodies and their influence on cell-mediated immune response in neonatal cord blood after maternal pertussis vaccination during pregnancy

- o Control group (no vaccine). Had higher placental transfer ratios of IgG
- The vaccine group excluded those with any immunological problems
- Interesting that 60.6% of the vaccine group but only 6.9% of the control group had C-section deliveries
- The vaccinated group had lower IgA in their colostrum
- NOTE: Study includes a lot of data and can be confusing
- o Funded by FAPEMAT,
- o Brazil

#### 24. **LOUBET 2019**

Influenza vaccination of pregnant women in Paris, France: Knowledge, attitudes and practices among midwives

- Only 10% of midwives prescribe vaccines
- NOTE: That is, 10% of the 31% of midwives who actually filled out the questionnaire
- The author recommends "education strategies" for midwives

#### 25. MERCK 2016

#### MMR (Measles, Mumps, and Rubella Virus Vaccine Live)

- According to Merck, in an outbreak, vaccination with the MMR can be given at 6-12 months, although "safety & effectiveness" have not been established, and it may not work anyhow. Vaccinating early may also prevent seroconversion later
- NOTE: Women are usually advised to NOT GET PREGNANT for 3 months after getting the MMR. The effects on fetal development are unknown
- Women can expect "generally self-limited" pain and/or arthritis beginning 2-4 weeks after vaccination
- Titer tests can be done first, but that is expensive and requires 2 trips to the doctor so best to just go ahead and vaccinate. (YIKES)
- NOTE: I would rather take a titer test than suffer pain/arthritis for weeks unnecessarily
- There "is no conclusive evidence that vaccination of individuals recently exposed to wild-type mumps or wild-type rubella will provide protection." On the other hand, vaccinating those exposed to wild-type measles within 74 hours "may provide some protection."
- o If allergic to the antibiotic neomycin, **do n ot give MMR.** (Neomycin is also often found in cheese.)
- Use "caution" in giving MMR if there is a history of convulsions in the family, if child is allergic to egg or has a low platelet count.

#### 26. O'LEARY 2019

# Obstetrician-gynecologists' strategies to address vaccine refusal among pregnant women

- The best strategy to make pregnant women get the vaccine is to tell them that not doing it <u>puts their baby at risk.</u>
- It is also suggested that doctors give the vaccine as "standing orders" in other words, to just DO it without any discussion (and no informed consent)
- This study was funded by the CDC. Some of the authors work for the CDC

#### 27. PHADKE 2016 (comment on Hutcheon 2016)

# Maternal Influenza Immunization and Adverse Birth Outcomes: Using Data and Practice to Inform Theory and Research Design

- Author criticizes HUTCHEON 2016 who said the flu shots are of little help in pregnancy
- Provides a list of studies showing flu shots protect the baby
- See HUTCHEON 2016a

#### 28. **SAVITZ 2015**

## Does influenza vaccination improve pregnancy outcome? Methodological issues and research needs

- The impact would be substantially greater if reported vaccine effects on improved pregnancy outcomes were accurate."
- The author says that the vaccine prevents flu, but it is not clear that flu in pregnancy is a problem
- Funded by Gates Foundation
- o **NOTE:** I wonder if this guy ever got funded by Gates again?

#### 29. **SHEFFIELD 2018**

#### Effect of influenza vaccination in the first trimester of pregnancy

- Authors compared women receiving the flu shot in each trimester and to unvaccinated women
- There was no difference in malformations, but there was a decrease in stillbirth, premature delivery and neonatal death
- o **NOTE**: The unvaccinated mothers were younger and mostly first timers

#### 30. **SUKUMARAN 2015**

Adverse Events Following Measles, Mumps, and Rubella Vaccine in Adults Reported to the Vaccine Adverse Event Reporting System (VAERS), 2003–2013

 Reviewed VAERS, no new safety concerns for MMR. need to tell doctors not to vaccinate pregnant women with MMR

#### 31. YAZBAK 2002

Live virus vaccination near a pregnancy: flawed policies, tragic results

Autism

#### 32. **ZERBO 2016**

Kaiser Permanente Northern California pregnancy database description and proof of concept study

- Pregnancies with live and full-term births only were to be included. They
  expect to use this database to monitor vaccine safety
- NOTE: Abortions or preterm births related to vaccines in pregnancy will be totally missed
- Funded by US Dept of Health
- Two authors received support from Sanofi Pasteur, Novartis, GSK, Merck, Medimmune (Astra-Zenica), Pfizer and Protein Sciences

#### 33. **ZERBO 2017a**

No association between influenza vaccination during pregnancy and adverse birth outcomes

- The flu vaccine given in pregnancy is not related to birth problems of weight, breathing, NICU, etc.
- NOTE: If they used the database they set up (ZERBO 2016), then of course they will rarely see any birth problems
- Two authors got grant support from Sanofi Pasteur, Novartis, GSK, Merck, Medimmune (AstraZeneca), Pfizer, and Protein Sciences

#### 34. **ZERBO 2017b**

Association between influenza infection and vaccination during pregnancy and risk of autism spectrum disorder

- There was no association between flu in pregnancy and autism
- There WAS an increase in risk when mothers got a flu shot in the first trimester
- The authors decided it was "chance" after adjusting for multiple comparisons
- See Letter to Editor by DONZELLI 2017
- See Letter to Editor by HOOKER 2017
- Funded by Kaiser. Grant support from GSK, Sanofi Pasteur, Merck, Pfizer,
   Protein Science, Medimmune, Novartis

### 35. **ZERBO 2017 (replies)**

#### Reply to Letters to the Editor re the above paper

 Letter to the Editor. He agreed that the trimesters of pregnancy are not independent, but defended his stats and said there is not enough evidence of risk to change the vaccine guidelines