Who Profits From Uncritical Acceptance of Biased Estimates of Vaccine Efficacy and Safety?

Article *in* American Journal of Public Health · July 2012

DOI: 10.2105/AJPH.2012.300837 · Source: PubMed

2 authors:

Lucija Tomljenovic
University of British Columbia - Vancouver
36 PUBLICATIONS **733** CITATIONS

SEE PROFILE

Christopher A Shaw
University of British Columbia - Vancouver
182 PUBLICATIONS **4,512** CITATIONS

SEE PROFILE

LETTERS

WHO PROFITS FROM UNCRITICAL ACCEPTANCE OF BIASED ESTIMATES OF VACCINE EFFICACY AND SAFETY?

We read with great interest the analysis by Mello et al.[1] on how Merck & Co., Inc. (Merck) influenced state human papillomavirus (HPV) vaccination policymaking. The exclusive reliance on Merck for scientific information on behalf of the legislators is unfortunate, especially in the light of independent research which has repeatedly warned that drug companies may manipulate clinical trial designs and subsequent data analysis and reporting to make their drugs look better and safer.[2–4] Indeed, careful scrutiny of Gardasil clinical trials shows that their design, as well as data reporting and interpretation, were largely inadequate.[4–6]

Given this, the widespread public optimism regarding Gardasil's clinical benefits appears to rest on an extremely weak base built on a number of untested assumptions and significant misinterpretation of factual evidence. For example, the claim that Gardasil vaccination will result in approximately 70% reduction of cervical cancers[7,8] is made despite the fact that the clinical trial data have not demonstrated to date that the vaccine has actually prevented a single case of cervical cancer (let alone cervical cancer death),[4] nor that the current overly optimistic surrogate marker–based extrapolations are justified.[6] A second equally fallacious claim is that lifelong protection arises from three vaccine doses,[7,8] although clinical trial follow-up data do not extend beyond five years.[9] The third claim is that Gardasil may induce only minor side effects of negligible clinical importance,[7,8] although such conclusions are only supported by highly flawed safety trials design.[4,10] Additionally, we note evidence of biased and selective reporting of results from clinical trials, that is, exclusion of particular vaccine efficacy figures from peer-reviewed publications, such as those related to study subgroups in which efficacy might be lower or even negative.[4,5]

All of the above issues suggest that the information presented by Merck to the public and the various state legislators concerning Gardasil safety and true prophylactic value were incomplete and inaccurate and thus inevitably misleading, particularly in light of data from various vaccine safety surveillance systems and case reports that continue to raise significant concerns regarding the safety of Gardasil (Table 1).[4]

Keeping in mind that "the primary interest of a pharmaceutical company is developing and selling pharmaceutical product,"[1] one must ask whether rational vaccine policy decisions should be based on conclusions derived from an uncritical acceptance of flawed vaccine safety and efficacy estimates provided by the vaccine manufacturer. Failure to adhere to principles of evidence-based medicine with respect to Gardasil promotion and vaccination policymaking inevitably raises the question of whether we have learned anything from the Vioxx debacle. ■

Lucija Tomljenovic, PhD
Christopher A. Shaw, PhD

TABLE 1—Age-Adjusted Rate of Adverse Reactions (ADRs) Related to Gardasil Compared With All Other Vaccines in the United States Reported to the Vaccine Adverse Event Reporting System (VAERS) as of March 25, 2012.

Events	Gardasil, No.	All Vaccines, No.	Gardasil ADRs, %
All	14 616	31 713	46.1
Serious	1272	2077	61.2
Deaths	37	58	63.8
Life-threatening	289	444	65.1
Permanently disabled	468	572	81.2
Prolonged hospitalization	172	229	75.1
Emergency room visit	6892	12 927	53.3

Note. The VAERS Internet database (http://wonder.cdc.gov/vaers.html) was searched using the following criteria: (1) gender (female); (2) age (16–29 y [target group for HPV vaccines]); and (3) date range (2006-2012 [Gardasil postlicensure period]). Compared with all other vaccines, Gardasil alone is associated with > 60% of all serious ADRs (including 63.8% of all deaths and 81.2% cases of permanent disability) in females younger than 30 years. In context, while females in this age group have a near-zero risk of dying from cervical cancer, they are faced with a risk of dying and a permanently disabling condition from a vaccine that has not prevented a single case of cervical cancer thus far. For a vaccine with uncertain benefits designed to prevent a disease that is preventable through Papanicolaou screening combined with the loop electrosurgical excision procedure, which together carry no such risks, the potential for harm to those vaccinated should be negligible.

Letters to the editor referring to a recent Journal article are encouraged up to 3 months after the article's appearance. By submitting a letter to the editor, the author gives permission for its publication in the Journal. Letters should not duplicate material being published or submitted elsewhere. The editors reserve the right to edit and abridge letters and to publish responses.

Text is limited to 400 words and 10 references. Submit online at www.editorialmanager.com/ajph for immediate Web posting, or at ajph.edmgr.com for later print publication. Online responses are automatically considered for print publication. Queries should be addressed to the Editor-in-Chief, Mary E. Northridge, PhD, MPH, at men6@nyu.edu.

About the Authors

At the time of the writing, Lucija Tomljenovic and Christopher A. Shaw were with the Neural Dynamics Research Group, University of British Columbia, Vancouver, Canada.

Correspondence should be sent to Lucija Tomljenovic, PhD, Neural Dynamics Research Group, Department of

Ophthalmology and Visual Sciences, University of British Columbia, 828 W. 10th Ave., Vancouver, BC, V5Z 1L8, Canada (e-mail: lucijat77@gmail.com). *Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.*

This letter was accepted April 2, 2012.

doi:10.2105/AJPH.2012.300837

Note. *The authors have no relationship with Merck & Co., Inc. All views expressed herein are solely our own.*

Contributors

Both authors wrote and revised the letter.

Acknowledgments

This work was supported by the Dwoskin, Lotus and Katlyn Fox Family Foundations.

References

1. Mello MM, Abiola S, Colgrove J. Pharmaceutical Companies' Role in State Vaccination Policymaking: The Case of Human Papillomavirus Vaccination. *Am J Public Health.* 2012;102(5):893–898.

2. Angell M. Industry-sponsored clinical research: a broken system. *JAMA.* 2008;300(9):1069–1071.

3. Rising K, Bacchetti P, Bero L. Reporting bias in drug trials submitted to the Food and Drug Administration: review of publication and presentation. *PLoS Med.* 2008; 5(11):e217.

4. Tomljenovic L, Shaw CA. Human papillomavirus (HPV) vaccine policy and evidence-based medicine: Are they at odds? *Ann Med.* 2011;Epub ahead of print.

5. Spinosa JP, Riva C, Biollaz J. Letter to the editor response to the article of Luisa Lina Villa HPV prophylactic vaccination: the first years and what to expect from now, in press. *Cancer Lett.* 2011;304(1):70.

6. Gerhardus A, Razum O. A long story made too short: surrogate variables and the communication of HPV vaccine trial results. *J Epidemiol Community Health.* 2010;64(5):377–378.

7. de Kok IM, van Ballegooijen M, Habbema JD. Cost-effectiveness analysis of human papillomavirus vaccination in the Netherlands. *J Natl Cancer Inst.* 2009;101(15): 1083–1092.

8. Reynales-Shigematsu LM, Rodrigues ER, Lazcano-Ponce E. Cost-effectiveness analysis of a quadrivalent human papilloma virus vaccine in Mexico. *Arch Med Res.* 2009;40(6):503–513.

9. Villa LL, Costa RL, Petta CA, et al. High sustained efficacy of a prophylactic quadrivalent human papillomavirus types 6/11/16/18 L1 virus-like particle vaccine through 5 years of follow-up. *Br J Cancer.* 2006;95(11): 1459–1466.

10. Tomljenovic L, Shaw CA. No autoimmune safety signal after vaccination with quadrivalent HPV vaccine Gardasil? *J Inter Med.* 2012;Epub ahead of print.

This article has been cited by: