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The Bayesian Model on Human Papillomavirus Vaccination in Italy Lacks Transparency

To the Editor:

We refer to a recently published article[1] that shows a new Bayesian method, applied to assess a vaccination strategy preventing human papillomavirus (HPV)-related diseases. The article basically describes a model for the economic evaluation of the quadrivalent HPV vaccine in Italy, concluding that it is a cost-effective strategy. Although any model, Bayesian or Frequentist, should be "populated" with reliable data,[2] we felt some concern about many "inputs" regarding the Italian setting that could weaken the authors' conclusions. We have listed some of the main ones.

- Real data on Italian vaccination coverage are referenced by an abstract,[3] without specifying that this refers to a very small region in Italy (Basilicata, 0.97% of the whole Italian population). Thereafter, table 1 refers for vaccination compliance and coverage to another article, published in Italian, focussed on the efficacy of the quadrivalent vaccine.[4]
- Data on health states associated with HPV-related diseases refer to another abstract,[5] then unspecified Italian utility weights for health states were applied, but to our knowledge, no utility tariffs have been validated so far in Italy.
- Utilities of cervical cancer, genital and cervical lesions, all refer to an article on the costs of varicella-related hospitalizations in table 1.[6]
- The vaccine price is not consistent with published data,[7] and we could not find the figure used as a mean (€69.13, see table 1) in the references.[8,9]

More in general, the authors state that the cost-effectiveness of the quadrivalent vaccine is proven, ignoring the other, bivalent vaccine against HPV. As 3 recent critical reviews[10–12] on economic evaluations regarding HPV vaccines—not cited in the article—concluded that long-term models on HPV vaccination lack transparency in key assumptions and methodological choices, we wonder whether the results of this model (producing a "virtual" follow-up of 90 y) can really be considered more reliable than the others already published.

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The authors declare no conflict of interest.

REFERENCES

1. Favato G, Baio G, Capone A, et al. Novel health economic evaluation of a vaccination strategy to prevent HPV-related diseases: the BEST Study. *Med Care*. 2012;50:1076–1085.
2. Weinstein MC, O'Brien B, Hornberger J, et al. ISPOR Task Force on good research practices—modeling studies. Principles of good practice for decision analytic modeling in health-care evaluation: report of the ISPOR Task Force on good research practices—modeling studies. *Value Health*. 2003;6:9–17.
3. Mennini FS, Baio G, Montagano G, et al. Governance of preventive health intervention and on time verification of its efficiency in a region of southern Italy. Health Technology Assessment International (HTAi) society, 7th annual meeting. Dublin, Ireland, 6th-9th June 2010. Abstract M5-18 176–177.
4. La Torre G, Chiaradia G, de Waure C, et al. Systematic review and meta-analysis of clinical trials on the efficacy of the quadrivalent HPV vaccine. HTA reports of quadrivalent anti-HPV vaccine, Gardasil. *Ital J Public Health*. 2009;2(suppl 2):S25–S32. [Italian].
5. Mennini FS, Panatto D, Cristoforoni P, et al. The time-trade off approach to measure patients' preferences for health states associated with HPV-related pathologies: a multicenter study performed in Italy. Health Technology Assessment International (HTAi) society, 7th annual meeting. Dublin, Ireland, 6th-9th June 2010. Abstract M5-53; p. 192.
6. Azzari C, Massai C, Poggiolesi C, et al. Cost of varicella-related hospitalizations in an Italian paediatric hospital: comparison with possible vaccination expenses. *Curr Med Res Opin*. 2007;23:2945–2954.
7. Garattini L, Van de Vooren K, Curto A. Pricing human papillomavirus vaccines: lessons from Italy. *Pharmacoeconomics*. 2012;30:213–217.
8. Mennini FS, Giorgi Rossi P, Palazzo F, et al. Health and economic impact associated with a quadrivalent HPV vaccine in Italy. *Gynecol Oncol*. 2009;112:370–376.
9. Ferrandina G, Marcellusi A, Mennini FS, et al. Hospital costs incurred by the Italian National Health Service for invasive cervical cancer. *Gynecol Oncol*. 2010;119:243–249.
10. Koleva D, De Compadri P, Padula A, et al. Economic evaluation of human papilloma virus vaccination in the European Union: a critical review. *Intern Emerg Med*. 2011;6:163–174.
11. Newal AT, Beutels P, Wood JG, et al. Cost-effectiveness analyses of human papillomavirus vaccination. *Lancet Infect Dis*. 2007;7:289–296.
12. Puig-Junoy J, Lopez-Valcarcel BG. Economic evaluations of massive HPV vaccination: within study and between study variations in incremental cost per QALY gained. *Prev Med*. 2009;48:444–448.

Transparency or Proper Study Valuation Procedures Missed?

To the Editor:

We wish to thank the Editor for giving us the opportunity to think about and resolve a few potential issues with our paper. Garattini and colleagues have questioned the meaningfulness of the evidence used to inform some of the crucial parameter used in our model. This is because of a misalignment in the reference list, as a result of which, Table 1 in the paper points to the wrong references. We have fixed this and present the corrected version of Table 1 below.

Incidentally, we notice that the online appendix to the paper[1] actually has all the correct references and describes in detail all the aspects of the modeling presented in the paper. We find it slightly bizarre that Garattini and colleagues have taken such a critical stance on our work, but have failed to cross-check the most technical aspects with all the available material.