The Health Technology Assessment of bivalent HPV vaccine Cervarix in Italy

La Torre G, de Waure C, Chiaradia G, Mannocci A, Capri S, Ricciardi W

CRD summary
This review concluded that human papilloma virus (HPV) vaccines (in particular, bivalent HPV vaccine) could have a great impact and would be cost-effective. This summary of a full Italian-language report provided limited reporting of review methodology, but it appeared that the conclusions were likely to be reliable although they were necessarily based on a surrogate outcome.

Authors' objectives
To assess the bivalent human papilloma virus (HPV) vaccine in the Italian context.

Searching
PubMed, EMBASE and The Cochrane Library were searched. Search terms were reported. No search dates were given.

Study selection
It appeared that randomised controlled trials (RCTs) that assessed the efficacy of HPV vaccines in preventing cervical infection were eligible for inclusion in the review. The primary outcome was persistent HPV infection at six months, defined as detection of HPV deoxyribonucleic acid (DNA) in at least two consecutive visits performed at a defined interval in women who were HPV-DNA negative and seronegative.

Very limited information was presented on the included studies.

The authors did not state how many reviewers performed study selection.

Assessment of study quality
Studies were assessed for validity using the Jadad scale of up to five points for criteria of randomisation, blinding and treatment of withdrawals and dropouts.

The authors did not state how many reviewers were involved in the validity assessment.

Data extraction
Data were extracted to permit calculation of relative risks (RR) with 95% confidence intervals (CI).

The authors did not state how many reviewers were involved in data extraction.

Methods of synthesis
The studies were combined using fixed-effect meta-analyses. It appeared that statistical heterogeneity was assessed using $X^2$ and $I^2$ statistics.

Results of the review
Five RCTs (n not reported) were included in the review. All trials were considered to be good quality (Jadad score at least 3).

There was a statistically significant reduction in persistent HPV 16 infection in vaccinated women (RR 0.10, 95% CI 0.07 to 0.15; five RCTs).

Bivalent and tetravalent vaccines showed significant efficacy in preventing both HPV 16 (RR 0.13, 95% CI 0.09 to 0.20; three RCTs, n=12,209) and HPV 18 (RR 0.22, 95% CI 0.13 to 0.38; three RCTs, n=13,082).
Cost information
A full cost-effectiveness assessment was conducted. This found the vaccine to be cost effective with a cost of 22,055 Euros per quality-adjusted life-year gained.

Authors’ conclusions
HPV vaccines (in particular, bivalent HPV vaccine) could have a great impact on the population and would be on the whole cost effective.

CRD commentary
The review assessed a clear question. Three relevant databases were searched and no restrictions on publication status or language were noted, which reduced the chances that relevant studies were omitted from the review. The authors did not report that they used methods designed to reduce reviewer bias and error at any stage of the review process; it was possible that this was because the paper was a summary of a full Italian-language report. A widely used scale was used to assess validity, but only a summary of the results was reported. Very limited details of the studies included were reported; again this was likely to be a consequence of summarising a full report. The use of meta-analyses appeared appropriate.

The authors’ conclusions are not unreasonable, but it should be borne in mind that they were based on surrogate outcome data and implications for cancer incidence were extrapolations from this data.

Implications of the review for practice and research
The authors did not state any implications for practice and further research.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.