with no adverse effects reported. One patient treated herself with albendazole (400 mg/day for 3 days) before she was seen at a hospital. All patients became asymptomatic and had negative stool examination results 2–10 weeks after treatment.

None of the patients reported previous or subsequent consumption of raw freshwater fish. Raw fish preparations such as sushi, sashimi, carpaccio, and ceviche are increasingly popular and are now also prepared with local freshwater fish. These new food habits represent a clear risk factor for human infection (*5*,*7*).

The plerocercoid larvae in the fish muscles are easily missed during food preparation. Nor are local fish systematically inspected, as imported fish are. The role of paratenic hosts (e.g., dogs, foxes) in transmission is not fully understood.

Information given to the public and professionals such as food handlers, restaurant owners, and fishermen is a key measure to promote safer food practices. Avoiding serving preparations of raw freshwater fish or selecting fish that are not intermediate hosts of *D. latum* would decrease parasite transmission. Cooking the fish at 55°C for 5 minutes efficiently kills the larvae. Freezing the fish at –20°C for 24 hours is also efficient. International regulations recommend freezing all fish that are expected to be served raw. Notable exceptions are fish from farm culture or from areas where strong evidence proves no source or cases of infection (European community rules 853/2004 annexe III, available from www.paquethygiene.com/reglement_ce_853_2004/reglements_ce_853_2004_du_parlement_europeen_et_du_conseil_annexe_3_section_8.asp#debut). However, enforcing these rules proves very difficult for food safety administrations.

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## Human Papillomavirus Vaccination Strategies

**To the Editor:** An article by Elbasha et al. in the January 2007 issue of Emerging Infectious Diseases showed an economic evaluation of human papillomavirus (HPV) vaccination strategies (*1*). In this model, incremental cost-effectiveness ratio (ICER) calculations were based on costs measured as US dollars for 2005 and effectiveness measured as quality-adjusted life years (QALYs). Authors presented these data transparently and showed costs and QALYs of each strategy in 2 tables, where they did not show ICER of dominated options; i.e., "Strategy A is dominated if there is another strategy, B, that is more effective and less costly than strategy A" (*1*). Unfortunately, splitting data into 2 tables can be misleading.

First, ICERs of strategies for vaccination at the age of 12 (70% coverage) compared with a strategy of no vaccination showed that the strategy of vaccinating 12-year-old girls and boys is dominated by other strategies. Furthermore, vaccination of 12-year-old girls only and vaccination of 12-year-old girls only with catch-up (vaccination of girls and women 12–24 years of age) have lower ICERs, which could be interpreted as the most cost-effective approaches.

Finally, ICERs of strategies of vaccinating at 15 and 18 years of age (50% coverage) are presented without comparison strategies. Thus, one might assume that these strategies are compared with the baseline strategy (vaccination of 12-year-old girls only); however, they are compared with the no-vaccination strategy.

The transparency of the Elbasha et al. article enabled us to build a new table based on their data (Table). In our table, ICERs of the whole set of strategies showed that vaccination of

Table. Cost-effectiveness analysis of alternative human papillomavirus vaccination strategies*

| Strategy | Discounted | | Incremental† | | |
|---|---|---|---|---|---|
| | Cost | QALY | Cost | QALY | ICER ($/QALY)‡ |
| No vaccination | $72,659,302 | 2,698,711 | – | – | – |
| 12-y-old girls | $74,042,990 | 2,699,178 | $1,383.688 | 467 | Dominated |
| 18-y-old women + 18–24-y-old female catch-up | $73,553,847 | 2,699,192 | $894,545 | 481 | $1,860 |
| 15-y-old girls + 15–24-y-old female catch-up | $73,895,046 | 2,699,214 | $341,199 | 22 | $15,509 |
| 12-y-old girls and boys | $78,707,825 | 2,699,327 | $4,812,779 | 113 | Dominated |
| 12-y-old girls + 12–24-y-old female catch-up | $74,815,667 | 2,699,343 | $920,621 | 129 | $7,137 |
| 18-y-old women and men + 18–24-y-old female and male catch-up | $77,535,383 | 2,699,385 | $2,719,716 | 42 | $64,755 |
| 15-y-old girls and boys + 15–24-y-old female and male catch-up | $78,455,750 | 2,699,404 | $920,367 | 19 | $48,440 |
| 12-y-old girls and boys + 12–24-y-old female catch-up | $79,746,357 | 2,699,461 | $1,290,607 | 57 | $22,642 |
| 12-y-old girls and boys + 12–24-y-old female and male catch-up | $81,761,210 | 2,699,506 | $2,014,853 | 45 | $44,775 |

*QALY, quality-adjusted life year; ICER, incremental cost-effectiveness ratio; $, US dollars.
†Based on discounted costs reported by Elbasha et al. (*1*).
‡Compared with the preceding nondominated strategy. Strategy A is dominated if there exists another strategy, B, that is more effective and less costly than strategy A.

12-year-old girls only is dominated by the vaccination of 18-year-old women plus a catch-up strategy (women 18–24 years of age), although older groups have lower coverages.

In addition, I point out 2 particulars. First, epidemiology of HPV varies between countries (*2*), probably because of differences in culture and sexual habits. Thus, vaccination at older ages should be considered in countries in which prevalence of adolescent sexual activity or HPV is low. Second, higher vaccine coverage in older groups would decrease ICERs of these strategies (*1*). Both facts could reflect the real situation in some countries, e.g., Spain (*2*,*3*).

In conclusion, economic evaluations of HPV vaccination strategies should have broader sensitivity analysis to include as many country-specific realities as possible. To avoid misunderstandings that could lead policymakers to misallocate funds, these results should be evident to readers.

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### Letters

Letters commenting on recent articles as well as letters reporting cases, outbreaks, or original research are welcome. Letters commenting on articles should contain no more than 300 words and 5 references; they are more likely to be published if submitted within 4 weeks of the original article's publication. Letters reporting cases, outbreaks, or original research should contain no more than 800 words and 10 references. They may have one Figure or Table and should not be divided into sections. All letters should contain material not previously published and include a word count.

# Distemper in a Dolphin

**To the Editor:** Deaths caused by new members of the genus *Morbillivirus*, family Paramyxoviridae (*1*), have occurred in recent decades among phocine and cetacean species, particularly harbor seals (*Phoca vitulina*) in 1988 (*2*) and 2002 (*3*). Endangered Mediterranean striped dolphins (*Stenella coeruleoalba*) died in 1990 and 1991 (*4*), and common dolphins (*Delphinus delphis ponticus*) from the Black Sea died in 1994 because of infection with dolphin morbillivirus (DMV) (*5*). A similar virus caused deaths in bottlenose dolphins (*Tursiops truncatus*) in the Gulf of Mexico from 1987 through 1994 (*6*). Closely related morbilliviruses caused deaths in harbor porpoises (*Phocoena phocoena*) in European waters in 1988 (*7*) (*Porpoise morbillivirus*) and endangered Mediterranean monk seals (*Monachus monachus*) in 1997 (*8*) (*Monk seal morbillivirus*). After these epidemics, the viruses disappeared and no marine or terrestrial reservoirs have been identified.

In January 2007, a moribund, subadult, white-beaked dolphin (*Lagenorhynchus albirostris*) was found stranded on the North Friesian coast of Germany. The animal was humanely