

association between nursing resources and patient outcomes.

Masako Sugihara raises the important issue of nurse turnover. Administrative data on hospital nurse turnover are not available in Europe. However, we created proxy measures of turnover by calculating the percent of nurses surveyed with intentions to leave within a year, and alternately the percent of nurses employed for less than 2 years. Neither measure is significantly related to percent of bachelor's nurses or nurse workloads, nor are they related to mortality. They would have to be related to both nursing factors and mortality to alter the effects we find. Importantly, patients are less satisfied with care in hospitals in which a larger proportion of nurses intend to leave,⁵ and turnover contributes to nurse shortage, making this nurse turnover a matter of policy concern.

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Is tiered pricing the way for vaccines?

Seth Berkley's Viewpoint (June 28, p 2265)¹ on improving access to vaccines through tiered pricing touches on important issues. Berkley identifies two key challenges for the global vaccination community: concerns about the sustainability of immunisation programmes in countries that will graduate from GAVI support² and the high price that many countries, especially middle-income countries, and vaccine providers, like Médecins Sans Frontières (MSF), have to pay for newer vaccines. These are issues that push us, as a public health community, in considering how to achieve equity.

Berkley's proposal of tiered pricing as the solution, however, is deficient for several reasons. The general shortcomings of tiered pricing—including its inferiority to genuine competition, arbitrary divisions between populations, and the lack of transparency on price setting—have been documented.³ Berkley notes that tiered pricing already exists and has been credited with lowering prices paid by the GAVI Alliance for the world's poorest countries. The negative effects of the tiered pricing system will also be seen, however, as countries face the double challenge of losing GAVI subsidies to pay for costly vaccines and, as Berkley notes, "that they [graduating countries] could be at risk of suspending vaccination programmes because they face a so-called pricing cliff, with steep increases when they no longer have access to GAVI prices."¹ Furthermore, gross national income (GNI)—the often-suggested criterion for establishing tiers and which determines GAVI eligibility—is an unsophisticated measure of country welfare and inappropriate from a public health perspective. There are currently 20 countries graduating from GAVI support (more than 25% of the total supported), 28 countries that have never been GAVI-eligible have a GNI

lower than the highest GNI-graduating country.⁴

Therefore, it is important for the public health community to aggressively use several strategies to address the underlying deficiencies in the vaccine market. These strategies include, as Berkley notes, demand forecasting and pooled procurement, but they also must include collaboration between agencies and governments to effectively negotiate with manufacturers, and investment to broaden the manufacturing base, thus promoting competition and a broader supply base. Transparency around research and development and manufacturing costs, as well as vaccine pricing, will be important to help realise this change. Pricing must be set in a fair way that both rewards innovation and ensures that cash-strapped health systems can ultimately afford products beyond donor support.

Lastly, the question of who should be governing the search for solutions is also essential. GAVI and other stakeholders can have a critical role but it is vital that governments, including key emerging economies, are the drivers of future effort. It is only in this way that all stakeholders can feel confident in buying into a new global strategy.

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