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VACCINES

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Vaccines are a triumph of medicine. But the project to erect immunological shields against all deadly pathogens is far from complete, as is evident in this Outlook. Despite intense research into three of the world's biggest killers — TB, malaria, and HIV — we still do not have an effective vaccine for any (page S4). Another disease that the western world has largely forgotten — polio — remains a scourge in a few poor countries. But the endgame is nigh; a strategy based on tweaking the vaccine's composition over time is on target to eradicate this paralytic disease (S14). And a form of bacterial meningitis might soon be eradicated thanks to a powerful combination: government and industry (S16). For those diseases we can prevent, delivering vaccines to the people who need them most is far from simple. Most vaccines need to be kept within a narrow range of temperatures, lest they go bad. Progress is also being made on the ability to deliver vaccines through harsh environments without spoilage (S8).

Vaccine development, historically a hit-and-miss process, could be on the cusp of a revolution in rational design, thanks to systems biology and its holistic view of living systems (S10). A major new player has entered the vaccine market. China, trying to shake off a reputation for scandal and inferior quality, has received World Health Organization approval to produce vaccines for Japanese encephalitis (S12). Meanwhile, a growing subset of the population is opting out of vaccinations. The predictable result: outbreaks of disease in areas corresponding to the vaccine refusal movement (S17).

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Herb Brody
Supplements Editor

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