southern strategies against

HIV/AIDS
If Alistair Coia lived in any of Australia’s poorer neighboring countries, he likely would not have seen his 50th birthday. But he celebrated it on 17 March this year, in a spacious hospital room, decorated with large balloons that his friends brought to mark the big five-zero. He is staying at a wing of the Alfred, Melbourne’s venerable public hospital, specifically designed for AIDS patients. Called Fairfield House, it has 15 private rooms, each opening to a courtyard with a manicured garden; a kitchen where family and friends can cook meals with patients; and—most important—world-class, multidisciplinary care.

Coia needed it. He checked in 1 month earlier with late-stage AIDS. His CD4 count, a measure of how much HIV had damaged his immune system, showed just 49 of these critical lymphocytes per microliter of blood. (Normal is 600 to 1200.) He had a life-threatening case of Pneumocystis pneumonia and severe exhaustion that kept him in bed 20 hours a day. “I got myself into a bit of a rut,” says Coia, a former keyboardist for Kids in the Kitchen, a rock ‘n’ roll band that rode the new wave craze in the 1980s. “I feel brilliant now: 2014 will be the year I recover.”

But now, this state-of-the-art AIDS ward may be closing—not because of lack of funding or political opposition, but because AIDS simply isn’t a big problem in Melbourne anymore: Only six of Fairfield House’s 15 beds are typically in use. Australia has had one of the most effective responses to HIV in the world. Since 1983, when
the country had its first AIDS case, there have been fewer than 35,000 documented infections with HIV and fewer than 8000 deaths. The United States, in contrast, has 50,000 new infections and some 15,000 deaths each year. Yes, Australia has only 23 million people. But the country still has nearly fourfold fewer infections and sixfold fewer deaths per capita.

One reason is the country’s universal health care, which provides access to the latest antiretroviral drugs. Another is the response that began soon after HIV arrived in Australia. Affected communities teamed up with clinicians and academics to pressure the government to promote prevention campaigns that targeted the most vulnerable populations. A harm reduction movement that became a model for the region (see p. 156) offers clean needles and syringes to people who inject drugs, as well as opiate substitutes like methadone that do not require needles. Provocative, blunt advertising campaigns spoke directly to gay men about the importance of using condoms, which were widely distributed for free. Several states legalized sex work. HIV/AIDS researchers joined international studies of experimental treatments and helped determine how best to use them. Basic researchers provided key insights into the interaction between the virus and the immune system, and today, they are a driving force behind efforts to find a cure for HIV/AIDS. “We’ve had really good public health policies that are upheld and valued,” says virologist Sharon Lewin, a leading HIV cure researcher who heads the infectious disease department at the Alfred and who is co-chair of the 20th International AIDS Conference, which will take place in Melbourne 20 to 25 July.

Given its success on the homefront, Australia has become a major exporter of HIV/AIDS research advances, as well as strategies to curb the epidemic. This spring, *Science* visited Australia and three of its neighbors who have benefited: Papua New Guinea, Indonesia, and Malaysia.

Adeeba Kamarulzaman, arguably the most productive and influential HIV/AIDS researcher in Malaysia, completed both her undergraduate and medical degrees in Melbourne (see p. 164). The minister of health in Indonesia, Nafsiah Mboi, brought in Australian experts to persuade her country’s top officials to support harm reduction efforts (see p. 162). Public health workers in Papua New Guinea work closely with scientists at the Kirby Institute for Infection and Immunity in Society, a branch of the University of New South Wales based in Sydney, on prevention efforts as well as basic research and surveillance to clarify how HIV is spreading through the island’s remotely connected communities (see pp. 158, 160, and 161). “Australians have been boxing above their weight in the regional response,” says epidemiologist Chris Beyrer of the Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland.

Cultures, geographies, economies, and governments shape AIDS epidemics, and each country faces unique challenges in trying to slow viral spread and help the infected. Indonesia has more infected people than any other country in Asia and the Pacific, except India and China. Papua New Guinea has an unusually large heterosexual epidemic for the region, while Malaysia is grappling with a startling rise in prevalence in men who have sex with men. Even Australia has seen a modest, but steady, rise in new infections (see p. 157).

In all four countries, turning knowledge into action is easier said than done. But the stakes could not be higher now that research has led to increasingly effective tools capable of blunting epidemics and, if forcefully applied, even bringing them to a halt.

As editorial content in this issue further explains, critical questions remain about...
HIV/AIDS in Australia and its neighbors

Diverse demographics and widely different responses shape unique epidemics in each country

HIV prevalence per 100,000 people, by country

**Australia**

- **22.5 million**
  - Total population
- **31,000**
  - HIV+
- **All HIV+**
  - Treatment eligibility (CD4s)
- **19,000**
  - On antiretrovirals
- **$421 million**
  - Annual HIV/AIDS spending
- **27.4%**
  - Intercourse before 15 years old

**Papua New Guinea**

- **6.5 million**
  - Total population
- **31,945**
  - HIV+
- **350**
  - Treatment eligibility (CD4s)
- **13,905**
  - On antiretrovirals
- **$44.8 million**
  - Annual HIV/AIDS spending
- **11.1%**
  - Intercourse before 15 years old

**Indonesia**

- **253 million**
  - Total population
- **610,000**
  - HIV+
- **350**
  - Treatment eligibility (CD4s)
- **39,418**
  - On antiretrovirals
- **$87 million**
  - Annual HIV/AIDS spending
- **0.28%**
  - Intercourse before 15 years old

**Malaysia**

- **30.1 million**
  - Total population
- **86,324**
  - HIV+
- **<350**
  - Treatment eligibility (CD4s)
- **17,369**
  - On antiretrovirals
- **$56.5 million**
  - Annual HIV/AIDS spending
- **1%**
  - Intercourse before 15 years old

Australia shows its neighbors how to stem an epidemic
Jon Cohen

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