



RESPONDING TO AIDS AT HOME & ABROAD

HOW THE U.S. AND OTHER HIGH INCOME COUNTRIES COMPARE



July 2012

THE HENRY J.
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EXECUTIVE SUMMARY

The history of the HIV/AIDS epidemic is complex, nuanced, and multifaceted. The emergence of a new disease in 1981 not only took scientists by surprise, it challenged governments, communities, and other stakeholders with whether, when and how to respond. Much attention has focused on the response of the United States, in part because it is credited as the first country in which AIDS cases were officially reported and because it has experienced the highest burden of disease among developed countries. In addition, the U.S. has also been in the spotlight both for its leadership and controversy, at times driving the response for others while at others coming late to the game.

To better understand the U.S. response to HIV, this study compares it to seven other “peer” nations: Australia, Canada, France, the Netherlands, Sweden, Switzerland, and the United Kingdom over the course of the epidemic. It primarily focuses on the domestic responses of these eight nations, although their role in addressing the epidemic in developing countries is also examined. The analysis aims to identify both similarities and differences in the way these eight high-income countries have responded to HIV/AIDS, noting factors that may explain patterns and discerning themes that emerge from national experiences with an eye toward what they might mean for future efforts. Among the key themes and findings by topic area, are:

Epidemiology

- While the U.S. reported the first official AIDS cases in the world, the other seven countries reported their first cases soon thereafter.
- Early fears that AIDS would become a “generalized” epidemic never came to pass, and today, all eight countries have “concentrated epidemics”, albeit with considerable and disproportionate impact on certain groups, particularly men who have sex with men (MSM), racial/ethnic minorities, and immigrants. In addition, the share of cases due to heterosexual transmission has risen over time, and in three of the countries examined, now outnumbers cases among MSM.
- After a period of uniformly declining incidence among MSM, new infections among MSM are on the rise in many of the high-income countries examined.

Governance of Official National AIDS Responses

- National responses have been heavily influenced by the cultural, social, and political environments in which they unfolded. Most centralized governments, for example, had more coherent responses, while federalized systems with state and provincial authorities were more likely to have decentralized and variable responses. Cultural values, such as levels of religiosity, views of homosexuality, and the role of technical “elites” in policy-making also played a role in shaping responses.
- Most governments did not mount a significant response until 1986-1987, several years after the first cases of AIDS were reported. Official oversight of AIDS responses has generally been centered in health ministries, though virtually all high-income countries have established broad, national advisory bodies to help guide their responses.

Communities and Non-governmental Sectors

- Actors outside of government, including affected communities, private charitable foundations, businesses and others, played important, early roles in prompting, informing and defining country responses. This was particularly evident in the U.S., where the strong and early mobilization of the U.S. gay community was the most notable feature of the national response in the 1980s.
- Due to the political activism of affected communities concerned about stigma and discrimination, along with the influence of a global culture of human rights and other factors, early responses to AIDS in most countries were characterized by an “exceptional” approach to prevention and control.

Following the advent of effective HIV treatment, there has been a shift toward “normalization” of AIDS and greater integration of HIV within the countries’ broader public health programs.

Surveillance & Testing

- Early AIDS responses in many countries were characterized by fierce resistance to named reporting, but resistance diminished over time. Today, all eight countries conduct HIV reporting.
- HIV testing has been a key part of the HIV response in all countries but to differing degrees over time. While Sweden and the U.S. emphasized earlier than other countries the prevention value of HIV testing, all eight countries have now moved to more routine use of HIV testing.
- All case countries continue to struggle with problem of undiagnosed infection.

Prevention

- Although the process of forging prevention policy was seldom simple or straightforward, most countries examined adopted a “pragmatic” approach to prevention, overriding “moral” concerns in order to support evidence-based risk reduction measures. Still, moral concerns were at play at times, particularly in Sweden and the U.S.
- A number of major prevention successes have been achieved in the countries studied. Notably, countries have achieved a near-elimination of mother-to-child transmission and steep reductions in new infections among people who inject drugs. Routine blood screening has virtually eliminated the risk of HIV transmission through the use of blood products in these countries.
- As the epidemic has evolved and early fears of a generalized epidemic have given way to recognition of the epidemic’s primary impact in discrete populations, funding for prevention has flattened or declined. There are indications that limited funding for prevention programs may have played a role in the stalling or reversal of national progress in reducing new infections.
- Emerging evidence that antiretroviral treatment can significantly reduce the risk that an HIV-infected person will transmit the virus to a negative partner, coupled with evidence that pre-exposure use of antiretrovirals by HIV-negative individuals can also prevent infection, have changed the prevention landscape in all eight countries, with the U.S. being the first to officially approve the use of antiretroviral treatment for pre-exposure prophylaxis (PrEP).

Care and Treatment

- With the exception of the U.S., all countries studied have universal health coverage. The U.S. has instead had to create HIV-specific funding vehicles and targeted care and treatment programs, most notably the Ryan White HIV/AIDS Program, to help fill gaps in coverage and services.
- While some countries (notably Netherlands and the U.K.) appear to effectively deliver services to treatment-eligible individuals, other countries have struggled to link HIV-infected persons with recommended care and treatment.
- Although the optimal time at which to begin antiretroviral treatment remains a subject of debate, there is a clear trend toward earlier treatment initiation in high-income countries. Persuaded by evidence of the therapeutic and preventive benefits of early treatment, the U.S. recently moved to recommend treatment for all people diagnosed with HIV, regardless of CD4 count and other countries are evaluating their recommendations.
- Over time, antiretroviral treatment regimens have improved in these countries, with more durable benefits and fewer side effects. Costs associated with HIV treatment, though, remain high, with the highest prices of any of these countries found in the U.S.

- In all the countries studied, imperfections in the “treatment continuum” – i.e., diagnosis, linkage to care, timely initiation of therapy, treatment adherence, and retention in care – are apparent, limiting the therapeutic and preventive benefits of antiretroviral therapy.

Research

- All of the countries studied have invested in HIV-related scientific research, although the degree of investment and the timing and level of engagement with research has varied.
- The history of the AIDS response in these high-income countries underscores the soundness of public sector investments in biomedical, epidemiological and social science research.
- The U.S. government has invested the largest sums toward HIV research of any of the countries, although additional important investments have been made by the French and U.K. governments. Today, the U.S. government is the world leader in supporting HIV research and development.
- Activism by community groups in the U.S. impatient with traditional processes and timelines for drug research and development contributed to an unprecedented acceleration of regulatory approval processes for HIV drugs.

Stigma and Discrimination

- HIV-related stigma, which was highly prevalent during the early years of the response, has lessened over time in high-income countries. However, stigma remains sufficiently prevalent to constitute an important ongoing challenge for national responses.
- Several countries have imposed prohibitions or restrictions on the ability of foreigners with HIV to enter their borders, but overall a trend toward removing or lessening such restrictions is discernible. None of the eight countries examined has an entry ban, with the U.S. being the last country to remove this restriction.
- The tendency to apply criminal or civil penalties for the knowing, reckless or negligent HIV transmission or exposure is a striking feature of responses in the countries studied. There appears to be emerging support for reconsidering this criminalization, primarily due to recent findings regarding the low likelihood of transmission while a person is on antiretroviral therapy.

Engagement in the Global Response

- High-income country assistance to support HIV/AIDS responses in low- and middle-income countries, which began in 1986 with the creation of the World Health Organization’s Global Program on AIDS, grew somewhat over the epidemic’s first decade but remained fairly modest until 2001, when it began to rise steeply with the launch of the Global Fund to Fight AIDS, Tuberculosis and Malaria in 2002 and the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) in 2003.
- The U.S. has consistently been the largest donor to global AIDS efforts throughout the epidemic; in 2011 the U.S. contributed 59% of all international AIDS assistance provided by governments. When measured per capita terms, though, the largest donors among the countries studied were the U.K., Netherlands, and Sweden in 2011. Since the onset of the global financial crisis in 2008, donor government assistance for AIDS has flattened.

Looking ahead, as each of these eight countries continues to grapple with persistent new infections within some populations, and other challenges to combatting their epidemics, they also find themselves at a pivotal moment in the history of the epidemic. New optimism brought on by research findings demonstrating the effectiveness of treatment as prevention and of PrEP have given rise to unprecedented hope that HIV/AIDS might one day be brought to an end. The capacity of countries to seize the potential of emerging HIV prevention and treatment tools, however, will be enhanced by understanding the lessons of the past – including drawing from the experience of diverse countries in assessing what has worked and what hasn’t, as they each moved to respond to the same virus but in sometimes very different ways.

INTRODUCTION

The history of the HIV/AIDS epidemic is complex, nuanced, and multifaceted. The emergence of a new disease in 1981 not only took scientists by surprise, it challenged governments, communities, and other stakeholders with whether, when and how to respond. Much attention has focused on the response of the United States, in part because it is credited as the first country in which AIDS cases were officially reported and because it has experienced the highest burden of disease among developed countries. In addition, the U.S. has also been in the spotlight both for its leadership and its controversy (Bayer & Kirp, 1992), at times driving the response for others – for example, being on the leading edge of scientific discovery, community mobilization, and financial support to address the epidemic in the developing world– while at others coming late to the game, including what some characterized as a delayed official response in the early years of the epidemic, and a long-standing travel and immigration ban on HIV-infected individuals, lifted only in 2010 (Public Radio International, 2010).

To better understand the U.S. response to HIV, this study compares it to seven other “peer” nations: Australia, Canada, France, the Netherlands, Sweden, Switzerland, and the United Kingdom over the course of the epidemic. Indeed, it is often by comparison to others that important lessons can be learned and an informed perspective best gleaned (Bayer & Kirp, 1992; Powell, Dalton, Strom; Blank and Burau, 2010; Baldwin, 2005). This study builds on prior comparative work in on national responses to AIDS (Bayer & Kirp, 1992; Baldwin, 2005), bringing such analyses forward to the present. It primarily focuses on the domestic responses of the eight nations, although their role in addressing the epidemic in developing countries is also examined. The analysis aims to identify both similarities and differences in the way these eight high-income countries have responded to HIV/AIDS, noting factors that may explain some of these patterns. It has endeavored to discern themes that emerge from national experiences over more than 30 years of responding to HIV/AIDS.

As this report is launched, the eight high-income countries studied here, as well as the entire global community, confront a pivotal moment in the history of the epidemic. Recent research findings – including demonstration that antiretroviral therapy sharply lowers the risk of HIV transmission and that pre-exposure prophylactic use of antiretroviral drugs reduces the odds of HIV acquisition – have given rise to unprecedented hope that HIV/AIDS might one day be brought to an end. Indeed, the program for the 2012 International AIDS Conference in Washington DC includes several sessions specifically devoted to the quest to end the HIV/AIDS pandemic. The capacity of countries to seize the potential of emerging HIV prevention and treatment tools will be enhanced by understanding the lessons of the past – including drawing from the experience of diverse countries in assessing what has worked and what hasn’t.

Like the U.S., the other countries in this study are advanced economies that documented early cases of AIDS, and also faced fears that HIV would spread rapidly within their borders, becoming generalized epidemics similar to those faced by many African countries today. These fears did not come to pass, however, and presently all eight have concentrated epidemics with national prevalence rates below 1%, albeit with significant impacts among some population subgroups. In addressing HIV, these eight nations grappled with similar challenges, yet their paths often diverged, shaped to an extent by their varied political and health systems, as well as socio-cultural and economic factors (see Box 1 for general comparative statistics across the eight case countries).

This research for this comparative study included a desk review of published materials on HIV/AIDS responses in the eight high-income countries studied and in some cases, interviews were conducted with key informants to clarify historical information regarding national responses. Extensive efforts have been made to verify the published information presented in this report, although it is possible that recent programmatic or policy changes that are not reflected in publications may not be fully captured.

The report first provides an overview of the epidemiology of HIV in each country, including trends over time. This is followed by sections that examine various aspects of country responses, including the role of the government and community; prevention approaches; HIV testing and surveillance policies; care and treatment, including health insurance access and coverage; investments in HIV research; stigma and

discrimination; and, finally, each countries engagement with and contributions toward the global response to HIV/AIDS. It then looks briefly ahead to identify some cross-cutting issues facing all eight countries in their next phase of addressing HIV.

BOX 1. Select Demographic, Economic, and Health System Indicators Across Case Countries

Basic Country Characteristics

Country	Population (2012, millions)	GDP (2011, USD)	GDP per capita (2011, USD)	Income Distribution (Gini Coefficient)	Life Expectancy (2009)
US	313.9	15.04 trillion	48,100	45	79
Australia	22	917.7 billion	40,800	30.5	82
Canada	34.3	1.39 trillion	40,300	32.1	81
France	65.6	2.21 trillion	35,000	32.7	81
Netherlands	16.7	705.7 billion	42,300	30.9	81
Sweden	9.1	379.4 billion	40,600	23	81
Switzerland	7.6	340.5 billion	45,200	33.7	82
UK	63	2.25 trillion	35,900	34	80

Sources/Notes: Pop for Switzerland is 2011; GDP (purchasing power parity); Kaiser Family Foundation, Global Health Facts; CIA World Fact Book; Gini Coeff; The Gini index measures the degree of inequality in the distribution of family income in a country. The more equal a country's income distribution, the lower its Gini index

Health Expenditure and Capacity

Country	Health Expenditures as percent of GDP	General Government Expenditure on health as % of Total Health Expenditure	Health Expenditures per capita PPP, 2009	Physicians Per Capita 2005-2009
US	16.2	48%	\$7,960	27
Australia	8.5	68%	\$3,484	30
Canada	10.9	71%	\$4,314	20
France	3.5	78%	\$3,939	34
Netherlands	10.8	79%	\$4,881	29
Sweden	9.9	82%	\$3,722	38
Switzerland	--	60%	\$5,105	41
UK	9.3	84%	\$3,438	24

Source/Note: Kaiser Family Foundation, Global Health Facts; "--" not available

EPIDEMIOLOGY OF HIV IN HIGH-INCOME COUNTRIES

Key Findings

Early History

- The first cases of AIDS were reported in 1981 in the U.S., leading to early perceptions that the epidemic originated in America and to fears in many high-income countries that the “American plague” would spread within their borders. In reality, HIV was already spreading in other parts of the world, including the countries studied here.
- Men who have sex with men (MSM) were the primary population affected by HIV in the early years in the countries studied. Although epidemiological patterns have shifted over time – including a growing share of new infections due to heterosexual transmission – HIV remains largely concentrated among MSM in most high-income countries.
- Several countries experienced rapid growth of infection among injection drug users (IDUs) during the first decade of the epidemic, although infection rates in this population have declined across all high-income countries.

Epidemiological Trends & Current Status

- After experiencing exponential increases in new HIV infections in the 1980s, most high-income countries saw infection rates plummet and begin to stabilize in the 1990s, and fears that HIV would spread to “the general population” did not materialize. Today, all eight countries have “concentrated” HIV epidemics – that is, an overall adult prevalence of <1% – though prevalence remains high in some subgroups.
- The U.S. has the most sizable and serious epidemic among the eight countries examined, and among high income countries overall. Today, more than one million people are living with HIV in the U.S., representing approximately 0.6% of the U.S. adult population. The other seven countries have much smaller epidemics and lower prevalence; France has the next highest number of people with HIV (150,000), and prevalence in all seven ranges between 0.1% and 0.4%.
- Ethnic and racial minorities experience disproportionate risk of HIV in most high-income countries. In the U.S., for example, the rate of new HIV infections among blacks is almost eight times greater than among whites.
- Diverse patterns are apparent with respect to indigenous populations. While indigenous populations experience disproportionately high rates of HIV in Canada and the U.S., they are more comparable to the general population in the Australia.
- Although high-income countries avoided a broad-based “heterosexual epidemic” such as in sub-Saharan Africa, heterosexually acquired HIV accounts for a significant share of new and prevalent infections in several high-income countries (e.g., U.S., U.K., Switzerland).
- In recent years, many of the countries studied have experienced substantial increases in HIV cases among immigrants from high-prevalence countries. In some countries (e.g., Sweden), foreign-born cases now outnumber those born within national borders. Partly as a result of a significant increase in cases among African-born communities, the U.K. has accounted for roughly one-third of all new HIV diagnoses in Europe in recent years.
- Mortality among people living with HIV has declined in all countries. As HIV-positive individuals live longer, a larger share of deaths stem from non-HIV-related causes among

people living with HIV. People over age 50 account for a growing share of those living with HIV in high-income countries.

Early History

In June 1981, the U.S. Centers for Disease Control and Prevention (CDC) issued the first-ever report of what would become known as AIDS, describing an unexplained cluster of profound immune suppression among gay men in Los Angeles (CDC, 1981). It was soon apparent that a new epidemic had emerged, as U.S. cases increased exponentially, rising from 1,387 reported prior to May 1983 to 5,644 reported from May 1984 through April 1985 (CDC, 1985a).

The early prominence of the epidemic in the U.S. gave rise to perceptions outside the U.S. that AIDS was an American disease, leading to fears in many high-income countries that the “American plague” could spread to their own shores (Ballard, 1992). In reality, HIV was already spreading rapidly in other regions of the world in the late 1970s and early 1980s, including high income countries (Adler, 2001; UNAIDS, 2011). In addition, researchers have concluded that HIV had its origins many years prior, and most likely in Africa (Gao F et al, 1999; Worobey et al, 2008). HIV, the virus itself, however, was not isolated by scientists until 1983 and identified as the cause of AIDS until 1984 (Gallo & Montagnier, 2003; NIH In Their Own Words).

It did not take long for AIDS cases to be officially identified in the other seven high-income countries studied here. In addition to the U.S., France, Switzerland and the UK also reported their first official cases in 1981; Australia, Canada, and the Netherlands followed in 1983, and Sweden was last among the eight in 1983 (see Table 1). A CDC analysis of AIDS cases in Europe found that, among the European countries studied here, the AIDS case rate per 1 million population in 1985 was highest in Switzerland (9.7), followed by France (7.0), the Netherlands (4.6), Sweden (3.3) and the U.K. (3.1). By comparison, the U.S. rate at this time was (48.2) (CDC, 1985b). The rates in Canada and Australia in 1985 were approximately 25.1 and 5.3 per 1 million, respectively (Author calculations).

Table 1. Year of First Official AIDS Case Report in Case Countries

Country	Year
U.S.	1981
Australia	1982
Canada	1982
France	1981
Netherlands	1982
Sweden	1983
Switzerland	1981
UK	1981

Sources: CDC, 1981; Public Health Agency of Canada, 2007; Bowtell, 2005; Health Protection Agency, 2011; Steffen, 1992, Van Wijngaarden, 1992, Henriksson & Ytterberg, 1992; and Swiss Federal Office of Public Health, 2011.

Epidemiological Trends & Current Status

After experiencing exponential increases in new HIV/AIDS cases in the 1980s, most high-income countries saw infection rates plummet and begin to stabilize in the 1990s (see Hall et al., 2008) and fears that HIV would spread to “the general population” did not materialize. In recent years, national epidemics have remained relatively stable in many countries, such as Australia (Kirby Institute), Canada (Public Health Agency of Canada, 2010); and the U.S. (Prejean et al., 2011). Today, all eight countries have “concentrated” HIV epidemics –that is, their overall adult prevalence is <1%, though it remains high in some subgroups.

Those countries with the most severe epidemics in the early 1980s generally remain those with the highest HIV prevalence today. As of 2009, the U.S. had the largest epidemic, with approximately 1.2 million people living with HIV and highest adult HIV prevalence of 0.6% (see Table 2). It also has the highest rate of new HIV diagnoses per 100,000 (see Table 3). The other seven countries have much smaller epidemics and lower prevalence; France has the next highest number of people with HIV (150,000), and an adult prevalence of 0.4%, as does Switzerland. The others are at 0.3% or less.

National epidemics in these countries have spread at different rates, with the U.S. consistently exhibiting the highest rates of HIV transmission. From 1995 to 2006, estimated annualized HIV incidence among MSM was 0.978 in Australia, 2.5 in Europe, and 2.787 in the U.S. (Stall et al., 2009). More recently, it has been estimated that the transmission rate (i.e., the number of HIV transmissions per 100 persons living with HIV in a given year) in 2007 was 4.9 in the U.S., compared to 3.7 in Western and Central Europe (Holtgrave et al., 2012).

HIV-related mortality has declined in all high-income countries, primarily due to the advent of highly active antiretroviral therapy (HAART) (Stichting HIV Monitoring, 2011; Swiss Federal Office of Public Health, 2010; CDC, 2012a). Whereas Switzerland reported more than 2000 AIDS-related deaths in 1997, by 2010 the number of AIDS deaths approached zero (Swiss Federal Office of Public Health, 2010). In the U.S., the annual number of death certificates in which HIV was identified as a cause of death fell by roughly 75% from 1995 to 2008, with comparable declines reported in the national age-adjusted death rate (CDC, 2012a). A similar decline of more than 70% was reported in the mortality of HIV-infected individuals in the Netherlands (Stichting HIV Monitoring, 2011). Whereas HIV was the leading cause of death among people ages 25-44 in the U.S. in 1993 and 1994, it had fallen to seventh in 2008 but remained the fourth leading cause of death among Black men in that age group (CDC, 2012a). In recent years, declines in HIV-related mortality have halted in the U.S. (CDC, 2012b). As mortality among people living with HIV has declined, and people with HIV are living longer, a larger share of deaths stem from non-HIV-related causes. In addition, people over age 50 account for a growing share of the HIV population in high-income countries (European Center for Disease Prevention and Control, 2011).

Table 2. Number of Persons Living with HIV/AIDS and Percent Adult Prevalence in Case Countries, 2009

Country	Number	Percent
U.S.	1,200,000	0.6%
Australia	20,000	0.1%
Canada	68,000	0.3%
France	150,000	0.4%
Netherlands	22,000	0.2%
Sweden	8,100	0.1%
Switzerland	18,000	0.4%
UK	85,000	0.2%

Source: UNAIDS

Notes: Prevalence percent is for adults, ages 15-49. Some of these countries have more recent data, but this is the most recent year for standardized estimates produced across the eight by UNAIDS.

Impact by Population/Risk Group

While transmission patterns have varied by risk group across the eight countries, some common threads have also been present, including a continued and disproportionate impact on MSM, with recent increases in some countries, and a drop in infections among IDUs. These trends are reviewed below.

Men Who Have Sex With Men (MSM)

At the beginning of the national epidemics in the eight high-income countries studied, AIDS was overwhelmingly concentrated among MSM. In the U.S., 73.4% of all AIDS case reports through April 1985 were among MSM (CDC, 1985a), and MSM accounted for 70% of AIDS case reports in Europe as of June 1985 (CDC, 1985b).

Although there were subsequent epidemiological shifts in the eight countries and other patterns have also emerged, HIV in most of the eight countries remains overwhelmingly concentrated among MSM, who continue to account for the largest share of prevalent and incident infections. MSM accounted for 67% of new diagnoses in Australia in 2010 (Kirby Institute, 2011), 61% of new infections in 2009 in the U.S. (Prejean et al., 2011), and 55% in the Netherlands (Netherlands UNGASS Report, 2012) (see Table 3). In several countries, such as the Netherlands (Netherlands UNGASS Report, 2012) and the U.S. (Prejean et al., 2011), the proportion of new diagnoses among MSM has increased in recent years. A similar pattern has been observed in the U.K., although research suggests that the increase in new diagnoses among MSM may reflect increases in rates of HIV testing rather than new infections (Dougan et al., 2007).

In France, HIV incidence among MSM was 112 times higher in 2003-2008 than among heterosexuals (Le Vu et al., 2010). In the U.S., MSM are 44 times more likely to become infected than heterosexual males (CDC, 2011a). A CDC study in 21 U.S. cities found HIV prevalence of 19% among gay and bisexual men; HIV prevalence was 28% among blacks, 18% among Hispanics, and 16% among whites (CDC, 2010a). In New York City, Black MSM are 488 times more likely than males generally – and 325 times more likely than Black heterosexual males – to be diagnosed with HIV (Pathela et al., 2011).

Even where national epidemics have become somewhat less concentrated among MSM, gay communities continue to exhibit extremely high HIV prevalence. In London, where heterosexual transmission now rivals male-male sex as a source of new infections, a 2009 survey found that 15.2% of gay men were HIV-positive (University College London, 2011).

After significant reductions in infections among MSM by the end of the first decade of HIV, several countries have experienced a resurgence of infections in MSM in more recent years. In the U.S., the numbers of new infections among MSM increased from 2006 to 2009, including a 48% rise in seroconversions among young Black MSM (ages 13-29) (Prejean et al., 2011). In the Netherlands, new HIV diagnoses increased among MSM in the treatment era although cases seemed to have remained flat in the last couple of years (Stichting HIV Monitoring, 2011; UNGASS Report 2012). Increases among MSM have also been seen in Switzerland in the last few years. (Switzerland USGASS report 2012).

**Table 3. New HIV Diagnoses in 2010 in Case Countries:
Total Number, Rate, Percent Women, and Route of Transmission**

Country	Total Number & Rate		% Women	HIV Transmission (%)		
	Number	Rate per 100,000		MSM	Heterosexual	IDU
U.S.	47,129	16.1	21%	61%	27%	8%
Australia	1043	5.1	15%	67%	28%	2.4%
Canada	2417	8.6	26%	42%	31%	22%
France	3952	6.1	33%	48%	51%	1%
Netherlands	995	6.0	14%	55%	40%	4%
Sweden	482	5.2	41%	25%	53%	5%
Switzerland	610	7.8	27%	48%	46%	5%
UK	6654	10.7	32%	45%	50%	2.5%

Sources: European Center for Disease Prevention and Control, 2011; Public Health Agency of Canada, 2010. Kirby Institute, 2011; CDC, HIV Surveillance Report, 2010, 2012; Netherlands, UNGASS Country Progress Report, 2012; Sweden, UNGASS Country Progress Report, 2012; Switzerland, UNGASS Country Progress Report, 2012; Health Protection Agency, 2011; Le Vu S et al., 2010.

Notes: All data are for 2010 except for Canada (2008); France and Netherlands (HIV transmission percentages are for 2008) and Switzerland (HIV transmission percentages from 2011).

Heterosexual Transmission

The share of HIV infections due to heterosexual transmission has risen over time and in some of the countries studied, rivals sex among men as the primary source of transmission. In two countries – France, and Sweden – heterosexually acquired HIV has recently accounted for the majority of new HIV cases, and half of cases in the UK (see Table 3) (UK UNGASS Country Report; Sweden UNGASS Country Report; SMI, 2012; European Center for Disease Prevention and Control, 2011; Le Vu et al., 2010). Heterosexual acquisition accounted for 31% of all HIV-positive people in care in the Netherlands in 2011 (Stichting HIV Monitoring, 2011) and 27% of new HIV diagnoses in the U.S. from 2007 to 2010 (CDC, 2012b).

Patterns of heterosexual acquisition vary among countries. Whereas the heterosexual epidemic in the U.S. is primarily concentrated among U.S.-born individuals (especially among African Americans), the

number of sub-Saharan African immigrants with heterosexually acquired infection in the Netherlands outweighs the number of heterosexually acquired cases among Dutch-born people (Stichting HIV Monitoring, 2011). In the U.K., people born outside the U.K. with heterosexually acquired infection outnumber their U.K.-born counterparts (Health Protection Agency, 2011).

Injection Drug Use

Rates of new infections stemming from injection drug use have fallen across all high-income countries. In the U.S., for example, the number of new infections among injection drug users in 2006 was roughly one-seventh the number in 1988 (Hall et al., 2008). The prominence of injection drug users in national epidemics varies, ranging from 1% of new HIV diagnoses in France and 22% in Canada; most countries range between 2 and 5 % (see Table 3). Where HIV prevalence among injection drug users has declined, it may result from a combination of factors, including the implementation of effective prevention measures (see subsequent section on “HIV Prevention Policy”), disproportionately high death rates among HIV-positive injection drug users (New York City Department of Health and Mental Hygiene, 2011), and a transition in some countries away from injecting among drug users (Inserm, 2009).

Although gains have been made, HIV prevalence remains high among injection drug users. Switzerland, for example, estimates that 30% of all Swiss injection drug users are living with HIV (Swiss Federal Office of Public Health, 2010). HIV prevalence estimates among injection drug using populations are 15.6% in the U.S., 13.4% in Canada, 12.2% in France, 9.5% in the Netherlands, 2.3% in the U.K., and 1.5% in Australia (Mathers et al., 2008). In Sweden, 5-9% of urban-dwelling injection drug users were living with HIV in 2009-2010 (SMI, 2012).

Women

While women account for roughly half of all people living with HIV globally, men are much more likely to be infected in many high-income countries. Women accounted for 15% and 14%, respectively, of new HIV diagnoses in Australia and the Netherlands, and ranged between 21% and 33% in the other countries, except Sweden, which has the highest share of women among new HIV diagnoses (41%) (see Table 3). In the European Union, the HIV case rate in 2010 was three times higher for males than for females (European Center for Disease Prevention and Control, 2011). Among European countries, Sweden has the lowest male-to-female ratio of new HIV case reports in 2010, at below 2.0 (European Center for Disease Prevention and Control, 2011).

Mother-to-Child Transmission

A success story common among high income countries, including the ones studied here, is the significant decline in HIV transmission from mother to child, after research showing that antiretroviral use by pregnant women with HIV and their newborns could dramatically decrease transmission (see section on *Prevention*). In each of the eight countries studied, only a small fraction of infants are born with HIV each year (2% or less of all infants perinatally exposed to HIV become infected) (CDC 2012b, HIV/AIDS Surveillance Report 2010, Vol. 22; European Center for Disease Prevention and Control, 2011; UNGASS Country Report, Australia, 2012; UNGASS Country Report, Canada, 2012).

Immigrants

In the early days of AIDS, several countries experienced waves of anxiety focused on the supposed public health threats posed by various immigrant groups. In the U.S., for example, federal epidemiologists identified Haitians as a “high-risk” group before eventually abandoning the notion that country of origin was a factor for HIV risk (Shilts, 1987). In Australia, public fears arose that importation of blood might bring the “U.S. killer disease” within the country’s borders (Ballard 1992).

There has been an increasing share of HIV/AIDS cases among foreign-born people in several countries, with noteworthy increases among immigrants from sub-Saharan Africa. In Australia, the population rate of HIV diagnosis among sub-Saharan-born individuals more than doubled from 2006 to 2010, with more than 40% of new diagnoses over the five-year period among people born outside Australia (Kirby Institute, 2011). In Australia, Sweden, and the U.K., individuals originating from countries with generalized epidemics accounted for a majority of new reported cases of heterosexually acquired HIV in 2010 (European Center for Disease Prevention and Control, 2011). In the U.S., an analysis of data from 2002-

2007 indicated that the share of HIV diagnoses among foreign born individuals rose over time. Higher percentages of foreign-born persons with HIV in the U.S. were Hispanic/Latino and had heterosexual exposure compared with U.S.-born persons with HIV. The majority of foreign-born women with HIV were born in the Caribbean followed by Africa; the majority of males were born in Central America followed by the Caribbean (Prosser et al., 2010).

Racial/Ethnic Minorities & Indigenous Populations

Racial and ethnic minorities have been disproportionately affected by HIV in many countries. In 2009, African Americans were 7.6 times more likely to become infected in the U.S. than whites (Prejean et al., 2011). In the U.K., HIV prevalence among Blacks is 31 times higher than for the country as a whole (Health Protection Agency, 2011).

The epidemic's effects on indigenous populations differ among countries. While per capita HIV rates in indigenous communities are comparable to the broader population in Australia (Kirby Institute, 2011), members of indigenous communities in Canada are seven times more likely to receive an AIDS diagnosis than Canadian whites (Hall et al., 2009). In the U.S., rates of new HIV diagnoses were moderately higher among Native Americans and Alaskan Natives (9.7 per 100,000 population) in 2007-2010 than among whites (7.3), but substantially lower than for African Americans (62.0) or Latinos (20.4) (CDC, 2012b).

EVOLUTION AND GOVERNANCE OF OFFICIAL NATIONAL AIDS RESPONSES

Key Findings

Evolution of National Responses

- When AIDS emerged, the budgets and political standing of public health agencies had diminished over time, in part due to the belief that serious infectious diseases were a thing of the past in high-income countries.
- While affected communities in most high income countries acted early on, most national governments did not begin mobilizing a more serious response to their epidemics until 1986-1987, several years after the first AIDS cases were identified.
- Most experienced a wave of AIDS hysteria in the mid-1980s, often as a result of the perceived potential for HIV to affect the general population. The Netherlands was an exception to this pattern, with comparatively little public anxiety emerging, notwithstanding a substantial epidemic among MSM.
- Nearly all high-income countries studied experienced a temporary “emergency phase” of their AIDS response in the 1980s, resulting in the mobilization of substantial resources, the implementation of major public education and awareness campaigns, and the creation of HIV-specific bureaucracies.
- In some countries, a public backlash emerged after it became apparent that HIV would not have a major effect on the general population.

Governance of National Responses

- National AIDS responses have been heavily influenced by the cultural, social and political environment in which they unfolded, as well as by the form of government.
- More centralized governments (e.g., France, Netherlands, Sweden, U.K.) typically had more coherent responses, while federalized systems (the U.S., Australia, Canada, Switzerland) with more authority devolved to state and provincial levels, were more likely to have decentralized, fragmented, and variable responses. Still, centralized governance did not automatically lead to a more rapid or effective response, and federalized systems were, in some cases, more flexible and better able to implement locally-relevant policies.
- Electoral politics have had important, although not always determinative, effects on national responses, with other factors – including approaches to policy development and cultural values – also playing defining roles.
- As national responses emerged in the 1980s, virtually all high-income countries established national bodies to oversee and guide the response.
- Most high-income countries now have national strategies in place to guide their AIDS responses. Some adopted strategic plans extremely early (in the 1980s), while others (e.g., U.S., Sweden) adopted their first comprehensive plans in the last decade.
- Although some countries retain various HIV-specific elements in their national bureaucracy and budget, most have folded HIV programs into broader initiatives (such as

sexual health, as in the U.K.). The U.S. is noteworthy for its retention of HIV-specific programs and budget lines more than 30 years since the epidemic was first recognized.

- Governance of AIDS responses in high-income countries have generally been centered in health ministries.

From HIV Exceptionalism to Normalization

- In most high-income countries, public health officials consciously pursued strategies that differed from standard approaches applied to other infectious diseases. This more “exceptional” approach was based on the absence of effective treatments for HIV and on the need to engage the marginalized communities most heavily affected by the epidemic.
- While partner notification is a standard public health tool in disease control, it too has been treated exceptionally in the case of HIV, generally not mandated or required in any way, with most of the countries examined having adopted this approach. In the U.S., early debates between public health authorities and AIDS advocates regarding the benefits of partner notification gave way to something of a compromise, in which these services are offered but not always aggressively pursued.
- Sweden is a notable outlier in its reliance on traditional public health measures. Under law, partner notification is mandatory for all clinicians who diagnose HIV, and those with HIV are legally obligated to disclose the names of their partners to public health workers. In Sweden, individuals who are deemed “recalcitrant” are subject to isolation.
- As evidence has grown regarding the therapeutic and preventive benefits of treatment, momentum has increased to increase utilization of partner notification in case of newly diagnosed HIV cases.
- Over the last 10-15 years, HIV has been “normalized” or “mainstreamed” in most high-income countries, with national policy-making and programmatic initiatives subsumed within broader public health bureaucracies. The degree of this process varies among the countries studied, with the U.S. exhibiting the highest degree of persistent HIV-specific focus, though it too has moved to normalization in many ways.
- HAART has had an enormous effect on perceptions regarding HIV in high-income countries, accelerating the move toward normalization. Today, HIV is widely regarded as a chronic, manageable condition.
- Although HIV as an issue no longer has the salience it once did in high-income countries, managing the disease is nevertheless associated with extensive national investments. In the U.S., for example, federal spending on HIV-related programs amounted to \$27.7 billion in 2012.

Evolution of Official National AIDS Responses

The emergence of a new disease in 1981 took scientists and public health officials by surprise, due to a belief that serious infectious diseases were mostly a thing of the past in high income countries (Baldwin, 2005). In part due to this belief, public health agencies in many of the case countries had experienced budget cuts and diminished political standing (Garrett 2000; aids2031 Consortium, 2011). In fact, in the U.S. the public health system had degraded so much by the mid-1980s that the Institute of Medicine, in a 1988 report, called it a “cause for national concern” that unnecessarily threatened the health of the public (IOM, 1998). In general, then, public health institutions were initially challenged and underprepared to mount a vigorous response to a new and unsettling epidemic (Blewett, 2003).

While affected communities, particularly the gay community, in most high income countries acted early on, most national governments did not begin mobilizing a more serious response to their epidemics until 1986-1987, several years after the first AIDS cases were identified (Blewett, 2003; Berridge, 1996). Australia was somewhat earlier to respond, beginning to mobilize in 1984 following a spike in public anxiety in response to a cluster of transfusion-related infections (Ballard, 1992). Once they were initiated, however, national responses tended to be robust, at least for several years, motivated in large measure by fears that AIDS would come to affect the general heterosexual population. As public anxiety grew, high-income countries implemented “emergency-style” responses, with substantial increases in funding for AIDS services, public awareness campaigns, and the creation of large governmental bureaucracies to tackle the epidemic (Berridge, 1996; see Henriksson & Ytterberg, 1992).

In addition to fears about HIV, many other factors contributed to the initiation of official government responses, including, in some cases, specific individuals in government who stepped forward, often against considerable odds, to motivate others to take greater action (for more on this topic see the next section on “The Role of Communities and Non-Governmental Sectors in National Responses). For example, an early fact-finding trip to San Francisco by a Conservative British politician, Norman Fowler (later Lord Fowler), persuaded him to become a stalwart advocate of greater official action to prevent a major AIDS outbreak in the U.K. In the U.S., Surgeon General C. Everett Koop, who had been appointed by President Reagan, effectively forced the Reagan Administration, and the U.S. at large, to take notice of AIDS at a moment when the governing political forces in Washington were openly hostile to the gay community (NIH C. Everett Koop Papers). And Australia’s exceptional early response to AIDS benefited from the leadership of former Labor Minister Neal Blewett (Ballard, 1992).

Factors Shaping National Responses & Governance

National AIDS responses have been heavily influenced by the cultural, social and political environment in which they unfolded. Factors affecting national responses include the degree of federalism and respective roles of national and sub-national jurisdictions in setting AIDS policies; electoral politics; and the level of tolerance, attitudes, and legal and societal frameworks regarding homosexuality and drug use. A separate factor that played a central role in influencing national responses – the system for financing and delivering health services, including health insurance coverage – is addressed in the subsequent section on “HIV Care & Treatment.”

Table 4. Governmental Structures in the Case Countries		
Country	Structure	Decentralized-Centralized
U.S.	Federal	Decentralized
Australia	Federal	Decentralized
Canada	Federal	Decentralized
France	Unitary	Centralized
Netherlands	Unitary	Decentralized (Semi)
Sweden	Unitary	Decentralized
Switzerland	Federal	Decentralized

Sources: Blank & Bureau, 2010; CIA World Fact Book; Lijphart, 1999.

Countries with more centralized systems (e.g., France, U.K.) were able to formulate AIDS policy in a way that was arguably more coherent and standardized than in more federalized and decentralized systems (e.g., Canada, U.S.), in which much of the responsibility for health policy development resides in states, provinces, territories, or other local jurisdictions (Rayside & Lundquist, 1992; Steffen, 1992; Mann, Tarantola, Netter, 1992) (see Table 4 for a list of governmental structures). Still, a centralized governance system did not automatically lead a more rapid or more effective response, and those countries with federalized systems of governance were in some cases more flexible and better able to

establish and implement locally-relevant policies through state or local public health authorities (Baldwin 2005).

Even in countries with federal systems of government, the national government typically drove the development of AIDS policy. In Australia, for example, the national government stepped forward to lead, coordinate and fund the AIDS response, looking to states and territories primarily for the delivery of HIV services (Power, 2011; Bowtell, 2005; Blewett, 2003). Federal, provincial and territorial collaboration on AIDS policy in Canada has been facilitated by the Pan-Canadian Public Health Network, which meets regularly to share information and plan collaborative efforts (Canada UNGASS Report, 2012).

Electoral politics have had important, although not always determinative, effects on national responses (Baldwin, 2005), with other factors – including approaches to policy development and cultural values – also playing defining roles. When AIDS emerged, two of the countries studied were governed by parties that leaned right (U.K. and U.S.), three were governed by parties that leaned left (Australia, France and Sweden), and the Netherlands was governed by a broad coalition. In Canada, the Liberal party was in power until 1984, when the Conservatives took control of the federal government (Kirp & Bayer, 1992).

In the U.S., President Regan was often criticized for withholding support for a robust federal response on AIDS during the early years of the epidemic (Shilts, 1987; Hooper, 1987). In the U.K., on the other hand, where the Thatcher government was perceived to be overtly hostile to the gay community in the 1980s, a long governmental tradition that regarded policy formulation as a technical, rather than political, exercise resulted in pragmatic public health policies and programs that promoted a working partnership between government officials and the gay community (Berridge, 1996; Street & Weale, 1992). In Australia, the election of a center-left government committed to the centralization of national authority over health had considerable significance in shaping early AIDS policy (Bowtell, 2005). As several commentators have observed, the tolerant, more consensual nature of Dutch society strongly influenced the country's inclusive, non-judgmental and pragmatic approach to AIDS policy-making in the epidemic's early years (Sandfort, 1998; van Wijngaarden, 1992). Similarly, the cultural emphasis on social solidarity in France, a legacy of the French Revolution, allowed the country to pursue an evidence-based, somewhat non-contentious approach to the development of AIDS policy (Steffen, 1992).

Table 5. Religiosity By Country

Country	Percent of population saying religion “important in daily life”
US	65%
Australia	32%
Canada	42%
France	29.5%
Netherlands	33%
Sweden	16.5%
Switzerland	41.5%
UK	26.5%

Source: Gallup Poll

Religion and cultural values also played a role in shaping early responses. In the U.S., the comparatively high religiosity of the American public (see Table 5) and the important role played by religion in public life contributed to more moralistic approaches that discouraged more frank discussion of sexuality in U.S.-funded prevention services and prohibited strong support for needle exchange programs (Bayer & Kirp, 1992; Institute of Medicine, 1993). In Sweden, a different kind of morality – one focused on the subjugation of individual rights to those of the community at large, and

Box 2. Religion and the U.S. Response to AIDS

Although evidence is plain that the prominence of religion in American life had an important influence on the American AIDS response, the impact of religion was varied, reflected not only in the adoption of more moralistic policies but also in substantial charitable activities to provide care and support for people living with HIV. As early as 1988, a presidential AIDS commission in the U.S. observed: “Religious institutions have made unique and generous contributions in the area of patient care. Their financial liabilities in this regard are already formidable, particularly when they are supporting the care of the indigent in hospital systems” (Presidential Commission, 1988). Indeed, a number of U.S. religious groups passed formal resolutions urging tolerance and compassion with respect to people living with HIV (Institute of Medicine, 1993) and have been an important part of the AIDS response throughout course of the epidemic.

emphasizing the parental role of the state – prompted the country to depart from the norm in other high-income countries, isolating some HIV-positive people, making testing compulsory for some classes of people, and resisting frank safer sex campaigns and implementation of needle exchange (Henriksson & Ytterberg, 1992).

AIDS Hysteria

Public opinion had a critical effect on early approaches to AIDS in the high-income countries studied. AIDS is hardly the first disease to generate considerable unease (Markel, 2005), anxiety and fear of the afflicted, but how decision-makers handled public concern offers potentially important guidance for strategies to address novel health challenges that will undoubtedly emerge in the future.

Prior to the development of Highly Effective Antiretroviral Therapy (HAART), national responses in most countries were forced to address waves of public anxiety, which often resulted in uninformed or irrational fears and threatened to intensify HIV-related stigma and discrimination. In many countries, early signs that HIV could be transmitted through blood transfusions or blood products caused public fears to spike (Shilts, 1987), with concerns surfacing in many countries regarding the importation of U.S. blood (Power, 2011). In Australia, the announcement that three babies in Queensland had become infected after being transfused with blood donated by a gay men triggered profound national anxiety (Power, 2011). Media disclosure that a mentally disturbed, HIV-positive drug user in Sweden (who became known in press coverage as the “HIV man”) had previously been convicted of abusing teenage boys generated indignant press coverage suggesting that public health officials were unreasonably lax (Henriksson & Ytterberg, 1992).

Fears that AIDS would migrate through the blood supply from gay communities to the broader population prompted fears that heterosexuals would witness the exponential increases in infections that were being reported among gay men in the early years of the epidemic. Even august medical outlets, such as the *Medical Journal of Australia*, referred to AIDS in the early years by such terms as “The Black Plague of the Eighties” (Blewett, 2003). In 1985, the Royal College of Nursing predicted that as many as 1 million people would be infected in the U.K. by 1991 (Vass, 1986).

Early responses often struggled against negative public attitudes toward homosexuality. Press reports on AIDS in the early years of the epidemic sometimes referred to the disease as the “gay plague” or the “homosexual cancer” (Power, 2011). In fact, the disease was initially given the official name of GRID – Gay-Related Immune Disease – for a short time prior to AIDS (Altman, 1982). In the U.S., where sodomy laws were in place in roughly half the states when AIDS emerged in the early 1980s, 60% of individuals surveyed in 1988 professed “not much” or “no” sympathy for individuals who contracted HIV as a result of male-male sex (Blendon & Donelan, 1988). Similar media attacks on gay men surfaced in other countries, such as Australia and the U.K. (Berridge, 1996), although their ultimate impact on AIDS policies was rather minimal.

In later years, after it became clear that AIDS would not have the feared effects on general heterosexual populations, signs of a backlash emerged, with critics in some cases contending that gay men had purposely mischaracterized the risks to heterosexuals in order to attract support for AIDS programs. In the U.K., for example, the medical correspondent for the *Sunday Telegraph* decried the “AIDS con-trick,” asserting that the risk of contracting HIV in Britain was comparable to the odds of being struck by lightning (Berridge, 1996). In the U.S., investigative journalist Michael Fumento authored a controversial book in 1993 that attracted considerable media attention, *The Myth of Heterosexual AIDS: How a Tragedy Has Been Distorted by the Media and Partisan Politics*.

Governance of National AIDS Responses

All of the high-income countries studied implemented structures to oversee and guide the national AIDS response. Governance of AIDS responses has evolved over time, with several countries transitioning from HIV-specific bureaucracies to approaches that mainstreamed HIV/AIDS within broader institutional structures.

Governance & Advisory Structures

All eight of the countries studied have instituted national advisory committees, offices, strategies, or other structures to guide or inform their response. In Australia, which was one of the earliest to mount a major national effort, two national advisory bodies (the National Advisory Council on AIDS and the AIDS Task Force) were established in 1984 (Bowtell, 2005). A special cabinet committee on AIDS was created in the U.K. in 1986 (Street & Weale, 1992), and France established a National Agency for AIDS Prevention in 1989 (Steffen, 1992). In 1983, Canada created a national advisory committee to assist AIDS policy-making by the provincial governments that are in charge of health under Canada's federalist system (Lunny & Shearer, 2011). The Netherlands formed a National Committee on AIDS Control in 1984. A Swiss National AIDS Commission was formed in 1988. The Swedish government created the Swedish Council for the Coordination of Measures to Combat HIV/AIDS in 2007 (Sweden, NCPI Report, 2008).

The U.S. government formed its first Presidential advisory body in 1987, with a subsequent advisory body in created in 1989, when President George H.W. Bush established the National Commission on AIDS (Hilts, 1992). A few years later, in 1993, President Clinton established a White House Office of National AIDS Policy. A more permanent Presidential Advisory Council on HIV/AIDS was established in 1995, and it remains in place today, serving in an advisory capacity only (cite PACHA charter).

Most of the countries studied have formal strategies for their national AIDS responses, though the U.S. did not have one until 2010 (White House, 2010), the last among the eight, and Canada and the U.K. have strategies that recently ended and new ones have not yet been released (see Table 6). The Netherlands adopted a National AIDS Policy in 1987 (Van den Boom & Schabel, 1998), and Australia adopted a national AIDS strategy in 1989 (Bowtell, 2005). Currently applicable, multi-year strategies to guide national responses have been published in numerous countries, including Australia (NAPWA, 2010), France, Netherlands (Netherlands UNGASS Report, 2012), Sweden (SMI, 2012), Switzerland (Swiss Federal Office of Public Health, 2010), and the U.S. (White House, 2010).

Table 6. National HIV/AIDS Strategies in the Case Countries

Country	Year of First Strategy	Current Strategy in Place?	Period of Current or Most Recent Strategy
U.S.	2010	Yes	2010-2015
Australia	1989	Yes	2010-2013
Canada	1990	No	2005-2010
France	1988	Yes	2010-2014
Netherlands	1987	Yes	2012-2016
Sweden	2005	Yes	2006-2016
Switzerland	1987	Yes	2011-2016
UK	2001	No	2001-2011

Sources: UNGASS Country Reports, 2012; Individual country strategies

Several existing AIDS strategies establish national targets. Sweden's strategy for 2006-2016 calls for a 50% reduction in HIV incidence (SMI, 2012), while the five-year U.S. strategy aims to reduce the number of new infections by 25% by 2015 (White House, 2010).

Role of Health Ministries

National AIDS responses in high-income countries remain heavily concentrated in health ministries. In the Netherlands, for example, the Ministry of Health, Welfare and Sport has primary responsibility for developing and implementing AIDS policies and programs (Netherlands UNGASS Report, 2012). Similarly, the Swedish Institute for Communicable Disease Control strategy is the driver for AIDS policies in Sweden (SMI, 2012). Although multiple agencies play some role in AIDS-related programming in the

U.S., policy development and programmatic implementation are driven principally by the Department of Health and Human Services, which encompasses programs for HIV prevention, treatment and care.

From HIV Exceptionalism To Normalization

Public health approaches to AIDS in high-income countries were influenced by the global culture of human rights that developed in the aftermath of the Second World War, reflected in the Universal Declaration of Human Rights (United Nations, 1948). By the early 1980s, traditional approaches to disease control – focusing on routine testing, aggressive partner notification, directive treatment, and forced isolation of individuals deemed to be “recalcitrant” – were regarded by many as inconsistent with such cherished notions as individual autonomy, personal freedom, privacy, and due process of law (Baldwin, 2005). In the case of AIDS, the aversion to the more authoritarian elements of traditional public health practice was further underscored by recognition of the hostility of organized gay communities to perceived governmental repression (Smith and Whiteside, JAIDS 2010; Bayer & Kirp, 1992).

Accordingly, many of the high-income countries examined pursued what became known as an “exceptional” approach to the control of AIDS (Institute of Medicine, 1986, 1988; Bayer & Kirp, 1992; Baldwin, 2005). Although public health officials promoted HIV testing as soon as the antibody test emerged in 1985, mandatory or coercive approaches to testing were sparingly applied (see subsequent section on *HIV Testing*). Governments invested in programs to deliver HIV treatments but generally refrained from such approaches as directly observed therapy, in part due to the lack of evidence (until recently) that HIV treatment sharply reduces the likelihood of HIV transmission. While quarantine of people living with HIV was occasionally advocated (Walzer, 2002; Bayer & Kirp, 1992; Institute of Medicine, 1986, 1988), the high-income countries examined did not move formally in this direction although criminal penalties have been imposed in all high-income countries against individuals charged with transmitting HIV or recklessly exposing others to the virus (Global Commission on HIV and the Law, 2012).

While partner notification is a standard public health tool in disease control, it too has been treated exceptionally in the case of HIV, generally not mandated or required in any way, with most of the countries examined having made this practice voluntary (Lunny & Shearer, 2011), although some have taken more traditional public health approaches. Partner notification is particularly fragmented in countries with federalized governmental systems. According to a recent survey, six Canadian provinces require contact tracing and notification, five permit it to occur, and two provinces lack relevant legislation on the matter (Lunny & Shearer, 2011). Three Canadian provinces (British Columbia, Nova Scotia, and Ontario) permit public health officials to issue control orders for individuals who are determined to represent a significant risk of exposing uninfected individuals to HIV (Lunny & Shearer, 2011). A similar divergence of approaches appeared in Australia, where Queensland departed from national recommendations for non-authoritarian responses by implementing strict contract tracing (Blewett, 2003).

Sweden is something of an outlier in its public health approach to AIDS. All clinicians who diagnose HIV in Sweden are legally obligated to trace the contacts of the person newly diagnosed with HIV (SMI, 2012). Under the law, individuals diagnosed with HIV are required to provide complete information on their sexual and drug-using partners, and individuals located through contact tracing must undergo HIV testing (SMI, 2012). Swedish law obliges treating physicians to elicit information on the contacts of newly diagnosed individuals, counsel HIV-positive patients regarding safer sex, and undertake an assessment of the likelihood that the patient will adhere to safer sex norms (Henrikkson & Ytterberg, 1992). Persons deemed at risk of exposing others to the virus are monitored by health officials and required to report to officials for regular assessments (Henrikkson & Ytterberg, 1992). HIV-positive individuals deemed to be recalcitrant with respect to adherence to safer sex norms are subject to isolation (Henrikkson & Ytterberg, 1992). Individuals enrolled in the few harm reduction programs that operate in Sweden are required to undergo HIV testing every six months (SMI, 2012).

With the most serious of all epidemics in high-income countries, the U.S. has also been somewhat noteworthy in adopting an even a stronger reliance on exceptionalism for its AIDS response. This was in large part due to the strong role played by gay and other community advocates, driven by a desire to fight against perceived stigma and discrimination (see next section on “The Role of Communities and Non-

Governmental Sectors in National Responses”). In addition, the U.S. is unique among the eight in lacking universal health insurance coverage, which led to a significant gap in care access and coverage of people with HIV. As a result, policymakers set up unique systems for HIV/AIDS, such as non-name based reporting and surveillance, community-based anonymous testing sites, and HIV-specific care, treatment, and other systems and funding vehicles such as the Ryan White CARE Act (now, the Ryan White HIV/AIDS Program). The highly organized community of people affected by HIV also drove changes to the HIV drug approval process and successfully campaigned for increased HIV research investments by governments (see subsequent section on “HIV Research”).

The advent of HAART in the mid-1990s resulted in a sea change in public perceptions of AIDS in high-income countries. Increasingly, the disease is viewed as chronic and manageable in the domestic context and primarily a problem in developing countries (Power, 2011). According to a British commentator, “[AIDS] was no longer distinct from, but assimilated to, the dominant model of late twentieth century disease” (Berridge, 1996).

In most high-income countries, conscious efforts have been undertaken to “normalize” AIDS in recent years, with the goal of folding AIDS responses into mainstream health services, and also returning to more traditional public health approaches in some cases (Baldwin, 2005). In the Netherlands, the move to “normalize” AIDS began as early as 1987, with the adoption of a formal policy document to guide the national response (van den Boom & Schnabel, 1998). In Australia and the U.K., HIV-specific programs and funding streams have been mainstreamed under the broader rubric of sexual health (Bowtell, 2005). Some moves toward normalization have also occurred in the U.S., although it still maintains distinct funding streams and programs for HIV as well as substantial community advocacy focused specifically on domestic AIDS issues.

Most of the eight countries now recommend routine voluntary (opt-out) HIV screening, vs. opt-in and stand-alone HIV testing for those at higher risk or seeking such services. The most recent development in this regard is the July 2012 approval by the FDA of the first at home rapid HIV oral test in the United States (FDA, 2012). In reporting on this development, the *New York Times* stated, “The availability of an H.I.V. test as easy to use as a home-pregnancy kit is yet another step in the normalization of a disease that was once seen as a mark of shame and a death sentence” (McNeil DG, 2012). Still, despite a move toward normalizing HIV, an emphasis on consensual and voluntary approaches generally remains (Baldwin, 2005).

With normalization, however, concerns have been raised about decreasing awareness and sense of urgency about HIV as a problem. For example, in the U.S., the share of the population naming HIV/AIDS as the most serious health problem fell from 68% in 1987 to 7% in 2011 (Henry J. Kaiser Family Foundation, 2011). As stated in the U.S. National HIV/AIDS Strategy, “Our Nation is at a crossroads: the urgency associated with combating the epidemic appears to be declining as people with HIV live longer and more productive lives....Unless we take bold actions, however, we anticipate a new era of rising infections and even greater challenges in serving people living with HIV.” (National HIV/AIDS Strategy, p. 1). In the UK, concluding that “awareness of HIV and AIDS in Britain has fallen below the public radar,” an expert panel of the U.K. House of Lords urged implementation of a major new national campaign to raise HIV awareness and other efforts to reinvigorate the national AIDS response (Select Committee, 2011). In the U.K., where AIDS has been integrated into broader sexual health, a special committee of the House of Lords found that it is sometimes unclear whether the disease has been “mainstreamed” or “buried”; a major national safer sex campaign in 2009-2010, for example, did not even mention AIDS (Select Committee, 2011).

Box 3. High-Income Countries and the International AIDS Conference

As of 2012, all eight high-income countries included in this study, except Australia and the U.K., will have hosted an International AIDS Conference (IAC) since the regular meetings were inaugurated in 1985. Australia is set to host its first IAC in Melbourne in 2014. Through 1994, these international conferences were held annually, moving thereafter to a biennial schedule.

Since 1988, the International AIDS Society (IAS) has overseen the planning and implementation of the IAC, as well as other important AIDS meetings (Kallings & McClure, 2008). From its early incarnation as a unique venue for the circulation of scientific knowledge about HIV, the IAC has evolved to become the central global gathering for political leaders, the global media, community advocates, and other HIV stakeholders. As the Center for Strategic and International Studies noted, “the biannual international AIDS conferences are the largest assemblies of global health professionals focused on a single disease and among the largest regular global meetings of any kind (Bliss, 2012).

The IAC has also had important effects on the AIDS responses of hosting countries. The formal IAS policy prohibiting any country with discriminatory HIV-related travel restrictions from hosting the conference played an important role in prompting policy changes in Canada and the U.S. (as explained in greater detail in the subsequent section on “Stigma and Discrimination”).

Hosting the international conference has other important effects on host countries, as well. Planning one of the largest gatherings in the world is an extraordinarily complex affair, requiring intensive two-year planning processes that bring together national health officials, scientific experts, and community advocates, who work with conference sponsors to plan the meeting program, select plenary speakers, approve abstracts for oral or poster presentations, agree on satellite sessions, and plan community and leadership events. Through this intensive collaborative process, working relationships are forged or strengthened, leading to lasting effects on the strength and breadth of domestic AIDS responses.

ROLE OF COMMUNITIES AND NON-GOVERNMENTAL SECTORS IN NATIONAL RESPONSES

Key Findings

- Gay communities led early efforts to respond to HIV in high-income countries. In many settings, gay activists were not only motivated by the staggering toll HIV was taking within their community, but also by the desire to prevent the epidemic from causing a retrenchment in progress toward gay civil rights.
- In a number of high-income countries, the prominence of gay leadership in HIV-related civil society has diminished over time, although this phenomenon varies by country. At the same time, there has been a rise in the role played by other affected communities.
- Although early debates regarding ways to respond to AIDS were associated with difficulties between government authorities and affected communities, a successful working partnership eventually developed between governments and community groups in most high-income countries.
- Community groups have been involved in service delivery in every high-income country. In particular, community groups have been responsible for the delivery of a considerable share of prevention programming.
- As the community response has matured, it has become somewhat more “professionalized,” departing from the volunteer-driven approaches used early in the epidemic.
- Communities have proven especially influential in shaping popular perceptions about AIDS. In particular, community engagement helped decision-makers overcome their early discomfort working with gay leaders in many countries, while activists also worked with media and opinion leaders to transcend such potentially stigmatizing notions as “innocent victims.”
- The business sector, including the pharmaceutical industry, media, and other companies, has also contributed to national responses, in its capacity as an employer, a funder, and provider of services.
- In addition, philanthropy has played a key role in responding the HIV since the first decade of the epidemic. This is particularly the case in the U.S., but also in some other high-income countries.

Communities affected by HIV/AIDS have had a profound effect on national responses in all high-income countries. Indeed, it can arguably be asserted that no other health condition has matched the community-based response to AIDS in high-income countries with respect to its effectiveness and influence (Power, 2011a).

Diverse patterns of community engagement are apparent among the eight countries studied. While communities served as respected partners of government officials in most countries, in others the relationship between governmental and community actors was characterized by a greater degree of mutual suspicion. In all countries, community groups have contributed to national responses by delivering services, translating the AIDS challenge for public consumption and helping societies come to terms with the disease.

Framing AIDS

Early activism by urban gay communities in high-income countries was heavily motivated by the desire to prevent the epidemic from resulting in a rollback of civil rights gains made in previous years by the gay and lesbian community (Power, 2011a). Indeed, gay communities embraced the AIDS fight as their overriding priority in the 1980s and early 1990s (Power, 2011a).

Early AIDS activists spent considerable energy working to influence how AIDS was presented by media outlets and political leaders. For example, gay communities emphasized their commitment to reducing the spread of infection, with the aim of ensuring that gay men were seen as a solution to the public health crisis rather than the source of the problem (Power, 2011a). As one commentator observed, “Perhaps what is most remarkable . . . about the history of HIV/AIDS in Australia is the extent to which AIDS activists successfully created a platform not only to disentangle the public image of HIV/AIDS from homophobia but to challenge homophobic attitudes more generally” (Power, 2011b).

Activists argued that AIDS was fundamentally different from other health priorities, warranting infusions of major new resources. As a hidden virus transmitted through the most private of human activities, AIDS, activists argued, required an innovative response founded on a respectful collaboration with those most at risk (Bayer & Kirp, 1992).

In addition to efforts to confront homophobia and attract resources, activists also laid the groundwork for a global movement centered on people living with HIV. Gathered at a summit meeting in Denver in the U.S., AIDS activists effectively launched the People With AIDS empowerment movement, decrying the use of such terms as “victims” to describe people living with the disease. These early efforts eventually resulted in global embrace of the principle of “Greater Involvement of People living with HIV/AIDS” (Paris Declaration, 1994), as well as the establishment of national, regional and global networks of people living with HIV.

Policy Development

The early relationship between gay community organizations and public health authorities varied among the countries studied. In most countries, public health agencies quickly established working partnerships with leaders from the gay community. This was notably true in Australia (Kippax & Stephenson, 2012; Power, 2011a; Bowtell, 2005; Blewett, 2003), Canada (Rayside & Lundquist, 1992), France (Steffen, 1992); the Netherlands (van Wijngaarden, 1992), Switzerland (Kippax & Stephenson, 2012), and the U.K. (Street & Weale, 1992). In the Netherlands in the 1980s, for example, gay leaders joined with public health officials to form the National AIDS Policy Coordinating Team, which oversaw early AIDS policy development (van Wijngaarden, 1992).

In many countries where a working partnership was forged between government decision-makers and community groups, this result was achieved only following contentious give-and-take between stakeholders. Moreover, even in countries where the expertise of community groups was recognized, non-governmental and non-medical actors were sometimes marginalized in the formulation of official AIDS policy (Street & Weale, 1992).

The trajectory of the relationship between affected communities and public health agencies was mixed in the U.S. – with communities playing both an adversarial role and at times forming partnerships with authorities. In the early days of the response, the gay community perceived that the Reagan administration was hostile to its interests or concerns, making the leadership of that community openly suspicious of government authority and public health officials and their intentions. While some of the early enmity between affected communities and government decision-makers in the U.S. has endured to a degree, it was mitigated somewhat by the federal government’s establishment in the 1990s of formal community planning bodies to help articulate HIV care and prevention priorities at the state and local level.

Advocacy

In all high-income countries, affected communities led advocacy efforts to influence and strengthen national AIDS responses. In Australia, for example, grassroots activists played a vital role in pressuring

governments to acknowledge and tackle the AIDS problem in the epidemic's early years (Bowtell, 2005; Blewett, 2003). The same was true in Sweden, where early advocacy was spearheaded by the Swedish Federation for Gay and Lesbian Rights (Henriksson & Ytterberg, 1992). In the U.S., the leading AIDS service organizations in major cities joined together in the 1980s to establish an AIDS lobbying organization in Washington DC, which played a leading role in Congressional enactment of the Ryan White CARE Act and speeding the process for drug research and regulatory approval (see section below on "HIV/AIDS Research").

Service Provision

New York City's Gay Men's Health Crisis (GMHC) is believed to be the first AIDS service organization ever established, founded as a self-help group by five gay men (Shilts, 1987). The GMHC model was widely emulated – both in the U.S. and in other high-income countries – resulting in the establishment of community-based AIDS service organizations in many cities in Australia, North America and Western Europe. In particular, GMHC's "buddy program," which provided practical day-to-day life support for people living with HIV, was adapted in other settings, such as the Netherlands (van den Boom & Schnabel, 1998) and Sweden (Henriksson & Ytterberg, 1992).

In the U.K., the AIDS-related death of a 17-year-old computer programmer, who was cared for by nurses who donned double barriers, provoked such outrage that his name was attached to the first and most prominent of British community organizations, Terence Higgins Trust (Berridge, 1996). Community activism in Australia led to establishment of AIDS Action Committees at the state and territorial levels (Bowtell, 2005), with a similar pattern evident in the founding of community-based AIDS organizations in Toronto and Vancouver in 1983 (Rayside & Lundquist, 1992).

Over time, the volunteer-driven model of AIDS service organizations gave way to greater professionalization within community-based agencies (Berridge, 1996; Ballard, 1992). This resulted in occasional schisms within affected communities, with friction developing between institutionalized service agencies and more radical community activists. Although approaches between these factions often differed, commentators suggest that few genuine policy or philosophical differences emerged on AIDS issues at the community level in high-income countries.

Community groups have often played a service delivery role in numerous aspects of the response, such as treatment education, patient navigation, psychosocial support, and adherence support. However, community-based services have been most prominent in the prevention arena, with substantial funding often provided by national, state/provincial and local governments. Community activists first conceptualized the notion of "safe sex" (Rayside & Lundquist, 1992), and community workers were often pivotal in the establishment of many of the first needle and syringe projects. Governments in high-income countries have provided extensive support to community organizations to develop and deliver prevention strategies. In the Netherlands, for example, AIDS-related government subsidies to community groups amount to roughly \$12.6 million (Netherlands UNGASS Report, 2012). In 2010-2011, more than 43,000 members of high-risk groups in Canada were reached through community-based prevention education outreach supported by contributions from the AIDS Community Action Program (Canada UNGASS Report, 2012). In the U.S., a substantial share of HIV prevention funding through the CDC is channeled through community-based organizations, as is funding through the Ryan White HIV/AIDS Program.

Community Activism

Several countries witnessed the emergence of radical activist movements that challenged the more consensual or service-oriented approaches of early community efforts on AIDS. In some countries, community activism on AIDS also exhibited a schism between more so-called "pragmatic compromisers" and more confrontational activists who were suspicious of community leaders who worked collaboratively with government decision-makers (Blewett, 2003).

Among the more aggressive grassroots efforts, most noteworthy, perhaps, was the AIDS Coalition to Unleash Power, or ACT UP, in New York City in 1987 (Bayer & Kirp, 1992). Created at the urging of one of the original founders of GMHC, the writer Larry Kramer, ACT UP became well-known for its street theatre, which brought the horrors to AIDS to the general public through demonstrations, die-ins and

protests at New York's St. Patrick's Cathedral. Although best known for its street actions and angry demands for stronger action on AIDS, ACT UP schooled countless treatment activists in the nuts and bolts of HIV clinical research, eventually leading to critiques that gave rise to far-reaching reforms of clinical testing and drug approval in high-income countries.

ACT UP chapters spread throughout the world, providing platforms for community organizing on AIDS issues. In many cities, including its original location of New York City, ACT UP chapters divided on philosophical and strategic questions, with particular severe splits between those who desired to maintain ACT UP's historic focus of getting "drugs into bodies" and others who sought to extend the group's work to other HIV-related issues, such as access to housing or social services (Gould, 2009).

Although ACT UP membership declined over the years, it left a lasting impact on AIDS responses in high-income countries. ACT UP activists played critical roles in reforms at the National Institutes of Health and the Food and Drug Administration to speed testing of HIV drugs and to allow compassionate use of unapproved medicines. Today, these reforms benefit patients with a host of other conditions for which approved drugs either do not exist or are in short supply (American Cancer Society, 2011). ACT UP chapters remain active in several countries, with ACT UP Paris playing an especially visible role on global AIDS issues.

ACT UP was certainly not the only example of radical AIDS activism that influenced national responses. In Canada, for example, the failure of the national government to mount a more effective response by 1988 prompted a radicalization of community advocates, who staged a major protest at the National Conference on AIDS (Rayside & Lindquist, 1992).

Celebrities

In the early days of the epidemic, leading figures in the entertainment and sports fields largely steered clear of discussing AIDS. Over time, celebrities became highly visible on AIDS issues, helping increase public awareness and supporting the mobilization of resources for HIV research, prevention, care and treatment.

Actress Elizabeth Taylor was the earliest major celebrity to become active in AIDS causes, serving as the spokesperson for the American Foundation for AIDS Research (Shilts, 1987). In subsequent years, other entertainment figures, including Madonna and actress Sharon Stone, worked to increase AIDS awareness. Recording artist Elton John went so far as to found a foundation that continues to provide financial support for community-based HIV/AIDS programs. In recent years, recording star Lady Gaga has promoted safer sex as a way to avoid HIV infection (Scott, 2010).

Celebrities living with HIV played critical roles in raising awareness of the disease. In the epidemic's first decade, the disclosure in 1985 that actor Rock Hudson had been diagnosed with AIDS and his death shortly thereafter riveted the public and called attention to a disease that had previously generated limited public concern (Shilts, 1987). Other AIDS-related celebrity deaths – such as French philosopher Michel Foucault and British rocker Freddie Mercury – similarly generated extensive media coverage regarding the epidemic.

In the U.S., the disclosure in 1991 by basketball legend Magic Johnson that he had tested HIV-positive had a profound effect on public attitudes and drew attention to the fact that AIDS not only affected homosexuals, but could also spread heterosexually (Harden, 2012). Research indicated that Johnson's disclosure raised knowledge about AIDS and impacted sexual behaviors, especially in the United States. According to one study of attendees at a Philadelphia STD clinic, news that Johnson had tested positive resulted in measurable increases in safer sexual behaviors, with particularly notable changes among those at highest risk (Langer et al., 1992). Similar results were reported in a separate STD clinic study in the U.S. state of Maryland (CDC, 1993).

Business Sector

The business sector, including the pharmaceutical industry, media, and other companies, has also contributed to national responses, in its capacity as an employer, a funder, and provider of services,

although much less has been written about private industry's involvement in national AIDS responses in high-income countries than about other sectors. In the U.S., the federal government in 1992 launched "Business Responds to AIDS", an initiative to encourage companies to develop HIV policies, deliver HIV prevention education for workers, and support their workers to become engaged in HIV-related community initiatives (CDC, 1992).

Businesses have provided important financial support for community-based HIV services. Pharmaceutical companies have played especially noteworthy roles in this regard, with numerous manufacturers of HIV medicines providing philanthropic support for non-governmental HIV organizations. In 2010, U.S.-based pharmaceutical companies disbursed \$109 million in support for HIV-related programs (Funders Concerned About AIDS, 2011). Media companies have also played an important role in using their assets to reach communities at risk with prevention and other messages, such campaigns in the U.S. developed by MTV and BET, in 1996 and 1998, respectively, both in partnership with the Kaiser Family Foundation, and the Greater than AIDS Campaign, which includes 20 media company partners (Henry J. Kaiser Family Foundation Health Communication & Media Partnerships).

Finally, businesses have also played a role as employers, promoting testing for HIV, and exploring and offering more comprehensive insurance mechanisms for employees; one example being the clothing company Levi-Strauss (Levi-Strauss HIV/AIDS).

Philanthropic Sector

No history of the AIDS response in high-income countries would be complete without recognition of the important role played by private foundations. In the U.S., for example, critical early leadership on AIDS was provided by the American Foundation for AIDS Research (amfAR), which was established in 1985 by a merger of two pre-existing foundations (Shilts, 1987). As early as 1983, some foundations began providing grants in New York and San Francisco (Funders Concerned About AIDS, 2003). In 1986, the Robert Wood Johnson Foundation was one of the first private foundations to include AIDS programs in its annual budget, funding early care models that were precursors to the nation's Ryan White program, and which helped to bring other foundations into the field (Funders Concerned About AIDS, 2003). By the next year, several others began to support HIV/AIDS efforts in the U.S., and a coalition of foundations came together to form "Funders Concerned About AIDS (FCAA)", dedicated to bringing philanthropic attention to the AIDS crisis (www.fcaids.org), which continues today.

Philanthropies have been influential players in national responses in other countries, as well. The U.K.'s Terrence Higgins Trust was among the earliest of all AIDS charities, established in 1982 (Berridge, 1996). Also early in the epidemic in the U.K., the Wellcome Trust rescued a critical sexual behavior survey that had previously been squelched by the Thatcher government (Berridge, 1996). The AIDS Trust of Australia raises funds nationally for the HIV sector in that country (AIDS Trust of Australia).

The role of philanthropy in AIDS is especially relevant in the American context. In part, the greater prominence of private philanthropy in American life stems from U.S. tax laws, which much more significantly subsidize charitable contributions by individuals and registered private philanthropies, compared to many other high income countries. On average, Americans give a substantially greater share of their incomes to charities than Europeans (3.5 times more than the French, for example) and are also considerably more likely to donate their services to community organizations (Brooks, 2008).

In the U.S., philanthropic support for HIV-related programs rose from \$216,000 in 1983 to \$459 million in 2010 (Funders Concerned About AIDS, 2011). The U.S. is home to the world's largest foundation, the Bill & Melinda Gates Foundation, which disbursed \$215 million for HIV-related activities in 2010, although all of its HIV funding is targeted to the international epidemic (Funders Concerned About AIDS, 2011). In fact, most (78%) of U.S. philanthropic disbursements in 2010 addressed the international epidemic, with total funding for HIV activities in the U.S. declining by 10% in comparison to 2009 (Funders Concerned About AIDS, 2011).

There are signs that philanthropic support for HIV may be flagging, perhaps in response to the global financial and economic downturn, which has diminished the endowments of many foundations. In 2010,

U.S.-based philanthropies contributed 7% less for HIV-related activities than in 2009 (Funders Concerned About AIDS, 2011).

Evolution of Community Responses over Time

While gay men were central to early community responses, a gradual “de-gay” of the community response occurred in some countries. This was especially notable in the U.K., as institutional responses were “mainstreamed away from the gays” (Berridge, 1996). This is less the case in countries where MSM continue to account for the large majority of cases, such as Australia or the U.S.

As national epidemics have come to affect a growing array of populations, other communities have developed more directed responses, but have occasionally struggled to mount robust community action. In the U.S., for example, the best-funded AIDS organizations remain centered in mainstream gay communities, with limited community capacity apparent to address needs specific to Black gay men, the sole population in which HIV infections are significantly increasing (Black AIDS Institute, 2012). Still, there has been a growing role played by groups focused on the epidemic’s impact in the Black community as well as among women (Friday et al., 2001; Mayer et al., 2012)

In the Netherlands, community responses have long extended beyond the gay community. In the early years, for example, the National Federation of Junkie Unions played an important role in building support for harm reduction programs (Sandfort, 1998). In New South Wales in Australia, the provincial government funded the creation of the country’s first organization of drug users, a step that was followed by other states and territories (Bowtell, 2005).

HIV SURVEILLANCE & TESTING

Key Findings

Surveillance

- Surveillance policies in the eight countries are to a large degree functions of each nation's health care system and approach. France, for example, adopted national HIV reporting in 2003 and the U.S. only moved to nationwide reporting from all states in 2008. .
- Surveillance was initially based on diagnoses of AIDS but shifted to HIV infection as HIV diagnostic tests became available. All countries studied now monitor cases of HIV as a primary surveillance tool. Even so, AIDS diagnoses remain reportable in all countries except Sweden, although its value for policy-makers has diminished over time.
- Early AIDS responses in many countries were characterized by fierce resistance to named reporting from MSM. This resistance diminished over time.
- Countries continue to struggle with the problem of undiagnosed infection, with rates of undiagnosed infection ranging from 20% to 40%. The undiagnosed infection rate in the U.S. is lower than that of many high-income countries.

Testing

- HIV testing has been a key part of the HIV response in all countries but to differing degrees over time. In the early years, only two – Sweden and the U.S. – prioritized HIV testing as a strategy for HIV prevention, but all countries now recognize the prevention value of testing.
- Among the countries studied, Sweden and the U.S. were outliers in their reliance on mandatory HIV testing programs in certain programs or populations as an early HIV strategy.
- In most countries, affected communities were initially hostile to testing, and the progressive dissipation of this hostility has varied (with continued suspicions especially notable in such countries as the U.S. and Netherlands), although since the advent of treatment, virtually all countries have taken steps to promote HIV testing. Still, nearly all countries have offered some form of anonymous testing alternative.
- While most of the countries examined routinely screen high-risk populations, several have also moved to routinize HIV screening in health care settings in recent years, although this formal recommendation has been imperfectly implemented.

All high-income countries have made collecting and using strategic information about HIV and AIDS a priority. Still, approaches have differed among and within countries, and have changed over time. In the HAART era, the importance of timely knowledge of HIV status has resulted in an expansion of the focus areas of public health surveillance.

HIV and AIDS Case Surveillance & Reporting

Recognizing that sound public health information is essential for an effective response, high-income countries have invested substantial resources toward HIV/AIDS surveillance and other HIV-related monitoring systems. While there are many commonalities across the eight countries in their approaches to surveillance, there are differences, primarily due to the level of federalism and decentralization of public health within each.

Relatively soon after the first reported AIDS cases, most high-income countries implemented AIDS case reporting and surveillance. Sweden became the first country to make AIDS a notifiable disease, in March 1983, and the U.S. made AIDS notifiable in 1984 (Baldwin, 2005; CDC, 1999), though it was not until 1986 that all states in the U.S. had instituted AIDS reporting.

Routine reporting of HIV and AIDS cases is now well accepted in high-income countries, but early proposals for HIV surveillance generated considerable community opposition. In the U.S., for example, gay leaders fiercely resisted proposals to use name-based reporting of all people testing HIV-positive to state and local health departments (Bayer & Kirp, 1992). Today, all eight of the high-income countries examined here conduct routine HIV and AIDS surveillance (with the exception of Sweden which no longer conducts AIDS surveillance), although they implemented reporting at different times and have, in some cases, taking varying approaches.

HIV surveillance in the eight countries is primarily based on reports provided by the physicians, laboratories, hospitals, or other providers administering HIV tests. Provider reports are collected by state or provincial officials, who then submit aggregate data to national surveillance agencies (CDC, 2012c; SMI, 2012; Kirby Institute, 2011; Health Protection Agency, 2011; Public Health Agency of Canada, 2010; European Center for Disease Prevention and Control, 2011). In more federalized countries, where public health functions are typically under the purview of states or provinces, HIV/AIDS surveillance has often proved challenging to implement in a uniform and cohesive manner. For example, while AIDS case reporting was generally adopted by high-income countries early on, it took longer for regional units in federalist systems, such as the United States, to report; it was not until 1986 that all states had instituted AIDS reporting (See CDC). As AIDS cases have become less useful for tracking the disease (since more people are living longer with HIV, without a diagnosis of AIDS), in one country – Sweden – AIDS ceased being notifiable in 2005 (SMI, 2012).

HIV case reporting started in some countries soon after HIV was first identified, but took longer in others and the issue of name-based HIV reporting was controversial in several countries. For example, while the U.K. began national HIV reporting in 1984 and Sweden and Switzerland began in 1985, reporting began at the regional level only (for some regions) in France in 1988 (Infuso et al., 2000). France moved to national HIV reporting in 2003 (European Center for Disease Prevention and Control, 2011). In the Netherlands, which began tracking HIV cases in 1989, data regarding HIV-infected individuals are collected as part of routine health care for HIV patients (Netherlands UNGASS Report, 2012). HIV reporting began in Australia in 1989, and national reporting in 1993, though Australian states and provinces have authority for surveillance and moved to HIV reporting at different times (Australian Department of Health and Aging, 2004). However, name-based HIV reporting was resisted in Australia at the time (UNAIDS, 2000).

In the U.S., while some states began reporting HIV in 1985, others resisted due to community concerns regarding potential breaches of privacy and amid questions regarding the utility of tracking HIV diagnoses. In addition, there were controversies surrounding the use of name-based HIV reporting, with strong resistance on the part of the community and some states (even those that had non-name based HIV reporting) for many years. It was only in 2008 that all U.S. states and territories implemented HIV name-based surveillance (CDC, 2012c). Likewise, while HIV reporting began in Canada in 1985, it was not until 2003 that all Canadian provinces and territories made HIV notifiable (Public Health Agency of Canada, 2010).

HIV reporting (by physicians, labs, hospitals, etc.) is mandatory in three of the countries examined here – France, Sweden, and Switzerland – but voluntary in the five others. Different approaches have also been adopted in an effort to prevent duplication of reported cases. For example, while the U.S., Canada, and Australia rely on named HIV reporting, and the Netherlands on data from registered patients, France uses an anonymous code to identify newly diagnosed individuals (Haute Autorite de Sante, 2009).

Finally, as routine HIV surveillance captures only individuals who have been diagnosed with HIV, epidemiologists have worked to undertake surveys that supplement information on key populations, using

such venues as health care settings, correctional systems, or other convenience samples, including gay bars or Gay Pride marches to obtain data (Janssen et al., 1992; Bureau of Justice Statistics, 2010; CDC, 2005c). Behavioral surveillance is also common in high-income countries (CDC, 2012d; Canada UNGASS Report, 2012). In addition, most high-income countries conduct surveillance to monitor drug resistance or variant HIV subtypes (U.K. Collaborative Group on HIV Drug Resistance, 2012; CDC, 2012e; Kirby Institute, 2011; Ji et al., 2010; Public Health Agency of Canada, 2006) and increasingly, surveillance systems are collecting data relevant to HIV-related care and treatment outcomes (Institute of Medicine, 2012; UNGASS UK Report, 2012). In the U.S., for example, 33 of 59 jurisdictions (i.e., states, territories, specific municipalities) were reporting all CD4 and viral load tests (Institute of Medicine, 2012). As evidence has grown that antiretroviral treatment promotes HIV prevention, increased attention has turned toward monitoring community viral load. In 2010-2011, CDC awarded more than \$12 million in funding to state and local health departments to support electronic lab reporting to facilitate monitoring of community viral load (CDC, 2012e).

HIV Testing

The first licensed HIV tests became available in 1985, shortly after the etiological agent, HIV, had been identified (Henry J. Kaiser Family Foundation Global HIV/AIDS Timeline). As the gateway to HIV care and treatment, HIV testing since that time has served as a central focus for national AIDS responses, though perceptions of HIV testing have evolved over the course of the epidemic.

Early calls for widespread mandatory testing were, for the most part, rejected by high-income countries, except in certain cases. However, knowledge of HIV status continues to be a challenge in all countries, and approaches to testing, including the priority accorded efforts to promote knowledge of HIV status, have varied among high-income countries. In particular, important differences have emerged among and within high-income countries regarding the value of testing for HIV prevention – differences that are now beginning to shift in light of new evidence of the prevention benefit of early antiretroviral therapy. For example, whereas the U.S. has long prioritized HIV testing as a cornerstone of effective prevention, Dutch officials were traditionally more skeptical of the value of testing in fostering behavior change (van Wijngaarden, 1992).

Gay communities were typically hostile to HIV testing during the epidemic's early years, with community leaders warning gay men to avoid testing due to the absence of treatment and the risks of discrimination (Kippax & Stephenson, 2012; Hoppers & Blom, 1998; Van Wijngaarden, 1992; Shilts, 1987; Henriksson & Ytterberg, 1992). High-income countries have offered and promoted free HIV testing and counseling, with an emphasis on voluntary, informed consent, and, due to stigma and fears of HIV discrimination, most have allowed testing to be accessed anonymously (AIDS-Hilfe Schweiz, 2012; SMI, 2012; Australian Society for HIV Medicine, 2011; Lunney & Shearer, 2011; Public Health Agency of Canada, 2010; Van Veem, 2007; Flori et al., 2006; Bowtell, 2005; Steffen, 1992). This anonymous testing approach, which complicated efforts to track the disease and institute public health measures such as partner notification, represented a change from the typical public health approach to communicable disease control for most high-income countries (Baldwin, 2005). (Follow-up partner notification following a positive HIV test result is discussed in the earlier section on "Evolution & Governance of Official National AIDS Responses").

In most of the eight countries studied, HIV testing services were historically delivered in dedicated testing sites and in primary care settings (Delpierre, 2007). In the U.K., for example, HIV testing services were concentrated in sexual health clinics (GUMS clinics) (Select Committee, 2011), while the U.S. government funded a national network of voluntary counseling and testing centers.

Even as most high-income countries have rejected calls for mandatory HIV testing, all screen blood and organ donors and a subset use mandatory testing in other cases. In the U.S., the Reagan administration implemented mandatory testing in numerous federal programs, including the military, the foreign service, and the U.S. Job Corps, a vocational training program for low-income adolescents. Today, there continues to be mandatory testing in the U.S. for military applicants and active duty personnel, prison inmates in certain circumstances, and newborns in some states (Henry J. Kaiser Family Foundation, 2012c). In Sweden, partners of individuals newly diagnosed with HIV are required by law to undergo HIV testing (Sweden UNGASS Report 2012).

Changing Views and Role of HIV Testing

Over time, the range of venues at which testing services are available has expanded. Channels for HIV testing services include increased use of mobile testing services and the placement of testing in other service and community settings (CDC, 2011a). Routine HIV testing is generally offered to TB and STI clinic patients, pregnant women, and/or prisoners in most of the eight countries (HIV Medicine, 2008, 9 Suppl. 2). Home-based testing has been approved for use in the U.S. (FDA, 2008), and in July 2012 the FDA approved the first at home rapid HIV oral test (FDA, 2012a). In 2011, a Select Committee of the House of Lords recommended that the U.K. repeal its prohibition on the marketing of home HIV testing (Select Committee, 2011). In Australia, home-based self-testing kits are available for purchase over the Internet from overseas manufacturers, but home testing is specifically excluded from approved testing methods under the country's official HIV testing policy, revised in 2011 (Australasian Society for HIV Medicine, 2011). Switzerland has not approved the use of home-based testing (AIDS-Hilfe Schweiz, 2012).

With the greater "medicalization" of national responses stemming from the emergence of HAART in the mid-1990s, high-income countries increased their emphasis on the promotion of early testing (Haute Autorité de Santé, 2009; van Veen, 2007; Bayer & Fairchild, 2006; Berridge, 1996). The Netherlands implemented a policy of active promotion of testing in 2002 (Netherlands UNGASS Report, 2012). In 2003, the U.S. adopted an HIV prevention strategy that prioritized knowledge of HIV serostatus. In some countries, such as the Netherlands, there is evidence that testing is becoming more common (Stichting HIV Monitoring, 2011).

As part of the move toward the normalization and mainstreaming of HIV testing, clinical settings have come to play an increasing prominence in the delivery of HIV testing services, with clinical settings accounting for 90% of tests performed under a 25-jurisdiction testing promotion initiative implemented by CDC in the U.S. (CDC, 2011c; see CDC, 2004). On the basis of research data demonstrating that risk-based targeting of testing services fails to reach a considerable share of people living with undiagnosed infection, the U.S. government now recommends that patients in all health care settings be offered in all health care settings (CDC, 2006c). In 2011, the U.K. National Institute for Health and Clinical Excellence published guidelines recommending the development of local strategies to increase testing uptake among MSM and blacks, which led public health officials to assert that patients in general medical settings and new registrants in primary care should routinely be offered HIV testing (Health Protection Agency, 2011). The Netherlands has also sought to routinize HIV testing in health centers, although such efforts remain targeted to specific populations at high risk (Netherlands UNGASS Report, 2012). A 2010 study in France also found that routine HIV screening would represent a cost-effective public health measure to increase survival (Yazdanpanah Y et al. (2010). The World Health Organization and the European HIV/AIDS Surveillance Network also recommend routine HIV screening in health care settings (UNAIDS & WHO, 2004; European Center for Disease Prevention and Control, 2010).

All high-income countries have prioritized efforts to reduce the number of people with undiagnosed HIV infection. People who are diagnosed late in the course of infection are at greater risk of HIV-related morbidity and mortality (May et al., 2011). In addition, undiagnosed infection facilitates the continued expansion of national epidemics. In the U.S., individuals who are unaware of their HIV infection are 3.5 times more likely to transmit HIV than individuals who have tested HIV-positive (Marks et al., 2006).

Estimates of the percentage of HIV-infected people who remain undiagnosed vary among the countries examined. Estimates of the HIV-infected but unaware in the eight countries are lowest in Australia and Sweden (15%) and highest in the Netherlands (40%). In the U.S., 18.1% of those infected with HIV are estimated to be unaware (CDC, 2012f) (see Table 7).

Table 7: Percent of HIV-Infected Persons Unaware of Infection in Case Countries

Country	Percent
U.S.	18%
Australia	15%
Canada	26%
France	33%
Netherlands	40%
Sweden	15%
Switzerland	25%
U.K.	24%

Sources: UNGASS Country Reports for all but U.S. (CDC, 2012f) and Yazdanpana Y et al., 2010.

HIV PREVENTION

Key Findings

- Although the process of forging prevention policy was seldom simple or straightforward in the early years of the epidemic, most countries (e.g., Australia, Canada, Netherlands, Switzerland, U.K.) adopted a “pragmatic” approach to prevention, overriding “moral” concerns to support evidence-based risk reduction measures. Sweden and the U.S. are notable exceptions to the pragmatic approach, in that overtly “moral” concerns have often trumped pragmatic approaches with respect to HIV prevention strategies in these countries. For example, both were resistant to adopt needle exchange programs despite scientific evidence of their effectiveness.
- Most countries implemented some form of general public awareness campaigns in the 1980s, due to fears about a generalized epidemic, but then moved to more targeted approaches.
- Most countries have long promoted condom use for HIV prevention, although the Netherlands was quite late in adopting a pro-condom stance, investing instead in an early strategy that aimed to encourage MSM to avoid all penetrative sex. While some countries (e.g., Switzerland) have aggressively highlighted condoms in their HIV prevention campaigns, other countries adopted quieter or more euphemistic strategies due to fear of negative publicity. In the U.S., where HIV prevalence is highest among the countries studied, condom advertisements are effectively absent from mainstream television.
- Major gains have been achieved in preventing new infections among people who inject drugs, although the receptivity of high-income countries to a harm reduction approach for prevention of drug-related transmission has varied considerably.
- The near-elimination of mother-to-child transmission in high-income countries represents one of the great prevention success stories of the AIDS epidemic.
- Routine blood screening has virtually eliminated the risk of HIV transmission through the use of blood products in high-income countries, although delays in implementing routine screening exposed thousands of people to infection in the mid-1980s. Countries have adopted different strategies with respect to the ability of MSM to donate blood.
- As a general rule, access to prevention services is limited or non-existent in prison settings in the eight high-income countries, although some correctional settings have taken pro-active steps to protect prisoners from HIV transmission.
- As the epidemic has evolved and early fears of a generalized epidemic have given way to recognition of the epidemic’s primary impact in discrete populations, funding for prevention has flattened or declined. In every country where relevant information is available, prevention funding accounts for a tiny fraction of overall HIV spending.
- As prevention spending has stagnated or declined, progress in reducing new infections has stalled or reversed in many countries, primarily due to increases in infections among MSM. Numerous countries report that substantial percentages (sometimes a majority) of MSM engage in unprotected anal intercourse.
- Available evidence has correlated the magnitude of prevention spending with HIV incidence, suggesting that lack of recent progress in reducing new infections in high-income countries may stem in large part from the low priority accorded prevention services.

- **Growing evidence over time, bolstered by clinical trial results in 2011, have provided strong evidence of the prevention benefits of antiretroviral therapy, encouraging some public health agencies to revise their approach to HIV prevention.**
- **The degree to which other antiretroviral-based prevention tools [e.g., pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP)] have been implemented varies across the countries examined. In July 2012, the U.S. FDA formally approved the use of an antiretroviral for PrEP, which is likely to set a new standard going forward.**

Almost without fail in high-income countries, gay communities, not public health authorities, drove early efforts to slow the spread of infection. Gay communities conceptualized the notion of “safe sex” in the early 1980s and began promoting condoms to reduce the risk of HIV transmission (Kippax & Stephenson, 2012). Largely because of the role of the gay community, many high-income countries saw their HIV infection numbers drop by the end of the epidemic’s first decade. Similarly, injection drug users devised early efforts to reduce risk by cleaning used syringes with bleach (Kippax & Stephenson, 2012).

Most of the high-income countries studied here only began ramping up HIV prevention programming several years after the epidemic was first identified (Bayer & Kirp, 1992). Even as new AIDS cases and deaths were increasing exponentially in the U.S. in the epidemic’s first several years, federal funding for HIV prevention activities at CDC was only \$62 million as of Fiscal Year 1986 (Johnson, 1993). In the U.S., substantial federal funding for HIV prevention services was implemented only late in the 1980s (CDC, 2011d), although various state and local health departments (e.g., New York, San Francisco) had initiated funding for community-based prevention programs much earlier.

Experience in high-income countries is often cited as the first clear example of the effectiveness of HIV prevention efforts. However, prevention gains in some countries have not been fully sustained in the HAART era, with increases in risk behavior and new infections especially occurring among MSM. Prevention responses have also varied across these countries, with some adopting pragmatic strategies that aimed to reduce risk while demanding minimal changes to individual lifestyle, and others pursuing more moralistic approaches, de-prioritizing or avoiding altogether evidence-based interventions that were deemed to violate social norms or criminal laws.

Over time, HIV prevention methods and strategies have evolved, as additional evidence has emerged regarding effective approaches. Most recently, evidence that antiretroviral treatment is highly effective in reducing the risk of sexual transmission has generated considerable interest, diminishing the salience of the longstanding separation of treatment and prevention initiatives in many countries. However, in general, prevention policy and programs remain bureaucratically distinct from care and treatment in many high-income countries, including the U.S.

Even as the number of new infections has remained stubbornly persistent or even risen in high-income countries, total outlays for HIV prevention have paled in comparison to those for HIV treatment and care. HIV prevention efforts represent just 3% of total U.S. spending on AIDS (Henry J. Kaiser Family Foundation, 2012) and less than 0.5% of HIV-related spending in the U.K. (Select Committee, 2011). In 2011, funding for HIV prevention services in the London metropolitan area was reduced by 20% (Select Committee, 2011).

The limited spending accorded HIV prevention has potentially important implications for national epidemics and may help explain why high-income countries have been unable to lower the number of new infections in recent years or even experienced a resurgence of HIV transmission. An analysis in the U.S. found a close correlation between federal prevention spending and HIV incidence (Holtgrave & Kates, 2007).

Pragmatism and Ideology

Among the countries studied, a noticeable split is apparent in their national approaches to HIV prevention, with countries dividing between those that pursued pragmatic, outcome-oriented efforts and those that prioritized more moralistic or ideological approaches.

Especially in the epidemic's first decade, prevention policy in the U.S. was heavily affected by moral disapproval of homosexuality (Kleinman, 1988). Linking disease with sin, the Secretary of Education under President Ronald Reagan asserted that AIDS demonstrated how "harsh nature becomes the unwitting ally of responsible morality" (Allen, 2000). Angered by a playful, sexually explicit safe-sex brochure produced by the Gay Men's Health Crisis with private donations (as public dollars were largely unavailable for gay-focused prevention programming at the time), United States Senator Jesse Helms pushed through legislation in the U.S. Congress in 1987 that prohibited use of federal dollars to "promote or encourage, directly or indirectly, homosexual sexual activities" (Allen, 2000). Although the so-called "no homo promo" prohibition would be replaced in the 1990s by a reliance on community advisory bodies to determine the appropriateness of federally funded prevention materials, the Helms amendment had a dampening effect on community-focused prevention efforts, as community prevention workers self-censored to avoid the danger of governmental sanctions. The U.S. Institute of Medicine formally opposed efforts to limit prevention efforts, stating the need for such efforts to be based on evidence (Institute of Medicine, 1986, 1988; Lusenhop, 2012).

A different kind of moralism – one less associated with organized religion but linked instead to communitarian instincts – emerged to influence AIDS policy in Sweden. There, communitarian notions that elevated collective concerns over individual rights held sway, resulting in an emphasis on the individual duty to disclose one's HIV infection and resistance to implementation of needle exchange or sexually explicit prevention programming (Henriksson & Ytterberg, 1992).

In other high-income countries, by contrast, more pragmatic approaches were adopted, although sometimes not without considerable public debate and controversy. From the outset, Australia aggressively promoted safer sex through direct and explicit prevention programming (Bowtell, 2005). In the U.K., the government's early concerns about sexually explicit prevention messages were eventually overcome, permitting government support for frank prevention messages for gay men (Berridge, 1996). Likewise, the U.K. was a relatively early innovator with harm reduction programs for drug users (Berridge, 1996).

Promotion of Safer Sex

High-income countries have encouraged adoption of practices that reduce the risk of sexual transmission, typically focusing on populations at elevated risk of infection (SMI, 2011; Swiss Federal Office of Public Health, 2010). In nearly all high-income countries, promotion of safer sex has taken the form of promoting correct and consistent use of condoms during sex. Less consistent support has been provided for efforts to encourage people to reduce their number of sexual partners, with gay leaders in the early years often regarding such efforts as an assault on sexual freedom (Henriksson & Ytterberg, 1992). While promotion of safer sex would serve as a centerpiece of HIV prevention efforts, these approaches were often subject to intense and unrelenting criticism (Blewett, 2003).

A notable exception to the emphasis on condom use in the early years was the Netherlands, which adopted safer sex strategies that sought to encourage men to avoid anal intercourse altogether. The so-called "double message" of safer sex programs for Dutch gay men advised: "Avoid anal sex. If you can't avoid anal sex, use special condoms" (Hospers & Blom, 1998). Early safer sex messages in the Netherlands advised gay men that condoms were not 100% safe (Hospers & Blom, 1998), an approach that differed from other high-income countries at the time. By the early 1990s, safer sex efforts in the Netherlands had evolved to encompass skills training on the proper use of condoms (Hospers & Blom, 1998).

Even in countries where public health authorities promoted condom use as a principal means of preventing HIV transmission, struggles emerged regarding how visible condoms should be in television advertising and public health campaigns. While Switzerland has long blanketed public spaces with

images that depicted condoms (with a condom serving as the “O” in the country’s “Love Life” logo) (Swiss Federal Office of Public Health, 2005) and France enacted legislation in 1987 permitting advertising for condoms for disease prevention (Steffen, 1992), other countries were sometimes more cautious. Early AIDS awareness advertising in the U.K., for example, was rather elliptical in its messaging, although accompanying brochures frankly discussed risks associated with anal and oral sex as well as the need to use condoms (Street & Weale, 1992). Television advertisements for a condom promotion campaign sponsored by the U.S. government in the 1990s aired only in the early morning hours, when few TV viewers remained awake. Indeed, it was 2005 before the first condom ad appeared on American network television during prime-time evening viewing hours (Noe, 2005).

Whether to use fear as a motivation to adhere to safer sex recommendations has sharply split prevention policy-makers over the years. Perhaps the most well-known national awareness campaign along these lines was Australia’s campaign in 1987, which displayed images of the Grim Reaper mowing down families with a bowling ball. Sweden also used fear as a primary motivator for behavior change in its early prevention programs, with one advertisement advising: “Love can make you crazy . . . HIV can make you dead” (Henriksson & Ytteberg, 1992). Switzerland, by contrast, has studiously avoided fear-based scenarios in its efforts to promote AIDS awareness and safer sex (Swiss Federal Office of Public Health, 2012). Likewise, the Netherlands rejected fear-based campaigns from the outset, focusing AIDS education efforts on factual descriptions of what was known and not known about HIV transmission (van Wijngaarden, 1992).

One of the thorniest issues to emerge in the epidemic’s first decade – and one that cast into stark relief the tension between traditional contain-and-control approaches to public health and the more permissive, exceptional strategy largely adopted by high-income countries – concerned the fate of gay bathhouses and other commercial sex establishments that catered to gay men. While most high-income countries did not move to regulate or close such establishments (Ballard, 1992; Rayside & Lundquist, 1992; Steffen, 1992), in the U.S., officials in San Francisco and New York City took steps to shut down gay bathhouses determined by authorities to pose a risk to public health (Bayer & Kirp, 1992). Even in the presence of official moves to regulate commercial sex establishments in some U.S. jurisdictions, many community-based groups continued to conduct HIV prevention outreach in such venues. A 1987 decision by the Swedish parliament also resulted in the closure of gay bathhouses in Sweden (Henriksson & Ytterberg, 1992). In the Netherlands, by contrast, gay bars and bathhouses had long partnered with health officials, permitting nurses to provide on-site testing for sexually transmitted infections, and a similar approach was adopted in the case of AIDS (van Wijngaarden, 1992).

Although interventions to promote safer sexual behaviors remain a cornerstone of HIV prevention efforts in high-income countries, persistently high rates of new infections have generated skepticism in some quarters regarding the effectiveness of behavior change programs (Global HIV Prevention Working Group, 2008). In recent years, some high-income countries have sought to adapt behavioral strategies to address a continually evolving epidemic. For example, Switzerland’s current six-year national AIDS strategy calls for efforts to develop a “cultural change so that the voluntary information of partners becomes a routine over the next few years” (Swiss Federal Office of Public Health, 2010). Likewise, Canada is revising its HIV testing guidelines to emphasize the need for people living with HIV to disclose their infection to sexual and drug-using partners (Canada UNGASS Report, 2012).

In the HAART era, as mentioned earlier, an increased emphasis has been placed on serostatus as an important consideration in the targeting of HIV prevention efforts. In 2003, CDC unveiled a new prevention strategy – Advancing HIV Prevention – that included as one of its three strategic pillars intensified efforts to work with HIV-positive people and their partners to reduce HIV transmission (CDC, 2003a). As a part of this effort, CDC and its U.S. government partners recommended the incorporation of HIV prevention interventions in HIV primary care (CDC, 2003b).

HIV Education and Awareness

Today, national HIV awareness is high in high-income countries. In Sweden, for example, 91% of young people ages 15-24 can correctly identify the ways to prevent sexual transmission of HIV (SMI, 2012). Similarly, young people in the U.S. exhibit high awareness of HIV, with the media and schools serving as the most common sources of HIV-related information (Henry J. Kaiser Family Foundation, 2011).

Most high-income countries used mass media in the 1980s to alert the public to the emergence of the epidemic. Beginning in 1987, for example, Switzerland launched a national awareness effort under the “Stop AIDS” logo (Swiss Federal Office of Public Health, 2012). National awareness campaigns have also been conducted in Australia (Bowtell, 2005), the Netherlands (Kok et al., 1998), the U.K. (Select Committee, 2011), the U.S., Sweden (Lindblad, undated; Giesecke et al., 1991), and Switzerland (Swiss Federal Office of Public Health, 2012).

The U.S. has been home to numerous HIV-related media campaigns, variously sponsored by federal, state and local governments, as well as philanthropic entities. The first major media campaign was “America Responds to AIDS,” sponsored by the federal government and launched in 1987, reaching millions of Americans with AIDS awareness messages (Woods et al., 1991; Kaiser Family Foundation, 2006). The approach taken by this campaign — that “anyone can get HIV/AIDS” — was later criticized by some as misrepresenting the true scope of the epidemic at the time. By the second decade of the epidemic, media campaigns began to focus more directly on populations disproportionately affected (Kaiser Family Foundation, 2006). Messaging became more difficult in the era of HAART, as such efforts were challenged to balance “the success of the new treatments without implying a cure or inadvertently leading to increased risk-taking” (Kaiser Family Foundation, 2006).

Experience in the U.K. is illustrative of educational efforts undertaken in the epidemic’s early years. In the mid-1980s, the U.K. sent leaflets to 23 million homes under the banner, “AIDS – DON’T DIE OF IGNORANCE” (Select Committee, 2011). From 1986 through 1993, the U.K. Health Education Authority supported 23 different mass media campaigns on AIDS, with most of them focused on the general population (Berridge, 1996). By 1987, public opinion polling indicated that 98% of the British public was aware of AIDS (Select Committee, 2011). In recent years, the U.K. has de-prioritized awareness initiatives for the general population in favor of prevention programs focused on communities most at risk (Imrie et al., 2006).

Early AIDS education efforts were sometimes weak and subject to controversies. For example, the Canadian government, fearing criticism, avoided direct involvement in early AIDS education efforts by delegating the task to the Canadian Public Health Association, a mainstream professional organization (Rayside & Lundquist, 1992). In the U.K., political operatives in the Prime Minister’s office stepped in to nix some early AIDS education efforts (Street & Weale, 1992). In 1986, the U.S. the Institute of Medicine urged the government to undertake a major educational campaign to reduce the spread of HIV, stating that messages must be as direct as possible (Institute of Medicine, 1986). The IOM further noted that, “The committee recognizes that the reluctance of governmental authorities to address issues of sexual behavior reflects societal reticence regarding open discussions of these matters. However, the committee believes that government officials charged with protection of the public’s health have a clear responsibility to provide leadership when the consequences of certain types of behavior have serious health outcomes” (Institute of Medicine, 1986, p.11).

Although basic awareness about AIDS remains high in high-income countries, the visibility of AIDS as an issue in the media or for public discussion has declined considerably over time (Bowtell, 2005). In the U.S., the percentage of Americans who report having heard “a lot” about AIDS in the past year fell from 34% in 2004 to 13% in 2011 (Henry J. Kaiser Family Foundation, 2011).

Prevention for Young People

Most high-income countries have invested in school-based HIV prevention programs. Canada, for example, has developed guidelines to support sexual health education for young people (Canada UNGASS Report, 2012), France mandated AIDS education in schools (Flori et al., 2006), Sweden’s national AIDS strategy prioritizes sexuality education for young people (National Board of Health and

Welfare, 2008), and Canada's Family Life education component in schools stresses both safer sex and delay of sexual debut (Rusch et al., 2006).

Efforts to educate young people about the risks associated with AIDS have occasionally been the source of controversy (Institute of Medicine, 1986, 1988). This is especially true in the U.S., where a condom distribution program resulted in the removal of a public schools chancellor in New York City in 1993 (Allen, 2000). One-third of states in the U.S. do not require HIV education in schools, and more than half do not require sex education (National Conference of State Legislatures, 2012). Although most U.S. teenagers report having received formal education on AIDS, there are indications that quality of such instruction may be sub-optimal, as 41% of 18- and 19-year-olds in the U.S. report lacking a basic understanding of how to use a condom (Guttmacher Institute, 2012). In the U.S., the percentage of young people who report having received school-based AIDS education declined from 91.5% in 1997 to 84% in 2011 (CDC, 2012a).

In the U.K., AIDS education in schools was also controversial early in the epidemic. In 1987, a teaching guide on AIDS instruction in the schools was shelved after criticisms emerged that it encouraged tolerance of homosexuality and could serve as a vehicle for gay men to serve as AIDS educators in schools (Berridge, 1996). The Local Government Act passed in the U.K. in 1988 prohibited schools from teaching the "acceptability of homosexuality as a pretended family relationship."

While the Commonwealth government in Australia strongly encouraged AIDS education for young people, Queensland state balked. When AIDS education was eventually permitted in Queensland schools in 1987, the state education minister directed that such programming was to include no sex education (Blewett, 2003).

Harm Reduction

Official policies of each of the high-income countries studied support harm reduction* for injection drug users (International Harm Reduction Association, 2010). As of 2010, all the countries had needle and syringe programs, as well as opioid substitution programs, although service and funding availability for such initiatives varied considerably among the countries studied (International Harm Reduction Association, 2010). Approaches also differed among countries, with Australia distinguishing itself for the comprehensiveness of health and social services available to users of harm reduction programs (GMHC, 2009).

Australia and the Netherlands were early adopters of harm reduction programs to reduce the risk of infection among injection drug users (Bowtell, 2005; van Ameijden & van den Hoek, 1998). In Australia, a 1985 national drug summit determined that illicit drug use (as opposed to drug sales) would be treated as a health issue rather than a matter for the criminal law (Ballard, 1992). The Netherlands, where the first AIDS case stemming from injection drug use was reported in 1985, opted for a one-to-one exchange policy in order to minimize the potential for needlestick injuries to the public (van Ameijden & van den Hoek, 1998). In the U.K., early pilot needle exchange programs were expanded in 1987 by the health ministry (Berridge, 1996; see Select Committee, 2011), with a national policy on AIDS and intravenous drug use adopted in 1988 (Street & Weale, 1992). Needle exchange in Canada began in 1987 in Toronto, shortly thereafter expanding to other cities (GMHC, 2009). France also began implementing harm reduction strategies in 1987, including over-the-counter access to syringes, substitution treatment, and risk reduction support centers (INSERM, 2009).

Opioid substitution therapy has emerged as an increasingly important harm reduction tool in high-income countries. Methadone programs now reach an estimated 2,700 of the 3,500-4,000 opiate users in Amsterdam (Amsterdam Cohort Studies, 2009). The number of methadone maintenance clients rose

* UNAIDS defines harm reduction as "policies, programmes, and approaches that seek to reduce the harmful health, social, and economic consequences associated with the use of psychoactive substances....Harm reduction is a comprehensive package of evidence-informed programming for people who use drugs". See: http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/JC2118_terminology-guidelines_en.pdf.

more than 12-fold in France from 1995 to 2011, reaching more than 33,000 people (European Monitoring Centre for Drugs and Drug Addiction, 2011). In 2010, 143,219 individuals were enrolled in opioid substitution programs in the U.K. (European Monitoring Centre for Drugs and Drug Addiction, 2011). In the U.S., availability of methadone maintenance has increased in recent decades, although access to “treatment on demand” remains limited (Friedmann et al., 2003).

Among the countries studied, Sweden and the U.S. have least aggressively pursued harm reduction for HIV prevention. In Sweden, needle and syringe programs were operating in only three cities in 2012 – all of them located in the same county (SMI, 2012) – although half of all opioid users are believed to be receiving drug substitution therapy in Sweden (SMI, 2012). Sweden also took steps to compel drug users to undergo drug dependence treatment (Henriksson & Ytterberg, 1992).

For two decades, the U.S. government imposed a ban on federal funding for needle and syringe programs, even though U.S. government scientists had certified the approach as effective in preventing HIV transmission (Shalala, 1997). In 2009, the Obama administration completed a process begun in the second term of President George W. Bush to lift the ban on federal funding for needle exchange, but Congress reinstated the funding prohibition in 2011. At publication time, federal funds remained unavailable for needle and syringe exchange activities (Office of National Drug Control Policy, 2012). Although federal support for harm reduction has been limited and sometimes barred in the U.S., needle and syringe programs have used financing from other sources, including state and local governments and private foundations. As of March 2009, 184 needle and syringe programs were known to be operating in the U.S. (CDC, 2010b).

Where harm reduction has been prioritized, substantial public health benefits have resulted. For example, epidemiological studies indicate that HIV transmission among injection drug users has been virtually non-existent in recent years in Amsterdam (Amsterdam Cohort Studies, 2009). In Australia, HIV prevalence among users of harm reduction programs has remained around 1% (Kirby Institute, 2011), with cities having harm reduction programs experiencing annual declines in new infections of 8.1% through 2000 and those lacking such programs reporting increases of 18.6% (Health Outcomes International et al., 2002). Similarly, official support for needle exchange has helped maintain an extremely low rate of HIV transmission among injection drug users in the U.K. (Select Committee, 2011).

In recent years, a new tool has emerged to reduce the harms associated with injection drug use – safer injecting rooms where drug use is supervised and where individuals may receive health care and other services. Canada established its first safe injection facility in Vancouver in 2003 (GMHC, 2009). Evidence suggests that this approach may reduce unsafe practices among drug users who are not effectively reached by needle and syringe programs (Wood et al., 2001). As of 2010, four of the countries studied – Australia, Canada, the Netherlands and Switzerland – had safer injecting rooms in place at least somewhere within their national borders (International Drug Policy Consortium, 2012).

Prevention of Mother-to-Child Transmission

The near-elimination of mother-to-child transmission in high-income countries represents one of the great prevention success stories of the AIDS epidemic. From 2004 to 2010, only six newborns contracted HIV in the Netherlands (Stichting HIV Monitoring, 2011), with none reported between 2006 and 2008 (Netherlands UNGASS Report, 2012), while 14 HIV-exposed children became infected from 2001 to 2010 in Australia (Kirby Institute, 2011). In the U.S., the annual number of newly infected children declined by 98% from 1992 to 2010 (CDC, 2012). Infants newly infected through mother-to-child transmission declined by 31% in the U.K. from 2004 to 2010; fell by nearly half in the Netherlands during the same period (from 15 to 8); and remained relatively stable in Sweden and France (European Center for Disease Prevention and Control, 2011).

These gains were achieved through implementation of the routine offer of HIV testing in prenatal settings and the provision of antiretroviral prophylaxis to HIV-positive pregnant women and their newborns (Select Committee, 2011). Health care settings also often provide HIV-positive pregnant women with free infant formula to avoid transmission as a result of breastfeeding (Select Committee, 2011).

Blood Safety

U.S. blood banks issued their first warning of the apparent transmissibility of HIV through blood donations in 1983, triggering an extensive process of public consultation and policy-making discussions (Shilts, 1987). In March 1985, the U.S. Food and Drug Administration approved the first antibody screening test, prompting blood banks in the Australia and the U.S. to swiftly implement routine screening of blood donations (American National Red Cross, 2012; Blewett, 2003). All high-income countries followed suit, although delays of several months in implementing routine HIV screening of blood supplies occurred in several countries (Rayside & Lundquist, 1992; Steffen, 1992). In the U.K., for example, HIV screening of blood supplies did not begin until October 1985 – seven months after FDA approval of the HIV antibody test (Street & Weale, 1992). In a number of countries, these delays resulted in legal settlements or government-approved payments to individuals infected through transfused blood (Rusch et al., 1996; Seffen, 1992; Street & Weale, 1992), while in France several health officials, including a former health minister, were convicted of negligence in the failure to move more quickly to protect the blood supply. In the U.S., the leading makers of blood products used in the treatment of hemophilia agreed to pay \$660 million to settle lawsuits on behalf of more than 6,000 patients who received the products.

Routine blood screening has virtually eliminated the risk of HIV transmission through the use of blood products in high-income countries (Gottschalk et al., 2010; Bowtell, 2005; Lackritz et al., 1995). Over time, screening technologies have improved, reducing the post-exposure “window period” during which antibody tests may fail to detect infection. In 2002, U.S. regulatory approval was given for nucleic acid amplification tests (NAT) for donated blood, offering further protection against blood-related transmission (American National Red Cross, 2012). In 2010, Swiss blood banking officials reported the first donor was found to be HIV-positive during the window period after national implementation of NAT screening for blood supplies (Gottschalk et al., 2010).

Certain blood-related controversies continue in some countries, particularly relating to the ability of MSM to donate blood. As the risk of transfusion-related transmission of HIV became clear in the early to mid-1980s, a number of countries requested gay men to avoid donating blood (Hospers & Blom, 1998; Berridge, 1996; van Wijngaarden, 1992). In the case of the Sydney Blood Transfusion Service, this request was confined to “promiscuous” gay men (Power, 2011). In Sweden, it was the Swedish Federation for Gay and Lesbian Rights that first recommended that gay men refrain from donating blood, Henriksson & Ytterberg, 1992). In the U.S., FDA promulgated a formal rule deferring MSM as blood donors (FDA, 2009), while the Queensland government in Australia made it a crime for a blood donor to lie about a history of homosexuality (Power, 2011). Gay and AIDS activists in the U.S. have continued to protest the ban on MSM blood donors and urged FDA to repeal the rule (GMHC, 2010), although the rule was reaffirmed in 2010. In 2011, the British government announced that gay men who had abstained from sex from at least a year could legally donate blood – a move that was hailed in some quarters but decried as a “ban by any other name” by some critics (Hastings, 2011).

Health Care Settings

In the early years of the epidemic, health care workers in some countries resisted serving patients unless they were tested prior to undergoing an invasive procedure. These calls for mandatory patient testing were rejected in lieu of routine adherence to universal precautions (Sandford, 1998; Henriksson & Ytterberg, 1992; van Wijngaarden, 1992), and all high-income countries have implemented “universal precautions” as a means to avoid HIV transmission in health care settings (Beltrami et al., 2000; CDC, 1987). This approach provides that all patients should be regarded as potentially infectious with one or more blood borne pathogens, and that health care workers should adhere to standard infection control procedures to avoid transmission during invasive health care procedures.

Although consensus was rapidly achieved with respect to interventions to minimize the occupational risk of HIV exposure, potential risks to patients created policy challenges in several countries. In the U.S., the apparent transmission of HIV from a dentist to one of his patients triggered extensive public debate and front-page media coverage (Altman, 1993). In response to the public outcry, CDC recommended that HIV-positive health care workers refrain from performing exposure-prone procedures unless cleared to do so by an expert review panel (CDC, 1991). CDC’s 1991 health care workers recommendations divided

mainstream medical groups, and after evidence indicated that the risk of transmission during adherence to universal precautions was extremely small, prompted calls for the CDC to revise its approach to HIV and health care workers (Gostin, 2000).

Prisons

Globally, HIV prevalence is typically higher in correctional settings than in surrounding communities. In the U.S., for example, HIV prevalence among correctional inmates (1.5% in 2008) is more than twice as high as in the general population (0.6%) (U.S. Bureau of Justice, 2010). Similarly, more than 1% of French prison inmates are living with HIV (Inserm, 2009).

Although HIV transmission occurs in high-prevalence prison settings (CDC, 2006b), prevention services for inmates are often accorded a low priority. In British prisons, inmates are allowed to request condoms from a health care worker, but they often deterred from doing so as a result of the implication that the requesting inmate is having sex with other men (Select Committee, 2011). In the U.S., federal prisons do not, as a matter of policy, make condoms available to inmates, although some city and state correctional settings offer prevention services (Okie, 2007).

In Australia, by contrast, several state and territorial prison systems provide condoms to inmates (Bowtell, 2005). French prisons officially provide condoms, bleach for needle cleansing, and opioid substitution therapy but no syringe exchange (Inserm, 2009), although access to these services is often limited in practice (Michel et al., 2011). Switzerland is unique in Europe in providing heroin prescription programs for addicted inmates (Inserm, 2009).

Antiretroviral Treatment as Prevention

As the prevention benefits of HAART have become increasingly apparent, most notably through results from a recent HPTN 052 clinical trial (Cohen et al., 2011), high-income countries have taken steps to capitalize on antiretroviral therapy to lower HIV incidence. Even before HPTN 052, Switzerland took the most aggressive approach to treatment as prevention, issuing official advice that HIV-positive individuals who have no other sexually transmitted infection and have had an undetectable viral load for at least six months are not sexually infectious (Vermazza et al., 2008). The Swiss statement was greeted with caution by many AIDS leaders (UNAIDS, WHO, 2008), although initial responses to the Swiss policy emerged prior to the release of trial results from HPTN 052.

Real-world evidence of the impact of HAART on HIV incidence in high-income countries is limited. Ecological studies in San Francisco and Vancouver have tied declines in new infections with reductions in viral load stemming from increased treatment uptake (Das et al., 2010; Montaner et al., 2010). Similarly supporting data have emerged from Denmark, where HIV incidence among MSM has remained stable notwithstanding sharp increases in risk behaviors, suggesting that antiretroviral therapy may be lowering the risk of transmission per any single act of unprotected sex (Cowan et al., 2012). Less promising findings emerged from Australia, where researchers found that infectiousness among MSM does not appear to have declined since the introduction of HAART (Wilson et al., 2010). Although these ecological studies are promising, experts have recently cautioned against assuming that such evidence indicates that widespread antiretroviral treatment will eliminate HIV infection (Smith et al., 2012).

Since HPTN 052, however, there has been significant optimism that broad-based treatment scale-up can significantly reduce HIV incidence. Both President Obama and Secretary of State Hillary Clinton have stated that an “AIDS Free Generation” is possible in large part because of these results. The head of UNAIDS called the findings a “serious game changer” (UNAIDS, 2011). The WHO released a programmatic update on treatment as prevention (TasP) in June 2012, acknowledging the high-quality evidence supporting the use of ART to prevent HIV transmission, and stating that “TasP needs to be considered as a key element of combination HIV prevention and as a major part of the solution to ending the HIV epidemic.” WHO is expected to issue new guidance on TasP in the next year (WHO, 2012), and the European Centre for Disease Prevention and Control has recently called for more research into the issue to be able to develop appropriate guidelines for the European context (European Centre for Disease Prevention and Control, 2012).

Other Emerging Prevention Tools

Studies in both MSM and heterosexual populations indicate that pre-exposure use of antiretrovirals by HIV-negative individuals reduces the odds of sexual acquisition of HIV (Celum & Baeten, 2012; Grant et al., 2010). In July 2012, the FDA formally approved the antiretroviral drug, Truvada, for use as pre-exposure prophylaxis (FDA, 2012b), a decision likely to set a new global standard. Although reports suggest that some MSM in high-income countries have been using pre-exposure prophylaxis informally, decision-makers are at the early stages of grappling with associated policy and implementation challenges. As one example, efforts were underway at publication time under the auspices of the U.S.-funded HIV Prevention Trials Network to plan a multi-site study (HPTN 073) to evaluate implementation of pre-exposure prophylaxis for MSM (Rose, 2012).

In light of clinical trials demonstrating the efficacy of voluntary male medical male circumcision in reducing the risks of female-to-male sexual transmission (Gray et al., 2007; Bailey et al., 2007, Auvert et al., 2005), there has been some speculation regarding the applicability of these findings to HIV control efforts in high-income countries (Chan, 2007). The World Health Organization has not recommended introduction of adult male circumcision for HIV prevention in high-income countries, confining its endorsement only to 13 countries in sub-Saharan Africa with high prevalence of HIV and low prevalence of male circumcision (WHO, 2007). In the U.S., the CDC has acknowledged the benefits of male circumcision but has noted the significant differences between the international settings where it has shown strong benefit and the U.S., and has not yet issued recommendations for its use as a prevention tool within the U.S. (CDC, 2008). A meta-analysis of 18 studies among MSM failed to find a statistically significant difference in HIV risk between circumcised and uncircumcised men (Millet et al., 2008).

Post-exposure prophylaxis (PEP) is widely recommended for both occupational and for non-occupational exposures, in certain cases (CDC, 2005b). In the U.S., the CDC first published guidelines for the use of PEP after occupational exposure in 1996, updated most recently in 2005 (CDC, 2005a). Recommendations related to PEP for non-occupational exposure were published in 2005 (CDC, 2005b). Other high-income countries also have guidelines in these areas (European Center for Disease Prevention and Control, 2012). Clinics that cater to MSM have made particular efforts to make PEP available for individuals who have potentially been exposed sexually to HIV. In the Netherlands, for example, health workers in STI clinics are trained in assessing patients for PEP and in administering the preventive regimen (SOAIDS, 2008). Similarly, in San Francisco, the City Clinic and various hospital emergency departments are prepared to administer PEP within 72 hours of a sexual exposure (San Francisco Department of Public Health, 2008).

Reports indicate that uptake of PEP has historically been low for sexual exposures, although this may be changing. Data from Switzerland, for example, indicate that the number of requests for PEP increased significantly over time (European Center for Disease Prevention and Control, 2012).

HIV CARE & TREATMENT

Key Findings

- The underlying national health system has had a profound effect on national approaches and access to HIV treatment. With the exception of the U.S., all other countries analyzed here have universal health coverage and generally cover HIV care and treatment through the mainstream health system. The U.S., by contrast, has had to create targeted HIV care programs, most notably the Ryan White HIV/AIDS Program, to fill in gaps in health service access for people with HIV who remain uninsured.
- At the same time, the U.S. led the way in innovation to expand access to unapproved treatments in the early years of the epidemic, steps that set the stage for other high-income countries at the time.
- While some countries (e.g., Netherlands, U.K.) appear to do an excellent job of delivering HIV treatment to the overwhelming majority of treatment-eligible individuals, several countries struggle to link HIV-positive individuals to needed services. In particular, retention rates vary considerably among countries, with a notable portion of treatment-eligible individuals falling out of care after initiating antiretroviral therapy.
- Countries have adopted various strategies for the delivery of HIV treatment, adapted to their underlying health systems. HIV specialty clinics predominate in many countries, while others have relied to a greater degree on primary care. The degree to which HIV care and treatment should be regarded as a medical specialty is a source of considerable debate in many countries.
- In high-income countries, life expectancy for a person who is diagnosed early and who receives timely HIV treatment appears to approach the average for non-HIV-infected individuals. Late diagnosis appears to be primarily responsible for the persistent gap in medical outcomes between HIV-infected and HIV-uninfected individuals.
- While some countries publish official HIV treatment guidelines, others rely on guidelines produced by professional medical societies, and many rely on U.S. guidelines. When to start antiretroviral treatment remains a source of some controversy, although the U.S. now recommends immediate treatment following HIV diagnosis and others are moving in that direction.
- Over time, antiretroviral treatment regimens have improved in high-income countries, with more durable benefits and fewer side effects. Costs associated with HIV treatment remain high, with the highest prices paid in the U.S.

During the initial years of the epidemic, there was no treatment for HIV, and most efforts focused on providing hospital and end-stage care to the growing numbers of people with HIV who were becoming sick and often dying. During this time, scientists worked to identify treatments for the new disease, resulting in considerable innovation – both from public policy-makers and affected communities – to expand access to both approved and unapproved medicines. The U.S. Food and Drug Administration (FDA) approval of AZT (zidovudine) in 1987 ushered in the first standard medication for HIV infection, but the continued increase in AIDS deaths underscored the woeful inadequacy of monotherapy. Under pressure of AIDS activists, the U.S. National Institutes of Health took steps to speed the testing of promising AIDS drugs, while FDA altered its rules to permit expanded access to unapproved medicines for patients with life-threatening diseases (also see subsequent section on HIV/AIDS Research).

The era of monotherapy gave way to dual therapy in the early 1990s following the approval of additional antiretroviral medicines. However, clinical ability to achieve durable viral suppression and substantially extend the lives of HIV-positive patients was made possible only in the mid-1990s, when regulatory approval was given to the new class of antiretroviral medicines, protease inhibitors. At the 1996 International AIDS Conference in Vancouver, research teams reported that combinations of at least three antiretrovirals were effective in treating HIV infection (Altman, 2006). Development of HAART represents one of the most important biomedical breakthroughs of the 20th Century. In the HAART era, ensuring access to timely, uninterrupted medical care has become perhaps the overriding priority in managing AIDS in high-income countries.

One noteworthy aspect of the history of HIV treatment is the degree to which affected communities and patients themselves shaped treatment strategies. The “San Francisco model” of HIV care, developed collaboratively in the 1980s by communities and clinicians and given nationwide application under the Ryan White CARE Act in the U.S., emphasized client-centered services, patient empowerment and social support (Bertrand, 2004; Institute of Medicine, 1993). Although patient advocacy has emerged in all high-income countries, the degree to which it has influenced HIV treatment delivery varies; in France, for example, where interest group organization tends to be weaker than in the U.S. and some other countries, physicians have continued to dominate the AIDS discourse and the means by which HIV treatment services are delivered (Steffen, 1992).

HIV Treatment and National Health Systems

With the exception of the U.S., access to health care is universally guaranteed to legal residents in all high-income countries studied (see Table 8). As a general rule, people living with HIV in high-income countries with universal coverage look to the same sources of health care payment as uninfected patients (SMI, 2012; Rayside & Lundquist, 1992). The Netherlands, for example, requires all individuals to have insurance, which in turn provides coverage for HIV treatment services (Netherlands UNGASS Report, 2012). France’s national health insurance program covers 99% of the population, ensuring extensive coverage for HIV-related treatment and care (Flori et al., 2006). Canada’s Medicare program covers all eligible residents, with services delivered free at the point of access (Rusch et al., 2006). The U.K. National Health Service covers HIV-related treatments, with less than 10% of the British population having any form of private insurance (Imrie et al., 2006). In Australia, the national AIDS response coincided with the introduction of the country’s Medicare program, which provides free access to medical and hospital treatment as well as subsidized support for medicines (Bowtell, 2005).

Table 8: Health Insurance Coverage System in Case Countries	
Country	Scope of Coverage
U.S.	fragmented coverage
Australia	universal health coverage
Canada	universal health coverage
France	universal health coverage
Netherlands	universal health coverage (mandated private insurance)
Sweden	universal health coverage; mandatory purchase)
Switzerland	universal health coverage (mandated private insurance)
U.K.	universal health coverage

Sources: Commonwealth Fund International Health Policy Center; OECD Health Policies and Data.

Although coverage of HIV treatment is universally available through mainstream channels in all high-income countries but the U.S., details of HIV-related coverage differ depending on national circumstances. In Canada, for example, while access to health services is guaranteed, health care delivery is a provincial responsibility, with each province having its own drug formulary (Rusch et al.,

2006; Rayside & Lundquist, 1992). In the U.K., the government of Prime Minister David Cameron has proposed various reforms to the National Health Service, including one that would separate responsibilities for HIV treatment, prevention and testing within the health bureaucracy (Select Committee, 2011). Although nearly all people with HIV in France have coverage, the country maintains a safety-net program for low-income people who have made insufficient insurance contributions to obtain coverage under the national health insurance scheme, although households whose incomes are too low to permit contribution toward supplemental coverage may remain liable for considerable out-of-pocket payments for health services (Flori et al., 2006).

Even in the typical high-income country with universal coverage, not all people living with HIV are guaranteed free treatment services. In several countries, non-residents may be ineligible for free or subsidized HIV treatment or otherwise incur fees for accessing HIV-related services from which legal residents are exempt (Select Committee, 2011; NAPWA, 2010). These exemptions for non-residents have sometimes been criticized as cruel and contrary to public health principles (Select Committee, 2011). The Dutch government compensates providers for costs associated with the provision of HIV care to asylum applicants (Netherlands UNGASS Report, 2012).

As noted, the U.S. is alone among the countries studied in failing to guarantee universal health coverage to legal residents. Roughly 50 million residents of the U.S. – about one-sixth of the national population – lack any form of health coverage (Henry J. Kaiser Family Foundation State Health Facts, 2012), with three in five low-income adults lacking health coverage at some point in 2011 (Collins et al., 2012). The Affordable Care Act (ACA), enacted in 2010, aims to close a portion of these health care gaps by extending health coverage to millions of people who are currently uninsured by 2014, although a recent ruling by the Supreme Court of the United States has limited one provision that would have particularly benefited people with HIV (the ruling invalidated the ability of the federal government to enforce states to implement the ACA's expansion of Medicaid, the country's health insurance program for low-income people, although it still permits states to undertake such an expansion) (Kaiser Family Foundation, 2012f).

Just half (51%) of patients with diagnosed HIV infection in the U.S. are in care (CDC, 2011e). As a result of the large number of low-income people who have no means of paying for health services, the U.S. has pursued a number of complicated and costly strategies to ensure access to HIV treatment. The centerpiece of U.S. efforts to close gaps in HIV health care access is the Ryan White HIV/AIDS Program, which distributes \$2.4 billion in funding to states, localities, and HIV clinics to deliver HIV health and supportive services (Henry J. Kaiser Family Foundation, 2012a). Ryan White supports the AIDS Drug Assistance Program (ADAP), which provides HIV-related pharmaceutical products to patients who lack a means to pay for drugs (Henry J. Kaiser Family Foundation, 2012b). When state and local contributions are added to amounts appropriated by the U.S. government, total ADAP funding in Fiscal Year 2011 was \$1.9 billion (Henry J. Kaiser Family Foundation, 2012b). As ADAP programs are administered by state governments, each of which maintains its own formulary of drugs reimbursed by the program, access to HIV medicines varies considerably across the U.S. (Henry J. Kaiser Family Foundation, 2012b). Funding shortfalls have also prompted several state ADAP programs to restrict coverage; as of July 2012, more than 2,000 people living with HIV were on ADAP waiting lists in 9 states (National Alliance of State and Territorial AIDS Directors, 2012).

Treatment Guidelines

While some national governments issue guidelines to govern the provision of HIV treatment (Panel on Antiretroviral Treatment Guidelines, 2012), other countries rely principally on professional medical groups to issue HIV treatment guidelines (British HIV Association, 2007). Some countries reportedly follow U.S. treatment guidelines for antiretroviral therapy.

Although the optimal time at which to begin HAART remains a subject of debate, there is a clear trend toward earlier treatment initiation in high-income countries. Persuaded by evidence of the therapeutic and preventive benefits of early treatment, the U.S. government now recommends initiation of antiretroviral therapy in all patients with diagnosed HIV infection, with an especially strong recommendation to initiate treatment in patients with CD4 counts of 500 or lower (Panel on Antiretroviral Treatment Guidelines,

2012). In the Netherlands, average CD4 counts of patients starting therapy have risen since the mid-2000s, with a median CD4 count of 290 in 2010 (Stichting HIV Monitoring, 2011) (see Table 9).

Table 9. ART Initiation Criteria by CD4 Count in Case Countries

Country	Criteria
U.S.	At HIV diagnosis, irrespective of CD4 count
Australia	≤500
Canada	≤350
France	≤350 (consider ≤500)
Netherlands	--
Sweden	≥350
Switzerland	--
U.K.	≤350

Source: WHO 2012 Update

Note: "--": not available

However, late diagnosis continues to undermine efforts to ensure timely initiation of therapy. A comparative analysis of HIV trends in the U.S. and Canada found substantial shares of patients diagnosed late in 2005 – 54.3% in the U.S., and 64.2% in Canada (Hall et al., 2009). In 2009, 32% of people with a new diagnosis of AIDS in the U.S. had tested HIV-positive less than 12 months earlier (CDC, 2012). In an eight-city cohort study in which roughly 3,000 newly diagnosed individuals were enrolled each year in the U.S., median CD4 count of people entering care was 299, with little improvement seen in CD4 counts among the newly diagnosed from 2000 to 2009 (Buchacz et al., 2012). For Europe as a whole, half of newly diagnosed HIV cases had CD4 counts under 350 in 2010 (European Center for Disease Prevention and Control, 2011). The percentage of people newly diagnosed with HIV in 2010 whose first CD4 count was below 200 was 31.5% in France, 26.7% in the Netherlands, and 28.0% in the U.K. (European Center for Disease Prevention and Control, 2011.) Half of individuals initiating treatment in the U.K. in 2010 were diagnosed late (Health Protection Agency, 2011), with 58% of newly diagnosed individuals in Sweden already medically eligible for HAART (SMI, 2012).

In some countries, demographic differences are apparent with respect to the timely initiation of antiretroviral therapy. Whereas 68% of Dutch-born patients began HAART with a CD4 cell count below 350, 81% of Netherlands residents born in sub-Saharan Africa initiated therapy later than recommended (Stichting HIV Monitoring, 2011). Older persons, migrants and transmission groups other than MSM are most likely to delay initiating HIV care in France (Lanoy et al., 2007). In the U.K., late diagnosis is most likely among individuals with heterosexually acquired HIV, black people and older people (Health Protection Agency, 2011). Similarly, immigrants are most likely to be diagnosed late in the course of infection in Sweden (SMI, 2012), while older people and heterosexuals are most likely to enter care at an advanced stage of disease in France (Delpierre et al., 2007). In the U.S., HIV-positive whites are more likely than HIV-positive blacks (92% vs. 86%) to receive antiretroviral treatment (CDC, 2011).

Treatment Access, Utilization and Outcomes

Success in linking people testing HIV-positive to HIV primary care varies. Whereas 77% of people testing positive in the U.S. were effectively linked to care in 2008-2010 (CDC, 2011b), 89% of patients in the U.K. received a CD4 test within one month of diagnosis in 2010 (Health Protection Agency, 2011). In France, the percentage of newly diagnosed individuals who delay at least six months before entering HIV care fell from 30.6% in 1982-1989 to 3.5% in 1997-2003 (Suzan-Monti et al., 2011).

Among individuals enrolled in HIV care, receipt of antiretroviral therapy tends to be high – 89% in the U.S. (CDC, 2011), 87% in the U.K. (Health Protection Agency, 2011), and 85% in the Netherlands (Netherlands UNGASS Report, 2012). In Sweden, 98% of all treatment-eligible people living with HIV receive antiretroviral treatment (SMI, 2012).

A meta-analysis of data from 82 observational studies found that on average 62% of HAART patients exhibit at least 90% adherence to prescribed regimens (Ortego et al., 2011). Studies covered in this meta-analysis included one from Australia, seven from Canada, 10 from France, one from the U.K., and 18 from the U.S. A separate study of 946 Swedish patients found that 63% of patients were adherent, effectively identical to the results of the meta-analysis (Södergård et al., 2006). The meta-analysis found that MSM were found most likely to adhere to prescribed regimens and injection drug users least likely to do so (Ortego et al., 2011), while the Swedish study correlated strong adherence with older age and having a good relationship with one's health care provider (Södergård et al., 2006).

There is evidence that rates of retention in care in some high-income countries may be lower than in low- and middle-income countries, although use of varying methodologies to assess treatment retention makes comparison difficult. While 67% of HAART patients in 92 developing countries remain engaged in care five years after initiating therapy (WHO et al., 2011), only 51% of HIV-positive individuals in the U.S. were retained in care in 2008-2010 (CDC, 2011f). More encouraging were statistics from the U.K., which indicated that more than 90% of all people with diagnosed HIV infection attended regular HIV services in 2010 (Health Protection Agency, 2011).

As a general rule, HIV-positive migrants, people who use drugs, and individuals who acquired HIV through heterosexual exposure experience diminished health care access and sub-optimal health outcomes (Keiser et al., 2012). Whereas 84% of white HAART patients in the U.S. had suppressed virus in 2008-2010, only 70% of black patients achieved viral suppression (CDC, 2011b). Immigrants in France have been found to be at disproportionate risk for immuno-virologic and clinical failure (Dray-Spira et al., 2007).

High-income countries use various methods to monitor the effectiveness of treatments. In the Netherlands, 82-84% of patients on HAART had sustained viral suppression, rising to 88-90% for patients with uninterrupted HAART (Stichting HIV Monitoring, 2011), whereas viral suppression was reported for 85% in the U.K. (Health Protection Agency, 2011), 80% in Australia in 2010 (Kirby Institute, 2011), 77% in the U.S. in 2008 (CDC, 2011g). Swedish patients living with HIV are monitored by InfCareHIV, a registry designed to support clinical decision-making and improve quality of care (SMI, 2012).

Rates of HIV drug resistance, monitored primarily through testing of blood specimens from newly infected individuals, vary among the countries. Prevalence of transmitted drug resistance has been found to be 8.6% in the U.K. (Health Protection Agency, 2011), 9% in Canada (Public Health Agency of Canada, 2010), 16% in Australia's Victoria State between 1996 and 2007 (Russell et al., 2009) and 15.7% in five states and three metropolitan areas in the U.S. from 2006 to 2009 (Ocfemia et al., 2012). Lower rates have been found in Switzerland (7.7% in 1996-2005) (Yerly et al., 2007) and Sweden (5.6% from 2003 to 2010) (Karlsson et al., 2012). In the Netherlands, 5% of individuals on HAART experience incomplete viral suppression, suggesting the presence of drug resistance (Stichting HIV Monitoring, 2011).

HIV Treatment Delivery

High-income countries have adopted various strategies for the delivery of HIV treatment services. While some recommended earlier in the epidemic that primary care physicians should assume the lion's share of HIV treatment service provision, the increased sophistication of HIV treatment in the HAART era has convinced most countries that service delivery is optimally performed by AIDS specialists (Special Committee, 2011). In addition, over time, care models have shifted from inpatient to outpatient and community-based services, as care options for people with HIV have improved and as pharmaceutical management has come to dominate HIV care.

Several countries have worked to establish specialty centers of excellence for the delivery of HIV care. In the late 1980s, France established HIV care networks to coordinate treatment and care services for

people living with HIV (Flori et al., 2006). In the U.S., the lack of universal health coverage, resulting in high numbers of people with HIV/AIDS finding themselves unable to afford and access care, was an impetus for the creation of the Ryan White HIV/AIDS Program, which is the single largest, HIV-specific care program in the U.S., providing approximately \$2 billion a year to states, cities and provider for HIV care and treatment, including funding to more than 440 clinics for the delivery of comprehensive outpatient services to people living with HIV (Health Resources and Services Administration, 2012). With the largest number of HIV-positive patients in the U.S., New York State began in the 1980s establishing more than 40 AIDS Designated Centers for the provision of specialized services for people living with HIV (New York State Department of Health, 2012).

Other countries rely primarily on the pre-existing health infrastructure for the delivery of HIV care and treatment services. In the Netherlands, for example, while some hospitals developed HIV-focused clinics, national policy primarily aimed to integrate HIV services into the existing health and social services policy framework (van den Boom & Schabel, 1998). Consistent with common practice for other health issues, the hospital has served as the locus for the delivery of HIV care in France, with service delivery shifting from inpatient to ambulatory care in the era of HAART (Flori et al., 2006). In the U.K., HIV is managed on an inpatient or outpatient basis in sexual health clinics (known as GUMS clinics) (Imrie et al., 2006).

The increasing longevity of people living with HIV, as well as the associated increase in the number of HIV-positive patients, is placing considerable demands on HIV care systems in some high-income countries. According to one expert who testified before Lord Fowler's blue-ribbon committee in the House of Lords in 2011, the U.K.'s HIV care model may be unsustainable due to proliferating demands on overburdened HIV service systems (Select Committee, 2011).

Treatment Costs

As a result of success and importance of HAART, HIV treatment is heavily focused on pharmaceuticals and AIDS persists as a severe and costly challenge. Annual HIV-related treatment costs range from roughly US\$14,000 to US\$28,000 in Sweden (SMI, 2012). Annual treatment costs for HIV in the U.S. average US\$19,912, ranging from US\$11,000 to more than US\$22,000 (Gebo et al., 2010). In the U.K., HIV-related expenditures by the public sector rose more than 50% from 2006-07 to 2009/10, with HIV treatment accounting for 40% of all spending on infectious diseases (Select Committee, 2011). Each year in the U.S., new HIV infections result in future treatment costs and lost productivity amounting to \$36.4 billion (Hutchinson et al., 2006). In the U.S., lifetime treatment costs for HIV exceed \$600,000 (Schackman et al., 2006), with even higher dollar equivalencies reported for lifetime costs in other countries (e.g., Switzerland, at nearly \$1.1 million) (Swiss Federal Office of Public Health, 2010). Outlays on HIV care and treatment in the U.K. rose 339-fold from 1985-1986 to 2001-2002 (Imrie et al., 2006).

HIV RESEARCH

Key Findings:

- All of the countries studied have invested in HIV-related scientific research, although the degree of investment and the timing and level of engagement with research has varied.
- The U.S. government has invested the largest sums toward HIV research of any of the countries, although additional important investments have been made by the French and U.K. governments. Today, the U.S. government is the world leader in supporting HIV research and development.
- HIV-related social science research has often been the source of some controversy in high-income countries, although certain countries (e.g., Australia) have made considerable investments in this arena.
- In the U.S., activism by community groups impatient with traditional processes and timelines for research, development, and regulatory approval for drugs contributed to an unprecedented acceleration of the approval process for HIV drugs.

HIV research encompasses a wide range of activities, such as laboratory science, epidemiological studies and clinical investigations designed to generate knowledge about disease transmission and prevention, and/or lead to the development of diagnostic tests, treatments, prevention methods, and a (so far elusive) preventive vaccine.

Early Research Efforts

In the early years of the epidemic, research focused principally on learning as much as possible about what was then a new and mysterious disease, especially what caused it and how it was transmitted. U.S. researchers took the lead in this area, along with the French. The U.S. CDC supported extensive early investigations and interviews with reported cases to clarify the modes of transmission, leading to a better understanding of the true risk factors for HIV transmission, and evidence disproving fears that the disease could be transmitted through casual contact (Shilts, 1987; Harden, 2012).

French researchers at the Pasteur Institute (led by Luc Montagnier) and U.S. researchers at the National Institutes of Health (led by Robert Gallo), were credited with isolating the virus in 1983, and in 1984 establishing that the identified virus (eventually known as HIV) was indeed the cause of AIDS (Harden, 2012; Gallo & Montagnier, 2003; NIH In Their Own Words). These discoveries and further research by U.S. and French laboratories facilitated the subsequent development in each country of the first blood tests used to detect HIV infection (Harden, 2012; Food and Drug Administration, HIV/AIDS Historical Timeline).

Although AIDS would eventually be regarded as a compelling example of the benefits of public sector investments in biomedical research, some countries' mainstream research agencies were slow to prioritize HIV-related research. At the U.K.'s Medical Research Council, AIDS was regarded as "small fry" in the mid-1980s, with only five HIV-related research grants supported by the MRC as late as 1986 (Berridge, 1996; see Street & Weale, 1992). Australia was perhaps more proactive, establishing two research units (the National Centre for HIV Virology Research and the National Centre for HIV Epidemiology and Clinical Research) in 1986 (Bowtell, 2005). In addition, health authorities in Australia's New South Wales agreed to fund an epidemiological cohort study after the detection of Australia's first AIDS case in 1982 (Bowtell, 2005).

Cohort Studies

Many of the countries studied have initiated, and in some cases maintained, important cohort studies focused on HIV/AIDS. For example, in the U.S., numerous patient cohorts, such as the Multicenter AIDS Cohort Study and the Medical Monitoring Project, have generated data on clinical and behavioral outcomes of people enrolled in HIV care and treatment (CDC, 2012f; NIH News 2009; Detels et al., 1998). In Switzerland, the Swiss Cohort Study has identified population differences in HIV treatment utilization and health care outcomes (Keiser et al., 2012), while the Swiss Mother and Child HIV Cohort has generated strategic information on prevention and treatment efforts among HIV-positive women and their offspring (Rudin et al., 2010). The Amsterdam Cohort Studies on HIV Infection and AIDS have produced important information on viral and host factors for disease progression, co-infections, risk behaviors, and other issues (Amsterdam Cohort Studies on HIV Infection and AIDS, 2009). In the U.K., the country's unitary care system has effectively served as a massive patient cohort study, enabling researchers to assess cost-effectiveness and identify optimal treatment regimens (Beck et al., 2011; Beck et al., 2008). The Australian HIV Observational Database follows thousands of patients in 27 sites, monitoring efficacy of HIV treatment, toxicities and adverse events, and causes of death (National Center in HIV Epidemiology & Clinical Research, 2010).

Other studies have addressed issues beyond pure epidemiology. In the U.S., for example, the HIV Cost and Services Utilization Study generated strategic information on HIV costs, health coverage, and service utilization among people living with HIV (Agency for Health Care Policy and Research, 1998). The U.K. Collaborative HIV Cohort resulted in important data on life expectancy among people living with HIV in the HAART era and on the effects of late HIV diagnosis on longevity (May et al., 2011).

Biomedical Research

All high-income countries have supported HIV biomedical research to some extent. In 1994, for example, the Netherlands established a program to support research on experimental preventive vaccines for use in Africa (Moerkerk, 1998). The U.S. has drawn on the financial and professional resources of numerous agencies – including the National Institute of Allergy and Infectious Diseases and the CDC – to undertake extensive HIV-related research, while the French created a specialized research agency for the support HIV-focused research. Canada, Sweden and Switzerland have made focused contributions toward the search for an HIV vaccine (Canada UNGASS Report, 2012). In 2010-2011, the Canadian HIV Trials Network was conducting roughly 20 clinical trials, as well as more than a dozen pilot studies to determine whether larger studies were warranted (CIHR Canadian HIV Trials Network, 2010).

France plays a prominent role in HIV-related research. In addition to sponsoring the first clinical trial to demonstrate the efficacy of voluntary medical male circumcision for HIV prevention (Auvert, 2005), the French National Agency for Research on AIDS and Viral Hepatitis (ANRS) is mounting one of the most visible trials to evaluate implementation of a test-and-treat approach for HIV prevention (HIV Vaccines and Microbicides Resource Tracking Group, 2011).

Scientists from other countries have also made critical contributions. For example, the Concorde study, a randomized double-blind controlled trial undertaken by a team of European researchers in the pre-HAART era, found no significant difference in survival or progression to AIDS between individuals who initiated zidovudine early in the course of infection and those who waited to start therapy until the emergence of HIV-related symptoms (Concorde Coordinating Committee, 1994). British agencies represented the second and seventh leading funders for microbicide research in 2010 (HIV Vaccines and Microbicides Resource Tracking Working Group, 2011).

Still, it is the U.S. that has led research efforts on AIDS, even more so in recent years. The U.S. was the only government to report funding for AIDS research before 1985. The U.S. government dedicated an increasing amount to AIDS research between 1982 and 1991, and in 1991 U.S. funding for AIDS research exceeded the amount of government-sponsored AIDS research 10 other developed nations in a survey published in 1992 (Mann et al., 1992). The U.S. played a leading role in investigating and validating protease inhibitors, making feasible the introduction of HAART (Collier et al., 1996). U.S. researchers – primarily at the National Institutes of Health and CDC, but also within the Department of Defense – have undertaken critical studies with respect to voluntary medical male circumcision, pre-

exposure prophylaxis and antiretroviral therapy as HIV prevention. In 2010, U.S. government agencies represented three of the top four leading funders for HIV vaccine research, with the U.S.-based Bill & Melinda Gates Foundation ranking second (HIV Vaccines and Microbicides Resource Tracking Working Group, 2011; Policy Cures G-Finder Report, 2011). The U.S. NIH alone accounted for over 60% of global funding for HIV research and development in 2010, with USAID and U.S. Department of Defense contributing an additional 6% and 3%, respectively (Policy Cures, 2011). By comparison the U.K. government provided 2% of funding for HIV research and development, and the French government 1%.

New channels of support for biomedical research have emerged since the beginning of AIDS. In particular, product development partnerships (PDPs) – such as the International AIDS Vaccine Initiative and the International Partnership for Microbicides – have become leading players in the search for new HIV prevention tools. Forty percent of global health spending by the U.K. Department for International Development is channeled through PDPs (DFID, 2010), and the Bill & Melinda Gates Foundation has provided substantial sums to support research by PDPs (Policy Cures, 2011).

Social Science Research

Nearly all high-income countries have invested in various forms of social science research, although the forms and prominence of such research have varied, in part due to political controversies attached to publicly supported surveys of sexual behavior. In the U.K., for example, then-Prime Minister Margaret Thatcher vetoed government funding for a national sexual survey in the 1980s (Street & Weale, 1992).

The Netherlands was one of the first countries to seek to compile detailed information on sexual behavior, allocating funding in 1988 for separate surveys of adults and young people (van Zessen & Sandfort, 1998). In France, the large VESPA study, sponsored by ANRS, collected extensive information on social and living conditions and the quality of life of people living with HIV (Dray-Spira et al., 2007; Peretti-Watel et al., 2003). Every two to three years, researchers at the Australian Research Centre in Sex, Health and Society at La Trobe University conduct the HIV Futures survey of people living with HIV, covering health, treatment, work, relationships and financial issues experienced by HIV-positive people.

Although AIDS has given rise to extensive social science research, support for biomedical and epidemiological research has predominated throughout the epidemic (Global HIV Prevention Working Group, 2010). In an exception to this pattern, Australia has prioritized AIDS-related social science research, establishing the National Centre in HIV Social Science Research in 1990 (Bowtell, 2005).

Community Mobilization and AIDS Research

One unique aspect of the AIDS research experience, particularly early on in the U.S., was the unprecedented community activism in support of increasing government funding for research, and for the acceleration of regulatory review and approval of drugs and other HIV innovations. When clinical trials of the first AIDS drug (AZT) were being undertaken in the U.S. in the mid-1980s, the standard time frame from initiation of clinical testing to regulatory approval was approximately eight years. In the case of AZT, that time frame was reduced to a little over two years (Harden, 2012). Lobbying of the FDA by gay community groups led to a relaxation of safety procedures, abbreviation of testing phases, and fast-tracking of clinical studies (Baldwin, 2005). Community activism also led to increased U.S. federal funding for AIDS research, such that by 1990 the U.S. government was spending \$1.6 billion on such research, a figure similar to the amount spent by the government on cancer research the same year (\$1.5 billion) (Baldwin, 2005). Pressure from groups such as ACT UP and the AIDS Action Council in the U.S. contributed to the creation of a more responsive U.S. federal AIDS research bureaucracy, particularly visible in the creation of the NIH Office of AIDS Research, established in 1993 (Baldwin, 2005).

STIGMA & DISCRIMINATION

Key Findings

- HIV-related stigma has lessened over time in high-income countries. However, stigma remains sufficiently prevalent to constitute an important challenge for national responses.
- Discrimination in employment, housing and public benefits on the basis of HIV status is illegal in high-income countries, although few countries have enacted HIV-specific anti-discrimination laws. Most anti-discrimination protections derive either from general constitutional principles or from laws prohibiting discrimination against people with disabilities.
- HIV in the health care setting has given rise to some of the most difficult questions regarding the rights of people living with HIV. Although high-income countries generally have avoided mandatory testing of health care workers and the exclusion of those who test HIV-positive, the precise policies adopted by countries vary.
- Several high-income countries have imposed prohibitions or restrictions on the ability of foreigners living with HIV to enter the country, although other countries have declined to implement such restrictions. A trend toward removing or lessening such restrictions is discernible. None of the eight countries examined has an entry ban, with the U.S. being the last country to remove this restriction.
- The tendency to apply criminal or civil penalties for the knowing, reckless or negligent transmission of HIV or exposure of another to potential infection is a striking feature of responses in high-income countries. High-income countries account for more than half of all such prosecutions worldwide.
- The use of the law to address HIV transmission or exposure varies among high-income countries. Some jurisdictions have enacted HIV-specific statutes, while others have relied on general criminal statutes for assault.
- The U.S. has accounted for the largest number of HIV-related prosecutions, although Sweden and Canada have the highest share of prosecutions per capita.
- Sweden is notable for imposing an affirmative duty on all people living with HIV to disclose their infection to potential sex partners prior to intercourse.
- There appears to be emerging support for reconsideration of the criminalization of HIV transmission or exposure in high-income countries, primarily due to recent findings regarding the low likelihood of transmission when an HIV-positive person is on antiretroviral therapy.

In general, HIV-related stigma and discrimination have diminished in the high-income countries studied since the epidemic's early years. Improvements in social attitudes regarding people living with HIV stem from the fact that AIDS is no longer new, increased public awareness of the basic facts about HIV, and the emergence of effective treatments for the disease. For example, whereas a majority (51%) of Americans reported in 1987 that it was generally one's own fault if he or she was diagnosed with AIDS, the share reporting this sentiment declined to 29% by 2011, with 67% disagreeing (Henry J. Kaiser Family Foundation, 2011).

However, HIV stigma and discrimination still persist in many settings (Rusch et al., 2006), although comprehensive data on HIV discrimination are often not available (Canadian Public Health Association,

2005). A 2007 survey found that 44% of people in Sweden perceive considerable prejudice and discrimination against people with HIV in their country, as did 40% in the U.S., 39% of in France, 35% in Canada, and 30% in the U.K. (Kaiser/Pew Global Attitudes Survey, 2007). A 2009 survey in the Netherlands, for example, found negative attitudes toward people living with HIV to be widespread, along with misconceptions about how HIV is transmitted (INS NIPO, 2009). In the U.S., stigma is cited as a principal impediment to black gay men's receipt of appropriate prevention and treatment services (CDC, 2011). And while there are legal protections against HIV-related discrimination in place in most countries, discrimination continues. For example, just last year, a private boarding school in Pennsylvania denied admission to a 13 year old, HIV-positive boy, resulting in the filing of federal discrimination lawsuit on the boy's behalf (AIDS Law Project of Pennsylvania, 2012).

Legal Protections Against Discrimination

Jurisdictions have adopted various approaches to combating HIV-related discrimination. The Dutch Constitution includes several fundamental rights that have helped minimize negative social effects associated with HIV, including the rights to be free from discrimination, to bodily integrity, and to privacy (Sandfort, 1998). The Swedish Discrimination Act outlaws discrimination on the basis of sex, transgender identity or expression, ethnicity, religion or other beliefs, disability, sexual orientation or age (SMI, 2012). Australia enacted explicit legal provisions to prevent discrimination on the grounds of HIV status (Bowtell, 2005). In other countries – such as Canada, France, the U.K. and the U.S. – HIV discrimination is barred under disability discrimination laws (Netherlands UNGASS Report, 2012; Select Committee, 2011; Center for HIV Law & Policy, 2010; Rayside & Lundquist, 1992; Steffen, 1992). In 2009, the Netherlands took steps to strengthen its HIV anti-discrimination provisions by requiring employers to develop policies for risk assessment and for minimization of the possibilities for discrimination.

High-income countries also typically protect against the improper disclosure of HIV-related information (Australian Society for HIV Medicine, 2011). Confidentiality protections are embedded in different legal or regulatory frameworks, including general health care privacy laws, HIV-specific statutes or regulations, and professional codes of medical ethics.

Anti-Stigma Measures

Media coverage of instances of HIV-related discrimination was extensive in many countries and played an important role in altering public attitudes regarding people living with HIV (Bowtell, 2005). In the U.S., Ryan White, a teenage boy who was expelled from his Indiana school because of his HIV infection, became a national symbol for AIDS awareness, and the country's main HIV care program was named after him (John, 2010).

Several countries pursued conscious media strategies designed to minimize stigmatization of people living with HIV, especially gay men. In the Netherlands, for example, public AIDS campaigns focused on behaviors rather than risk groups, with identical messages used for both heterosexuals and gay men (Hospers & Blom, 1998). Similarly, early AIDS awareness efforts in Sweden sought to portray AIDS as a “decent” disease that was not associated with any particular group (Henriksson & Ytterberg, 1992).

Immigration Policy

The right of HIV-positive people to cross national borders has long been a matter of public policy, and it remains a source of considerable international concern (UNAIDS, 2008). Several high-income countries continue to impose certain restrictions on the ability of HIV-positive people to enter their borders.

The International AIDS Conference, the largest international health conference in the world, has played an important role in highlighting the harms stemming from HIV-related travel restrictions and in driving efforts to change such laws. Despite the U.S. being one of the original partners of the International AIDS Conferences, helping to convene the first one in Atlanta in 1985, by the 1990 conference held in San Francisco, activists protested the U.S. restriction and worked to move the next conference, which would have taken place in Boston, to a country other than the U.S. The International AIDS Society subsequently established a formal policy that it would not hold international conferences in countries that refuse to allow entry by people living with HIV (Global Database on HIV-Specific Travel & Residence Restrictions, 2011). This policy prompted Canada to change its immigration restrictions to permit short-

term stays by HIV-positive people prior to the 2006 International AIDS Conference in Toronto. Likewise, the U.S. government, beginning under former President George W. Bush and culminating in a final decision under President Obama, removed its longstanding travel restrictions in 2010, opening the way for the U.S. to host the 2012 International AIDS Conference in Washington DC. (see Box 2 for further details).

The other countries studied here also do not have entry restrictions in place, though some require testing for immigration purposes. In Australia, HIV testing is required for permanent visa applicants over the age of 15 and, as with other diseases and illnesses, a residency permit will only be granted to people with HIV who are considered a low risk to public health and have access to care, although they may seek a waiver from these rules (NAPWA, 2011; Global Database on HIV-Specific Travel & Residence Restrictions, 2011). Canada also requires foreign nationals applying for permanent residence to undergo a medical examination that includes HIV testing, with admission denials issued for those determined likely to cause an excessive demand on health or social services (Canada UNGASS Report, 2012).

Non-HIV-specific immigration policies have had occasional effects on AIDS responses. In the Netherlands, for example, the imposition of broad-based restrictions on immigration beginning in 2003 resulted in fewer new residents from sub-Saharan Africa, leading in turn to declines in HIV diagnoses among individuals born in the African region (Stichting HIV Monitoring, 2011).

Community advocacy has helped prevent or reverse discriminatory immigration rules. In the U.K., for example, advocacy by the Terence Higgins Trust persuaded the government to shelve proposed rules requiring mandatory HIV testing for all asylum seekers (Global Database on HIV-Specific Travel & Residence Restrictions, 2011).

Criminalization of HIV Transmission or Exposure

A notable feature of AIDS responses in high-income countries is their disproportionate reliance on criminal and civil penalties for HIV transmission or exposure. Although HIV prevalence is below the global average in all high-income countries (UNAIDS, 2010), high-income countries account for most HIV-related prosecutions globally; the U.S. and Canada alone account for more convictions for HIV transmission or exposure than all other countries in the world combined (Global Commission on HIV and the Law, 2012). HIV-related prosecutions have been reported in every high-income country included in this review (Bernard, 2010), and the number of prosecutions under HIV-related laws has increased in high-income countries as a group over the last decade (Global Commission on HIV and the Law, 2012). Studies have not reached a clear consensus on the public health effects (such as sexual behaviors and service utilization) of these types of laws and prosecutions.

With 400 arrests and prosecutions for HIV transmission or exposure, the U.S. leads the world in the number of individuals charged with HIV-related offenses (Global Commission on HIV and the Law, 2012). On a per capita basis (prosecutions per 100 people living with HIV), Sweden has used HIV-related prosecutions more frequently than any of the countries studied, ranking third globally (behind Bermuda and New Zealand) (Bernard, 2010). Next to Sweden, Switzerland and Canada have the next highest per capita rates of HIV-related prosecutions among the eight countries studied (Bernard, 2010).

The national governments, states and provinces that collectively comprise the eight high-income countries surveyed have pursued various legal channels to punish HIV transmission or exposure. While some jurisdictions have enacted HIV-specific laws prohibiting one or more HIV-related behaviors (Center for HIV Law & Policy, 2011), legal cases in other settings have derived from use of general laws (e.g., assault, U.K. Offenses Against Persons Act) (Elliott, 2011; Crown Prosecution Service).

In the U.S., the majority of states have enacted statutes that specifically address actions by people living with HIV, such as sex with another person without disclosure or the donation of blood, organs or tissues (Center for HIV Law & Policy, 2011). Some state laws in the U.S. cover such acts as spitting, and most do not require intent to transmit HIV, or actual transmission (Center for HIV Law & Policy, 2011). In Canada, people living with HIV may be criminally prosecuted for failure to disclose their HIV status if they engage in activity that presents a “significant risk” of transmission (Canadian HIV/AIDS Legal Network, 2011). As

of 2011, prosecutions against people with HIV had been pursued in six of the eight jurisdictions in Australia (Australian Society for HIV Medicine, 2011). In France, a gay man who had never been tested for HIV was found criminally liable for infecting two former partners and sentenced to two years in prison (HIV Justice Network, 2012).

While considerable global attention has focused on the use of criminal laws to prosecute people living with HIV, civil litigation has also served as a tool for pursuing allegations of tortious exposure to HIV. In 2010, the first Australian civil case relating to the sexual transmission of HIV resulted in a damage award to the plaintiff of \$750,000 (Australian Society for HIV Medicine, 2011).

In light of the growing scientific consensus that individuals on antiretroviral therapy with suppressed viral load pose a small risk of transmission, various courts, legal commentators and AIDS advocates have argued that prosecution of treated individuals is inappropriate due to the absence of a significant risk of transmission (Canadian HIV/AIDS Legal Network, 2011). In 2009, a Geneva court invalidated an 18-month prison sentence for an HIV-positive African migrant after Swiss health officials testified that the individual posed a 1 in 100,000 risk of transmitting HIV as a result of antiretroviral therapy (Bernard, 2009). In 2012, the Swiss Federal Assembly took steps to confine HIV-related prosecutions only to intentional transmission of the virus. Representative Barbara Lee has introduced legislation in the U.S. Congress, the “Repeal HIV Discrimination Act,” that would provide financial incentives to states to remove HIV criminalization laws (H.R. 3053 HIV REPEAL Act, 2011); at publication date, Congress had not acted on the bill.

Legal Frameworks Affecting Key Populations

Populations at highest risk of HIV experience variable legal impediments that potentially affect their access to HIV treatment and prevention services. Sodomy laws were in place in some countries throughout the first two decades of the epidemic. Tasmania was the last state in Australia to decriminalize sodomy in 1997. In the U.S., a 2003 decision by the Supreme Court invalidated sodomy laws that were still on the books in 13 states (Lawrence v. Taylor, 2003). Sexual contact among men was legalized in the U.K. in the 1960s, but only in 2000 was the age of consent made the same for gay men as for heterosexuals. By contrast, anti-gay legal frameworks and homophobic public discourse held little sway in AIDS-related policy discussions in some Northern European countries, such as Sweden and the Netherlands, where the rights of gay men were well established when AIDS emerged in the early 1980s (Henriksson & Ytterberg, 1992).

The countries studied have adopted various approaches to legal provisions regarding drug use, which have affected their HIV responses. The U.S. leads the way in the legal regulation of drug use, criminalizing the possession of small quantities of illicit substances, including marijuana. This has meant, for example, that the implementation of needle exchanges has met with resistance due to the perception that such programs might undermine broader policy efforts to discourage use of illicit drugs (see section above on HIV Prevention for further information). European countries, on the other hand, tend to take a less punitive approach to drug use, imposing lighter penalties for drug use and possession, exhibiting less rigid law enforcement approaches, and often exempting marijuana from criminal sanctions (European Monitoring Centre for Drugs and Drug Addiction, 2012). Given the less punitive approaches of most European countries toward drug use, it is not altogether surprising that European countries were earlier and more consistent supporters of harm reduction approaches to drug use and HIV than the U.S.

The sale or purchase of sex is subject to extensive criminal oversight, and this has also had implications for the HIV response. In the U.S., with very few local exceptions, sex work is criminalized (see Lutnick & Cohan, 2009), and the trend appears to be toward more severe criminal sanctions on sex work in many parts of the country as a result of anti-trafficking advocacy (Weitzer, 2010). By contrast, sex work is now a legal profession in the Netherlands, with workers paying taxes and participating in the country's social security system (Van Veem, 2007). Adopting an approach to sex work weighted more toward law enforcement has sometimes had important effects on national AIDS responses; in the U.S., for example, local police often use women's possession of multiple condoms as evidence that they are engaged in illegal sex work (McLemore, 2012).

ENGAGEMENT IN THE GLOBAL RESPONSE

Key Findings

- The response by donor governments to the epidemic in low and middle income countries began in 1986, with the creation of the World Health Organization's Global Program on AIDS.
- In addition to financial assistance, donor governments provide technical assistance, support international institutions to address HIV, and invest in HIV research.
- Donor government assistance rose in the latter half of the epidemic's first decade, but remained relatively modest until 2001, when it began to rise steeply. The creation of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) in 2003 and the Global Fund to Fight AIDS, Tuberculosis, and Malaria in 2002 helped jump-start a major strengthening of global AIDS engagement of high-income countries.
- The U.S. has consistently been the largest donor to global AIDS throughout the epidemic and in 2011, provided 59% of all international AIDS assistance provided by donor governments. The U.K. provided the next largest amount, followed by France. However, taking into account the size of national economies, the U.K. provided the most funding per \$1 million GDP in 2011, followed by the Netherlands and Sweden.
- Since the onset of the global economic crisis in 2008, donor government assistance to AIDS has flattened.
- In addition to the flattening of donor assistance, other issues that face the global response by donors include challenges raised when other national priorities conflict (e.g., treatment access vs. protection of the intellectual property interests of national pharmaceutical industries), the need to better coordinate responses among donors, and the move toward promoting greater country ownership among aid recipients.

In addition to responding to HIV/AIDS within their own borders, the eight high-income countries examined have played an important role in the global response to the epidemic in low- and middle-income countries, as donors of financial assistance, providers of technical assistance, founders and supporters of international institutions to address HIV, and funders of HIV research.

This response began in 1986, the year the World Health Assembly approved the creation of the World Health Organization's Global Program on AIDS, which was launched in 1987 (Mann, 1987; Berridge, 1996). Donor nations were supportive of this multilateral route, as most did not yet have specific bilateral HIV programs in developing countries (UNAIDS 2008b). Also in 1987, the United Nations General Assembly held its first-ever session on AIDS, resulting in a resolution calling for coordinated and strong international action (UNGA, 1987; Mann, Tarantola, Netter, 1992). And in 1988, a global AIDS summit in London attracted representatives from 148 countries, with the majority of countries represented at the ministerial level (Berridge, 1996).

The United States made its first financial contribution to the global AIDS response in 1986, providing \$1.1 million to the WHO (Henry J. Kaiser Family Foundation, 2012d), and was seen as a key early supporter of WHO's Global Program (Mann, 1987). Canada also provided international assistance for AIDS for the first time in 1986, and by 1987, France, the Netherlands, Sweden, Switzerland, and the United Kingdom had also provided assistance (either through WHO or bilaterally); Australia provided funding to WHO in 1988 (Mann et al., 1992). In addition, donors began providing funding for AIDS research internationally (outside of their countries), with the U.S. providing by far the most research funding, followed by France (Mann et al., 1992).

The U.S. has historically been, and still remains, the largest donor to the global AIDS epidemic. Between 1986 and 1990, U.S. funding for global AIDS rose quickly, reaching approximately U.S.\$100 million in 1990 (Kaiser Family Foundation, 2012a). Funding by other donors during this period remained much smaller in magnitude, and fluctuated in some countries. (Mann et. al., 1992). Funding by the U.S. for global AIDS rose more slowly during the 1990s, and it was not until the next decade that global AIDS funding, driven in large part by the U.S., began rising dramatically, as donors and others began to more fully acknowledge the impact of the epidemic in developing countries.

Two major developments occurred in the early part of the first decade of the 21st Century that led to the significant rise in global AIDS funding. The first was the launch of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), proposed by President Bush in 2003, and the largest health program ever to address a single disease. PEPFAR was initially proposed as a U.S.\$15 billion effort over the initial five-year (Fiscal Years 2004-2008) period, which, according to former UNAIDS Executive Director Peter Piot, "put the debate on AIDS funding into another league, moved from the "m" word to the "b" word, from millions to billions" (Frontline, 2006). The actual amount of PEPFAR funding over its first five years reached U.S. \$18 billion.

Second was the creation of the Global Fund to Fight AIDS, Tuberculosis and Malaria, an independent multilateral financing institution designed to raise and channel new funds for combating these three diseases, which formally launched in 2002. The need for more resources had been acknowledged by donor governments at the G8 Summit in Okinawa in 2000. In 2001, former UN Secretary-General Kofi Annan called for the creation of such a fund at an African leaders summit on HIV/AIDS in Abuja. The U.S. government helped to create the Global Fund and was the first government to contribute to the Fund (Henry J. Kaiser Family Foundation, 2012e).

The prominence of AIDS within the overall global health portfolios of national governments varies. In the U.S., PEPFAR accounts for most (70%) of the U.S. global health effort (Kaiser Family Foundation, 2012). By contrast, AIDS accounts for 22% of global health spending by the U.K. (Department for International Development, 2010).

After increasing more than six-fold between 2002 and 2008, donor government assistance for AIDS began to flatten with the onset of the economic crisis, and was U.S.\$7.6 billion in 2011, roughly the same as in 2008 (Kaiser Family Foundation/UNAIDS, 2012). Indeed, while PEPFAR was reauthorized at up to U.S.\$48 billion for an additional five years, FY 09-FY 13, there is a significant gap (U.S.\$21 billion) between this target and the funding that has so far been appropriated by the U.S. Congress (Kaiser Family Foundation, 2012a).

Still, the U.S. remains by far the largest donor to AIDS in the world. In 2011, the most recent year with comparable data across donors, the U.S. provided the greatest amount of international AIDS assistance for low and middle income countries (\$4.5 billion), accounting for more than half (59.2%) of all disbursements by donor governments. The next biggest government donor was the UK (\$971 million), France (\$412.7 million), the Netherlands (\$322.3 million), Sweden (\$164 million), Canada (\$147.3 million), and Australia (\$111.1 million) (Kaiser Family Foundation/UNAIDS, 2012). When standardized by the size of government economies, however, these donors rank quite differently. The leading donor, by this measure is the UK, followed by the Netherlands, Sweden, the United States, France, Canada, and Australia.

With respect to HIV assistance, most donor government assistance from these countries is channeled bilaterally, although the balance between bilateral and multilateral funding varies by donor. The U.S. provides the bulk of its international HIV assistance bilaterally (88% in 2011), as does Australia (79%), the Netherlands (85%), Sweden (70%) and the UK (70%) (Kaiser Family Foundation/UNAIDS, 2012). Canada and France, on the other hand, fund mostly through multilateral channels (67% and 80%, respectively).

Programmatic emphasis differs among high-income country donors. The U.S., in its first five years of PEPFAR, focused on establishing and scaling up prevention, care and treatment programs, and the U.S. has led the way in scaling up antiretroviral treatment in developing countries. Its current strategy focuses on transitioning from an emergency response to promoting sustainable country programs, through country ownership and health systems strengthening, while also expanding its prevention, care, and treatment targets. It also has an increased emphasis on women and girls (PEPFAR, 2009). Australia prioritizes efforts to prevent HIV infections in recipient countries, as well as strengthening capacity to scale up programs, including integrating HIV into health services more generally, addressing legal and policy responses to support effective responses, and building the evidence base for an effective HIV response (AUSAid, 2009). Canada's global HIV/AIDS efforts are focusing on strengthening health systems and improving maternal, newborn and child health (Canada UNGASS Country Report, 2012). The Netherlands has an integrated approach to addressing HIV/AIDS and sexual and reproductive health, informed by both a human rights and a prevention perspective. Within these perspectives, the country's global AIDS efforts focus on young people and marginalized groups (Netherlands UNGASS Country Report, 2012). Sweden's main focus for its global HIV/AIDS support is on prevention, where it prioritizes gender, human rights, and youth (Sweden UNGASS Country Report, 2012). Switzerland also focuses on prevention, particularly in the context of sexual and reproductive health, and on improving access to information, services, care and treatment without discrimination, and mainstreams its HIV effort within its larger development portfolio. Finally, the U.K. focuses its global AIDS efforts on prevention, increasing access to HIV and TB services, and addressing stigma and discrimination (United Kingdom DFID, 2011).

Geographic focus for international AIDS assistance also varies among the countries studied. The U.S. and the UK, for example, primarily provide support for AIDS responses in sub-Saharan Africa (Kaiser Family Foundation, 2012d). Australia, by contrast, emphasizes AIDS assistance to neighboring Asian countries (AusAID, 2009; Kaiser Family Foundation, 2012d).

The extensive engagement of high-income countries in the global AIDS response has occasionally encountered friction with other national policy priorities. At the same time that high-income countries have supported efforts to increase access to generic pharmaceuticals in developing countries, American and European diplomacy has often advocated adoption of provisions in free trade agreements that experts believe would hinder the ability of generic manufacturers to meet future demand for HIV drugs (Gauoette, 2011). Canada, by contrast, has adopted the Canada Access to Medicines Regime, which takes formal steps to implement World Trade Organizations provisions designed to facilitate access to lower-cost medicines (Canada UNGASS Report, 2012).

CONCLUSION

As this study indicates, each of the eight countries examined, when similarly confronted with a new, unexplained disease at about the same time in history, responded in both comparable and divergent ways. One of the overarching conclusions of this analysis is that each country has demonstrated both strengths and weaknesses in their response to AIDS, with no single “best way” to respond to the epidemic discernible. The different responses have in many ways reflected variances in governance structures, cultures, and demographics of each country, although the U.S., as the only one of the eight not to have universal health care, has faced unique and pressing challenges in meeting the care needs of those with HIV.

Still, regardless of the ways in which these countries chose to respond, today they each confront similar, persistent challenges – concentrated epidemics with low prevalence among their overall populations but heavy burden among some sub-groups, particularly MSM, among whom infections are rising in several of the countries, racial/ethnic minorities, and immigrant populations; relatively high levels of undiagnosed HIV infection; challenges in delivering timely, life-preserving care and treatment to those who need it; and continued stigma and discrimination. At the same time, the countries studied have and continue to achieve important successes, such as the virtual elimination of mother to child transmission, ensuring the safety of national blood supplies, and significant reductions in HIV infections among injection drug users. In addition, the unprecedented level of community mobilization by advocates and others, and their ability to effectively partner with health officials and politicians at national, regional, and local levels, proved critical to the development and implementation of AIDS prevention efforts, care and treatment programs, as well as the acceleration of access to AIDS drugs. The AIDS experience has offered new lessons about how to approach health-related science and policy, which have been enthusiastically seized upon by advocates for other diseases and health conditions.

Given this mix of results and developments, looking ahead, all countries could benefit from remaining vigilant and re-invigorating public health efforts to control the disease among those hardest hit. The persistent concentration of HIV among MSM in the high-income countries studied -- as well as evidence in several countries that infections are on the rise in recent years -- suggests that a high-priority, policy and programmatic approach that focuses particular efforts on achieving better coverage of prevention and treatment services for this population is needed. Indeed, even in midst of a trend toward normalization, as the possibility of an AIDS Free Generation becomes more real, we may be at a critical point where there remains an important policy question about how much of an exceptional response is still needed to achieve this goal.

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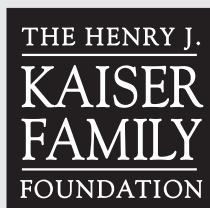
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