A shift over time in the HIV ward of one of Canada’s largest hospitals

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- Researchers reviewed admissions to a Vancouver hospital’s HIV ward, 2005 to 2014
- In later years, 61% of patients had an undetectable viral load, up from 30%
- Proportion of admissions for AIDS-related infections fell from 16% to 6%

Numerous studies have found that the use of potent combination anti-HIV therapy (ART) strengthens the immune system and overall health. ART does this by gradually reducing the amount of HIV produced to very low levels—commonly called “undetectable.” This then allows the immune system to partially repair itself.

The benefit of ART is so profound that researchers expect that many young adults who are diagnosed today and who initiate ART shortly thereafter and who maintain regular doctor and laboratory visits and who do not have addiction-related issues should have near-normal life expectancy. This is a tremendous change from the time before ART was available, when the life expectancy of an HIV-positive person was shortened by AIDS-related complications.

Given the enormous benefit of ART, researchers at the British Columbia Centre for Excellence in HIV/AIDS in Vancouver reviewed medical records from the HIV ward of St. Paul’s Hospital to assess if changes were occurring in the types of infections that patients had. The researchers focused on the period between 2005 and 2014. During that time about 1,600 HIV-positive people were admitted to the HIV ward, in some cases, twice. Researchers found that the proportion of people with AIDS-related infections and complications decreased significantly. However, there was an increase in HIV-positive people seeking care for non-AIDS-related but serious infections of the lungs, skin and soft tissue, as well as bones and joints. The research team suggested several policy interventions to improve the overall health of people in the community and reduce their risk for serious infections and hospitalization.

Study details

Researchers accessed several databases for this study.

A total of 1,595 HIV-positive people who were admitted to the HIV ward at St. Paul’s Hospital and on whom the researchers had extensive data were included in the study.

Patients were admitted to the HIV ward in the following ways:

- via the emergency department - 81%
- transfers from a different ward - 8%
- directly from the community - 5%
- transfers from a different institution - 5%

(Figures do not total 100% due to rounding.)

A brief average profile of people in the study is as follows:

- 77% men, 23% women
- age - 46 years
- 64% had a history of injecting street drugs
• 62% had been exposed to hepatitis C virus (HCV)

Results

The proportion of people with AIDS-related conditions who were admitted to the ward declined from 16% in the early years of the study to about 6% in the later years of the study. This shift was statistically significant.

A note about PCP—going back to the early ’90s

To show how much things have changed, researchers obtained a paper published in the 1990s about causes of death in the HIV ward at St. Paul's Hospital from the time before ART was available. In that era, a common AIDS-related infection that occurred was Pneumocystis pneumonia (PCP), which is caused by a fungus. In 1992, PCP was responsible for the deaths of 14% of HIV-positive people who were in the HIV ward of St. Paul's Hospital. However, in the current era, the researchers found that PCP diagnoses were made in only about 2% of patients admitted to the HIV ward.

ART, viral load and CD4+ counts

The proportion of patients in the study who were on ART at the time they were admitted to the hospital increased from 52% at the beginning of the study to 86% by the end of the study. Overall, ART was initiated by 15% of people during their hospital stay.

The proportion of people on ART with an undetectable viral load increased from 30% in the early years of the study to 61% in the later years of the study.

The average CD4+ count upon admission to the hospital in the early years of the study was 130 cells/mm$^3$ and rose to 340 cells/mm$^3$ in the later years of the study.

Diagnoses and age

The researchers found that there were some differences in people’s diagnoses that were based on their age. For instance, among people aged 50 and older, relatively common diagnoses included the following:

- chest infections (not AIDS related) – 18%
- gastrointestinal infections –7%
- obstructive lung disease – 6%
- bacterial infection of the skin and soft tissues – 5%
- liver disease – 4%

Although participants who were younger than 50 years had many of the above-listed infections and complications, they also had a significantly increased likelihood of being diagnosed with bacterial infection of the inner lining of the heart.

Injecting street drugs

The researchers noted that, regardless of age, HIV-positive people who had a history of injecting street drugs were significantly more likely than non-drug users to have the following diagnoses:

- bone and joint infections
- infection of the inner lining of the heart

Deaths

People admitted to the HIV ward had serious complications, and so it should not be surprising that nearly one-third of them died (497 people). Most (67%) of these deaths occurred in the hospital.

Reasons for trends

Over the course of the study there was a significant decline in AIDS-related diagnoses, an increased use of ART,
higher CD4+ counts and more people with an undetectable viral load. The researchers said that these trends are likely due to the enhancement of programs that increased offers of HIV testing followed by offers of ART initiation (in the case of positive test results).

**Lung disease**

The researchers pointed out that older participants “were more likely to be admitted for obstructive lung disease.” Another study has found that obstructive lung disease increases the risk for developing lung infections among HIV-positive people. In the present study, it is likely that at least some of the cases of obstructive lung disease arose as a consequence of smoking.

**Not counted**

The researchers said that the HIV ward at St. Paul’s Hospital did not have a critical care unit. As a result, HIV-positive people who required hospitalization for complications of cardiovascular disease would have been admitted elsewhere; therefore, they would not have had data points to contribute to the present study.

The researchers drew attention to a study from Alberta that found increased rates of hospitalization among HIV-positive people in the current era because of episodes of severe mental health conditions. Such patients in the current study would have been admitted to the psychiatric ward of the hospital and their data would not have been available for analysis.

**Policy implications**

The Vancouver researchers said that while significant improvements in the care of HIV-positive people have been made over the past two decades, some HIV-positive people are still going to hospitals because of serious illness. Therefore, steps need to be taken to “optimize” their care and treatment in the community, such as the following suggested by the researchers:

- “Routine HIV screening programs can be scaled up in an effort to reduce late HIV diagnoses.”
- “Improved preventive medicine and early ambulatory care for respiratory infections may help to reduce hospitalizations. Efforts to increase uptake of routine pneumococcal and influenza vaccinations for individuals with HIV and low-barrier access to urgent primary care and basic diagnostic services are needed.”
- “High rates of admission for complications related to [injecting street drugs] is another target for intervention.”
- “Increased access to harm reduction and addictions services are urgently needed in this population to further optimize health outcomes, reduce substance-use-related deaths and decrease hospital utilization.”

It is likely that at least some of the cases of obstructive lung disease reported in this study arose because of smoking. Therefore, the researchers said, “As people living with HIV age, comprehensive HIV care programs should consider offering services in smoking cessation, screening for lung disease and optimization of treatment for existing obstructive lung disease.”

**Resources**

British Columbia Centre for Excellence in HIV/AIDS

High rates of mental health and addiction care use in Ontario — CATIE News

Canadian Mental Health Association

HIV and emotional wellness

Mental health, substance use and HIV — TreatmentUpdate 219

U.S. researchers explore the impact of depression on heart attack risk — TreatmentUpdate 217

HIV and brain-related issues — TreatmentUpdate 204

Pre-fix: A guide for people with Hep C or HIV who inject drugs
REFERENCES:


Decision about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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