HIV Testing in Acute Care

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The goal of HIV testing programs is diagnosis at the earliest possible stage of infection

- Early diagnosis ensures best possible clinical outcome for the patient
- Early diagnosis prevents transmission
Early diagnosis is the exception
Proportion of Patients by CD4 Cell Count at Diagnosis, stage of infection and Year of Diagnosis

Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCE Drug Treatment Program Data.
Percent & proportion of new HIV diagnoses with ≥ 1 prior Outpatient, Lab, ER or Inpatient encounter, by CD4 count

<table>
<thead>
<tr>
<th>CD4 Count*</th>
<th>≥ 1 prior encounter</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 200</td>
<td>58% (30/52)</td>
</tr>
<tr>
<td>&lt; 350</td>
<td>60% (64/107)</td>
</tr>
<tr>
<td>&lt; 500</td>
<td>55% (97/177)</td>
</tr>
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Only 57.5% (291/506) of new HIV Dx had a CD4 count on record at time of Dx.
Comprehensive approach to HIV testing

- Routine Testing in General Health Care Settings
- Routine Testing in High Prevalence Settings
- Risk-Based Testing

- Setting
  - HIV/STI Clinics
  - Partner Notification
  - Community Outreach
  - Health Services for High Prevalence Populations
  - Hospitals
  - Family Practice Health Clinics

- Population
  - Key Populations
  - Partners of Cases
  - Individuals Seeking an HIV Test
  - Key Populations Other Clients of These Health Services
  - Entire Population
Acute Care Testing

• Three acute care hospitals in Vancouver offered an HIV test to patients presenting to hospital irrespective of perceived risk as part of general hospital care.
Routine testing in acute care is feasible

Figure 1. Number of HIV Tests at Vancouver Hospitals by Month and New Positives at all Sites, 2010-2013

Graph represents all tests ordered (except SPH Immunodeficiency Clinic) in an acute facility regardless of admission status. Values above bars represent number of positives diagnosed each month from all sites. Time parameters determined by date of test. Source: Providence Health Care Virology Laboratory Database & Vancouver General Hospital Laboratory Database.
Inpatient Results

- 12,819 HIV tests have been completed, which corresponds to **14%** of all admissions.
- 2013 test volumes to date are nearly **48%** higher than the equivalent time period in 2012.
- **40** admitted patients have been diagnosed with HIV at participating AC facilities since the launch of the Acute Care Strategy.
- Percent positivity = **0.3%**
Emergency Department Outpatient Results

- 5,452 HIV tests have been completed, which corresponds to 3.6% of all visits.
- 2013 test volumes to date are nearly 4 times higher than the equivalent time period in 2012.
- 10 patients have been diagnosed with HIV at participating AC facilities since the launch of the Acute Care Strategy
- Percent positivity = 0.2 %
## What do the patients say?

Department of Medicine: October 2011 – Mar 3, 2013

<table>
<thead>
<tr>
<th>Site</th>
<th>Number of Admissions</th>
<th>Number Offered</th>
<th>Number Tested</th>
<th>Acceptance Rate</th>
<th>% Offered</th>
<th>% Tested</th>
<th>Number of Positives</th>
<th>Positivity Rate per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPH</td>
<td>4667</td>
<td>2188</td>
<td>1844</td>
<td>97%</td>
<td>47%</td>
<td>40%</td>
<td>13</td>
<td>~ 7/1000</td>
</tr>
<tr>
<td>MSJ</td>
<td>2060</td>
<td>1258</td>
<td>975</td>
<td>85%</td>
<td>61%</td>
<td>47%</td>
<td>4</td>
<td>~ 4/1000</td>
</tr>
<tr>
<td>VGH</td>
<td>5532</td>
<td>2036</td>
<td>1669</td>
<td>96%</td>
<td>37%</td>
<td>30%</td>
<td>4</td>
<td>~ 2/1000</td>
</tr>
<tr>
<td>Total</td>
<td>12259</td>
<td>5482</td>
<td>4488</td>
<td>94%</td>
<td>45%</td>
<td>37%</td>
<td>21</td>
<td>~ 5/1000</td>
</tr>
</tbody>
</table>

6 % refuse when offered
How Acute Care Positive Patients Compare to all other Vancouver Patients

- Heterosexual
- MSM
- Advanced stage of disease

Mean CD4 ($\Delta 193$ cells per mm$^3$; 95% CI 88 – 299)

All differences are significant at $p < 0.001$
Case Details:
- 52 y.o. male
- Ethnic/language: Caucasian
- Admission diagnosis: Abdominal pain, nausea
- Admission date: June 6, 2012
- HIV test date: June 7, 2012
- Stage of disease: CD4: 100, VL: 2,679,199
- Primary care: has family MD
- Outcome: family MD to provide HIV care

Missed Opportunities - 11
- ED visits – 2 (Abdominal pain x2)
- Day surgery – 2 (GI/Cardiac)
- Community lab visits – 7 (various outpatient clinics)
Case Details:
- 48 y.o. male
- Ethnicity/language: Caucasian
- Admission diagnosis: TIA
- Admission date: Nov.18, 2011
- HIV test done: Nov.21, 2011
- Stage of disease: CD4: 70, VL: 1,061,439
- Primary Care: no primary care
- Outcome: Linked to care

Missed Opportunities - 14

- Acute care admissions – 1 (cholecystectomy)
- Day surgery – 1 (GI)
- ED visits – 6 (nasal congestion; nausea/vomiting; abdominal pain/fever; post-op complications; anorexia; abdominal pain)
- Community lab visits - 6

Admission June 2012
Case Details:
- 32 y.o. female
- Ethnic/language: Caucasian
- Admission diagnosis: Perinephric abscess
- Admission date: March 12, 2012
- HIV test date: March 13, 2012
- Stage of disease: CD4: 920, VL: 3,138
- Primary care: no family MD
- Outcome: homeless, referred to STOP Outreach Team

Missed Opportunities - 0

Patient known to use injection drugs and was last tested at SPH ED Nov 2011
Case Details:

- 31 y.o. male
- Ethnicity/language: Caucasian
- ED visit reason: Abdominal pain
- Visit date: August 20, 2012
- Stage of disease: CD4: 330, VL: >10 million
- Primary Care: Has primary care
- Outcome: Linked to care

Patient is well known to health system with approximately 19 encounters in the past 3 years. This patient is regularly tested for HIV. Last test on July 4, 2012.
Conclusions

• The majority of patients with late diagnosis have multiple missed opportunities for earlier diagnosis in the health care system

• Routine HIV testing in acute care
  – is feasible
  – in Vancouver is cost effective
  – highly acceptable to patients
  – ensures HIV testing is done when medically indicated
  – provides an opportunity for diagnosis
    • for those who do not otherwise access testing
    • for those who seek testing in the community
  – is a key component of quality health care and a comprehensive strategy for early diagnosis of HIV

• Implementation does not fit into a 10 minute presentation!