Integrating Surveillance - Essential Constituent for HIV/AIDS, Viral Hepatitis, and STDs
Control and Prevention

Michael Favorov MD, Ph.D., D.Sc., Harold Margolis MD,

CDC Central Asia Program, DIH, EPO;
Division of Viral Hepatitis, NCID;
Centers for Diseases Control and Prevention, Atlanta
What is Integrated Surveillance?

Surveillance that identifies persons with infections / diseases / conditions that often have overlapping risk factors, to achieve better public health interventions

‘Provisional Definition’

H.S. Margolis, MD - ‘Provisional Definition’, 2001
Parenterally transmitted diseases prevention problems in Central Asia

production, dissemination and consumption of illicit drugs
Parenterally transmitted diseases prevention problems 2
Reasons to Combine Viral Hepatitis, HIV/AIDS and STD Prevention
1. Viral Hepatitis, HIV/AIDS and STD – Major public health problems
Disease Burden from Bloodborne Viral Infections and TB in CAR

<table>
<thead>
<tr>
<th>Последствия</th>
<th>HBV/HDV</th>
<th>HCV</th>
<th>HIV</th>
<th>TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Infections</td>
<td>5 (million)</td>
<td>2.5 (million)</td>
<td>0.03-0.05 (million)</td>
<td>1.5 (million)</td>
</tr>
<tr>
<td>New infections</td>
<td>500,000</td>
<td>50,000</td>
<td>7,000</td>
<td>500,000</td>
</tr>
<tr>
<td>Deaths /yr</td>
<td>11,000</td>
<td>3,000</td>
<td>100 ?</td>
<td>10,000</td>
</tr>
</tbody>
</table>
2. Routes of Transmission and Opportunities for Prevention of Infection with Hepatitis Viruses and HIV Overlap Substantially
## Risk Factors for Transmission of Hepatitis Viruses and HIV in the US

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>HBV Proportion</th>
<th>HCV Proportion</th>
<th>HIV Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection drug use</td>
<td>14</td>
<td>60</td>
<td>31</td>
</tr>
<tr>
<td>MSM</td>
<td>15</td>
<td>1</td>
<td>47</td>
</tr>
<tr>
<td>Heterosexual partners</td>
<td>40</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Transfusion</td>
<td>Rare</td>
<td>Past 7-20</td>
<td>Past 2</td>
</tr>
<tr>
<td>Occupational</td>
<td>5-7 (past)</td>
<td>&lt;&lt;1</td>
<td>&lt;&lt;1</td>
</tr>
<tr>
<td>Unknown</td>
<td>30</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>
History of injection drug use among VH patients, Moscow, Russia, 1998

P < 0.001

N=611
### HIV, STI, and HCV among IDUs in Karaganda Obl., Kazakhstan, 2002

<table>
<thead>
<tr>
<th>Sites</th>
<th>HIV (anti-HIV + EIA+IB)</th>
<th>Acute syphilis (VDRL +; TPPA +)</th>
<th>Chronic syphilis (VDRL -; TPPA +)</th>
<th>Other STI (symptoms and sign)</th>
<th>HCV (two + by consecutive tests; Abbott)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temirtau</td>
<td>222/899 25%</td>
<td>103/899 11.5%</td>
<td>50/899 5.6%</td>
<td>52/899 5.8%</td>
<td>576/646 89.2%</td>
</tr>
<tr>
<td>Karaganda City</td>
<td>21/890 2.4%</td>
<td>116/890 13.0</td>
<td>57/890 6.4%</td>
<td>58/890 6.5%</td>
<td>442/605 73.1%</td>
</tr>
</tbody>
</table>
3. Lack of Integrated Prevention Activities Contribute to Ongoing Transmission of HIV, Viral Hepatitis and STI
HIV, HCV, HBV, and Syphilis among IDUs by lengths of drug use, Kazakhstan, 2002

N = 1799
HBV, HCV infections markers among new TB patients, Kazakhstan, 2002

- Total anti-HBc: 93 (40%)
- HBsAg: 108 (47%)
- IgM anti-HBc: 12 (6%)
- anti-HCV: 5 (2%)
- No Markers: 5 (5%)

n=229
HBV, HCV infections among TB patients 3 month after hospitalization, Kazakhstan, 2002

Annual Risk of infection = 0.25  
n=108

- HBV: 3 (3%)
- HCV: 101 (93%)
- IgM anti-HBV: 4 (4%)
- Negative: 3 (3%)

Annual Risk of infection = 0.25
# HBV, HCV Risk factors among TB hospital patients, Kazakhstan, 2002

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>No</th>
<th>Infected</th>
<th>Not Infected</th>
<th>RR</th>
<th>95% CI</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 100 injections</td>
<td>44</td>
<td>2 (5%)</td>
<td>42</td>
<td>0.6</td>
<td>0.12 – 2.9</td>
<td>0.7</td>
</tr>
<tr>
<td>&lt; 100 injections</td>
<td>64</td>
<td>5 (8%)</td>
<td>59</td>
<td>0.6</td>
<td>0.12 – 2.9</td>
<td>0.7</td>
</tr>
<tr>
<td>Broncho-Fibro Scope</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>24</td>
<td>4 (17%)</td>
<td>21</td>
<td>4.4</td>
<td>1.1 – 18.5</td>
<td>0.05</td>
</tr>
<tr>
<td>No</td>
<td>83</td>
<td>3 (4%)</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pleura Puncture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>21</td>
<td>4 (19%)</td>
<td>17</td>
<td>5.5</td>
<td>1.3 – 22.8</td>
<td>0.03</td>
</tr>
<tr>
<td>No</td>
<td>87</td>
<td>3 (3%)</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* - Two Tail Fisher Exact Test
HIV infection cases among IDUs in TB treatment hospital, 2003

Number of tested = 180
4. Lack of national programs for integrated prevention activities leads to transmission of viral hepatitis, HIV/AIDS and STD
Challenges

- Funding and/or referral sources for: vaccines, lab tests, medical care
- Incorporation of viral hepatitis prevention messages into “client-centered” counseling
- Staff of other programs (HIV/AIDS, STD, drug treatment, corrections) may not see viral hepatitis prevention as part of their job
- Funding of prevention services flows through separate programs (hepatitis, HIV/AIDS, STD, immunization, corrections)
Implementation of integrated sentinel surveillance for HIV, HCV and Syphilis in Central Asia Region
Regional Integrated Surveillance Sites for HBV, HCV, HIV and Syphilis in Central Asia, 2003

HIV surveillance
Established sites
Proposed HIV surveillance sites
First round data of sentinel integrated surveillance program implementation
(linked anonymous surveillance)

• **Injection drug users (N= 1040)**
  – Snow ball methodology with initial recruitment through narcology clinics

• **Sex workers through street networks (N= 535)**
  – Cluster recruitment in the points where SW seeking for clients

• **Prisoners (N= 1540)**
  – Random sampling based the prisoners list

• **MSM — (N=100)**
  – Volunteers recruited through NGO

• **Pregnant-(N=2170); STI patient — (N=1569)**
  – All people seeking for medical help at neonatal and STI clinics

**Total N=6954**
Anti-HCV and anti-HIV among IDUs in Kazakhstan, 2003

62% 6% 59% 40% 6%
Anti-HIV, anti-HCV among SWs in Kazakhstan, 2003
Regional sentinel integrated surveillance program implementation components:

• Mutual trust
• multi-purpose training programs
  – Policy implementation and modification (Prikazi)
  – Comprehensive laboratory training
  – Epidemiology training for HIV centers, SES system, MoH employers
  – Apply Epidemiology Training Program (two years CDC-EIS type course in the region)
  – Internet, Epi-Info, General computer use training for all specialists involved
  – Training and technical support of bulletin on Infection Diseases publishing for CAR countries
  – Ethical training, country ethical committee established
Integrating prevention services for viral hepatitis, HIV/AIDS, STDs and drug abuse is GOOD PUBLIC HEALTH
Acknowledgement -
Gulzhan Muratbayeva MD, Ph.D., Tatiana Kalashnikova MD, Ph.D., D.Sc., Umid Sharapov MD, Andrew Dadu MD, Baurzhan Zhussupov, Maureen Sinclair MHP, Ed Maes Ph.D.;
Central Asia Program, Division of International Health, Epidemiology Program Office, Rachel Bronzan, MD, MPH, Shakarishvili, Anna, MD, MPH; International Activities Unit, Division of STD Prevention, National Center for HIV, STD and TB Prevention,
Jan Drobeniuc MD, Ph.D.; Division of Viral Hepatitis, Centers for Disease Control and Prevention Atlanta, USA
Nikolay Kuznetsov MD, Valeriya Kryukova MD, Zoya Tukhtina MD, Karaganda HIV Control and Prevention Center, Sholpan Baimursina MD, Temirtau HIV Control and Prevention Center, Isidora Erasilova MD, Nataliya Kevtunenko MD, Viktoriya Zeman MD; Kazakhstan Republic HIV Control and Prevention Center, Kanat Ermekbaev MD; Karaganda Oblast Health Commissioner,
Anatoliy Belonog MD, Aigul Kairolapova; Ministry of Health, Kazakhstan Republic, Ministry of Health
Svetlana Demenkova MD, Andrew Mikhailov, Ric Golubjatnikov Ph.D.,MPH, John Doyle MD, Ph.D.;
Almaty Sexual Transmitted Infection Diagnostic Laboratory in affiliation with Wisconsin State Laboratory of Hygiene, Wisconsin, USA
Nurali Amanzhelov, NGO “Shapagat”
Almaz Sharman MD, Ph.D., D.Sc., Jennifer Adams Ph.D., Kerry Pelzman; Central Asia Office,
The United States Agency for International Development