Prevention transmission strategies through strengthening health systems

Maia Butsashvili, MD, PhD
Health Research Union, Tbilisi, Georgia
Transmission risk

• For the first time, we potentially have an opportunity to eliminate HCV.
• It is clear that access to treatment will have a tremendous impact on transmission.
• However, without community wide control, new cases will emerge.
• An important consideration is the risk of recurrence through reinfection.
• Risk of new infection and reinfection is particularly high in LMICs - ongoing risk of HCV infection via nosocomial and injecting drug use pathways.
Transmission risk

• Following SVR, a large proportion of patients will have the risk of becoming reinfected with HCV.

• Meta-analysis of studies estimating recurrence with HCV after SVR estimated a recurrence rate of 1.85 per 1,000 patients per year for mono-infected, low risk patients and 22.32 per 1,000 patients per year - PWID and prisoners.

• The estimated 5-year risk of recurrence was 0.95% and 10.67%, for low and high risk patients, respectively.
What is a health system?

• Health system consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health.

• This includes efforts to influence determinants of health as well as more direct health-improving activities.

• A health system is therefore more than the pyramid of publicly owned facilities that deliver personal health services.

• It includes, for example, private providers; behavior change programs; health insurance organizations; occupational health and safety legislation.
The six building blocks of a health system

• Effective, safe, quality health interventions to those who need them, when and where needed, with minimum waste of resources.

• Well-performing health workforce (sufficient numbers and mix of staff, fairly distributed, competent, responsive and productive).

• Production, analysis, dissemination and use of reliable and timely information on health determinants, health systems performance and health status.
The six building blocks of a health system

- Equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness, and their scientifically sound and cost-effective use.
- Good health financing system raising adequate funds for health, ensuring people can use needed services.
- Leadership and governance ensuring strategic policy frameworks exist and combined with effective oversight, coalition building, provision of appropriate regulations and incentives, attention to system-design, and accountability.
Health system strengthening is defined as improving six health system building blocks and managing their interactions in ways that achieve more equitable and sustained improvements across health services and health outcomes.

It requires both technical and political knowledge and action.

“As health systems are highly context-specific, there is no single set of best practices that can be put forward as a model for improved performance”.

*Margaret Chan*
Weaknesses of health care system facilitating transmission

Inadequate
- Training of healthcare professionals;
- Infection surveillance and response systems;
- Infection control;
- Contact tracing;
- Laboratory systems;
- Information systems;
- Networking and coordination systems;
- Community ignorance and absence of community engagement.

Without improvements in the performance of health systems, the world will fail to meet the elimination Goal.
Strengthening health system to prevent HCV transmission

Example of HCV elimination program in Georgia
High prevalence of HCV in Georgia

- Georgia is a lower-middle income country located in Eastern Europe, with a population of 3.7 million
- Recent national serosurvey in 2015 (with US CDC support) estimated 7.7% anti-HCV prevalence
- Chronic HCV infection (RNA positive) - among 5.4% (estimated 150,000 adults aged ≥18 years living with HCV)
- 57–92% seroprevalence - people who inject drugs (PWID)
- 17% among men who have sex with men
- 4–12% among health care workers
Targets: 90-95-95

90% Diagnosed
95% Treated
95% Cured
Anti-HCV risk factors

All Anti-HCV+ Participants

- IDU only: 33.6%
- Blood transfusion only: 15.1%
- Both: 46.7%
- Neither reported: 4.6%
<table>
<thead>
<tr>
<th>Stage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV RNA tested</td>
<td>43,821</td>
</tr>
<tr>
<td>HCV RNA Positive</td>
<td>40,676</td>
</tr>
<tr>
<td>Completed work-up and await case review</td>
<td>38,197</td>
</tr>
<tr>
<td>Case reviewed by committee</td>
<td>36,831</td>
</tr>
<tr>
<td>Authorized to begin treatment</td>
<td>36,791</td>
</tr>
<tr>
<td>Initiated HCV treatment</td>
<td>36,188</td>
</tr>
<tr>
<td>Completed treatment</td>
<td>31,840</td>
</tr>
<tr>
<td>Cured**</td>
<td>18,732</td>
</tr>
</tbody>
</table>

** of 27,864 (87.5%) patients eligible for SVR assessment, 19,800–were tested, 18,732 (94.6%) achieved SVR, 8,064 (25.3%) missing data.
Contributing factors to the high HCV burden

• Transmission associated with poor infection control in healthcare settings
• Inadequate blood-bank practices
• Outbreaks of hepatitis B due to unsafe healthcare practices have been documented, including in hemodialysis units.

Study in one hemodialysis center in Tbilisi found that 67% (109) of 162 patients tested positive for HCV infection.

Problems likely exacerbated by the collapse of the Georgian healthcare system during the 1990s.
Gaps in health system

**Blood safety**

- Elimination of transfusion-transmissible infections (TTI) - challenge for the national health system for several reasons, including decentralization of blood transfusion services.

- No management body identified at the national level to conduct surveillance of blood transfusion practices, creating obstacles for the development of an effective system of quality blood production and clinical use.

- Only 12 of the 18 licensed blood establishments were engaged in State Safe Blood Program, compromising quality control.
Gaps in health system

**Blood safety**

- Profit-based management of blood establishments raised important ethical and safety concerns.
- Remunerated donations made up approximately 70% of total donations, presenting a serious challenge in safe blood provision.
- Outdated legal provisions for blood collection that failed to comply with European Union (EU) regulations and WHO standards
- Outdated National Blood Registry and several blood establishments which were not joined to the Registry.
Strengthening health system to prevent TTI


• Establish a technical workgroup of local and international experts in blood transfusion safety to advise on all elements involved in establishing a modern blood transfusion system in Georgia.

• Establish lead agency responsible for supervision of all blood transfusion practice.

• Revise respective legislative acts and harmonize with EU Directives and WHO Global Strategic Plan.
Strengthening health system to prevent TTI

- Upgrade licensing requirements
- Establish legislation for blood transfusion service quality assurance and quality control.
- Establish legislative provisions for transition of the existing profit-based management of blood establishments to non-profit legal status.
- Establish regulations to fully substitute regular paid donations with voluntary non-remunerated donations.
Strengthening health system to prevent TTI

• Establish centralized TTI testing capacity.
• Establish infrastructure and logistics for centralized TTI testing laboratories at central and regional levels.
• Introduce pooled NAT or other sensitive tests (i.e., HCV Ag, HIV combo) for TTI testing.
• Support transition from paid donations to voluntary, non-remunerated donation system.
• Standardize donor selection and blood testing processes (Develop national guidelines/standards for donor selection and standards of blood testing for TTI (including HCV).
• Develop and implement a quality-control system for blood production and testing.
• Upgrade the National Blood Registry.
Gaps in health system

**Nosocomial transmission**

- Inadequate infection prevention and control (IPC) measures remained a substantial risk for HCV transmission in Georgia.
- Many hospitals did not have established IPC programs and therefore were unable to implement effective surveillance for nosocomial infections.
- HCWs unfamiliar with existing national IPC regulations and standards.
- HCWs did not always follow safe-injection procedures.
- Equipment was not properly sterilized in many hospitals due to:
  - lack of perceived importance; old equipment; inappropriate pre-sterilization and monitoring of sterilization procedures; poor recordkeeping on the sterilization process; and mismanagement of medical wastes.
- No SOPs in place on management of HCWs exposed to infectious material.
Strengthening health system to prevent nosocomial transmission

- Revise and distribute National IPC guidelines based on WHO core components for IPC programs and CDC IPC guidelines.
- Create and enforce national policies to include patient and HCW safety (e.g. needle-stick injury programs, PEP, and HBV vaccination for HCWs).
- Expand existing IPC committees in hospitals, develop and activate IPC committees in all other hospitals, and ensure that all committees follow updated national IPC guidelines and policies.
Strengthening health system to prevent nosocomial transmission

- Expand IPC education program to include all cadres of health staff to include exploring opportunities for IPC training (e.g., pre-service, in service, and graduate studies).
- Develop and implement National Sterilization and Disinfection Guidelines and observation checklists.
- Educate all appropriate staff in hospitals and dental clinics on sterilization and disinfection guidelines and SOPs during pre-service and in-service training; disseminate observation checklists.
Strengthening health system to prevent nosocomial transmission

- Implement EU regulations on waste management in medical institutions.
- Review available policies addressing waste management; revise/develop policies
- Develop guidelines and SOPs for waste management in medical institutions based on EU regulation standards.
- Conduct medical waste management trainings for HCWs
- Provide appropriate personal protective equipment (PPE) to HCWs and provide training on PPE use.
Strengthening health system to prevent nosocomial transmission

- Assess overuse of injections nationally
- Conduct nationally representative assessment of injection-safety practices in Georgia using WHO methodology
- Introduce/expand use of auto-disable syringes universally.
- Develop and implement national guidelines on injection safety based on WHO best practices, injection safety tool kit, and information from the baseline assessment
- Develop resources for safe-injection practices (e.g., IEC posters, flyers, stickers, SOPs, and observation checklists).
Gaps in health system

Non-traditional healthcare
and other community settings

• Although anecdotal and limited research suggest that non-traditional and community settings may pose a risk for HCV transmission, the extent of this risk unknown.

• Survey of beauty, tattoo, and piercing salons and acupuncture clinics (2015) - substandard infection control practices, indicating that the risk of HCV transmission in non-traditional and community settings could be significant.

• There was no legislation on infection-control procedures in these settings.
Strengthening health system to prevent transmission in non-traditional healthcare and other community settings

- Develop and enforce state regulations/policies for IPC during aesthetic and cosmetic procedures (this may entail certification or licensure program for these facilities).
- Develop and implement SOPs on sterilization, disinfection, safe injections, and waste management in these facilities.
- Implement monitoring of IPC measures in beauty, tattoo, and piercing salons and in acupuncture clinics.
- Conduct IPC basic training for service staff.
Thank You