



Cost- Effectiveness of the HCV treatment program in Georgia

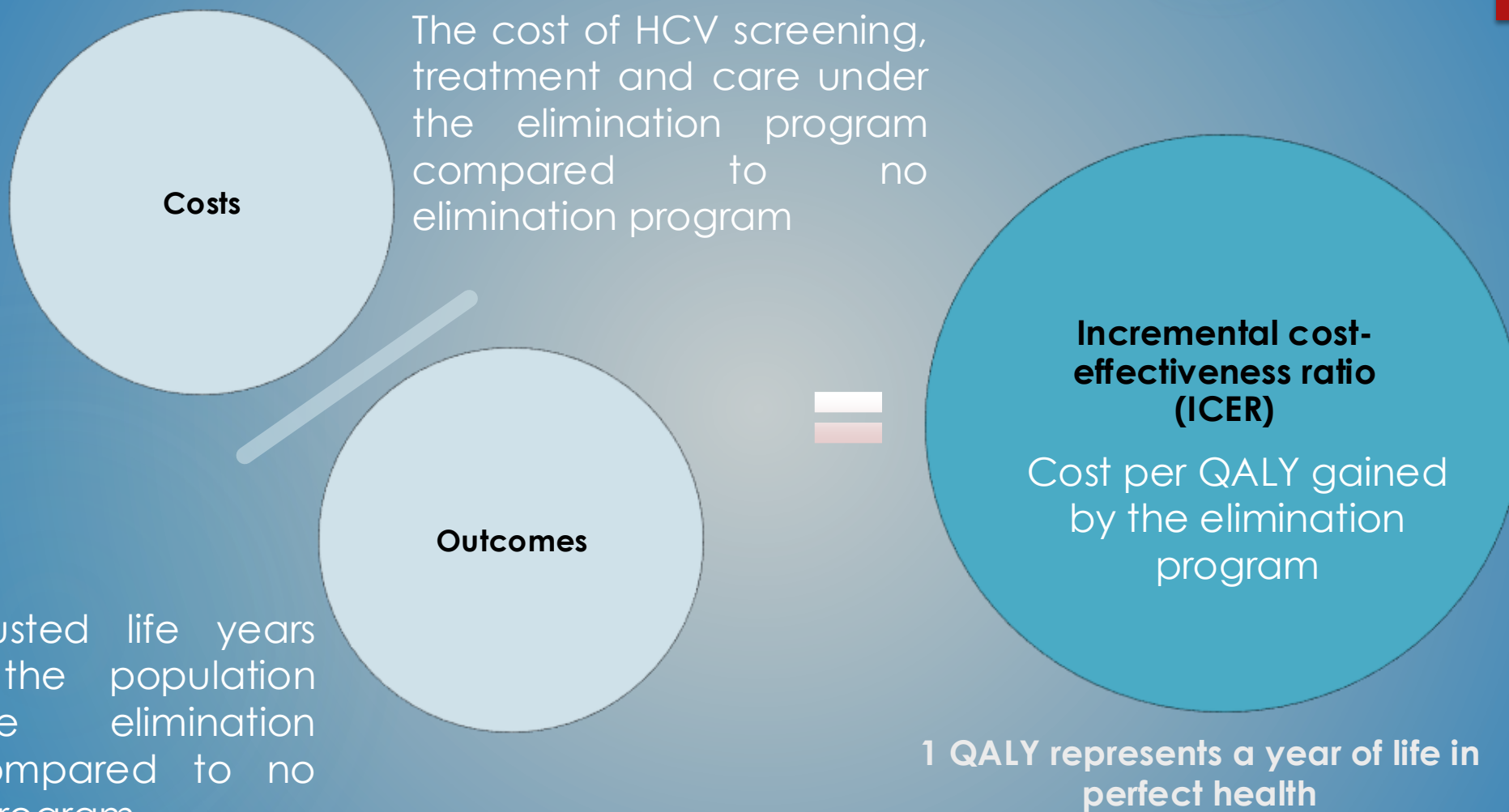
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What is Cost Effectiveness Analysis?



Quality adjusted life years (QALY) in the population under the elimination program compared to no elimination program

How do we decide what is cost-effective?

- ▶ Cost/QALY – how much is the government willing to pay (WTP) for a year of healthy life?
 - ▶ Paying for a new intervention should not mean we can no longer afford other effective interventions
- ▶ Standard WTP threshold is GDP per capita
 - ▶ GDP per capita \$ **4,357** for Georgia in 2017
 - ▶ willingness-to-pay threshold **of \$1,337 in 2022**



Background

- ▶ Hepatitis C treatment within Georgia's elimination program began in April 2015
- ▶ Initially, treatments were offered to patients with cirrhosis/advanced liver disease, opened up to all patients in June 2016
- ▶ From the end of 2017, core antigen testing was introduced, as well as and patient co-payment for confirmation testing was eliminated
- ▶ In 2017 GeneXpert as alternative for testing was introduced donated by FIND (GeneXpert purchased by GoG-2020)
- ▶ Genotyping (GT) and other diagnostics became free from September 2018
- ▶ Pan genotypic regimen -January 2020 (GT testing was eliminated)



Scope of this analysis

- ▶ Cost-effectiveness of HCV screening and treatment from April 2015 to November 2017...
 - ▶ Cost per QALY gained,
 - ▶ Compared to no elimination program,
 - ▶ Perspective of government [and of the patient]

Scope of this analysis (Cont.)

We looked at the screening and care cascade costs for the following HCV models in the period of 2018–2022:

- ▶ Hospital sector screening model (centralized model)
- ▶ Hospital sector screening model (decentralized model)
- ▶ Primary healthcare screening model
- ▶ Harm reduction screening model
- ▶ HCV provider site screening model [started in 2015]

Patient-level treatment costs were calculated, including the economic cost of donated drugs. We estimated the total cost per patient treated accounting for screening yield and linkage-to-treatment.



Methods

- ▶ Patient-level cost data from MoH reimbursement records
 - ▶ Provider perspective plus patient co-payments (eliminated 2019)
- ▶ Estimated drug costs for generics from registration records of market price (DAAs donated by Gilead)
- ▶ Each patient assigned to screening pathway based on screening site:
 - ▶ comparison of cost between different screening pathways
- ▶ Cost of diagnosis per patient based on antibody and chronic prevalence in each pathway and unit costs of diagnostic tests

Results 1st phase

The total cost of screening and treatment, averaged across 41,483 patients and discounted at an annual rate of 3%.

Scenario	MOH	Patient	DAA Price	ICER
Base case	0	0	0	0
Treatment	\$386	\$225	\$80,656	\$2285 /QALY

average weighted unit costs:

- Screening: \$5.1 in 2015; **\$22.6 in 2017**
- HCV RNA confirmation: \$54 - **2015; \$42-2017**
- Diagnostics: **\$92**
- Treatment monitoring: **\$176 in 2015; \$27.4 in 2017**

Table notes:

Baseline: No HCV elimination programme

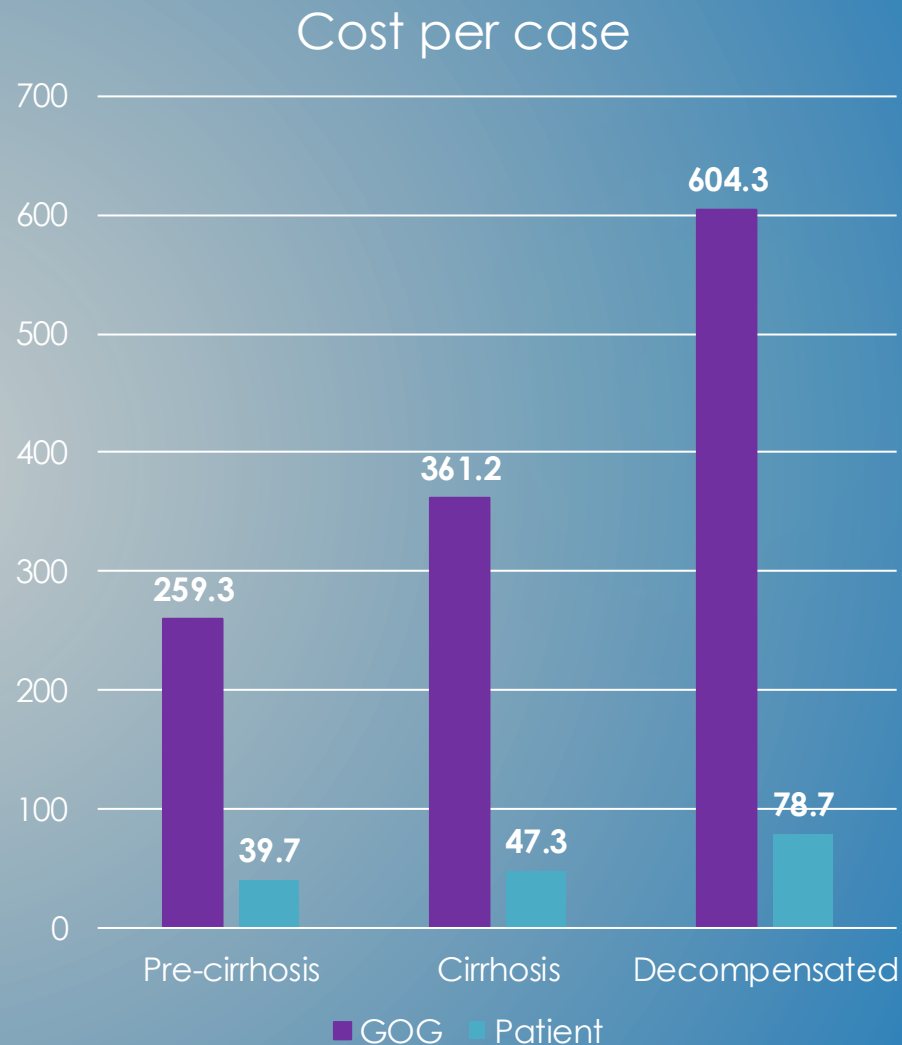
Treatment: HCV elimination programme

Results liver complications

Cost of the vertical programme per patient
(2015-2030)

Perspective	Base case	Treatment program
MOH	\$368	\$271
Patient	\$48	\$36

- Treatment reduces the costs of liver disease care over time.



Impact of treatment

41,483 treatments given by November 2017 led to:

- ▶ 32,266 QALYs gained by 2030
- ▶ 2,673 deaths averted by 2030
- ▶ 16,225 new infections averted by 2030

HCV Screening and Treatment Cascade by Service Delivery Setting, 2018–2022

All cascade steps shown without highlighting; percentages are calculated against the previous relevant step.

Cascade step	Hospital Centralized (2018–2022)		Hospital Decentralized		Primary Health Care		Georgia Harm Reduction Network		HCV Provider (2018–2022)	
Tests Conducted	1,047,456		969,697		119,186		5,505		118,460	
Unique Persons Screened	667,124		700,212		98,182		5,204		92,116	
Anti-HCV Positive	15,469	2.3%	18,146	2.6%	1,173	1.2%	923	17.7%	8,123	8.8%
Tested for Viremia	11,734	75.9%	14,434	79.5%	811	69.1%	812	88.0%	7,494	92.3%
Current HCV Infection	8,192	69.8%	9,338	64.7%	648	79.9%	649	79.9%	5,844	78.0%
Enrolled in Program	4,502	55.0%	6,040	64.7%	477	73.6%	504	77.7%	5,134	87.9%
Started Treatment	4,233	94.0%	5,632	93.2%	459	96.2%	469	93.1%	4,889	95.2%
Completed Treatment	3,895	92.0%	5,184	92.0%	430	93.7%	422	90.0%	4,558	93.2%
Eligible for SVR	3,750	96.3%	4,891	94.3%	419	97.4%	403	95.5%	4,413	96.8%
Tested for SVR	2,823	75.3%	3,279	67.0%	323	77.1%	300	74.4%	3,177	72.0%
SVR Achieved	2,785	98.7%	3,238	98.7%	313	96.9%	292	97.3%	3,115	98.0%

Results alternative scenarios

Screening pathway	Base case: full health-system costs	Excluding donated DAA costs	Using 2022 programme costs
Centralized hospital	\$5,752	\$298	\$630
Decentralized hospital	\$4,258	\$59	\$476
Specialized provider	\$4,948	Cost-saving	Cost-saving
Harm reduction	\$3,464	Cost-saving	Cost-saving
Primary healthcare	\$4,870	Cost-saving	Cost-saving

Conclusions

- ▶ Case-finding and linkage to care now majority of cost of treatment
 - ▶ Highest in hospital and primary care settings where prevalence low
- ▶ Cost of treatment appointments and monitoring fairly stable despite some simplification over time
- ▶ DAA costs likely no longer as much of a financial barrier as case-finding
- ▶ Previous study has shown that the first phase of HCV elimination program highly cost-effective in Georgia
 - ▶ Initial treatment of cirrhosis – improved cost-effectiveness
 - ▶ Drug donation allowed lower costs to government
- ▶ Despite reductions in the linkage from testing to treatment, the cost of treatment decreased substantially across all pathways over time due to reductions in drug costs and simplification of evaluations required before and during treatment



Consequences of missed linkage or bottlenecks

Patient level

Untreated curable infection; continued risk of cirrhosis, liver cancer, and premature death

Population level

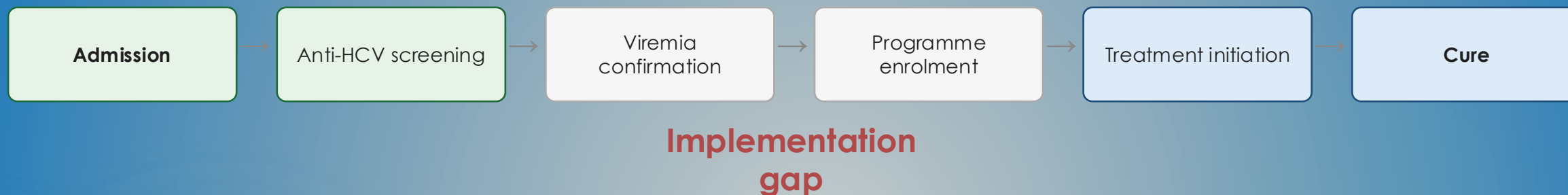
Ongoing transmission and slower progress toward elimination targets

Economic level

Screening and diagnostic resources are spent, but the main benefit—cure—is not realized

Targeted Questions for Discussion

Georgia has a highly effective HCV programme — but programme availability does not guarantee treatment initiation



Economic question: what value is lost when people are identified but not linked to treatment?

Economic question: Weak linkage means in economical terms?



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Thank you!
Questions

