Economic analyses for hepatitis elimination

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Summary

Cost effectiveness of Direct Acting Anti-virals (DAAs) for HCV from a payers’ perspective

The cost effectiveness of HCV treatment depends on:

- Disease in the population (mortality, genotype, etc.)
- Cost of interventions (DAAs, tests)
- Cost of sequelae of HCV infection
  - Cirrhosis, liver cancer, extra-hepatic manifestations

Next step: How can economic analyses guide viral hepatitis elimination?
Economic analyses for hepatitis elimination

1. Why?
2. When?
3. How?
4. What help is available?
Economic analyses for hepatitis elimination

1. Why do an economic analysis?
2. When?
3. How?
4. What help is available?
Economic analyses (SD1) are relevant to financing (SD4)

Assigning resources efficiently to the 5 core interventions of the strategy

**INCREASING EFFICIENCIES:**
- Reduce budget impact
  - Choice of high impact interventions
  - Simplified management
  - Price reduction strategies (diagnostics, medicines)
  - Improving service delivery

**IDENTIFYING FINANCING SOLUTION:**
- Inform resource allocation
  - External and domestic funding
  - Innovative financing
  - Fair allocation of budget

SD: Strategic direction
Country experience with economic analyses

HEPATITIS B IN CHINA: What pricing is acceptable?
- Assessment of cost effectiveness of hepatitis B treatment
- Identification of the right pricing level

HEPATITIS C IN AUSTRALIA: What strategy should be used?
- Cost effectiveness of elimination
- Assessment of various scenarios
  - Mortality reduction
  - Elimination
  - Treatment of persons who inject drugs
Economic analyses for viral hepatitis elimination

1. Why?
2. When is an economic analysis useful?
3. How?
4. What help is available?
Strategic information needed at the various stages of the national policy management cycle

1. Assessment
   - Prevalence estimates
   - Prevention indicators
   - (Mortality baseline)

2. Writing the plan
   - Estimation of the size of the population that needs treatment
   - Economic analyses

3. Implementation
   - Prevention indicators
   - Cascade

4. Evaluation
   - Prevention indicators
   - Testing capacity
   - Cascade
   - Impact
A time sequence from epidemiology to economics and financing

1. Assess, including epidemiological situation
2. Model the impact of various interventions
3. Estimate of costs
4. Conduct economic analyses
5. Measure budget impact
6. Dialogue with stakeholders

SD 1; Epidemiological and economic analyses: Is this a good use of resources?

SD 4; Financing: Where to obtain funds?
Economic analyses for viral hepatitis elimination

1. Why?
2. When?
3. How should an economic analysis be conducted?
4. What help is available?
Productivity gains are measured in the increase in Gross Domestic Product; ‘full income’ measures the value of health gains using the statistical value of life years or similar methods.

Start with cost effectiveness first, and consider investment case if needed

1. Cost effectiveness analysis: What is the cost to the health system of a specific health gain?
   - Cost per health outcome: Net cost / outcome (Incremental cost effectiveness ratio)
   - Identifies ‘best buys’ for priority setting within the Ministry of Health

2. Cost benefit analysis / investment case: Do we need additional investment?
   - Gains in productivity and in health (‘full income’)*: Benefit-cost ratio, or return on investment
   - Determines if additional investment is justified for the Ministry of Finance
   - Relevant if major impact on society (High burden countries)
   - Should not bypass priority setting by Ministry of Health

* Productivity gains are measured in the increase in Gross Domestic Product; ‘full income’ measures the value of health gains using the statistical value of life years or similar methods.
Steps of an economic analysis

Understand assumptions to remain in control

1. Frame the problem
   • Agree on the analytic horizon (sequelae occur 20-30 years after infection)
2. Identify interventions
3. Define outcome measures (e.g., infection, cirrhosis, death, DALY/QALY)
4. Estimate net costs
   • Cost of programme – cost of infections, cirrhosis, hepatocellular carcinoma
5. Estimate effects of the intervention (e.g., cure rate)
6. Compile costs and effects
   • Incremental cost effectiveness ratio (ICER / DALY)
   • Cost-benefit ratio (return on investment): considers productivity gains and health gains
7. Perform sensitivity analysis

WHO CHOICE is a reference standard

DALY: Disability Adjusted Life Year; QALY: Quality Adjusted Life Year; ICER: Incremental cost effectiveness ratio
Interpreting results: Cost effectiveness ratio

The incremental cost effectiveness ratio is only a price tag; it should be used along with other priority setting criteria.

- **Evidence base**
  - Are we modelling hypotheses or are we confident the intervention works?

- **Specificity**
  - Will the intervention impact other outcomes (e.g., infection control)?

- **Feasibility**: Are we confident the health system can take on the intervention?

- **Acceptability**: Is the society ready in terms of stigma, discriminations, laws?

- **Ethics**: Will the approach benefit the poor and disadvantaged?
Interpreting results

THRESHOLDS

• ICER can be expressed in GDP / capita
• Thresholds not used for in country decision making
  • Only international comparisons

COST SAVING

• If cost of intervention = savings to health system (net cost = 0), cost neutral
  • But funds have to be disbursed upfront
• If cost of intervention < savings to health system (net cost < 0), cost saving
• Health / human life is a wealth the society is willing to pay for

ICER: Incremental cost effectiveness ratio; GDP: Gross Domestic Product
Economic analyses for viral hepatitis elimination

1. Why?
2. When?
3. How?
4. What help is available from WHO?
Economic analysis of the core interventions of the elimination strategy

No need to re-do work already done

✓ **Hepatitis B vaccine**
  • Documented cost effective / cost saving > 15 years ago when the price was much higher

✓ **Injection safety**
  • Documented highly cost effective in all WHO regions in 2003

✓ **Harm reduction**
  • Documented cost effective as an HIV prevention intervention
Towards a modular approach for economic analyses of testing and treatment

Module of cost effectiveness of HCV treatment

Module on cost effectiveness of HBV treatment

Module on cost effectiveness of testing approaches

Preliminary questions to address:
- Cost of testing kits
- Cost of diagnostic strategies
- What approach is effective at diagnosing a certain proportion of the population infected?

Let’s first make sure identified patients are treated
Take home messages

WHY?
• Economic analyses can help you adjust programme efficiency or justify investment

WHEN?
• In the planning stage

HOW?
• Start with cost effectiveness analyses from the payer’s perspective (CHOICE)
  • Use cost benefit analysis if clearly understood

WHAT HELP IS AVAILABLE?
✓ WHO tools to estimate the cost effectiveness of HBV / HCV treatment
➢ Economic analysis of testing is work in progress
Thank you

WHO will be happy to assist further