Cost-effectiveness of HCV Treatment among HIV-Positive Individuals in Myanmar

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Introduction

Objectives

To evaluate the cost of treatment delivery and cost-effectiveness of the MSF-HCV treatment program among HIV/HCV coinfected patients in Dawei, Myanmar

Methods

Setting and model of care

• Data collected from a prospective cohort study evaluating HCV DAA-treatment in a HIV clinic in Dawei, Myanmar

• Included HCV chronically infected (RNA+) patients initiated on interferon-free DAAAs, sofosbuvir (SOF) + daclatasvir (DACV) (SOF+DAC+ribavirin (RBV)) from Nov 2016-Oct 2017

Costing methods

• Patient-level micro-costing using an ingredients approach from a program provider’s perspective

• Obtained costs from financial records and prices from receipts and price lists from Jan-Dec 2017. Personnel time and effort determined through interviews and staff diaries

• Patient-level resource use (Visit number/type, exams, labs, treatment, outcomes) extracted from electronic patient database

• Local and country HCV coordination costs included

Cost Effectiveness Evaluation Methods

• Model: Constructed closed cohort Markov HCV disease progression model among HIV-infected individuals, including chronic HCV infection (METAVIR stage F0, F1, F2, F3), compensated cirrhosis (CC), and hepatocellular carcinoma (HCC), stratified by treatment history and outcome. Disease state transitions reflected accelerated liver disease progression and excess mortality from HCC/HIV coinfection

• Comparator: HCV DAA treatment for HIV/HCV infected individuals compared to no HCV treatment

• Outcomes and horizon: Costs (in 2017 USD$) and health disutilities (in disability adjusted life years, DALYs) attached to each disease stage

• Utilities: Health disutilities obtained from 2013 Global Burden of Disease Study for HIV and HCV disease stage. Coinfection disutility calculated by [1−{(1-HIV disability weight)*(1-HCV disability weight)}]

• Methods: Probabilistically sampled parameters from uncertainty distributions, generating 1,000 parameter sets. Calculated mean incremental cost-effectiveness ratio (ICER, mean incremental costs/mean incremental DALYs averted)

• Also evaluated simplified treatment protocol, consisting of task-shifting from doctors to nurses, fewer clinical/lab evaluations

• Based on WHO recommendations, evaluated as highly cost-effective under willingness-to-pay threshold of one-times the per capita GDP in Myanmar ($1299 in 2017) and cost-effective under 3-times per capita GDP ($3897)

Results

• From November 2016 to October 2017, 122 patients were treated: 66 stage F0-F3, 56 CC/DC, 96% (%n=117) achieved SVR

• Under the current treatment protocol, DAA treatment cost was $1226 (95%CI 855-1512) for fibrosis stages F0-F3, and $1967 (95%CI 1286-2287) for CC/DC (Figure 1). Roughly half (52%) of costs were due to drug costs.

Table 1. Incremental cost-effectiveness of current HCV treatment delivery among HIV-infected individuals in Myanmar

<table>
<thead>
<tr>
<th>No treatment</th>
<th>Cost (USD) per capita</th>
<th>DALY per capita</th>
<th>Incremental cost</th>
<th>Incremental DALYs averted</th>
</tr>
</thead>
<tbody>
<tr>
<td>501.28</td>
<td>337.04</td>
<td>128.93</td>
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<td>1537.29</td>
<td>1432.96</td>
<td>1624.84</td>
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<td>1290</td>
<td></td>
<td>-1.19</td>
<td>-1.33</td>
</tr>
</tbody>
</table>

• Compared to no treatment, HCV treatment among HIV-infected individuals resulted an ICER of $1289/DALY averted (Table 1)

• A simplified treatment protocol could result in an ICER of $456/DALY averted compared to no treatment

Conclusions

• HCV treatment of HIV-infected individuals in Myanmar is highly cost effective

• HCV treatment among HIV-infected individuals has the potential of being even more cost-effective utilizing a simplified treatment protocol fewer overall evaluations and task-shifting to nursing staff from doctors as long as this does not result in poorer treatment outcomes

• While this study evaluated an MSF HCV treatment program, these results can be informative to the Ministry of Health in Myanmar and other similar LMIC settings.