Good ART patient outcomes and survival achieved in a 5-year HIV/AIDS program in Cambodia

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BACKGROUND
The first HIV-clinics in Cambodia opened in the early 2000s. By 2008, 92% of individuals in the country who were eligible for antiretroviral treatment (ART) were actually receiving therapy, and ART scale-up efforts have thus been deemed successful.

OBJECTIVES
We assessed the effectiveness of two of the earliest HIV programs supported by Médecins Sans Frontières by measuring survival up to 5 years after enrolment in care, attrition and retention.

SETTING
• National HIV prevalence rate 0.9% (2006)
• 2 provincial level hospital-based HIV clinics in Takeo and Siem Reap provinces.
• ARV delivered free of charge (3TC/D4T/NVP or EFV) from year 2002 on.
• Transfer of patients to newly opening ART clinics started in year 2005

METHODS
• Retrospective cohort study from 2002 to Dec 2008
• Survival time estimated by Kaplan-Meier method
• Cox regression used to assess risks for loss to-follow-up and death

RESULTS
Patient enrolment and characteristics:
• 6688 HIV-positive adults enrolled in care
• 4150 (62%) received ART for a median duration of 26 months (IQR:12-44)
• 53% of patients were women
• Median baseline CD4-count = 120cells/mm³ (IQR:27-332)
• Proportion of patients admitted with CD4<50 did not significantly change over the years (40%)

In-program mortality rate
(pre-ART and on ART patients):
6.4 deaths/100 P-Y (95%CI:6.0-6.9)

Treatment outcomes for all patients on ART

<table>
<thead>
<tr>
<th>N (%)</th>
<th>Rate per 100 person-year</th>
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</thead>
<tbody>
<tr>
<td>Retained in care</td>
<td>3565 (85.9%)</td>
</tr>
<tr>
<td>Alive and on ART</td>
<td>1759 (42.4%)</td>
</tr>
<tr>
<td>Transferred out</td>
<td>1806 (43.5%)</td>
</tr>
<tr>
<td>Attrition</td>
<td>585 (14.1%)</td>
</tr>
<tr>
<td>Lost to follow-up</td>
<td>203 (4.9%)</td>
</tr>
<tr>
<td>Dead</td>
<td>382 (9.2%)</td>
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</tbody>
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Immunological recovery:
• Median CD4-gain: +118cell/mm³ at 6 months, +162 at one year, +244 at two years, +339 at four years, and +367 at six years among the 4114 patients started on first-line ARV

Viral load monitoring:
• Overall, among adults with suspected treatment failure 150(3.6%) had a viral load >1000copies/ml detected after a median treatment time of 28 months (IQR: 18-40mo)

Risk factors for death:
• ≥40 years (adjusted HR=1.8, 95%CI: 1.4-2.3, p<0.001)
• advanced clinical disease (aHR=1.7, 95%CI: 1.3-2.3, p<0.001)
• CD4 < 50 cells/mm³ at first consultation (aHR=0.5 for CD4>200, CI95%:0.4-0.6, p<0.001)

Risk factors for loss to follow-up:
• Baseline CD4< 200 cells/mm³ (HR=0.6 for CD4>200, 95%:0.4-0.9, p=0.015)
• Living out of province (aHR=1.5, 95% CI: 1.1-2.1, p=0.005)

Conclusions
Satisfactory ART outcomes and survival were achieved and maintained up to 5 years in this resource-limited setting. The gradual country-wide expansion of the national program is expected to further improve retention in care.