Measuring adherence using electronic dispensing data: nationwide electronic monitoring in Namibia

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Outline

- Background
- The Namibia setting
- Goal and Challenges
- Intervention – Electronic Dispensing Tool (EDT)
- Key experiences
- Reports
- Results
- Recommendations
Background – Namibia

- Location – South West Africa
- Population 2,114,161
- Sparsely Populated - 2 persons/sq km
The Namibia Setting

- Large country
- Long distances between facilities
- The cost of travel
  - time
  - funding
- High HIV burden
  - HIV prevalence – 13.3%
  - ANC prevalence ranges from 8% - 35%
  - People Living with HIV – est. 204,000
- Limited Human resources
- Good 3G coverage
- Electricity supply in more than 90% of facilities
Goal and Challenges in the delivery of ART

The Goal of the MoHSS with support from Development partners
- Rapid Scale up to cover 80% of people in need of ART

At the start of the program 2003 – 2008
- limited ART sites across the country initially limited to 30 District and 4 Referral Hospitals and 2-3 health centers
- long distances to ART sites
- collection and retrieval of information on ART service delivery was paper based (time consuming, usually late, incomplete, untimely)
- inadequate data on enrolment and ARV consumption resulting increased risk of out of stock

Current challenges 2009 – 2011
- Increased number of sites and access through IMAAI/outreach sites (from 34 to more than 100)
- Increased number of patients from 36,881 (June 2007) to 95,388 (June 2011)

Adherence monitoring is even more urgent
干预

The MoHSS Namibia decided on an Electronic Dispensing Tool (EDT) with USAID funding,

- The tool is a Microsoft SQL based tool
- Used in all Pharmacies at ART sites to dispense ARVs and at outreaches using a mobile EDT
- Patient data is encrypted
- It is user friendly – can be used by Pharmacists, Pharmacist’s Assistants and Nurses
- All data is transmitted electronically from facilities to a central National database at the Ministry of Health using 3G
- Allows multi user access and use
- Accommodates mobiles applications and updates
- The tool is easily adaptable to country settings and changing requirements
The EDT at facilities
The handover of the system to the Ministry
Key experiences

- A customized tool
- Ongoing support to facilities is imperative
- All patient dispensing data is electronic thus – easy and reliable retrieval
- Consumption data is available at site and national levels
- The national database ensures a comprehensive/rich Quarterly report

• Adherence monitoring approaches used
  - Pill Count
  - On time pick up of medication
    » Pill coverage
  - Individual patient monitoring for adherence
  - The Namibia Adherence Initiative
This report shows a snapshot for new patients.

- **Facility name**
- **Date filter**
- **Report number**
- **Indicator description**

### Table: New Patients Started by Regimen

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Pediatrics</th>
<th>Adults</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PM</td>
<td>PF</td>
<td>PT</td>
</tr>
<tr>
<td>28-D4T/3TC/NVP</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>31-AZT/3TC/NVP</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>64-TDF/3TC/LPV-r</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>65-TDF/3TC/NVP</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>66-TDF/3TC/EFV</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Grand Totals:**

<table>
<thead>
<tr>
<th>Pediatrics</th>
<th>Adults</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>PF</td>
<td>PT</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*Shows all patients THERAPY START within the date range, remembering that only valid PAMART numbers are thus counted. Incomplete numbers or abandoned take-ons are excluded. Do not forget, new means that dispensing may not have taken place.*
Report: status change

General reports

06 Number of Patients *

<table>
<thead>
<tr>
<th>Category</th>
<th>Totals</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GI Cumulative</td>
<td>GI This Period</td>
</tr>
<tr>
<td>Active</td>
<td>707</td>
<td>32</td>
</tr>
<tr>
<td>Deceased</td>
<td>91</td>
<td>5</td>
</tr>
<tr>
<td>Duplicate</td>
<td>71</td>
<td>1</td>
</tr>
<tr>
<td>In Transit</td>
<td>114</td>
<td>2</td>
</tr>
<tr>
<td>Lost</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>LTFU</td>
<td>152</td>
<td>9</td>
</tr>
<tr>
<td>PEP</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Re-Start</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Stopped by Physician</td>
<td>68</td>
<td>8</td>
</tr>
<tr>
<td>Active incl. Lost</td>
<td>726</td>
<td>8</td>
</tr>
<tr>
<td>All Patients</td>
<td>1,401</td>
<td>82</td>
</tr>
</tbody>
</table>

This report gives the cumulative number of patients. To see changes in status in the time period selected, click the Drill button next to the status required.
Patient adherence level

Patient number
Facility adherence level

<table>
<thead>
<tr>
<th>Percentage Adherence</th>
<th>Adults</th>
<th>Paediatrics (I)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;95% to 100%</td>
<td>247</td>
<td>2</td>
<td>249</td>
</tr>
<tr>
<td>75% to 95%</td>
<td>70</td>
<td>2</td>
<td>72</td>
</tr>
<tr>
<td>&lt;75%</td>
<td>71</td>
<td>4</td>
<td>75</td>
</tr>
<tr>
<td>&gt;100% (II)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Adherence not calculated (III)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Number of Patients</strong></td>
<td><strong>388</strong></td>
<td><strong>8</strong></td>
<td><strong>396</strong></td>
</tr>
</tbody>
</table>

**Mean Facility Adherence (IV)**

- 85.9%
- 64.9%
- 85.4%

(i) This is only paediatric patients on solid dosage forms
(ii) Possible scenarios for adherence >100%:
   - Patients dumped some (or did not come with all) of their remaining pills;
   - Patients left all their remaining pills at home but claimed they had no pills remaining
   - Patients shared pills with others;
   - Patients lost their pills.
(iii) Possible scenarios for “adherence score not calculated”:
   - For continuing patients—pill count was not done on the previous visit;
   - For new or transferred patients—this was the first dispensing, so no previous pill count was available
(iv) Mean Facility Adherence is only calculated for the first three categories of patients
Facility adherence patterns

![Graph showing mean facility adherence by month from 1/2011 to 6/2011. The adherence percentages range from 82.30% to 85.40%.]
On time pick up defined as within ±4 days of the appointment

### Patients late for appointment

<table>
<thead>
<tr>
<th>Time Range</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 day</td>
<td>317</td>
</tr>
<tr>
<td>1-3 days</td>
<td>44</td>
</tr>
<tr>
<td>4-10 days</td>
<td>19</td>
</tr>
<tr>
<td>11-19 days</td>
<td>9</td>
</tr>
<tr>
<td>20-29 days</td>
<td>8</td>
</tr>
</tbody>
</table>

Patients who collected medicine in the date range, but who were late for the appointment by number of days. Patients who did not collect medicines are excluded.
On time pick up defined as within ±4 days of the appointment.

<table>
<thead>
<tr>
<th>Week</th>
<th>GT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>81</td>
</tr>
<tr>
<td>Week 2</td>
<td>77</td>
</tr>
<tr>
<td>Week 3</td>
<td>73</td>
</tr>
<tr>
<td>Week 4</td>
<td>91</td>
</tr>
<tr>
<td>Week 5</td>
<td>39</td>
</tr>
</tbody>
</table>

Patients who collect medicine on time (less than 4 days after date of appointment).
On-time pick-up of 33 health facilities for June 2011
- National average of 88% on-time pick-up
- Best performing hospitals on-time pick-up 98%
- Poorly performing hospitals on-time pick-up 63%

All hospitals can generate monthly reports on adherence indicators
- on-time ARV pick-up/pill count/lost to follow-up and other adherence indicators and develop interventions accordingly
  - e.g. Facilities prepare lists of patients who missed appointments and follow them up

Individual patient’s on-time ARV pick-up and pill count patterns can be monitored and appropriate remedial measures taken
Namibia adherence initiative

- With funding from USAID
- Namibia has developed an adherence monitoring initiative which includes;
  - Three national patient surveys over a 3 year period to determine;
    - Baseline adherence levels and routinely monitor performance based on these baselines
    - Factors associated with good or poor adherence
      - patient related
      - facility related and
      - Health worker related
    - Initiatives implemented by facilities to improve adherence
      - Designing, Piloting and implementing effective interventions
      - Ongoing monitoring using the WHO HIV DR strategy
Recommendations for policy and program action

Basis of recommendations

- Increasing number of patients ART/HAART
- Patients living longer on ART

Increasing need for rational and cost effective management of HIV patients with a multitude of medicines available for the same condition

- systems that will enhance adherence monitoring are imperative
- standardization of the Adherence indicators, measurement and reporting
- Adaptable user friendly Electronic Systems (suitable and appropriate for the setting)
- Health facility level and national levels should routinely monitor and regularly review adherence parameters and develop targeted interventions to enhance adherence
Saving lives and improving the health of the world’s poorest and most vulnerable people by closing the gap between knowledge and action in public health.