Hacking Healthcare
Technology in Africa

Mike McKay
BaobabHealth.org
$172
Malawi

13,000,000

1,000,000

260
HIV Therapy in Malawi
**Patient Master Record Card for ARV**

- **Unique ARV Number:** QECH
- **Year:** 2005

**Personal Details**

- **Name:** Michael McKay
- **Age:** 29
- **Sex:** M
- **Initial Wt (Kg):** 66
- **Transfer-In (Y/N):** N
- **Address:** Gilongwe 43/2/223 / PB A71
- **Name of Identifiable Guardian:** Claudia McKay
- **Date and Place of Positive HIV Test:** Apr 2005 Light

**Drug Regimen**

- **Date of Starting 1st Line ARV Regimen:** 15 Apr 2005
- **Reason for ARV:** HIV Vaggy Syndrome

**Outcome Status Table**

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Date</th>
<th>Wt Kg</th>
<th>Outcome Status</th>
<th>Of Those Alive</th>
<th>Ambulatory</th>
<th>Work/School</th>
<th>Side Effects</th>
<th>No. Pills in Bottle</th>
<th>ARV Given</th>
<th>ARV given</th>
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<tbody>
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</tbody>
</table>

**Specify Reason for ARV Therapy:** (Stage III) [Stage IV] CD4 < 200, PTB, EPTB, Transfer-in

**Outcome Status:**
- A = Alive
- D = Dead
- DF = Defaulted and Not Seen for 3 Months
- Stop = Stopped Medication
- TO = Transferred Out to Another Unit

**Of Those Alive:**
- Start = Alive and on First Line Regimen
- Sbs = Alive and Substituted to Alternative First Line Regimen
- Switch = Alive and Switched to a Second Line Regimen Because of Failure of First Line Regimen

**Ambulatory:**
- Amb = Able to Walk to/At Treatment Unit and Walks at Home Unaided
- Bed = Most of Time in Bed at Home

**Work/School:**
- Yes = Engaged in Previous Work/Employment or at School
- No = Not Engaged in Previous Work/Employment or Not at School

**Side Effects:**
- If Yes, Specify: YES-PN = Peripheral Neuropathy, YES-HP = Hepatitis, YES-SK = Skin Rash

**No. Pills in Bottle:**
- If Patient Comes at 4 Weeks Count Number of Pills in Bottle (8 Pills or Less = 95% Adherent)

**ARV Given / Not Given:**
- Tick Whether ARV Therapy Given in the Appropriate Column P = Patient, G = Guardian; If No ARV, Then Indicate Why
Solution

Technology
Why?

Decision Support

Quality Data
Design Considerations
Touchscreens

Skin rash
Previously diagnosed on: 10-Aug-2007

Yes
No

Next
Back
Cancel
Skin rash
Previously diagnosed on: 10-Aug-2007

Yes
No

Next
Back
Cancel
A Server for Africa
A Server for America
A Server for Africa
A Server for Africa

- Wind/Solar Ready
- Solid State Disk
- Low Power Consumption
- Plenty of RAM
- Free software
Software

Open Source Everything
Ubuntu Linux
Ruby on Rails
MySQL
Javascript
“I like ruby on rails because it's easy to learn and you develop applications much faster.”
Results

- > 200 clinical workstations deployed
- > 1,000,000 patients
- 6 HIV clinics
- 10% of all HIV patients
Decision Support
History + Examination: Weight

Unintentional weight loss in the absence of concurrent illness

Yes

No

Unknown
Next task: HIV Reception

<table>
<thead>
<tr>
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<th>Previous Visit</th>
<th>Current Visit</th>
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<tbody>
<tr>
<td>Date of visit</td>
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<td>Side effects</td>
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Weight history

![Weight history graph showing weight from April to February 2008](image_url)
Data Quality
Weight (kg): 35.0

Value out of Range: 36 - 84

Authorise
mike
@
baobabhealth.org
github.com/baobab
#baobab on irc.freenode.net