Positive Prevention Counseling and Antiretroviral Adherence Messages in an African Setting: A Time Motion Study

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Clinical Systems - Problem

- Adherence to ART is key for survival, extending regimens, is a dynamic behavior

- Secondary transmission “positive prevention” support needed, yet not always delivered

- Huge numbers of HIV+ patients need counseling, limited staff to deliver this over time
  - Increased need due to earlier ART thresholds
Global HIV Disparities

97% of people w/ HIV live in low-income countries (KFF, 2011)

12% of world population

Sub-Saharan Africa
Two-thirds of all people in the world with HIV/AIDS live here.

Each square represents 10,000 people living with HIV/AIDS in 2003.

Country where 10% or more of population lives with HIV/AIDS

SOURCE: UNAIDS
NS MAP9
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Large Numbers in Need

Cumulative Patients Enrolled: 6 year period (now 120,000)

For every 1 put on ART, 2 new infections (2011)
But Not Enough Providers...

1/5 MDs, 1/10 nurses African-born are working abroad (Clemens ’08)

Malawi ART to all would take 16% all nurses, 354% all pharmacists, 56% all MDs (Muula ’07)
Health System Constraints, LMICs

- Sub-Saharan Africa 67% of global HIV, 3% of health providers, <1% health expenditures

- Interventions to support positive prevention and antiretroviral therapy (ART) adherence must be scalable at low cost and staff-use

- Helpful to understand current provider practices around counseling
  - Amount of time
  - Content/focus
  - Possible adjuncts/alternatives
Understanding Clinic Flow/Efficiencies

- Few studies document HIV-clinic patient experiences and flow in resource-limited settings
  - Zambia wait times increased 32-36% once HIV & outpatient primary care became integrated (Zeo ’12; Topp ’10)
  - Uganda 2 physician-led, 1 nurse-led HIV clinic 183-274 minutes spent waiting (Wanyenze ’10)
  - Uganda length of patient visit reduced by 11.5 minutes after EHR clinical summary introduced (Were ‘10)
  - Uganda 2 clinics mean visit 77 & 196 minutes, with 66% & 62% of time spent waiting (Were ‘08)

- A number of studies have looked at using waiting for patient education but few done in developing countries
HIV Clinic Flow Example, Thika Kenya

KEY:
- Dotted line: Referred to Social worker from Triage room
- Dash line: Referred to Nutritionist from Triage room
- Solid line: Referred to Nutritionist from Triage
- Thin line: To the Triage room for Counseling on behavior change
- Thick line: To the records room for next appointment
- Double line: Patient goes home

Inwani et al., IAS 7/2012
Study Setting - AMPATH

http://www.ampathkenya.org/
Study Setting - AMPATH

- >60 clinics, 140,000 cumulative HIV pts
- Innovative use of information, communication & technology (ICT) tools
  - EHR (OpenMRS)
  - Home-based testing, pt card w/ barcode
  - PDAs by peers to assess pt wellness/refills/visit periodicity
  - Cell phone reminders
- Shift to primary care delivery
Time-Motion Baseline

- Goal to identify:
  - Types of messages given to patients during return visits
  - Amount of time spent on counseling and by which providers
  - Unmet counseling needs
  - Possible times during visits where other forms of counseling (not dependent on a clinician) could be delivered

- Establish baseline prior to randomized controlled trial (RCT) of a computerized counseling intervention
  - Urban clinic ~6,800 HIV pts (full-time 2 MDs, 5 COs, 4 RNs)
  - Rural clinic serving ~2,700 pts (full-time 0 MDs, 3 COs, 1 RN)
## Data Collected

- Registration/Nurse/CO-MO-MD/Pharmacy/Psychosocial/Other

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Messages</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART Adherence</td>
<td>ART Adherence</td>
<td>Acknowledge success</td>
</tr>
<tr>
<td>Transmission Risk Behavior</td>
<td>ABC</td>
<td>Resource advice</td>
</tr>
<tr>
<td>Meds (incl herbal/trad)</td>
<td>Meds (incl herbal/trad)</td>
<td>Referral made</td>
</tr>
<tr>
<td>Alcohol &amp; Drug Use</td>
<td>Alcohol &amp; Drug Use</td>
<td></td>
</tr>
<tr>
<td>Health Promo</td>
<td>Plan</td>
<td></td>
</tr>
<tr>
<td>Correct Misinformation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disclosure</td>
<td>Disclosure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family planning</td>
<td></td>
</tr>
</tbody>
</table>
Time Motion Data Capture
Methods

- Patients contacted by trained research assistants (RAs) when entering clinic
  - Only those who consented were included
  - Refusers asked to complete brief survey

- Collected patient age, gender, languages spoken, monthly income, travel time to clinic

- RAs used PDAs (HanDBase® software) to record activities including all counseling messages received during visit, and duration of messages

- Unit of analysis was clinic visit, recorded from patient registration to time s/he left clinic
Results

- Observations for 96 rural-clinic patients and 94 urban-clinic patients totaled 194 hours.

- Mean visit length at rural was 44.5 (SD=27.9) minutes and at urban 78.2 (SD=42.1) minutes.

- Demo matched clinics: 61 F, 25 M; ages 23-60 yrs Rural
  62 F, 36 M; ages 24-70 yrs Urban

- Wait time average 29.1 (Rural) and 61.3 (Urban) minutes.

- 174 (92%) patients were asked about pill-taking behaviors (no difference by clinic) and 57 (30%) about transmission risk behavior (more time at rural clinic).
Results

- **Patient messages given:**
  - ART adherence (n=188, 99%)
  - Positive prevention messages (n=129, 68%)
  - Disclosure (n=121, 64%)
  - Contraception/pregnancy (n=95, 50%)
  - Alcohol and drug use (n=62, 33%)

- Staff-delivered positive-prevention messages (ABC) averaged 17 (rural) and 39 seconds (urban), comprising ~1% of total visit time spent

- Wait times were significantly longer at urban clinic, but both had potential time for alternative counseling delivery (29.1 minutes at rural, 61.3 minutes at urban)
# Mean time spent counseling

<table>
<thead>
<tr>
<th>Category</th>
<th>Rural Clinic Minutes* (% of visit)</th>
<th>Urban Clinic Minutes* (% of visit)</th>
<th>Rural vs. Urban Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All</strong></td>
<td>All n=96</td>
<td>All N=94</td>
<td>p-value§</td>
</tr>
<tr>
<td>Alcohol &amp; Drug Use</td>
<td>0.92 (2.6%)</td>
<td>0.84 (0.16%)</td>
<td>0.0011</td>
</tr>
<tr>
<td>ART Adherence</td>
<td>1.2 (3.4%)</td>
<td>1.9 (2.8%)</td>
<td>0.0003</td>
</tr>
<tr>
<td>Contraception &amp; Pregnancy</td>
<td>0.20 (0.57%)</td>
<td>0.5 (0.71%)</td>
<td>0.0012</td>
</tr>
<tr>
<td>Disclosure</td>
<td>0.75 (2.1%)</td>
<td>0.45 (0.81%)</td>
<td>0.8069</td>
</tr>
<tr>
<td>Positive Prevention Messages</td>
<td>0.29 (0.87%)</td>
<td>0.65 (1.1%)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Other Counseling</td>
<td>0.19 (0.51%)</td>
<td>0.75 (0.80%)</td>
<td>0.1860</td>
</tr>
<tr>
<td>Health Promotion Plan</td>
<td>0.47 (1.4%)</td>
<td>0.47 (0.69%)</td>
<td>0.8079</td>
</tr>
<tr>
<td><strong>Patient Other Time with Provider</strong></td>
<td>10.5 (27.5%)</td>
<td>11.3 (15.9%)</td>
<td>0.51</td>
</tr>
<tr>
<td>Waiting</td>
<td>29.1 (58.4%)</td>
<td>61.3 (75.8%)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Questioned on Adherence</td>
<td>0.59 (1.9%)</td>
<td>0.7 (1.1%)</td>
<td>0.4411</td>
</tr>
<tr>
<td>Questioned on Risky Behavior</td>
<td>0.23 (0.69%)</td>
<td>0.11 (0.13%)</td>
<td>0.0073</td>
</tr>
<tr>
<td>Total Visit Time</td>
<td>44.5</td>
<td>78.2</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
Discussion

- In this relatively efficient system, levels of counseling may be relatively high
  - Difficult to compare to other venues as few published data
  - Magoma 2011 Tanzania found insufficient msgs re ANC

- However, necessarily still limited time spent on key behaviors of ART adherence and safer sex

- Significant client wait time that could be used more effectively for education, alternative counseling delivery
Moving Forward

- Undertook cultural contextualization of a US-developed computerized counseling tool
  - Focus groups and interviews
  - Expert Advisory Group

- RCT (n= 225) of computerized counseling tool in Kiswahili and English now underway in these two clinics
Acknowledgements

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