Community-Based Interventions to Sustain ART Adherence and VL Suppression in COVID-19 Era

Jean B. Nachega, MD, PhD, MPH, FRCP
Associate Professor of Epidemiology, Infectious Diseases and Microbiology. University of Pittsburgh Graduate School of Public Health, Pittsburgh, PA
The Pandemic’s Hidden Victims: Sick or Dying, but Not From the Virus

As the coronavirus overwhelms the health care system, people with other illnesses struggle to find treatment.
Physical, Emotional, and Social Well-being of PLWH Threatened

- Mental health
- Substance use
- Poverty
- Loneliness
- Medical mistrust
- Food insecurity
- Housing insecurity
- Racism, homophobia

... from COVID-19 public health response all likely to affect PWH disproportionately

Shiau, AIDS Behav. 2020;24:2244.
Redesigning Health System in Era of COVID-19

- Personalised Home Based & Community Services
- Primary Health Care Clinics
- Hospitals

Down-referral

Up-referral
### Community- vs Health Facility-Based ART Refill

#### Study or Subgroup

<table>
<thead>
<tr>
<th>Community-based</th>
<th>Facility-based</th>
<th>Risk Ratio</th>
<th>M-H, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Events</td>
<td>Events</td>
<td>Total</td>
<td>Weight</td>
</tr>
<tr>
<td>Chang 2010</td>
<td>417</td>
<td>462</td>
<td>155</td>
</tr>
<tr>
<td>Coker 2015 (a)</td>
<td>91</td>
<td>107</td>
<td>87</td>
</tr>
<tr>
<td>Coker 2015 (b)</td>
<td>86</td>
<td>107</td>
<td>87</td>
</tr>
<tr>
<td>Gross 2015</td>
<td>95</td>
<td>129</td>
<td>105</td>
</tr>
<tr>
<td>Jaffar 2009</td>
<td>615</td>
<td>729</td>
<td>403</td>
</tr>
<tr>
<td>Kwewewa 2013</td>
<td>99</td>
<td>136</td>
<td>93</td>
</tr>
<tr>
<td>Nachega 2018</td>
<td>77</td>
<td>86</td>
<td>83</td>
</tr>
<tr>
<td>Seleke 2010</td>
<td>38</td>
<td>43</td>
<td>29</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>1799</td>
<td>1246</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Total events: 1519

Heterogeneity: Tau² = 0.00, Chi² = 6.44, df = 7 (P = 0.49), I² = 0%

Test for overall effect: Z = 0.26 (P = 0.80)

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### Cohort sub-group

<table>
<thead>
<tr>
<th>Community-based</th>
<th>Facility-based</th>
<th>Risk Ratio</th>
<th>M-H, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Events</td>
<td>Events</td>
<td>Total</td>
<td>Weight</td>
</tr>
<tr>
<td>Fabb 2012</td>
<td>4004</td>
<td>6087</td>
<td>8271</td>
</tr>
<tr>
<td>Fabb 2014</td>
<td>161</td>
<td>238</td>
<td>704</td>
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<tr>
<td>Franke 2014</td>
<td>252</td>
<td>304</td>
<td>235</td>
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<tr>
<td>Girmus 2016</td>
<td>2577</td>
<td>6037</td>
<td>1762</td>
</tr>
<tr>
<td>Girmus 2012</td>
<td>87</td>
<td>108</td>
<td>753</td>
</tr>
<tr>
<td>Johnston 2012</td>
<td>152</td>
<td>211</td>
<td>98</td>
</tr>
<tr>
<td>Kipp 2012</td>
<td>120</td>
<td>185</td>
<td>124</td>
</tr>
<tr>
<td>Munoz 2011</td>
<td>40</td>
<td>60</td>
<td>26</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>13230</td>
<td>19750</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Total events: 7493

Heterogeneity: Tau² = 0.21, Chi² = 150.55, df = 7 (P < 0.00001), I² = 100%

Test for overall effect: Z = 0.34 (P = 0.73)

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Test for subgroup differences: Ch² = 0.13, df = 1 (P = 0.72), I² = 0%

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Community-ART in Namibia

Successes with Community-based...
Taking service delivery back to communities to reach the last 90!
Retention and viral load outcomes from a cluster randomized trial comparing extending Adherence Club ART refill dispensing intervals from 2 to 6 monthly.

Keitumetse Lebelo1, Tali Cassidy1,2, Sibusiso Ndlovu1, Helen Hayes8, Catherine Orrell4,5, Anna Grimsrud6, Claire Keene1, Nompumelelo Zoku1, Tabitha Mutseyekwa1, Jacqueline Vogel8, Rodd Gerstenhaber1, Lynne Wilkinson7

CONCLUSION:

At 12 months, no appreciable difference in outcomes between AC patients receiving SOC or 6-month refills

Source: Lebelo, SA AIDS 2019
Outcomes of Three- Versus Six-Monthly Dispensing of Antiretroviral Treatment (ART) for Stable HIV Patients in Community ART Refill Groups: A Cluster-Randomized Trial in Zimbabwe

Geoffrey Fatti, MBChB, MPH,1,2 Nicoletta Ngorima-Mabhena, MBChB, MSc,3 Eula Mothibi, MBChB, FCP,4 Trish Mudenda, MPH,1,4 Regis Choto, MBChB, MPH,5 Tonderai Kau, MBChB, MPSM,5 Taurayi A. Tafuma, MBChB, MPH,6 Nyika Mahachi, MBChB, MPH,6 Kudakwashe C. Takarinda, PhD,3 Tsitisi Apollo, MBChB, MPH, MBA,3 Owen Mugurungi, MBChB, MSc,5 Charles Chasela, PhD,7,8 Risa M. Hoffman, MD, MPH,9 and Ashraf Grimwood, MBChB, MPH9

Figure 1: Study design diagram

Figure 2: Comparison of arms for participant retention in antiretroviral treatment care (primary outcome) after 12 months

J Acquir Immune Defic Syndr 2020;84:162–172
Local challenges can be solved by local entrepreneurs.

Automated medicine dispensing machines.

Image Sources: Aurum Research Institute, Project Last Mile, Right to Care - SA
Figure 1: Comparing HIV viral load response (% suppression) from baseline to 60 months on antiretroviral therapy with 95% confidence ranges for home-refill by courier with (a) self-refill and (b) switching from self-refill to home-refill by courier.
Community-based antiretroviral therapy versus standard clinic-based services for HIV in South Africa and Uganda (DO ART): a randomised trial

Barnabas et al. Lancet Glob Health 2020; 8: e1305–15
Weekly 2-Way SMS support and adherence counseling improve HIV adherence

**Interventions to promote adherence to antiretroviral therapy in Africa: a network meta-analysis**

Edward M Milliken, Richard Lester, Kristian Therkildsen, Menzi A Sama, Katherine Mkalula, Steve Kaner, Sebastian Lienemann, Robert Gross, Victor Adu-Acheampong, Ivette Thomsen, Cynthia Francis, Robert Williams, Lawrence Mathenge, Lehane Thaloua, Nicholas H Chuong, Ian BM Morris, Albert Liu, Cholaka'ni Uhlmann, Jean Samnai, David Bangsberg, Sari Vaya, Till Barchhausen, Nathan Ford, Jean Nhlapo

**Summary**

Background千 Adherence to antiretroviral therapy (ART) is necessary for the improvement of the health of patients and for public health. We sought to determine the comparative effectiveness of different interventions for improving ART adherence in HIV-infected people living in Africa.

Methods 千 We searched for randomised trials of interventions to improve adherence to antiretroviral therapy within the Clinical Trials Registry Platform (ISRCTN, ClinicalTrials.gov) and CENTRAL databases. Our search strategy consisted of a network of 68 interventions. We obtained data for 14 randomised controlled trials, with 7157 patients. Interventions included daily and weekly short message service (SMS; text message) messaging, calendars, peer support, alarms, counselling, and basic and enhanced standard of care (SOC). Compared with SOC, we found distinguishable improvement in self-reported adherence with enhanced SOC odds ratio (OR) 1.46, 95% credible interval [Crl] 1.06–1.90), weekly SMS messages (1.51, 1.25–1.81), counselling and SMS combined (2.07, 1.22–3.53), and treatment supporters (1.83, 1.36–2.45). We found no compelling evidence for the remaining interventions. Results were similar when using viral suppression as an outcome. Among the network, no less evidence than that for adherence. Treatment supporters with enhanced SOC (1.46, 1.04–1.95) and weekly SMS messages (1.55, 1.45–2.38) were significantly better than basic SOC.

**Interpretation** Several recommendations for improving adherence are unsupported by the available evidence. These findings inform future intervention choices for improving ART adherence in low-income settings.

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**Interventions to improve adherence to antiretroviral therapy: a systematic review and network meta-analysis**

Steve Kaner, Jay J Park, Keith Chan, Maria Eugenia Socin, Nathan Ford, James Ferret, Kristian Therkildsen, Jean Nhlapo, Edward Milliken

**Summary**

Background 千 High adherence to antiretroviral therapy is crucial to the success of HIV treatment. We evaluated comparative effectiveness of adherence interventions with the aim of informing the WHO's global guidance on interventions to increase adherence.

Methods 千 For this systematic review and network meta-analysis, we searched for randomised controlled trials of interventions aimed to improve adherence to antiretroviral therapy in populations with HIV. We searched Cochrane Central Register of Controlled Trials, Embase, and MEDLINE for reports published up to July 16, 2015, and searched major conference abstracts from Jan 1, 2013, to July 16, 2015. We extracted data from eligible studies for study characteristics, interventions, patients' characteristics at baseline, and outcomes for the interventions compared.

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Conclusions

• COVID-19 expected to derail HIV treatment adherence and VL suppression as it increase food insecurity, loneliness, substance use, and depression

• Evidence-based community-based ART delivery models are more than ever critically important during this COVID-19 crisis

• Targeted strategies to increase their uptake (e.g. implementation science) is urgently needed
Thank you!

jbn16@pitt.edu