Home visiting by community health workers improves outcomes for mothers-infants over three years

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Philani has been a community-based agency in Cape Town since 1979
Community health workers core to the Philani programme
Programme components

- Selection – mothers from the community
- Training
- Monitoring
- Ongoing feedback
Method

- Cluster randomized controlled trial
- Khayelitsha and Mfuleni
- One CHW per neighbourhood cluster
- Neighbourhoods: 450-500 households
24 neighbourhoods
Recruit n=1144 eligible pregnant women

12 control neighbourhoods
n=594 pregnant women

- 6 month assessment n=509 (87%*)
- 18 month assessment N=496/435 = 92% follow up
- 36 month assessment N=456/535 (77.4%)

12 intervention neighbourhoods
Recruit n=644 pregnant women

- 4 antenatal visits
- 4 postnatal visits

- 6 month assessment n=573 (89% follow up)
- 18 month assessment N=543/595 (91% follow up)
- 36 month assessment N=502/535 (77.95%)
Randomisation

- Shebeens
- Size
- Density
- Water sources
- Formal / informal housing
- Rates of HIV
Content and visits

• **Content:**
  - HIV, PMTCT
  - Nutrition
  - Maternal and child health (including TB)
  - Alcohol use
  - Accessing child grant
  - Maternal mental health
  - Mother-infant relationship and infant communication

• **Antenatal and postnatal visit – variable number**
# CHW visit scheduling

**Nokwezi Zungu**

**Week 20 Aug - 26 Aug (4 visits)**

<table>
<thead>
<tr>
<th>Date</th>
<th>ID</th>
<th>Participant</th>
<th>Contact #</th>
<th>Visit Type</th>
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<tbody>
<tr>
<td>20/08/2008</td>
<td>51612</td>
<td>Anna Poonen</td>
<td>086 551 2145</td>
<td>AN1</td>
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<tr>
<td></td>
<td></td>
<td>z1305 Umlazi Phase 4</td>
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<tr>
<td>25/08/2008</td>
<td>15466</td>
<td>Margret Ntuli</td>
<td>081 586 4564</td>
<td>PN1</td>
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<tr>
<td></td>
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<td>C6 Umlazi</td>
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<tr>
<td></td>
<td>56421</td>
<td>Lindi Nkosi</td>
<td>na</td>
<td>PN1</td>
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<tr>
<td></td>
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<td>D548 Umlazi</td>
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<tr>
<td>26/08/2008</td>
<td>32416</td>
<td>Cindy Mothle</td>
<td>076 541 5555</td>
<td>AN1</td>
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<td>B3478 Umlazi</td>
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</tbody>
</table>

![Images of mobile surveys](attachment:image.png)
Mothers were highly similar across conditions

- Age
- Education
- Income
- Number of previous children
- Previous low birth weight
- HIV status
- Partnerships
Results - Baseline

- 29% HIV+
- 25% using alcohol
- 17% low birth weight
- 30% depressed mood
## Demographics

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>PIP (N=644)</th>
<th>SC (N=594)</th>
<th>Total (N=1238)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (SD)</td>
<td>26.5 (5.5)</td>
<td>26.3 (5.6)</td>
<td>26.4 (5.5)</td>
</tr>
<tr>
<td>Mean highest education level (SD)</td>
<td>10.3 (1.8)</td>
<td>10.3 (1.8)</td>
<td>10.3 (1.8)</td>
</tr>
<tr>
<td>Married or lives with partner</td>
<td><strong>377 (58.5)</strong></td>
<td><strong>324 (54.6)</strong></td>
<td><strong>701 (56.6)</strong></td>
</tr>
<tr>
<td>Ever employed</td>
<td>129 (20.0)</td>
<td>104 (17.5)</td>
<td>233 (18.8)</td>
</tr>
<tr>
<td>Monthly household income &gt;2000 Rand</td>
<td>280 (45.6)</td>
<td>279 (48.1)</td>
<td>559 (46.8)</td>
</tr>
<tr>
<td>Formal housing</td>
<td>197 (30.6)</td>
<td>191 (32.2)</td>
<td>388 (31.3)</td>
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<tr>
<td>Water on site</td>
<td>333 (51.7)</td>
<td>327 (55.1)</td>
<td>660 (53.3)</td>
</tr>
<tr>
<td>Flush toilet</td>
<td>340 (52.8)</td>
<td>343 (57.7)</td>
<td>683 (55.2)</td>
</tr>
<tr>
<td>Electricity</td>
<td>569 (88.4)</td>
<td>543 (91.4)</td>
<td>1112 (89.8)</td>
</tr>
<tr>
<td>Mother hungry past week</td>
<td><strong>312 (48.4)</strong></td>
<td><strong>301 (50.7)</strong></td>
<td><strong>613 (49.5)</strong></td>
</tr>
<tr>
<td>Children hungry past week</td>
<td><strong>175 (27.2)</strong></td>
<td><strong>185 (31.1)</strong></td>
<td><strong>360 (29.1)</strong></td>
</tr>
</tbody>
</table>
PMTCT Adherence – 6 months

Maternal ARV at birth *
- SC Control: 83.2%
- PIP: 92.4%

+ Infant ARV
- SC Control: 80.4%
- PIP: 88.3%

+ 6-Week PCR Test
- SC Control: 76.2%
- PIP: 85.4%

+ PCR Results
- SC Control: 72.7%
- PIP: 82.5%

+ One Feeding Method, 6 months **
- SC Control: 33.6%
- PIP: 45.6%

* p<.05, ** p<.01

Antenatal depression and infant growth - 6 months

Figure 1. Infant growth z-scores over time, stratified by antenatal depression (EPDS>18). PIP has a significant positive impact on depression's effect on the change in HAZ between post-birth and 6 months. PIP has a significant negative impact on depression's effect on the change in WFHZ between post-birth and 6 months.

Note that for n=94 late-entry participants, depression during pregnancy was not assessed. Depression at the time of the late-entry assessment was used as a proxy for antenatal depression.
Maternal antenatal depression and infant health - 18 months

Mothers Depressed Antenatally (EPDS>18): Infant Health At 18 Months

*Significant at the 5% level.

*Significant at the 10% level, adjusted for neighborhood clustering.

Child had cough last two weeks*

- SC: 49.2%
- PIP: 28.6%

Since birth child admitted to hospital*

- SC: 30.5%
- PIP: 15.7%
Maternal depression – 36 months

Hopkins Symptom Checklist

- Intervention: 34
- Control: 36.5

p = 0.007
Maternal depression – 36 months

Edinburgh Postnatal Depression Scale

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>0.009</td>
<td></td>
</tr>
</tbody>
</table>
Child Cognition – 36 months

Peabody Picture Vocabulary Test

Intervention

Control

p = 0.009
Child Growth – 36 months

- Tracked weight and height at 6, 18 and 36 months
- Standardised using WHO guidelines: weight for age, height for age, and weight for height.
- No differences between intervention and control
Now: 5 year assessments
Discussion

• Modest, but significant differences, in each area addressed.
• Small gains often become magnified over time.
• Pregnancy and infancy are critical developmental phases with lifelong consequences.
Discussion

- Task shifting approach
- In the context of a horizontally/diagonally integrated programme with potential to scale
- Generalist approach – family wide impact
- Training, supervision and management
- Tailored to most salient health risks
Acknowledgements

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