Improving Patient Adherence with Job Aids, Niger

Wendy Edson, Maina Boucar, Peggy Koniz-Booher, Sabou Djbrina, Ibrahima Mahamane
Study Purpose

- To develop and evaluate the effectiveness of job aids to improve caretaker compliance with antibiotic regimens for the treatment of pneumonia in children.
Rationale

- Improving patient counseling and improving adherence to the antibiotic regimen will curb the development of antimicrobial resistance.
Target Study Population

- Mostly illiterate caretakers of children with pneumonia and treated as outpatients in Boboye District, Niger
- Health care workers at clinics
Step 1: Formative Research

- **Health center**
  - What information is currently given to the caretaker?
  - What are the reasons for not counseling?
- **Caretaker**
  - What are the cultural beliefs?
  - How is information disseminated traditionally?
  - How are antibiotics used in the home?
**Step 1: Formative Research**

- Methods of data collection
  - Health worker observations
  - Focus groups caretakers
  - Key informant interviews
Results: Care-seeking behavior

- Pneumonia is considered a serious illness
- Constraints to seeking care:
  - Cost of the visit, usually borne by the father
  - Availability of cotrimoxazole in the market at the same cost as a health visit
- Cotrimoxazole is considered effective by parents, well tolerated and easy to use
Results: Patient Counseling

- In Niger only 2 or 3 days of the 5-day course is given (Caretaker must return for the rest)
- Healthcare workers offered little counseling on administration of antibiotic
- Antibiotic given in paper cone sometimes with marks to indicate dosage
Results: Antibiotic Administration

- Crushed tablet with finger and mixed with available water
- Medication was not stored properly at home
Results: Communication

- Most respected information sources were health workers and regional radio.
- Most could not read or write, some could distinguish letters and numbers.
- Were familiar with pictures of diarrhea, polio, HIV, etc.
Step 2: Development of the job aids

- Held workshop to present results to national, regional and district level participants
- Formed technical committee to oversee development of materials
Workshop participants
Birni, Niger, September 2000
Prepare tablet by crushing with a spoon and mixing with clean water
Father is involved in care of child
Give medication with a spoon
Store medication in a safe place
Out of the reach of children
Image for Job Aid

Finish entire package of medicine
Technical Committee
Counseling Card
Counseling Card - Text
Medication Envelope
Interpersonal Communication and Job Aids Training Manual
Guide pour la Formation en Communication Inter Personnelle (CIP)

Des Agents Chargés de la Consultation Curative au Niveau des Centres de Santé Intégrés (CSI)

<table>
<thead>
<tr>
<th>Produit</th>
<th>LOI</th>
<th>3</th>
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</tbody>
</table>
Step 3: Test the effectiveness of the job aids

- Experimental Study Design
  - 4 control sites, 4 experimental sites

- Intervention
  - Interpersonal communication training
  - Use of job aids (poster, counseling card, envelopes)
Step 3: Test the effectiveness of the job aids

- Data Collection methodology
  - Caretakers interviewed after clinic visit
  - Caretakers visited in their homes 4-5 days after clinic visit
  - Healthcare workers observed at 2 points in study
  - Nov. 2000 to April 2001
<table>
<thead>
<tr>
<th>Child Characteristics</th>
<th>Control N = 327</th>
<th>Experimental N = 348</th>
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<tbody>
<tr>
<td>Child Age (mean)</td>
<td>18.3 mos</td>
<td>18.2 mos</td>
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<tr>
<td>% Male</td>
<td>49%</td>
<td>54%</td>
</tr>
<tr>
<td>Birth Order (mean)</td>
<td>3.5</td>
<td>3.7</td>
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</table>
## Maternal Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Experimental</th>
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<tbody>
<tr>
<td><strong>N</strong></td>
<td>N = 327</td>
<td>N = 348</td>
</tr>
<tr>
<td><strong>Age (Mean)</strong></td>
<td>27.2 yrs</td>
<td>27.9 yrs</td>
</tr>
<tr>
<td>% no schooling</td>
<td>57%</td>
<td>49%</td>
</tr>
<tr>
<td>% Married</td>
<td>97%</td>
<td>96%</td>
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### Household Characteristics

**Control**

<table>
<thead>
<tr>
<th>Size of HH*</th>
<th>7.4 persons</th>
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<tr>
<td>Ethnic Grp*</td>
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<tr>
<td>% Peul</td>
<td>18%</td>
</tr>
<tr>
<td>% Djerma</td>
<td>74%</td>
</tr>
<tr>
<td>% Haoussa</td>
<td>7%</td>
</tr>
<tr>
<td>% with radio*</td>
<td>44%</td>
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</table>

**Experimental**

<table>
<thead>
<tr>
<th>Size of HH*</th>
<th>9.3 persons</th>
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</thead>
<tbody>
<tr>
<td>Ethnic Grp*</td>
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</tr>
<tr>
<td>% Peul</td>
<td>6%</td>
</tr>
<tr>
<td>% Djerma</td>
<td>89%</td>
</tr>
<tr>
<td>% Haoussa</td>
<td>1%</td>
</tr>
<tr>
<td>% with radio*</td>
<td>68%</td>
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</tbody>
</table>

*p < .001
Results: Use of Clean Water

Use of Clean Water

Control: 73%
Experimental: 94%

*P < .001
Results: Antibiotic Storage

Stored Antibiotic Correctly*

- Control: 87%
- Experimental: 91%

*P = .04
Results: Patient Adherence

Correct Adherence

- Control: 76
- Experimental: 89

*P < .001
Results: Follow-up Appointment

Kept Follow-up Appt

Percentage

Control Experimental

58 79

*P < .001
Results: Maternal Knowledge

- Correct number of pills: Control 99, Experimental 99
- Correct time during day*: Control 97, Experimental 93
- Correct number of days: Control 98, Experimental 99

*P = .01
Results: Perceived Child's Health

Health Improved Completely

Control
Experimental

*P < .001
Conclusions

- Preliminary Results
- Further analyses
  - effect of health worker and clinic
- Recommendations
  - Change national policy so that a full dose is given at first visit
Development of a Case Management Map in Uganda

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Johns Hopkins University

Presented by
Wendy Edson, PhD, RN, MPH
Quality Assurance Project
Case Management Map
(CMM)

- Job aid and medical record
- Based on critical pathway approach

“optimal sequencing and timing of interventions by medical staff for a particular condition…”

(Coffey 1992)
CMM Format

- Rows: Activities (Monitoring, Treatment, Medication, Diet, Patient counseling)
- Columns: Time (Day, Hour, Month)
## Case Management Map (CMM)

### Pregnancy Induced Hypertensive Disorders

**Identification number:**

**Serial/ID number:**

**Date of admission:**__/__/____

**Referred:**

- [ ] yes
- [ ] no

**Starting Page**

<table>
<thead>
<tr>
<th>Check 3x/day</th>
<th>Date</th>
<th>S</th>
<th>E</th>
<th>N</th>
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<th>Fetal Heart Rate</th>
<th>Date</th>
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<th>E</th>
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### Check 1x/day

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<th>Edema</th>
<th>Weight</th>
<th>Hypoesthesia</th>
<th>Proteinuria</th>
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<tr>
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</tr>
<tr>
<td>Result</td>
<td>Initial</td>
<td>Result</td>
<td>Initial</td>
</tr>
<tr>
<td>Ed</td>
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### Give

<table>
<thead>
<tr>
<th>Indigral 80 mg BC</th>
<th>Adomat 250(-500 mg) tds</th>
<th>Diazepam 5 mg tds</th>
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<tbody>
<tr>
<td>Result</td>
<td>Initial</td>
<td>Result</td>
</tr>
<tr>
<td>mg/dl</td>
<td>mg/dl</td>
<td>mg/dl</td>
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<tr>
<td>100</td>
<td>100</td>
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</table>

### Counsel

**Restricted salt**

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<th>Result</th>
<th>Initial</th>
<th>Result</th>
<th>Initial</th>
<th>Result</th>
<th>Initial</th>
<th>Result</th>
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</thead>
<tbody>
<tr>
<td>Restricted salt</td>
<td>Result</td>
<td>Initial</td>
<td>Result</td>
<td>Initial</td>
<td>Result</td>
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</tbody>
</table>

**Bedrest left side**

<table>
<thead>
<tr>
<th>Result</th>
<th>Initial</th>
<th>Result</th>
<th>Initial</th>
<th>Result</th>
<th>Initial</th>
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<th>Initial</th>
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</table>

### Breastfed

<table>
<thead>
<tr>
<th>Result</th>
<th>Initial</th>
<th>Result</th>
<th>Initial</th>
<th>Result</th>
<th>Initial</th>
<th>Result</th>
<th>Initial</th>
</tr>
</thead>
</table>

* or ☐ = Possibility of critical event

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**Jinja Hospital — Maternity — 1969**
Steps in CMM Development

- Selection of the condition
- Selection of the team
- Definition of scope of the protocol
- Description of current process of management
Steps in CMM Development

- Definition of format of CMM
- Development of prototype
- Development of monitoring plan
- Development of implementation plan
Steps in CMM Development

- Implementation
- Monitoring and problem solving
Challenges During Development

- Team membership kept changing
- Not enough intern physicians
- No familiarity with critical pathway
- Unavailability of needed supplies (MgSO4, reflex hammers)
## Results - Improved patient outcomes

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>Progress to eclampsia</td>
<td>17% (06/98-06/99)</td>
<td>6% (09/99-09/00)</td>
</tr>
<tr>
<td># of maternal deaths</td>
<td>5.5% n=36</td>
<td>3.1% n=50</td>
</tr>
<tr>
<td>Live delivery</td>
<td>56%</td>
<td>83%</td>
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