Improved patient care records following the implementation of an electronic EMS patient recordkeeping system in a rural area.

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The Problem

EMS Patient Care Records Are:

- Not Accurate
- Not Timely
- Not Legible
- Incomplete
- Of Less Than Desired Value in Supporting the Continuity of Care
The Project Purpose

To compare

- PDA and Scannable Run Sheets
  - Against Each Other
  - Against Baseline of Paper-Based Records

- Measures of
  - Timeliness
  - Accuracy
  - Completeness
  - Legibility
Methods (1 of 4)

Matched convenience sample

- 2 Communities
  - ALS
  - Local Hospital
  - Distant Trauma Center
- Human Subjects Review
  - Montana State IRB
  - Billings Area IHS IRB
  - Trauma Center IRB (3)
Methods (2 of 4)

- Software/Hardware Procured
- Scannable Forms Developed and Printed
- Personnel Trained in Use
Methods (3 of 4)

- Data Collected for Six Months
- Compared to Previous Six Month Period
- Five Member Independent Review Panel
  - 1 ED Physician
  - 2 Trauma Surgeons
  - 1 ALS/Nurse Provider
  - 1 BLS Provider
Methods (4 of 4)

- Each Record Reviewed
  - Sanitized for patient ID
- Five Member Independent Review Panel
- Scoring Template
  - Modified Likert Scale
    - Timeliness
    - Accuracy
    - Completeness
    - Legibility
- Data Entry by P.I.
  - SPSS v. 11
  - Alpha at .05
## Results – Sample Size

<table>
<thead>
<tr>
<th>Community</th>
<th>Baseline</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Two</td>
<td>52</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>42</td>
</tr>
</tbody>
</table>
Both “automated” systems better than traditional hand-written paper method.

No Differences Found Between PDA and Scannable Run Forms in Measures of
  - Timeliness
  - Accuracy
  - Completeness
Results (2 of 2)

Differences between automated systems were found for:

- Legibility – PDA Excelled
- Cost – PDA More Expensive
Discussion

- Both PDA and Scannable Were Found to Be Superior to Baseline Paper-Based Records
- PDA Community Has Continued
  - Different Software
- Scannable Form has been Modified
  - Existing Paper Based Forms to Include Attributes of Scannable Form
- Users Did Not Achieve total Comfort with Either System During Study Period
- Additional Research is Warranted
  - Larger Sample Size
  - Longer Study Period
Limitations

**Small Sample Size**
- Compressed Data Collection Period
- Originally Scheduled for One Full Year
  - Delayed by Multiple IRB Approvals
  - Unexpected Drops in Trauma Contacts in Both Communities During Collection Period

**Learning Curves Associated with Both Systems**
Additional Information

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