Implementation of an Electronic Information System to Enhance Practice at an Opiate Treatment Program (R01 DA022030)

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Background
Electronic information systems are rarely utilized or evaluated in substance abuse treatment settings. - START serves a racially, ethnically and economically disenfranchised population. - START serves a population that experiences significant disparities in access and quality of care.

Study Design & Purpose
- Design: Prospective, comparative, pre-post implementation study, 3-year timeline
- Purpose: Evaluate the implementation of an electronic information system using the following domains:
  - Quality
  - Aims
  - Measures & Sources
  - Hypotheses

Aims & Hypotheses
Specific AIM 1: Quality
Specific AIM 2: Aims
Hypothesis - Implementation of the electronic health record will result in a higher percent of patients having annual medical assessments within 30 days of admission.

Results
- Pre-Implementation: Implementation of the electronic health record will result in a higher percent of patients having annual medical assessments on or before the due date.
  - # of Surveys Administered (Pre & Post): 1,000
  - Pre: Mean Score: 3.78* Std Deviation: 0.750
  - Post: Mean Score: 3.11* Std Deviation: 0.819

SUMMARY: This domain was not included in the post-implementation data collection due to: # of Eligible Patients: 420

Specific AIM 3: Satisfaction
Specific AIM 4: Productivity
Hypothesis - Satisfaction: Patient Survey

Results
- Satisfied
- Slightly Satisfied
- Somewhat Satisfied
- Not Satisfied

SUMMARY: Staff Satisfaction trended upward post implementation of the electronic system. Eligible employees: Clinicians and Managers

Results
- Satisfaction: Staff Survey
- Nevada: 76% (CDC)
- US average: 63% (CDC)

Quality: Annual Medical & Annual, 30 & 90-Day Multidisciplinary Assessments

Hypothesis - Implementation of the electronic health record will result in a higher percent of Hepatitis C antibody positive patients tested for hepatitis C and lab.

Results
- Pre-Implementation: Hepatitis C antibody positive patients tested for hepatitis C and lab.
  - # of Surveys Administered (Pre & Post): 1,000
  - Pre: Mean Score: 3.78* Std Deviation: 0.750

SUMMARY: The majority of clinic staff agreed that electronic system upgrades required frequent retraining of staff. Pre: Mean Score: 3.11* Std Deviation: 0.819

Table 1: Study Period
<table>
<thead>
<tr>
<th>Measure</th>
<th># (%) On Time</th>
<th># (%) Late or Not Completed</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-Day Multi-disciplinary Assessments*</td>
<td>50 (97%)</td>
<td>0 (3%)</td>
<td>0.891</td>
</tr>
<tr>
<td>90-Day Multi-disciplinary Assessments*</td>
<td>50 (97%)</td>
<td>0 (3%)</td>
<td>0.891</td>
</tr>
</tbody>
</table>

Patient Satisfaction

Table 2: Study Period
<table>
<thead>
<tr>
<th>Measure</th>
<th># (%) On Time</th>
<th># (%) Late or Not Completed</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment</td>
<td>500 (100%)</td>
<td>0 (0%)</td>
<td>0.891</td>
</tr>
<tr>
<td>Retention</td>
<td>400 (80%)</td>
<td>200 (40%)</td>
<td>0.891</td>
</tr>
</tbody>
</table>

Quality: HIV Antiviral Load

Hypothesis - Implementation of the electronic health record will result in increased undetectable HIV viral load.

Results
- HIV VL Done: 27 (17.87%)

SUMMARY: No statistically significant change in HIV viral load.

Table 3: Study Period
<table>
<thead>
<tr>
<th>Measure</th>
<th># (%) On Time</th>
<th># (%) Late or Not Completed</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>Post</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV VL Done (%)</td>
<td>HIV VL Done (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td></td>
<td>NS</td>
</tr>
</tbody>
</table>

Quality: Medication Errors, Patient Complaints & Patient Incidents

Hypothesis - Implementation of the electronic health record will result in increased medication errors, Patient Complaints & Patient Incidents

Results
- Pre-Implementation: Medication Errors, Patient Complaints & Patient Incidents
  - # of Surveys Administered (Pre & Post): 1,000
  - Pre: Mean Score: 3.11* Std Deviation: 0.819

SUMMARY: Despite serving a racially, ethnically, and economically disenfranchised population, the overall results were somewhat less robust than expected in the 3-year timeline.

Table 4: Study Period
<table>
<thead>
<tr>
<th>Measure</th>
<th># (%) On Time</th>
<th># (%) Late or Not Completed</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre</td>
<td>Post</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication Errors</td>
<td>50 (100%)</td>
<td>0 (0%)</td>
<td>0.891</td>
</tr>
<tr>
<td>Patient Complaints</td>
<td>50 (100%)</td>
<td>0 (0%)</td>
<td>0.891</td>
</tr>
<tr>
<td>Patient Incidents</td>
<td>50 (100%)</td>
<td>0 (0%)</td>
<td>0.891</td>
</tr>
</tbody>
</table>

Results
- Pre: Mean Score: 3.11* Std Deviation: 0.819
- Post: Mean Score: 3.11* Std Deviation: 0.819

SUMMARY: There were no financial interests or other disclosures to report for any of the authors involved in this project.

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