The use of performance metrics to monitor the impact of CPOE on pathology services

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Aim of the study

To examine the impact of an electronic ordering system on the communications interface using performance metrics within the Central Specimen Reception (CSR) department of a large hospital pathology service.
Methods

- Design and setting
- Multi-methods
- Rich contextual data
- Communication logs
- Audit of unfulfilled test forms
Why electronic ordering systems?

- Clinicians enter orders directly
- Rapid information retrieval, efficient data management
- Incorporate decision support mechanisms
- Potential to improve quality of care and patient safety
CSR – the laboratory service gatekeeper

- Receiving dock for pathology requests and specimens
- Data entry
- Test integrity
- Duplicate requests
Role of Central Specimen Reception

- Test order
- Test processing
- Test result application

Central Specimen Reception
Interregnum

• New laboratory information system (November 2006)
• Electronic ordering system introduced (January 2007)
“Unfulfilled” test requests

- Order without a specimen
- Duplicate
- Forgotten?
- Discharged patient?
- Pending?
- Lost?
Accountability

Researcher: So you need to be able to record what was happening in case a doctor asks what happened to it? CSR participant: ...that’s exactly right, to find a reason why they cancelled…. At least they see a reason, if we re-schedule they don’t see it. They just see that there’s an order still pending, but they don’t see that we’ve re-scheduled. That’s more of a problem. And then they ring up and ask what’s happened to it.
“…Doctors and nurses, when they ring up here, they expect us to answer all their questions. People here are not scientific officers, or hospital scientists who can answer their questions.” (CSR participant)
## Monitoring of unfulfilled requests

<table>
<thead>
<tr>
<th>Month</th>
<th>No. unfulfilled requests</th>
<th>No. total requests</th>
<th>Proportion</th>
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</thead>
<tbody>
<tr>
<td>Sep-05</td>
<td>356</td>
<td>42066</td>
<td>0.008</td>
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<tr>
<td>Oct-05</td>
<td>323</td>
<td>39551</td>
<td>0.008</td>
</tr>
<tr>
<td>Nov-05</td>
<td>395</td>
<td>39755</td>
<td>0.010</td>
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<tr>
<td>Dec-05</td>
<td>1543</td>
<td>38129</td>
<td>0.040</td>
</tr>
<tr>
<td>Jan-06</td>
<td>1234</td>
<td>36559</td>
<td>0.034</td>
</tr>
<tr>
<td>Feb-06</td>
<td>800</td>
<td>37015</td>
<td>0.022</td>
</tr>
<tr>
<td>Mar-06</td>
<td>143</td>
<td>42513</td>
<td>0.003</td>
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</table>
## Telephone monitoring

<table>
<thead>
<tr>
<th></th>
<th>No. total requests</th>
<th>No. outgoing calls (Proportion to total requests)</th>
<th>No. incoming calls (Proportion to total requests)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jun-Aug 05</strong></td>
<td>121290</td>
<td>2037 (0.02)</td>
<td>1268 (0.01)</td>
</tr>
<tr>
<td><strong>Sep-Nov 05</strong></td>
<td>121372</td>
<td>2872 (0.02)</td>
<td>4054 (0.02)</td>
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<tr>
<td><strong>Dec-Feb 06</strong></td>
<td>111703</td>
<td>3061 (0.03)</td>
<td>4871 (0.04)</td>
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<td><strong>Mar-May 06</strong></td>
<td>118290</td>
<td>6078 (0.05)</td>
<td>10683 (0.09)</td>
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<tr>
<td><strong>Jun-Aug 06</strong></td>
<td>125334</td>
<td>5850 (0.05)</td>
<td>10678 (0.09)</td>
</tr>
</tbody>
</table>
The organisational communication environment

- Information load
- Complexity
- Turbulence and instability*

*Huber & Daft, 1987 In Handbook of Organizational Communication

The University of Sydney
Organisational communication environment

CSR
- Reduced data entry
- Accountability tasks
- Altered work practices
- Additional responsibilities

INFORMATION LOAD

COMPLEXITY

TURBULENCE

Clinical care impact
- New communication channels
- Less duplication
- Accuracy
- Monitoring

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