Ensuring All Needed Surgical Instruments Arrive on Time and Ready

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Central Sterile Process Department (CSPD) updates, cleans, and assembles surgical sets for the OR.

The OR requests sets for use from CSPD and oversees creating/managing surgical sets.
The OR and CSPD operate on a symbiotic relationship, yet they do not understand the challenges they both face.

Difficult to level workflow with large variability in set difficulty

OR employees need to access multiple databases to build a set

CSPD must contact OR for every set related issue
PROBLEM DESCRIPTION CTD.

Qualtrics Network Diagram

Service Leads

Supply Chain

Manufacturers and Vendor

Requests submitted through web app

A

Add, edit, or remove sets from Censitrac. Only fill out half of Qualtrics form.

Inform SL of completion or problems

B

Submits cleaning information of a set through Qualtrics

C

Send list of instruments for team to review IFUs and fill out cleaning info

Inform SL of completion or problems

D

Send labels to CSPD to physically make set

End Users

Industrial Engineers

CSPD

Service Leads

?
PROPOSED SOLUTION

An application that can bring together the set creation process between CSPD and OR

- Needs to contain all information required to manage a set
- Let OR designate important instruments within a set
- Create a way to score sets based on difficulty to assemble and clean
- Design system for substituting an instrument that cannot be found

Surgical Instruments Cleanability dashboard (SICdash)
SICDASH – IMPROVING THE CURRENT SYSTEM

SICdash Network Diagram

- Manufacturers and Dealers
  - Requests still submitted through web app, but SL can access link through SICdash

- Supply Chain
  - Information in Censitrac gets pulled into SICdash

- Service Leads
  - Requests for changes are sent through SICdash
  - Service leads can view sets, inst, and count sheets

- IFU Review
  - IFU Review team gets notified when they need to add cleaning information to a set. This is done by the service lead sharing it to them.

- SICdash
  - CSPD can view the productivity data with the Cleanability score

- Informatics

- Censitrac Database

- End Users
  - Industrial Engineers
    - - Scan data
    - - Missing instruments
    - - Pulling data
    - - Tracking sets
    - - Type of cleaning
    - - Assembling sets
  - CSPD
The OR and CSPD operate on a symbiotic relationship, yet they do not understand the challenges they both face.

Difficult to level workflow with large variability in set difficulty

OR employees need to access multiple databases to build a set

CSPD must contact OR for every set related issue
CLEANABILITY OUTLINE

Data
- Three months of scanning data from Michigan Medicine
- Had to remove illogical data points

Method
- Break down each instrument by features
- Conduct linear regression

Regression
- Number of each feature was the predictor
- Response was the difficulty to clean
CLEANABILITY FEATURES

- Sharp
- Cannulated
- Textured
- Toothed
- Sliding Parts
- Concave
CLEANABILITY FEATURES CTD.

V-Hinged

Electrical

Hinged

Looped
CLEANABILITY OUTPUT

<table>
<thead>
<tr>
<th>Feature</th>
<th>Cleaning Difficulty Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharp</td>
<td>0.21336</td>
</tr>
<tr>
<td>Cannulated</td>
<td>0.286296</td>
</tr>
<tr>
<td>Textured</td>
<td>0.247401</td>
</tr>
<tr>
<td>Hinged</td>
<td>0.211549</td>
</tr>
<tr>
<td>Toothed</td>
<td>0.222279</td>
</tr>
<tr>
<td>Sliding Parts</td>
<td>0.309653</td>
</tr>
<tr>
<td>Concave</td>
<td>0.200065</td>
</tr>
<tr>
<td>Looped</td>
<td>0.234569</td>
</tr>
<tr>
<td>V-Hinged</td>
<td>0.229365</td>
</tr>
<tr>
<td>Electrical</td>
<td>0.427031</td>
</tr>
<tr>
<td>Not Accessible</td>
<td>0.233822</td>
</tr>
<tr>
<td>Not Visible</td>
<td>0.159621</td>
</tr>
<tr>
<td>Num Instruments</td>
<td>0.239915</td>
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• Highest score: Electrical
  • Electrical requires hand washing
• Interactions between features were not considered
  • Not enough statistical power
• Could not consider the intended surgical use of instrument
The OR and CSPD operate on a symbiotic relationship, yet they do not understand the challenges they both face.

Difficult to level workflow with large variability in set difficulty

OR employees need to access multiple databases to build a set

CSPD must contact OR for every set related issue
Met with all stakeholders OR, CSPD, and Perioperative management

Determined best way to label substitutes based on language already used

Verified that each involved party agreed on proposed policy
Why is this designation so important?

<table>
<thead>
<tr>
<th>Three types of subs</th>
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<tbody>
<tr>
<td>No-sub</td>
</tr>
<tr>
<td>Specific-sub</td>
</tr>
<tr>
<td>Standard-sub</td>
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</table>

No-sub
Specific-sub
Standard-sub
SUBSTITUTION PROCESS

- Substitute is required for set
  - No-sub: Set is placed on the down cart → Contact service lead
  - Specific-sub: Sub an instrument from the list
  - Standard-sub: Sub similar instrument in set
CONCLUSION

Goals of SICdash
Create a one-stop application for OR employees to manage sets
Facilitate communication between CSPD and OR
Assist CSPD with leveling workload of employees

Current State of SICdash
Handed off to Michigan Medicine and currently being Integrated
ACKNOWLEDGMENTS

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