

# CRHE

Centre for Research in Healthcare Engineering

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**Theme 1: Emergency Department**

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## Investigate opportunities to automate early tests at triage based on presenting conditions

- Decision support about which tests to order based on past patterns
- Use the work in the unpublished CROWDED study (Fernandes, Schull and Carter) to place patients into about 20 major groups that have “known” treatment paths
- By-passing the need for a doctor to issue common orders should save waiting time for test results



## Investigate the efficiency of alerts on the electronic white board:

- When an ED doc orders a list of tests, may be one or two ***critical*** tests that will be most important for diagnosis.
- May not be interested until the critical ones are back.
- May be possible to automate this process
- Doc would be alerted when critical tests are ready



## Personalized alerts

- Doctors might not want to receive an alert for all test results; e.g., they might only be interested in the positive results. Doctors mentioned that they would like to have their own user preference for alerts.
- Test results are posted on a white board and colour coded to show the importance, however, the clock time is missing so the results might be outdated.

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## Suggest which patient to see next to facilitate patient flow in the ED

- This project was proposed by Dr. Jacques Lee
- In middle of shift, could be 3-4 patients in the ED per doc.
- May all be clinically “equal”
- Decision support based on current conditions in hospital & presence/absence of test results.
- short-term (few hours?) patient flow simulation
- TELUS is interested



## Notifications for patients nearing allowable “Pay for Results” times [TELUS interested]

- Incentives to reduce the time patients spend in the ED.
- Current target - 4 hours for minor injuries - 8 hours for complex cases.
- No automated method for alerting staff when a patient is getting close to their limit.
- System could be developed to indicate when a patient should be expedited to ensure times are met
- Should be able to estimate how much time **remains** in a patients ED stay
- Trigger an alert when the time is getting tight.

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## “Pushing” evidence based information to docs

- Currently difficult for docs to find evidence based information
- Often use Google - easy and fast
- Used for clarification of information that they already know.
- Doctors seemed reluctant to use the internal system since they are required to log in and out.



## Radio Frequency Identification RFID Tracking

- Sunnybrook hopes to have capability for tracking doctors, nurses, patients and equipment.
- How could we use that information to improve performance?
- May be an opportunity to set up a short term pilot project to evaluate the potential of RFID and help build a business case.





## Real-time monitoring of patient condition

- Most electronic devices/monitors in the ED have a USB plug that provides the ability to transmit data about a patient's condition to a central system.
- Identified at least 20 IT systems that do not communicate, and could provide valuable decision support capabilities.
- Add RFID tracking ...
- May be able to automatically detect vital signs, test results, reactions, etc. that could support better, more timely “context aware” decision making.