



**Service Priorities and Programmes**  
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**Use of EarlySense Continuous Contactless Monitoring System in an acute surgical ward, NTWC**

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**Introduction**

EarlySense monitoring system provides a contact-less real time heart rate (HR) and respiratory rate (RR) monitoring. This may help earlier recognition of patients' deterioration. Sensing device will be put under bed mattress. Signals will be transmitted and displayed in Central Display station. Alarm will be triggered if HR/RR reading is outside the default setting.

**Objectives**

We aimed to share our experience in using this device in an acute surgical ward.

**Methodology**

A prospective cohort study is conducted. 20 EarlySense devices are used. HR and RR default setting are 40-110 and 8-30 respectively. Elicited alarm will be recorded and clinical outcomes of these patients will be reviewed.

**Result**

From 16/10/2017 to 15/1/2018, 210 patients used this device. 2283 (1128 HR alert and 1133 RR alert) alarms were recorded. Some of them had important impact. Examples are: 1. F/65, was admitted for epigastric pain, detected to have persistent tachycardia (HR > 120/minutes). Urgent CT showed infected pancreatic necrosis. CT guided drainage was then arranged. 2. F/22, complained of right abdominal pain. CT showed distal ileum inflammatory changes. She was treated with antibiotics. However, 4 days later, she was found to have tachycardia; intra-abdominal sepsis was suspected. Emergency operation was performed; found inflammatory mass around oleo-caecal junction with localized abscess. Bowel resection and abscess drainage were performed. 3. F/30, with language barrier, was admitted for right lower abdominal pain. Eventually she was found to have tachycardia (HR > 120/minute). Urgent CT showed acute appendicitis and emergency operation was arranged afterwards. 4. F/56, had known history of metastatic CA breast; detected to have persistent tachycardia. Urgent CT was then arranged and showed large bowel

haematoma with active bleeding. Bleeding colonic ulcer was detected by doing urgent colonoscopy and bleeding was controlled endoscopically. 5. F/47, with history of multifocal HCC, was admitted due to abdominal pain. Monitoring device showed persistent tachycardia (HR >140/minute). Urgent CT showed ruptured HCC; urgent embolization was then performed with bleeding controlled. The EarlySense contact-less monitoring device provides an alternative in monitoring patients' clinical condition. Larger scale studies may be required to assess cost-efficacy and usefulness of using this device.