

Abstracts from the Oral Presentation session at the Society for Acute Medicine Spring meeting

Mercure Hotel, Cardiff, 4-5th May 2017

As usual a large number of abstracts were submitted for consideration of inclusion in the spring meeting of the Society for Acute Medicine, which was held in the Mercure Holland House hotel, in Cardiff, and hosted by Dr Nerys Conway. Over 100 abstracts were selected for display as posters, and seven of these were presented orally. The abstracts from the oral presentations are published here.

Frail, Falling, Alone – 30-Day Readmissions Not Just About Hospital Care. A Prospective Study in a Large Irish Teaching Hospital.

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Aim

Introduction

Unplanned readmissions within 30 days of a previous (index) admission are common (10%–30%) and significantly impact healthcare costs.¹ Policy makers are using readmissions as a quality indicator and penalising Trusts. We suggest that readmissions are complex and involve multiple factors other than quality of care.

Aim

To demonstrate that patients readmitted within 30 days have a high proportion of complicating Patient Factors and Disease Factors.

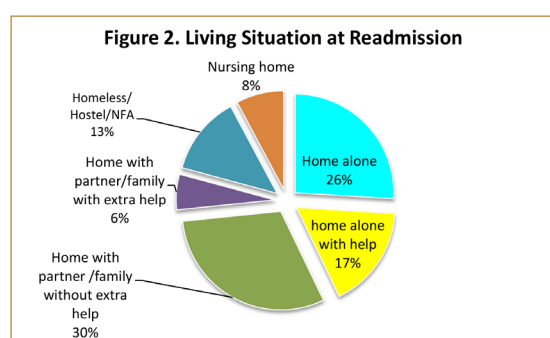
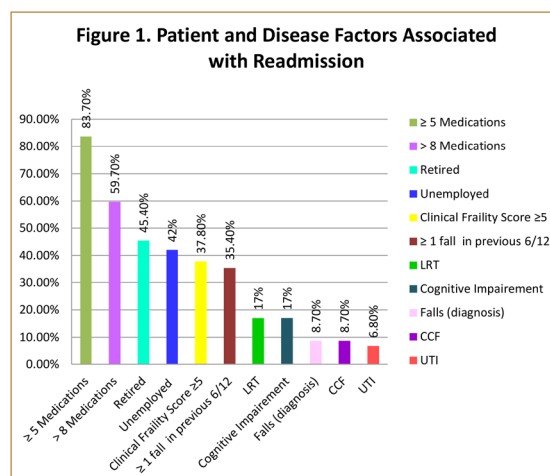
Methods

All medical readmissions within 30 days of (index) admission were captured prospectively over a 3 month period (2016). Data was collected using electronic patient records and chart reviews. The CURIOS@ questionnaire created by the Safer@ home group² acted as a data collection template. Ethics approval was granted for this study.

Outcomes / Results

The readmission rate was 11.5% (n=204). Median age was 70 years. Males accounted for 53.7%. A Clinical Frailty score of ≥ 5 was found in 37.8%. At least one fall in the previous 6 months occurred in 35.4%.

Almost 60% of patients were on ≥ 8 medications. Respiratory infections (17%), falls (8.7%), cardiac failure (8.7%) and urinary tract infection (6.8%) were the principle diagnoses (Figure 1). The most frequent living situations at readmission were: 23% at home with partner/family and no external help; and 19.6% living alone (Figure 2).



Conclusion

This study suggests that readmitted patients have a high proportion of complicating Patient and Disease Factors including frailty, falls, polypharmacy, living with partner/family (and no external help), and living alone. These factors

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stand apart from hospital care and indicate that readmissions are complex and multifactorial. We recommend policy makers consider Patient and Disease Factors when defining readmissions as a hospital quality indicator.

References

1. K.S. Fluitman, L.S. van Galen, *et al.*, "Exploring the preventable causes of unplanned readmissions using root cause analysis: Coordination of care is the weakest link." *Eur J. Intern. Med.* 2016 May;30:18-24.
2. L.S., van Galen, *et al.*, "A prospective observational European study on predictability and preventability of readmissions using patient and healthcare worker perspectives: Ask your patients whether they are ready to go!" CaptUring Readmission Internationally to Prevent Readmission by the Safer@Home Group (CURIOS@)" Submitted BMJ Quality & Safety.

The impact of Emergency Department closures in North West London

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Aim

Sustainability and Transformation Plans (STP) are proposing the downgrading or closure of up to 24 emergency departments in England.¹ STPs rely on the assumption that large numbers of seriously ill people can be kept out of hospital and cared for in the community.

North West London has already embarked on a programme of A&E closures with the STP recommending a further 2 closures.² Here we aim to explore the impact of A&E closures.

Methods

We plotted emergency department location on a map of multiple deprivation indices. We used data for North West London on A&E performance, ambulance diverts and delayed transfers of care.

Outcomes / Results

- In North West London the risk of A&E closure correlates with level of deprivation
- There was an acute drop in Type 1 A&E performance following two local A&E closures
- Some hospitals were unable to recover from poor performance
- North West London has the two worst performing Type 1 units in the country
- Increasing numbers of ambulance diverts to surrounding A&Es
- Changes in performance cannot be accounted for by changes in overall attendances

- The number of days delayed transfer of care attributable to social care has doubled in the last year

Conclusion

A&E closures have a significant effect on the performance of neighbouring A&E departments. Social care cuts and delayed transfer of care have an important impact on patient flow and hospital capacity.

Increases in A&E waiting times are likely to negatively affect patient outcomes, particularly in time critical conditions such as sepsis, respiratory failure and major haemorrhage. Indeed disinvestment in NHS and social care services has been explored as a contributing factor to nearly 30,000 extra annual deaths in 2015.³

Performance data after reconfigurations raises cause for concern about the future of health and social care in North West London and England as a whole.

References

1. Revealed: 24 A&Es could be closed or downgraded, *Health Service Journal* February 6, 2017
2. North West London Sustainability and Transformation Plan Summary, Being well, living well: a sustainability and transformation plan for North West London, November 2016
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An Automated Notification System for Deteriorating Patients (The Vital Signs to Identify, Target, and Assess Level of Care (VITAL) Study II)

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Aim

Delayed response to clinical deterioration of ward patients is common. The reasons for this are complex and include lack of knowledge, experience and difficulties in processing increasingly complex data from multiple patients.

We aimed to implement automated notification and measure the impact on key clinical outcomes.

Methods

We performed a prospective before-and-after study in all patients admitted to two clinical ward areas in a District General Hospital in the United Kingdom. The Intellivue Guardian Solution

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integrates vital signs from spot-check monitors and calculates Early Warning Score. The system also used wireless continuous respiratory rate sensors in high risk patients and is able to run several scoring systems (such as NEWS¹ and the Chronic Respiratory Early Warning Score (CREWS)²) in parallel.

Data is displayed in a summary dashboard in the nursing station. The IGS sends automated notifications to responders including the medical registrar on-call and the Critical Care Outreach team.

Outcomes / Results

We studied 2139 patients before (control) and 2263 after the intervention. During the intervention the number of RRT notification increased from 405 to 524 ($p = 0.001$) with more notifications triggering fluid therapy, bronchodilators and antibiotics. Moreover, despite an increase in the number of patients with do not attempt resuscitation orders (from 99 to 135; $p = 0.047$), mortality decreased from 173 to 147 ($p = 0.042$) patients. Reduced mortality was maintained in stepwise binary logistic regression analysis for patients admitted during the intervention period ($p = 0.043$; OR = 0.79; 95% CI, 0.63-0.99).

Cardiac arrests decreased from 14 to 2 events ($p = 0.002$).

Finally, the severity of illness of patients admitted to the ICU was reduced [mean APACHE II score: 26 (SD 9) vs. 18 (SD 8)] as was their mortality (from 45% to 24%; $p = 0.04$).

Conclusion

Deployment of an electronic automated advisory vital signs monitoring and notification system for deteriorating ward patients was associated with significant improvements in key patient-centered clinical outcomes (ClinicalTrials.gov Identifier: NCT01692847, registered September 21, 2012).

Mechanisms are open to speculation but reduction of cognitive load in depicting complex physiology and modular redundancy by making abnormal physiology visible for the nurse at the bedside, the sister in charge of the ward, and responders who are not part of the direct clinical team and are therefore able to see problems with the necessary distance.

The study was sponsored by Philips Healthcare

AKI Electronic Alert Triggered Intervention Improves Patient Outcomes

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Aim

Acute kidney injury (AKI) in hospital can be alerted electronically (e-alert) to clinicians by utilising software that tracked creatinine changes. It is unclear however if any consequential intervention at this stage has a beneficial outcome.

The aim of this study was to establish whether nephrology and critical care outreach team (CCOT) review of patients identified with AKI by e-alerts resulted in improved clinical outcomes.

Methods

Patients with AKI e-alerts were reviewed by nephrologists (grade 2 and 3 AKIs) and CCOT (grade 1 AKIs) on the same day. This was carried out for 30 consecutive days. Information on outcomes was prospectively collected for a follow up period of 80 days (intervention group). The comparator group consisted of patients with an AKI e-alert generated over 60 consecutive days but did not have any intervention (control group).

Outcomes / Results

398 genuine AKIs were identified from all generated AKI e-alerts, 273 patients had no intervention (control group) while 125 patients were reviewed based on grade of AKI as above (intervention group).

There were no differences between the intervention and control groups in mean age (75.0 ± 14.9 vs 75.2 ± 14.4 years, $p = 0.909$), baseline creatinine (97.0 ± 52.6 vs 99.7 ± 57.7 $\mu\text{mol/L}$, $p = 0.467$), hospital acquired AKIs (31.2% vs 34.1%, $p = 0.573$) and severity of AKI (grade 1: 55.2% vs 55.7%; grade 2: 28.0% vs 21.2%; grade 3: 16.7% vs 23.1%, $p = 0.194$) (Table 1).

The proportion of patients discharged home by 30 days post AKI was significantly higher in the intervention group (56.0% vs 44.7%, $p = 0.018$). The death censored median length of hospital stay was also significantly lower in the intervention group (8 vs 13 days, $p = 0.034$). The 80-day cumulative Kaplan-Meier patient survival curve is depicted in the graph below. The proportion of patients discharged home by 30 days post AKI was significantly higher in the intervention group (56.0% vs 44.7%, $p = 0.018$). The death censored median length of hospital stay was also significantly lower in the intervention group (8 vs 13 days, $p = 0.034$). The 80-day cumulative Kaplan-Meier patient survival curve is depicted in Figure 1.

References

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Table 1.

	Control Group (n = 273)	Intervention Group (n = 125)	P value
Mean age $\pm$ SD in years	75.2 $\pm$ 14.4	75 $\pm$ 14.9	0.909
Mean baseline creatinine in $\mu\text{mol/L}$	99.7 $\pm$ 57.7	97.0 $\pm$ 52.6	0.467
Patients discharged home 30 days post AKI - %	44.7	56.0	0.018
Death censored median length of hospital stay in days	13	8	0.034
Mean peak creatinine rise from time of e-alert in $\mu\text{mol/L}$	26.1 $\pm$ 64.4	18.6 $\pm$ 41.9	0.225
Rate of progression of grades 1 and 2 AKI to grade 3 AKI - %	10.3	6.3	0.115
Hospital - acquired AKI - %	34.1	31.2	0.573
Patients requiring Renal Replacement Therapy (RRT) - %	2.2	3.2	0.553
Patients admitted to Intensive Care Unit (ICU) - %	13.9	13.6	0.932
AKI recovering to baseline creatinine at 30 days - %	62.3	60.8	0.856

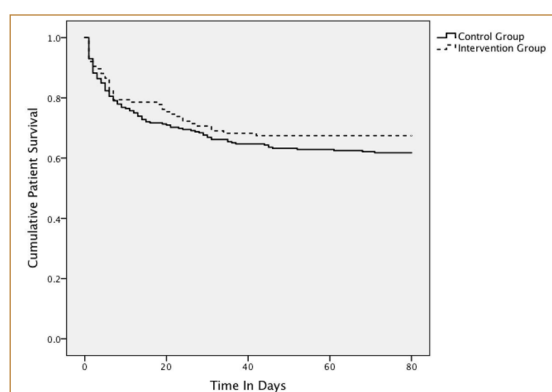


Figure 1. Kaplan-Meier patient survival curve

Conclusion

Our study supports the use of similar intervention in patients triggered with AKI e-alert.

In particular it suggests that there is a significant benefit in terms of shorter length of hospital stay and potentially improves patient survival. Larger studies are needed to support these findings.

The Introduction of 'NEWS plus' - Clinical Triggers for GP Admissions in an Acute Medical Unit

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Aim

The National Early Warning Score (NEWS) for the assessment of medical patients has become common language in Wales, being widely implemented and accepted by the Royal College of Physicians (RCP) and the Society of Acute Medicine (SAM).^{1,2} NEWS is currently used as a triage tool in the Acute Medical Unit (AMU) in Princess of Wales Hospital (POW), resulting in a colour-based system for prioritisation of clinical review. It was noted that the spread of triage categories was heavily weighted toward the lower end (NEWS 0-3) with further prioritisation

relying on the clinical intuition of triage nurses. It has been suggested that certain 'red flag' scenarios require more urgent review despite a low NEWS.²

We aim to review our pattern of triage categories and assess whether NEWS alone is sufficiently discriminatory for prioritisation of clinical review in the context of GP medical admissions. A proposed list of clinical triggers identified at consultant telephone triage will be superimposed to assess for utility.

Methods

NEWS on arrival and clinical information via telephone triage were recorded for AMU GP admissions in POW. A focus group hypothesised a list of clinical triggers in medical patients who warrant an urgent review but could have a low NEWS. These 'clinical trigger' cases were hypothetically reprioritised into a higher category and the pattern re-reviewed.

Outcomes / Results

Using the locally agreed colour-based system for clinical review on admission, 76% (149/195) were triaged into the 'Green' category (NEWS 0-3); 23% (44/195) as 'Orange' (NEWS 4-8); and 1% (2/195) as 'Red' (NEWS 9-13).

The list of clinical triggers was agreed as in Table 1.

Of these 149 'Green' patients, 35.5% were deemed to have a clinical trigger based on telephone triage and would hypothetically be classed as 'Orange'. Of the 44 'Orange' patients based on NEWS, 43.1% cases would be classed as 'Red'. The resulting pattern of triage categories based on 'NEWS plus' is more discriminatory. (Figure 1)

Conclusion

Building on the success of NEWS, the addition of clinical triggers at telephone triage provides a method of prioritising the low NEWS admissions that would otherwise be seen purely in time order. It is appreciated that clinical judgement should never be replaced, but 'NEWS plus' could prove useful, potentially in prioritising triage itself as well.

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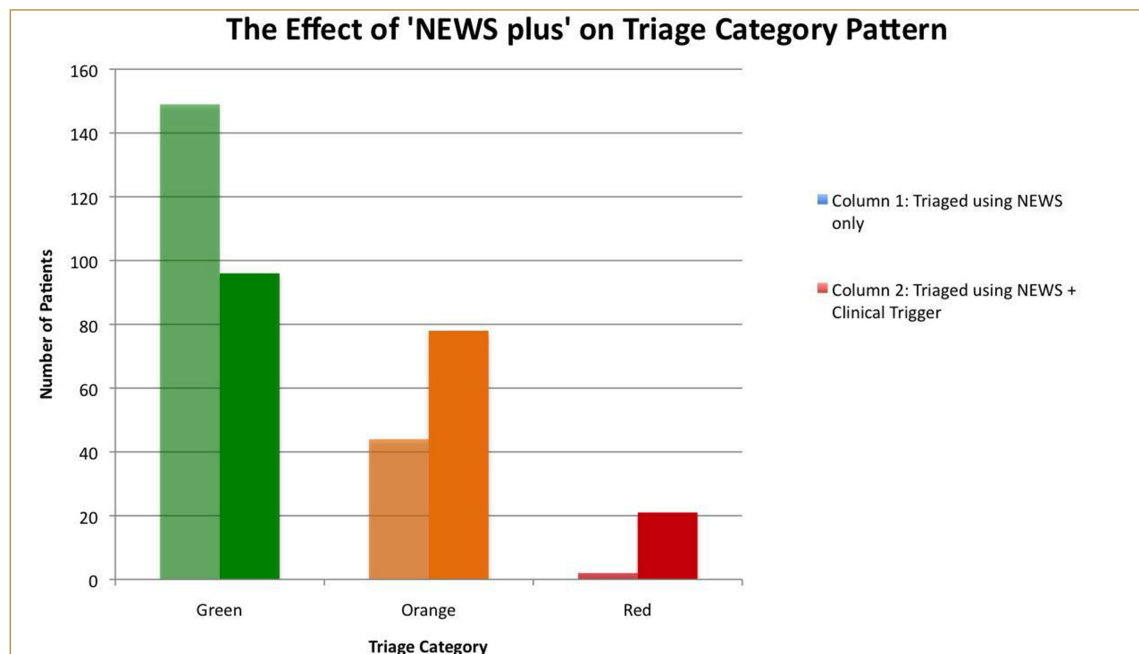


Figure 1.

Paradoxically, it is anticipated that SAM Benchmarking Audit (SAMBA) performance would deteriorate in a resource-limited setting, as maximising patients clerked within four hours is best achieved if everyone is seen purely in time order.

The next step is to assess the time taken for clinical review in each triage category and evaluate with 'NEWS plus' implemented.

References

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2. Royal College of Physicians, Acute care toolkit 6: The medical patient at risk: recognition and care of the seriously ill or deteriorating medical patient, London: RCP, May 2013

Table 1.

Clinical Triggers
• Cardiac chest pain (typical/atypical + ECG changes or pain that is now at rest) • Sepsis inc neutropaenia • Diabetic ketoacidosis • Headache (sudden onset/meningism) • Acute confusional state (<72hrs) on anticoagulation • Spinal cord compression • Stroke (out of thrombolysis window) on anticoagulation • AKI with hyperkalaemia • HTN with neurology • Upper gastrointestinal bleed

If you don't ask you won't know. Bridging the gap between mental health and acute care.

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Aim

The close relationship between physical and mental health is well established. Yet, no clear strategy exists for identifying mental health problems in patients who present to acute medicine.¹ History taking does often not include psychiatric symptoms. The PHQ-SADS is a well

validated tool to identify somatisation, anxiety and depressive symptoms.^{2,3} Ipswich Hospital has introduced mental health screening for all patients in the acute medical unit who did not present following an overdose or self-harm. We report the results of our initial pilot.

Methods

The clerking-proforma was amended by adding three questions:

1. Would you consider yourself as having suffered any mental health issues recently?
2. If yes, is this something you would want to receive help for?
3. If yes, would you mind filling in this questionnaire?

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Doctors were instructed to hand PHQ-SADS questionnaires to those who answered “yes” to all three and then place them in the patients’ notes once completed. The senior clinician was to factor the results into the decision-making and would decide if psychiatric input was necessary acutely or forward the questionnaire-summary to the GP. Data was collected for patients during an initial one month pilot starting November 15th, 2016 (figure 1).

Outcomes / Results

Barriers amongst junior doctors, particularly feeling uncomfortable or not knowing how to respond, were identified during the pilot. Out of 129 patients asked, 49 patients (37.9%) self-reported mental health issues, of which 48 completed the PHQ-SADS. Their characteristics, results of the PHQ-SADS questionnaire, and outcomes are shown in table 1. A large number of patients with no documented psychiatric history self-reported and screened positive for mental health symptoms.

Conclusion

Screening via PHQ-SADS has a high response rate amongst acute patients and can help identify otherwise missed symptoms. Barriers amongst staff must be addressed to successfully integrate this with medical history taking.

References

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Flight related sickness – A study of medical emergency cases from Heathrow

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Aim

Hillingdon Hospital is the emergency receiving Hospital for Heathrow Airport. Almost 76 million passengers passed through the airport in 2016¹, making it one of the world’s busiest.

Numerous studies have reported on the common symptoms of in-flight medical emergencies.²⁻³ A considerable proportion of these presenting patients later required hospital admission.² However, there is a paucity of literature on subsequent in-patient data, including diagnoses.

This study explored the medical conditions leading to hospital admission after in-flight emergencies.

Methods

We examined the electronic discharge summaries of all medical patients admitted to Hillingdon Hospital following arrival from Heathrow Airport between August 2015 and August 2016. Patients who were not air travellers were excluded from analysis. Patient case notes were used when electronic summaries were deficient.

Outcomes / Results

218 patients were admitted from Heathrow Airport in the year, of which 171 were air travellers. There were 14 diabetic emergencies (8.2%) making this the most common diagnosis. There were 13 cases of pneumonia/lower respiratory tract infection (7.6%) and 12 cases of pulmonary embolism (7%). The latter directly arose through the effects of long-haul flight. There were 11 cases of syncope (6.4%) and 11 cases of seizure (6.4%). The effects of alcohol accounted for 10 admissions. Of note, there were only eight patients with ischaemic heart disease and four admissions for decompensated heart failure. See table 1.

Conclusion

This study demonstrates that a substantial number of hospital admissions were related to existing medical conditions, possibly potentiated by the challenges of adjusting treatment to varying time zones, diet and rest. Prevention of these events could be pursued through improved patient education. It is likely that only the very sick or inconvenienced were accounted for in this study. Some of those who were unwell but able to travel onward may have presented to their local health facility.

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