Heat Event 2015 - Poster Presentations

Hull Education and Training

Improving the method of documenting surgical inpatient blood results

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Introduction

Hull and East Yorkshire Trust is one of the largest Trusts within England[1]. Its general surgical department cares for approximately 150 patients across 5 different wards. The Royal College of Surgeons of England (RCS) support the need for regularly updated and accurate investigations reports as part of good medical practice[2]. Surgical patients often require regular routine blood monitoring. Working on an Upper Gastrointestinal (UGI) surgical ward, with specialists in oncology, I noted that the method of recording laboratory findings was often inconsistent. Moreover this disparity impacts how results are reviewed during the ward round; resulting in a direct effect on the implementation of management plans and thus patient care. I was keen to see how the process of documenting these vital results could be improved. Acute surgical wards use pre-printed blood templates to record laboratory findings which is filed in the patients' notes. Having looked at the method used on the acute surgical ward; I was keen to transfer this method to UGI ward.

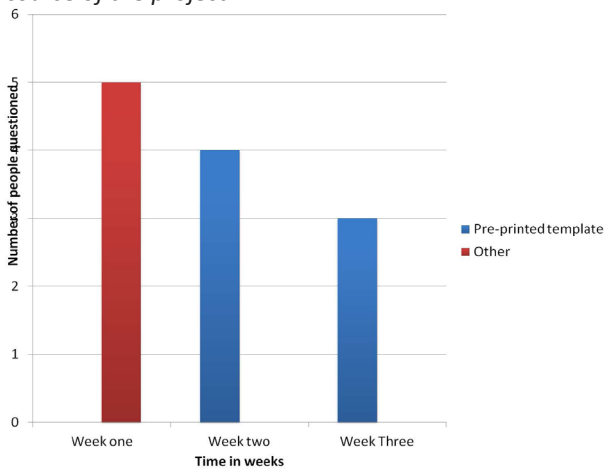
Method

The aim of this project was to improve the consistency of the method used to document blood results. An initial informal audit was undertaken to gauge what mode junior medical staff were utilizing to document pathology findings. The pre-printed template employed on acute surgical wards was mimicked and made available, within individual patient files for use by medical staff. A Plan Do Study Act (PDSA) cycle was undertaken multiple times over a three week period to determine if the change implemented was meeting the project's aim. Formal questionnaires were used to gauge if the way medical staff were documenting blood results was becoming more uniform. Those involved ranged from 3-5 staff members depending on the staffing levels.

Results

Of the 5 staff members questioned, findings highlighted that medical staff were employing a variety of methods to record blood results. These included only documenting abnormal results, a particular subsection such as kidney function or full blood count. While some staff members documented all blood values. By the end of the project there was 100% consistency in the method used to document blood results. All of the junior medical staff questioned were using the pre-template format to record laboratory findings. Furthermore the majority of those questioned were satisfied with the change implemented. Subsequently all participants felt the change had improved the ease of the ward round.

Fig. 1 The change in mode of documenting blood results over the course of the project



Conclusion

The results show that this project has been able to improve the consistency of the method used to document blood results. Literature asserts that 'standardized surgical' 'proformas improve the quality of documentation in comparison to free hand writing'[3]. It is arguable that a pre-printed template helps emulate this standard. Moreover studies suggest 'poor documentation can be linked with poor patient care'[3]. With blood values being one of the key findings explored during the ward round, its inefficient recording within patient notes could be catastrophic for patient care. Additionally all participants noted that the change in the mode of noting blood result improved the perceived ease of the ward round. Some suggest this method was less time consuming than the previous distorted method. This time can be reinvested into other clinical duties, education, or further improvement of healthcare services. Despite limitations such as time this project has had a positive impact on patient care. However improvement is a continual process that can always be advanced with optimized patient care as its underpinning goal.

References

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[2] Surgeons, T.R.C.o. *Professionalism in Surgery.* [cited 2015 1st May]; Available from: https://www.rcseng.ac.uk/surgeons/surgical-standards/professionalism-surgery/gsp/domain-1/1.3-record-your-work-clearly-accurately-and-legibly.

[3] J.Ehsanullah, U.Ahmed., K.Solanki, J.Healy, N.Kadoglu, The surgical admission proforma: Does it make a difference? *Annals of Medicine and Surgery,* 2015. 4(1): p. 53-57.

A quality improvement initiative for paediatric surgery induction

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Background

On call coverage of paediatric Surgery at HRI is consultant led with general surgery core trainees support at nights. Observation was made that trainees were struggling with paediatric surgery admissions e.g. clerking, cannulation, venepuncture, prescriptions etc. In 2014, an audit was designed in form of a trainee survey/questionnaire to review why.

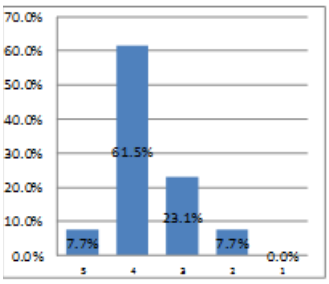
Audit process 2014 - 2015

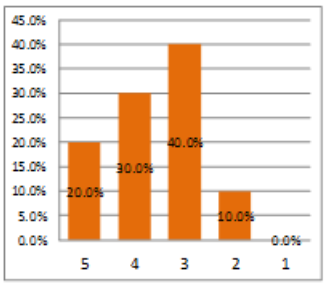
Induction into paediatric surgery is usually in form of a brief talk during the routine general surgery & general paediatrics trust inductions.

2014: Survey revealed that trainees were not certain of what was expected of them and felt the induction was not adequate. It was indicated that supporting written information would be useful. An induction guide was produced with printed and electronic formats made available.

2015: A re-audit was done to review the usefulness of the guide

2014	2015
46% had little prior knowledge of the specialty before starting the rotation/job	~60% had little prior knowledge of the specialty before starting the rotation
61% had an induction	100% had an induction
46% thought the induction was adequate	~60% thought the induction was adequate
~70% would like written information for future reference.	~60% made reference to the guide on an occasional basis
~90% were moderately to very confident about coverage of the specialty by end of rotation/job	~90% were moderately to very confident about coverage of the specialty by end of the rotation





Conclusion

A supplementary guide has proved useful in enhancing the induction/educational process for the trainee thereby enhancing patient care.

Action plan

- Plan to upload guide on to the IGNAZ app.
- Discussion on best way to ensure regular review of the guide to keep information up to date

The Surviving Sepsis Campaign Audit: Are we adhering to the standards?

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Introduction

Sepsis is defined as a systemic inflammatory response syndrome in the presence of infection. There are specific physiological criteria for diagnosis (Figure 1).

Fig. 1: Sepsis definition

- HR>90
- RR>20 or PaCO2 <4.3kPa
- Systolic BP <90mmHg
- Temp <36.0°C or >38.0°C
- WBC <4,000 or >12,000

Incidence rates are high and sepsis accounts for significant mortality. The Surviving Sepsis Campaign was introduced to address gaps in care delivery and improve patient outcomes. However evidence suggests inconsistency in implementation of sepsis care bundles across the NHS.

Method

This audit was conducted locally as part of a national audit to assess compliance to sepsis care bundles in patients attending the Acute Surgical Unit at York District Hospital between 21st - 28th October 2013. The impact of non-compliance on outcomes including mortality and complications was also assessed. The audit standards were the Sepsis Six, and Sepsis Three and Six hour bundles (Figures 2 and 3). Data was obtained from patients' electronic and paper-based notes

Fig. 2: Sepsis 6 protocol

1. High flow O2 (15L/min)
2. Blood cultures prior to antibiotics
3. Empirical broad-spectrum antibiotics
4. Sufficient fluid resuscitation
5. Serum lactate and full blood count
6. Urine output monitoring

Fig. 3: Sepsis 3 hour bundle (blue text) and 6 hour bundle (all text)

1. Measure lactate level
2. Obtain blood cultures prior to antibiotics aministration
3. Administer broad-spectrum antibiotics
4. Administer 30ml/kg crystalloid for hypotension or lactate >/= 4mmol/L
5. Apply vasopressors (hypotension that does not respond to initial resuscitation) to maintain MAP >/= 65mmHg
6. For persistent arterial hypotension despite volume resuscitation (septic shock) or initial lactate >/= 4mmol/L: measure CVP and ScvO2
7. Re-measure

Results

16 out of 55 patients (29%) were diagnosed with sepsis (Figure 4). Appendicitis, abscess, cholecystitis, and infection (sebaceous cyst, pseudocyst) were the most common sources. Poor adherence to the sepsis bundles was found, notably administration of high flow oxygen, blood cultures prior to antibiotics, and measurement of urine output (Figures 5 and 6). 7 patients (44%) required surgical intervention, and 2 patients (13%) developed complications from sepsis (hypotension, PR bleeding) (Figure 7). Overall there was one mortality (Figure 8)

Fig 4: Patient demographics and prevalence of sepsis

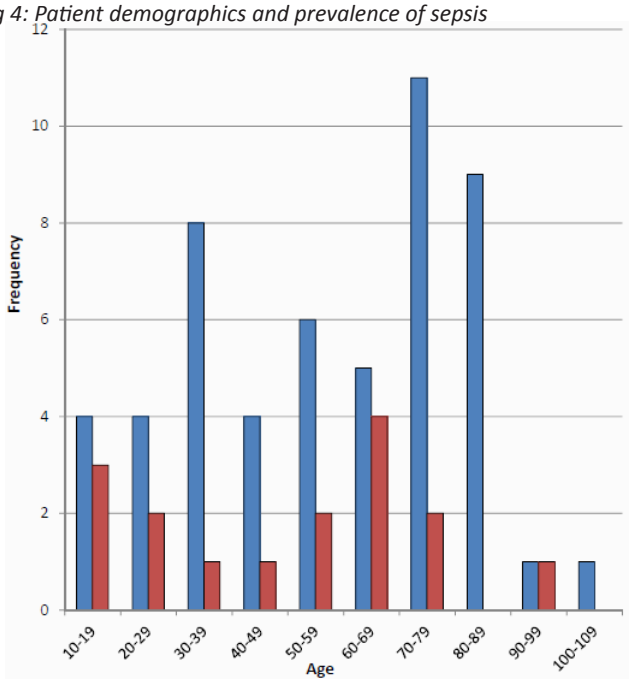

Fig 5: Adherence of sepsis cases to the Sepsis 6 protocol

Sepsis six criterion	No of sepsis cases (/16)	%
High flow O2	0	0
Blood cultures (BC)	5	31
BC prior to antibiotics	1	6
BC after antibiotics	3	19
Antibiotics, no BC	3	19
IV fluid challenge	0	0
IV fluids	5	31
Urine output (hrly)	1	6
Urine output	1 (4 hrly)	6
Lactate measurement	0	0

Fig. 6: Adherence to the 3 hour bundle

Criterion	Performed?: no of sepsis cases	Within 3hrs of admission?
Lactate measurement	0	0
BC prior to antibiotics	1	1
Broad-spectrum antibiotics	6	0
Crystalloid-hypotension/ lactate	0	0

Fig. 7: Clinical outcomes for patients with sepsis

Outcome	No. of points	Details
Complicatioons from sepsis	2	2x hypotension, 1x PR bleeding, spread of infection, death
Critical care	0	None discussed with critical care
Surgical intervention	7	4x incision and drainage of abscess (and 1x EUA) 3x appendicectomy

Fig. 8: Eventual outcomes for patients with sepsis

Outcome	No of pts
Hospital stay <10 days*	15
Discharge	15
Hospital stay >30 days	1
Death	1
Hospital readmission within 30 days	0

Conclusion

This audit highlights deficiency in adherence to sepsis care bundles. One reason could be a lack of knowledge about sepsis bundles on the part of healthcare professionals. We conclude a need to reinforce understanding of the sepsis protocol and its importance and suggest use of a proforma when admitting patients with suspected sepsis.

Improving Patient Care by Reduction of Pre-analytical Errors in Pathology Testing - An Ongoing Project in 2015

Steve Hatfield, Innovation Manager, Pathology, Hull and East Yorkshire Hospitals NHS Trust

The Problem Is….

- Pathology test results are central to around 70%-80% diagnostic and/or treatment decisions made by clinical staff.
- Delays in receiving these results have implications for patient care ranging from mild inconvenience through to causing potentially life-threatening situations.
- Most of these 'failed' tests are due to issues that occur in the pre-analytical phase.
- Examples of reasons for failure include : Sample bottle expired/incorrect bottle used/sample bottle not filled sufficiently/no patient details on sample bottle.
- In the 12 months from 1/3/2014 – 28/02/2015 there were 28,329 samples sent to the Pathology at Hull and East Yorkshire Hospitals NHS Trust which were not able to be tested due to some form of pre-analytical error.
- Of this figure around 4,500 samples were from the A&E/AAU areas at Hull Royal Infirmary. This equates to nearly 400 samples each month in these time-critical areas where results are significantly delayed. This can delay diagnosis, contribute to breach of targets and can compromise patient safety.
- Delayed results can also lead to significant delay in being able to transfer or discharge patients and thus seriously affect bed management.

What we have done so far…..

- Detailed analysis of the collected data for 'failed' samples was undertaken - this led to the identification of 'failure hotspots' – areas with large numbers of sample failures, and 'failure sample types' – type(s) of samples with high levels of failure. A&E & AAU HRI were identified as 'hotspots' and this failure to be able to perform the tests requested at the first attempt is adding to delays in patient diagnosis and treatment in these areas as well as causing additional unnecessary expenditure.
- Discussions between Pathology and senior consultants in A&E/AAU were commenced.
- Discussions with the main supplier of sample bottles to the HEYH Trust Becton-Dickinson (BD) revealed that BD were willing to fund and undertake specialised audit

visits to identify the causes of the high sample failure rates in A&E/AAU.
- Auditors will access A&E, AAU and Pathology work areas over the majority of the working hours each day to identify issues.
- In June 2015 an audit planning day was undertaken with attendance from all stakeholders - A&E clinical & nursing staff, AAU clinical & nursing staff, Pathology managers, phlebotomy team leaders, emergency care business management.
- From this a detailed plan for audit was developed and agreement reached on when, where, and how the audit would be undertaken.

…and for later in 2015
- Week commencing 13th July 2015 a team of specialised auditors from Becton-Dickinson will spend two full days within A&E, AAU and the Pathology Blood Sciences laboratory at Hull and East Yorkshire Hospitals NHS Trust.
- The audit team will follow multiple test requests through the complete cycle - from electronic ordering, the taking of the sample & transporting it to the laboratory through to the testing itself and the electronic result delivery.
- Particular attention will be given to any occurrence within that cycle which results in a delay and the reason will be recorded.
- A comprehensive audit report will be prepared - subsequent to the report being delivered the multistakeholder group will reconvene and a series of agreed actions will be formulated – all aimed at dramatically improving the failed sample rate.
- Crucial to the success of this initiative is the ability of the audit team and the multi-stakeholder group to deliver actions that are deliverable, practical, simple , that actually work and, above all, can be incorporated into ongoing learning activities within the areas concerned

Cultural Innovation within the Hull and East Yorkshire Hospitals NHS Trust Cellular Pathology Department - Introduction of the Advanced Practitioner Role

Steve Hatfield, Innovation Manager, Pathology, Hull and East Yorkshire Hospitals NHS Trust

The Drivers for Change
- The Cellular Pathology Department within the Hull and East Yorkshire Hospitals NHS Trust Pathology Service provides diagnostic histological services to a wide range of service users.
- The service deals with tissue samples ranging from small endoscopic and needle biopsy samples right up to major resections and amputations.
- Traditionally all of these samples had to be dissected at the 'cut-up' stage by consultant histopathologists.
- This was time-consuming for them and crucially took the medical staff involved away from their microscopes where they actually viewed the stained samples and provide the end product of the service – ie a diagnosis.
- This, coupled with a difficult recruiting environment for consultant histopathology staff, made the Department look for alternative ways to meet the demand for providing a suitable histological diagnostic service and at the same time improve turnaround times and quality of service.
- This challenge was met by the innovative use of experienced Biomedical Scientist (BMS) laboratory staff working in the Department and who already provided the remainder of the services associated with histological staining and testing.

This Is What We Did
- A review was conducted into the practice of consultant-only cut-up – it was clear that provided specialist Biomedical Scientist (BMS) grade staff were suitably qualified, experienced , trained and competency tested it was good practice for these staff to dissect certain classes of histological samples.
- The Cellular Pathology Department recruited two highly experienced Biomedical Scientists into Advanced Practitioner roles and trained them up to obtain the nationally recognised Diploma in Expert Practice in Histological Dissection - a qualification jointly hosted by the Institute of Biomedical Science and the Royal College of Pathologists.
- This qualification features a requirement to complete a portfolio, detail evidence of all samples dissected during training, attendance at seminars, case studies and audits. This culminates in an examination comprising 2 papers.
- Upon qualification the Advanced Practitioners can perform cut-up of smaller histological samples and non-cancerous resections – the bulk of the workload.

Impact Of The Changes
- Following the appointment, training and qualification of the Advanced Practitioners the Department now has 8 consultant histopathologists and 2 Advanced Practitioners.
- The Advanced Practitioners between them are dissecting over half of the workload that enters the Department and in doing so are releasing the equivalent workload of almost two consultants.
- This has thus reduced significantly the amount of time each of the 8 consultant staff need to spend in the dissection areas and conversely has increased the amount of time the consultants are able to spend performing diagnostic microscopy on the prepared stained sections.

And For The Future
- There will be further options to develop the Advanced Practitioner role and with this to further improve the efficient use of consultant time.
- The Department is looking to train the existing 2 Advanced Practitioners to dissect some classes of the cancerous tissues received.
- The Royal College of Pathologists / Institute of Biomedical Science are jointly piloting a histopathology reporting qualification for Biomedical Scientists thus allowing limited reporting of microscopy results by suitably qualified non-consultant staff.
- Increase in numbers of Advanced Practitioner staff employed at HEYH.