

Item 2.1.3b

Subject: Sepsis Annual Report 2019-2020
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Presented by: Dr Raphael Perry, Medical Director
Date of Meeting: Quality Committee 5th January 2021

1. Executive Summary

- This paper summarises the current practice and recent audit results in relation to the recognition and treatment of sepsis according to the definitions previously employed by the UK Sepsis Trust.
- NICE guideline (NG51) *Sepsis: recognition, diagnosis and early management* was issued in July 2016 and compliance with this is monitored
- The sepsis group has proactively improved the management and the approach to sepsis.
- There has been some improvement in the KPIs and a significant improvement in the use of the sepsis screening tool. All areas now receive monthly data on screening sepsis with ward level data and timing to inform responsible individuals.
- This report should have come to the quality committee in July 2020 but was delayed due to the Covid pandemic.

2. Background

Severe sepsis carries a high mortality. NICE guidance has highlighted the key issues in managing sepsis are: recognition and early assessment, diagnostic and prognostic value of blood markers for sepsis, initial treatment, escalating care, identifying the source of infection, early monitoring, information and support for patients and carers, and training and education.

Septic patients are highlighted by nursing staff to outreach team or on call doctors as being unwell or triggering high on MEWS (Medical Early Warning Score). Two consecutive MEWS scores of three or above would trigger the sepsis screening tool. Patients with a single MEWS of 5 (and clinical suspicion of infection) should start the sepsis bundle without further screening. Patients on critical care are evaluated using SOFA scoring (Sequential Organ Failure Assessment) with a score of two triggering a screen.

Application of the criteria in the screening tool should allow the early identification of severe sepsis. It should also exclude those patients who would not necessarily benefit from the application of the sepsis bundle. Every patient being treated for suspected sepsis should be on the LHCH sepsis bundle on EPR.

The nursing outreach team and doctors receive training on treatment of sepsis as part of induction and on separate teaching sessions. Compliance with the LHCH sepsis bundle means that patients should receive treatment within one hour of diagnosis of sepsis. This include delivery of basic life support, taking blood cultures before administration of antibiotics, lactate measurement and administration of 1st dose of antibiotics.

A sepsis group was formed in 2018 to take forward education, training and structure of sepsis care delivery. The main change in improving screening for sepsis has been defining roles and responsibilities and tracking areas of poor performance.

3. Performance data

The tables below show the year to date figures for the main KPIs of the sepsis bundle.

Administration of first IV Antibiotic from Bundle Creation Time				
Month	<=1hr	<=3hr	>3hr	Total Number of Sepsis Bundles Created
Apr-19	80.56%	100.00%	0.00%	36
May-19	83.78%	97.30%	2.70%	37
Jun-19	58.54%	95.12%	4.88%	41
Jul-19	67.57%	100.00%	0.00%	37
Aug-19	80.65%	93.55%	6.45%	31
Sep-19	79.31%	100.00%	0.00%	29
Oct-19	76.47%	97.06%	2.94%	34
Nov-19	82.14%	96.43%	3.57%	28
Dec-19	88.89%	100.00%	0.00%	27
Jan-20	71.43%	100.00%	0.00%	28
Feb-20	89.74%	100.00%	0.00%	39
Mar-20	67.65%	91.18%	8.82%	34
Total	76.81%	20.70%	2.49%	401

There has been a significant increase in the number of bundles opened. There is a continued improvement compared to 18/19 data however the trust remained just non-compliant with the delivery of at least one sepsis antibiotic within one hour – target 90%. The target for three hour administration is compliant with the 95% target. There is month on month variation of both of these. The data will include going forward patients on the sepsis bundle and those not on the bundle – identified by antibiotic prescription indication for sepsis.

Blood Cultures Taken Before Antibiotics			
Month	BC before Abx	BC after Abx / no BC taken	No Sepsis Bundles Created
Apr-19	80.56%	19.44%	36
May-19	86.49%	13.51%	37
Jun-19	87.80%	12.20%	41

Jul-19	75.68%	24.32%	37
Aug-19	90.32%	9.68%	31
Sep-19	82.76%	17.24%	29
Oct-19	76.47%	23.53%	34
Nov-19	78.57%	21.43%	28
Dec-19	74.07%	25.93%	27
Jan-20	78.57%	21.43%	28
Feb-20	74.36%	25.64%	39
Mar-20	79.41%	20.59%	34
Total 19/20	80.55%	19.45%	401

The target for blood cultures being taken within twenty four hours prior to antibiotic administration remains below the target of 95% though there is a continued improvement. Again this data going forward will be for those on the sepsis bundle and those treated for sepsis off bundle.

Sepsis Orders Bundle vs. Off Bundle **Apr 2018 – Mar 2019**

Sepsis Screen Completed for 2 Consecutive MEWS (3s/4s) or Single MEWS (5 or more)				
Month	Patients Requiring Screen	Screen undertaken within 6hrs	%	Target
Apr-19	53	22	42%	90%
May-19	52	17	33%	90%
Jun-19	59	30	51%	90%
Jul-19	63	30	48%	90%
Aug-19	68	33	49%	90%
Sep-19	57	23	40%	90%
Oct-19	53	31	58%	90%
Nov-19	62	30	48%	90%
Dec-19	52	33	63%	90%
Jan-20	46	36	78%	90%
Feb-20	62	42	68%	90%
Mar-20	52	33	63%	90%
Total	679	360	53%	90%

There has been a significant increase in the number of patients treated for sepsis using the sepsis bundle. The majority of practitioners not using the bundle tend to be junior medical staff rather than consultant staff. Around 50% of those prescribing sepsis treatments not via the bundle have on other occasions used the sepsis bundle appropriately. Further education and training has been delivered to all training grade staff. There is a weekly focus on response to high risk screens reported on the harm report.

Screening

The initial uptake of using the sepsis screening tool was poor and the process was poorly understood. Following an education program and input from the outreach nurses there has been a steady improvement. Although the wards still have periods where the screening tool is not used all cases are validated by the audit team and ward managers. After validation the target of 90% is still not being

achieved but has improved. There is a better understanding of the need for screening and patients are being targeted appropriately, hence the total number of screens is lower than in 18/19.

High Risk Sepsis Screen to Abx within 1hr			
Month	High Risk Screens	Abx within 1hr	%
Apr-19	36	28	78%
May-19	31	23	74%
Jun-19	31	22	71%
Jul-19	27	25	93%
Aug-19	22	15	68%
Sep-19	24	20	83%
Oct-19	25	18	72%
Nov-19	29	23	79%
Dec-19	20	16	80%
Jan-20	17	16	94%
Feb-20	38	31	82%
Mar-20	30	21	70%
Total	330	258	78%

4. On-going Improvement work

There is a national drive to use NEWS scoring rather than MEWS however the sepsis group, the infection prevention committee and the whole consultant body consider that this is not the best tool for our specific patient population. It has now been agreed that we continue using MEWS and run NEWS in the background for patients who transfer to other healthcare organisations.

There is continued optimisation of EPR workflow in sepsis. This includes modification of timing of blood culture recording; pop up reminders for the screening tool when trying to prescribe sepsis antibiotics off bundle; a tick box for MEWS greater than 5 to eliminate the need for the screening tool; automatically opening the sepsis bundle on completion of high risk screening. In addition there will be improvements in visibility of data such as start times for antibiotics. Facilities boards will include a column for sepsis next to MEWS with colour coding to indicate the need for and completion of the screening tool.

As above wards will receive timed and dated data on compliance with the screening tool. Ward managers will feed back to areas of underperformance.

Further ongoing improvement work:

A quality improvement project aimed at providing individual feedback to first responders congratulating successful treatment and educating staff involved in delayed sepsis treatment. The project observed improvement in compliance during the time it was running suggesting potential use as a permanent tool to improve compliance. A full report of the project is attached to this document for reference.

There is a continued education program:

- To deliver teaching sessions for junior doctors outreach and hospital coordinators.
- Trust wide reminders through screen savers and desktop backgrounds continue.

- There is an updated sepsis eLearning package which is included in mandatory training for clinical staff.
- A new narrated video detailing diagnosis, management and documentation of sepsis treatment has been developed and currently in use during the induction programme for junior doctors. The sepsis group will discuss potential distribution of the learning material to a wider group of staff in LHCH.

This report refers to last year's data and was delayed by Covid 19. Since the start of the 20/21 year there have been substantial improvements in methods of validation and handling of raw data.

5. Conclusions

The delivery of the main KPIs for sepsis remains a challenge and work is continuing to improve the acquisition and quality of the monthly data. The KPIs show some improvement and the use of the screening tool has improved significantly.

The sepsis group continues to drive accurate and meaningful data. Continued education and training with modification of the EPR data

There is no evidence to suggest any deterioration in outcomes from patients being treated for sepsis.

6 Recommendations

The committee is asked to note the data presented and the actions put in place to address the KPIs and use of the screening tool.