Bringing echocardiography into a district general intensive care unit: improving facilities, training opportunities and information governance

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SQA21

Introduction

Point of care ultrasound (POCUS) and particularly echocardiography has revolutionised the assessment and management of critically unwell patients. However, capabilities for performance of echocardiography, storage of images and scope for training vary significantly between hospitals.
This audit and quality improvement project aimed to assess the current utilisation of echocardiography and the POCUS facilities in Barnet Hospital ICU (North London), with a goal to improving facilities and training opportunities in accordance with FICM's *'Guidelines for the Provision of Intensive Care Services'*[1].

Objectives

1. To assess currently performed echocardiography on ICU: Scan indications, time between request and completion and whether focused studies would be a suitable 1st line alternative in some cases.
2. To audit Barnet ICU echocardiography capabilities and how these comply with the FICM Standards set out in *'Guidelines for the Provision of Intensive Care Services'*[1]
3. To foster a relationship with the echocardiography department in order to rationalise use of cardiology services, improve capabilities, training and compliance with the above standards

Methodology

A search was conducted through the Barnet Hospital ITUBase Patient Record for all echocardiograms requested between June 2019 and February 2020. This was verified with formal requests through the hospital-wide requesting system. Indication, time to performance and time to report were audited. Additionally, compliance with the FICM Standards & Recommendations set out in *'Guidelines for the Provision of Intensive Care Services'*[1] regarding echocardiography capabilities of the ICU.

Results

63 echos were requested, of which 48 were performed on ICU and 5 post-discharge. 4 patients died before echo could be performed. Mean time from request to performance was 66 hours. 46/48 echos were reported (95.8%), 39/46 (85%) within 24 hours, with a mean reporting time of 16 hours. Based on indication, is postulated that 70% of scan indications could have been addressed primarily with a focused 'FUSIC Heart' level scan.

Interventions implemented after discussion and collaboration with the local echocardiography department included:

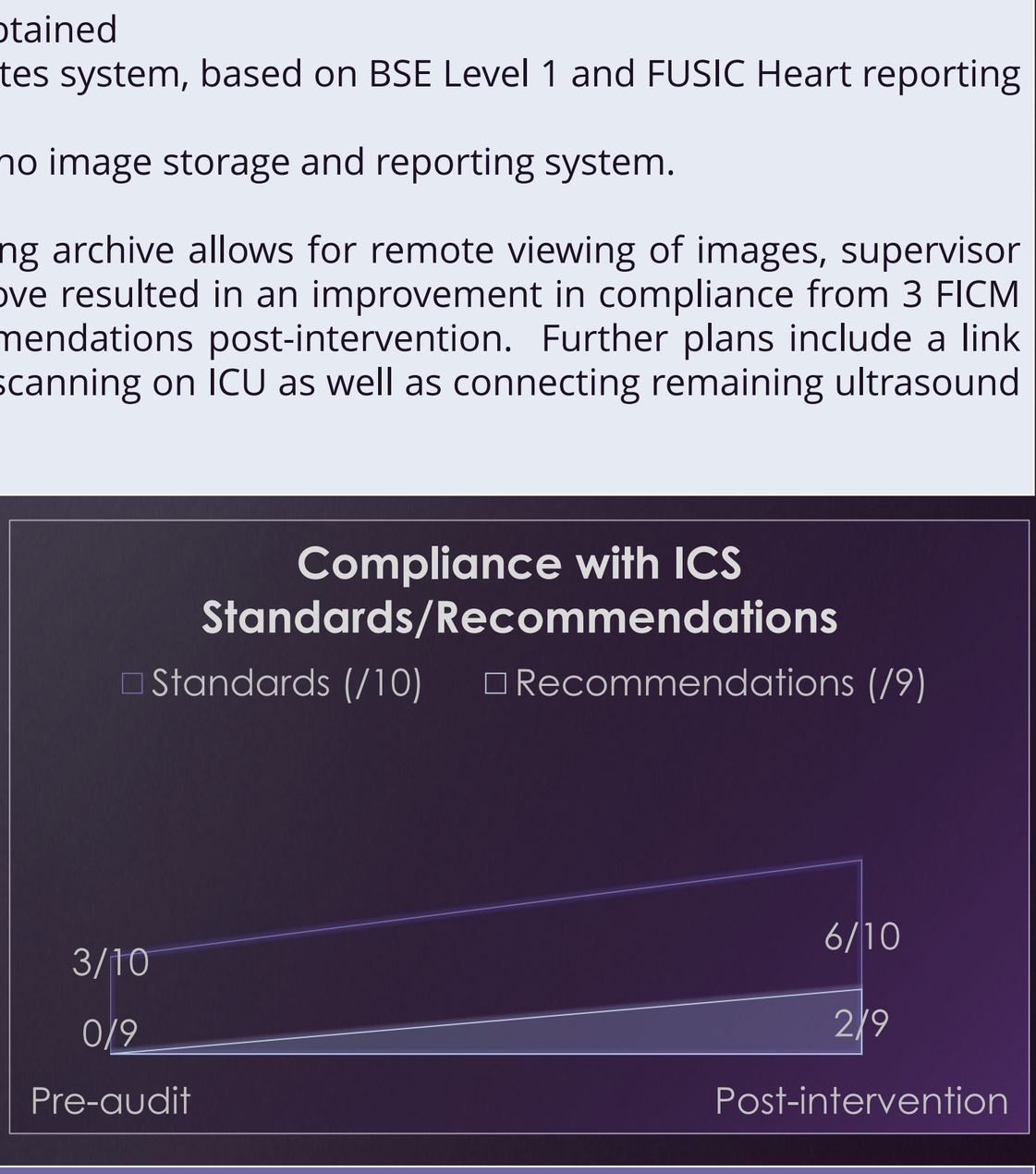
- Opportunities for ICU trainees to attend weekly echo teaching meetings
- An appointed ICU echocardiography consultant lead
- Another ultrasound machine with ECG capability was obtained
- A reporting template was introduced to the ITUBase notes system, based on BSE Level 1 and FUSIC Heart reporting formats
- One ultrasound machine was linked to the hospital's echo image storage and reporting system.

Storing focused echocardiograms on the hospital's imaging archive allows for remote viewing of images, supervisor review and information governance compliance. The above resulted in an improvement in compliance from 3 FICM standards pre-intervention, to 6 standards and 2 recommendations post-intervention. Further plans include a link echocardiographer with dedicated time for teaching and scanning on ICU as well as connecting remaining ultrasound machines to image storage systems.

Conclusions

Our interventions lay the groundwork to further facilitate POCUS teaching and training, image review and information governance. Fostering a culture of POCUS use in ICU takes time and along with collaboration with cardiology departments, such interventions may expedite further training and acceptance, improve information governance and reduce burdens on echocardiography departments.

Compliance with ICS Standards/Recommendations



References

1. Peck M, Miller A, Fletcher N. *Echocardiography and Ultrasound. In: Guidelines For The Provision Of Intensive Care Services [Internet]. 2nd ed.* The Faculty of Intensive Care Medicine; 2019 [cited 19 August 2021]. Available from: https://www.ficm.ac.uk/sites/default/files/gpics-v2.pdf

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