

# Nurse led venesection: a quality improvement project

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## Abstract

Venesection is a widely practised procedure, involving the removal of a unit of blood in order to treat haemochromatosis and polycythaemia. It is still well regarded due to a lack of better alternatives and a small side effect profile. At Barnet General Hospital, venesection has recently been a physician led service, unlike its neighbouring hospital at Chase Farm Hospital, which has a well run nurse led service. The current service being run at Barnet Hospital was beset with problems, including delays in service provision and discharge, using junior doctors who may not be comfortable with or have knowledge of pre and post procedure checks. Furthermore, the medical day treatment unit is comprised of highly skilled nurses. 100% of nursing staff felt comfortable gaining venous access, but none had any formal training. Following a practical tutorial, followed by formal teaching, the nurses now run the venesection service. This has been done at no cost to the hospital, has sped up discharges and this has subsequently led to the capacity of the unit to venesect patients to increase by 100%.

## Problem

Venesection is predominantly a nurse led service across the United Kingdom, being performed at medical centres with little physician assistance.[1-7] However, venesection has been physician led at Barnet General Hospital for the past two years; the service being split between the junior doctors from both gastroenterology and haematology departments. This service is provided on the medical day treatment unit, comprised of highly experienced nursing staff who routinely cannulate patients and administer blood products, usually in the absence of physicians.

The doctor led service has inherently had its problems. Due to venesection being performed by doctors routinely working on medical wards, there are frequently delays in both starting the venesection list and discharging patients. Due to the removal of doctors from their base wards, this can lead to staffing shortages and pressures for those remaining on the haematology and gastroenterology wards. The doctor led venesection programme did not require any formal training beforehand, leading to poor knowledge and practice, exacerbated by the changing rota and high turnover of doctors every four months. This high turnover of doctors also leads to issues regarding continuity of care and recognition of technically challenging patients.

## Background

Venesection, known historically as "blood-letting", is an ancient procedure practiced for nearly two millennia. It consists of the removal of blood from a patient for therapeutic purposes.[8-10] It is now less commonly practiced, with fewer indications. Its indications include haemochromatosis, polycythaemia vera, and porphyria cutanea tarda.[11-15]

## Baseline measurement

In order to improve the venesection service, a questionnaire was

distributed to both nurses and doctors working on the medical day treatment unit. This included open and closed questions concerning clinical competency and knowledge of procedures. Two measurement outcomes were identified from our study:

1. Confidence gaining venous access: of the questionnaire respondents, 100% of nurses felt confident identifying sites for venesection, whereas only 80% of doctors felt confident.
2. Confidence with the practical aspects of venesection, including pre and post procedure checks i.e. blood parameters: 75% of nurses and 80% of doctors were aware of procedural checks for venesection.

See supplementary file: ds5436.docx - "Questionnaire & Figures"

## Design

When considering the many problems faced with the doctor led venesection service, a number of interventions were considered. These included hiring a specialist nurse for venesection services and a rolling rota for doctors. However, both are beset with problems, mainly involving increasing expenses and staffing issues. The most definitive solution to our problems was to train the already existing pool of highly experienced nurses on the medical day treatment unit.

There are many advantages to this intervention. Training the nurses already on the ward would come at no additional cost. The continuous and long term presence of these nurses on the medical day unit also ensures continuity of care and prompt venesection, reducing waiting times and discharges. This subsequently leads to improved patient satisfaction. Furthermore, doctors on the medical wards are no longer required, consequently improving staffing numbers on the haematology and gastroenterology wards.

This solution was designed using a similar template successfully exercised at another hospital in the trust; being coupled with discussions amongst the existing nursing staff and a meeting with

senior clinicians, who ratified the idea.

## Strategy

PDSA cycle 1: A questionnaire was disseminated to all members of staff about improving the venesection service. This highlighted that nursing staff had not been trained and were therefore not comfortable in venesectioning. They were subsequently trained by the senior band 7 nurse, and once competent were transitioned into venesectioning patients. We hoped this would be a smooth transition, however within a two week period it was noted that doctors were still being bleeped to attend the day treatment unit on Tuesday and Thursday afternoons. This was due to confidence issues.

PDSA cycle 2: Nurses were still uncomfortable venesectioning. From speaking to them and redistributing the questionnaire, we recognised that this was due to them feeling uncomfortable with recognising and dealing with complications of venesection. Although they had not encountered any complications, they were concerned about if/when they did, what would they then do. We therefore planned to hold a training session and produce a presentation which they could access at any time. A detailed powerpoint presentation chronicling the potential complications of venesection and how to overcome these problems were placed on the hospital intranet, available to all members of staff.

## Post-measurement

Anonymous questionnaires were distributed to all staff members on the medical day treatment unit. They were completed by the four nurses working on the medical day treatment unit, and the five junior doctors who initially comprised the venesection service (two from haematology and three from gastroenterology).

The questionnaire demonstrated some interesting findings.

A higher percentage of nurses than doctors were more comfortable gaining venous access at the beginning of the study (100% versus 80%).

75% of nurses were uncomfortable with the practical aspects of venesection, versus 80% of doctors.

Although both professional groups understood why venesection was performed, neither knew there were specific protocols regarding pre and post procedure checks. They did not know there were specific blood result parameters which needed to be checked prior to proceeding with venesection.

Open questions were added to the end of the questionnaire, allowing respondents to express any underlying problems with the service and suggestions for improvement.

These highlighted that doctors were more concerned about time taken off their base ward, lack of formal training, and patients' frustration with delayed venesection/discharge times.

From a nursing perspective the main issue was not being trained to venesect, and frustration waiting for doctors to arrive.

Having implemented our changes to the venesection service, including educating the nurses and ensuring procedural competencies, the questionnaire was redistributed.

The second questionnaire yielded 100% confidence rates both gaining venous access and venesectioning; improved from the first survey. Improved knowledge and confidence was noted amongst the doctors responses, reporting fewer visits to the medical day treatment unit, owing mainly to complications (e.g. syncopal episodes). Nursing staff reported improved patient satisfaction and reduced waiting times. Furthermore, nurses felt more confident venesection, requiring little, if any, assistance from doctors. If escalation was required doctors were readily available, and they felt confident in escalating to a more senior member of staff. On occasions consultants had been called to review blood results.

See supplementary file: ds5437.docx - "Results"

## Lessons and limitations

Nurses were initially very apprehensive about taking over the venesection service, owing to a lack of knowledge about the practical aspects. We had to explain that blood product infusions had more significant side effect profiles than venesectioning. This had to be reinforced from a senior level, i.e. consultants. A short powerpoint presentation also helped reduce anxiety about venesectioning. Although our study yielded positive findings, some limitations were identified.

The cohort was small, but this is due to a select few nurses being trained in venesectioning, which is more cost effective. Secondly, the questionnaire demonstrated a new problem: the lack of capacity to venesect more patients. This is a rate limiting step in improving venesection services at Barnet General Hospital and requires further research and discussion in feasibility, considering that the medical unit is already running at full capacity.

## Conclusion

This project sought to address a number of issues with the existing venesection service at Barnet General Hospital. The original service consisted of junior doctors, who were neither fully aware of the principles of venesectioning, nor were trained. This affected the quality of the service provided. Further issues included increasing delays in discharging patients and staffing shortfalls on the medical wards. Having witnessed how our colleagues at Chase Farm Hospital ran their venesection unit, by using a group of trained nurses, we decided to pose the question of whether this was a feasible option at our medical day unit.

A questionnaire distributed to the existing group of nurses found that 100% were comfortable with gaining venous access and the main limiting factor was due to a lack of training. When the nurse led service was finally implemented, the capacity of the unit to

venesection patients increased from four to eight; owing to reduced delays and prompt discharges.

When the questionnaire was redistributed, following the conversion of venesection from a doctor led to a nurse led service, we found that some nurses were unaware of how to deal with complications of venesection. This issue was rectified by further training and an oral presentation, which has been placed on the hospital intranet. Overall though, we noted improved confidence in nurses venesectioning, reduced waiting times, and increased patient capacity; all at no extra cost to the trust. Another issue identified for addressing was the potential to further increase the capacity of the unit to venesection, being limited by the number of chairs available. This demonstrates the dynamic changes that occur as a result of a quality improvement project and the potential for further future interventions.

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## Declaration of interests

Nothing to declare

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## Ethical approval

According to trust policy, this project did not require ethical review.