Anaesthetist-Led Nurse Preadmission Clinics

336072

FINAL REPORT

30 June 2012
**Executive Summary**

The Waitemata District Health Board (WDHB) population is growing and ageing at a rapid rate, resulting in escalating demand for acute and elective surgery. In August 2010 the National Health Board launched a fund to support programs to improve the productivity of elective surgery. This aligned with the Ministry of Health approval of an Elective Surgery Unit at Greenlane Hospital and approval of the new Elective Surgery Centre to be completed in 2013 on the North Shore Hospital campus. The aim of these innovations is to increase surgical productivity within currently available resources and improve access to elective surgery for the Waitemata population.

Waitemata DHB successfully submitted a Preadmission Assessment Process Redesign pilot proposal along with several other proposals to the National Health Board fund in 2010. Waitemata DHB gratefully acknowledges the funding support for this program from the NHB.

The purpose of the Preadmission Assessment Process Redesign project was to:

- Improve patient safety through a systematic approach to peri-operative assessment that identifies, quantifies and appropriately manages peri-operative risk.
- Enable post-operative care to be planned for the patient prior to admission.
- Increasing patient commitment to the treatment pathway, by providing the opportunity for explanation and discussion.
- Focusing clinician resource where it is most needed.
- Contributing to improved elective surgery productivity.

**Original Aim:** The aim was to trial a nurse led service with a patient centered focus, improving efficiency for both staff and patients.

Staff efficiency has improved as evidenced by the successful replacement of specialist medical work time with nurse specialist work time without detriment to service quality.

Patient satisfaction has remained high as evidenced by the results of our first patient satisfaction survey and the ability of the Preadmission Service to preoperatively ‘case manage’ individual complex cases has been a fortunate byproduct of the establishment of a nurse-led Preadmission Service.

**Future Aims:** the Preadmission Service is aiming towards the recruitment and training of a cohort of senior nurses familiar and comfortable with protocol-driven preadmission processes. Well trained nurses are more than capable of dealing independently with most preadmission clinical scenarios given appropriate guidance and medical backup.
1 Background

Project description: Redesign of the pre-anaesthetic service to reduce anaesthetist time involved in pre-assessment whilst maintaining clinical safety and the requirement for the service to be anaesthetist led.
2 Current Research and evidence based practice
Around the country DHB’s approach the issues of pre-admission differently. There are benefits to DHB’s and patients of a Preadmission Department that acts as an ‘umbrella organization’ under which the entire range of preoperative processes - surgical, medical and administrative, can occur.

Whangarei hospital: There is a comprehensive nurse-led preadmission service with anaesthetic specialist support. Their service was the most comprehensive and patient-focused:
Nurses triage ‘for clinic’ or ‘not for clinic’ then assesses the patients in clinic themselves. They only refer on to the anaesthetists for complex patients.
Whangarei uses 6 FTE nurses and a dedicated nurse clinic to supply a complete pre-admission service to their 6000 elective surgical bookings per year. With WDHB’s estimated 12000 patients per year for elective procedures requiring anaesthetic input, mirroring their system would necessitate a considerable expansion of nursing resource.

Waikato Hospital: There is a complete pre-admission clinic comprising laboratory services, nurses and anesthetists. This service, whilst potentially very informative for the patient, was highly resource intensive and each patient was interviewed by both the nurse and the anaesthetist.

Manukau Superclinic: Each surgical service conducted their own pre-admission work-up. Patients were returned to the surgical service by the anaesthetic triage team if their workup including paperwork was not complete. Triages were completed by Preadmission Service nurses and patients were only seen by anaesthetists upon referral. The proportion of patients seen in clinic by anaesthetists was low reflecting a younger local population when compared to WDHB, different elective surgical case mix as well as an ingrained local culture of ‘unexpected problem’ resolution on the day of surgery rather than through careful planning.

Best Model – much can be learnt from local models as well as experience gained overseas:
Whangarei trains and uses its nurses optimally
Hamilton offers patients a comprehensive high quality service at great expense
Manukau makes do with a suboptimal service but has an enviable ‘can do’ culture
Overseas units often report almost exclusive nurse-based preoperative assessment and work-up. These are usually single specialty high throughput elective facilities. With the development of ESC, there is much to learn from their successes but we must not lose sight of the differences between ESC and these units.
3 Key process changes

3.1 Benefits- Whether the pilot achieved what it set out to do?

The pilot has been a success and the necessary recruitment and training has improved the anaesthetic department’s efficiency and accessibility for all who utilize it.

Advantages to the new process have been:

- Information flow between Booking and Scheduling departments and medical staff has improved markedly as has communication between surgical specialists and their anesthetist colleagues.

- General Practitioners enjoy better communication with the hospital ‘system’ and patients enjoy a significantly improved interaction with our service.

- There is markedly improved continuity of care for patients who are no longer 'lost in the system' awaiting investigations or their review.

- Improved responsiveness of the Anaesthesia department to urgent and semi-urgent bookings.

- **Less overall spend on preadmission.** So far, it has been possible to replace medical specialist time with clinical nurse specialist time in a cost-neutral or cost-beneficial way. Our two nurses cost the DHB approximately $150,000 pa to employ compared to the $250,000 pa per FTE for medical specialists. We have NOT replaced doctors hour for hour with nurses but service developments so far have been, at worst, cost neutral, and we are about to reap the initial benefits of having a local nursing cohort appropriately trained for the tasks ahead.

- There is a challenging and groundbreaking working environment for our nurses. Their enthusiasm and quality should attract quality applicants for proposed service expansion jobs.

- Through more diligent triage and case management, we are able to prevent unnecessary clinic attendances. Patients love this. They spend less of their valuable time in hospital clinics and waiting rooms.

- Specialist Anaesthetists spend more time on tasks requiring their unique skill set: Assessing complex patients; planning service developments; liaising with surgical specialists – and less time on ‘process’ tasks. There is, however, a lag time to enable nurse training before they can be maximally efficient. Recent experience suggests this lag is between six and twelve months.
3.2 **Disadvantages / Challenges have been:**

- Change resistance from some colleagues: there is often a resistance to change and particularly to the concept of nurses working in a traditionally doctors’ domain. The recognition and reassurance that the nurses work within their scope of practice under the guidance of anaesthetists and are an asset to the department has allayed much of this initial resistance. There has been a change in the initially frosty dynamic and a relationship of trust has developed.

- Workload shift: A patient who perhaps would have been seen and assessed in clinic weeks prior to surgery, may well now appear on a day of surgery admission [DOSA] list. He or she will have missed out on an opportunity to have some required tests and procedures done – for example, an ECG may not have been performed or blood tests may have to be done ‘last minute’. This effect we can call ‘workload shift’. Shift is best mediated by establishing administrative pathways that identify such patients and give an opportunity to perform necessary tasks before day of surgery. One example would be the implementation of ‘default tests’ for identified groups of patients. Given the modern shift towards less and less ‘routine’ testing, the establishment of evidence based testing guidelines is all the more necessary.

- Increased stress and pressure to ‘just press on’ felt by anaesthetists who have had no input to a patients’ care yet find themselves, on day of surgery, filling in gaps that our process have left behind - consent conversations, last minute blood tests and unexpected clinical challenges - e.g. pre-op bloods that are not ordered per protocol by surgical teams.

3.3 **Quality assurance:**

*What are we doing to monitor the Preadmission Nursing team?*

1. **Data collection** - Weekly data collection – includes patients assessed, seen, phoned, patients declined surgery, referred for investigations or specialist opinions

2. **Feedback** - We encourage feedback from colleagues re difficult issues and the Preadmission Service responds to same - e.g. feedback is often that the clinic appointment allocated was too short for the necessary discussion or that there are no ‘easy patients coming to clinic any more’. Clinic has a finite number of appointments each week and is often maximally booked.

3. **Patients of interest** - The service keeps a 'patients of interest' file to ensure all complex cases are 'closed'-For example - If there is a patient sent for cardiac investigations, the request may be expedited, results obtained and a “clearance for theatre” or “further plan made”. When the patient’s theatre date is set the procedural anaesthetist will be notified of a potentially difficult patient –e.g. “previous difficult airway”.

4. **Nurse supervision** - The service’s Lead Anaesthetist, Dr Findlow, has completed audit of nurse triage quality by shadowing them in their virtual clinic and critiquing their work. He has challenged their thinking and encouraged their development.
3.4  *Smart Triage*

Smart Triage is the process of gathering data regarding a patient’s proposed surgery, existing medical issues, social situation and any other relevant data then using that information to best direct preoperative preparation – outcome options include clearance for direct to theatre admission, allocation to face to face or telephone clinic slots, case management of complex patients or liaison with medical colleagues to best plan ahead and anticipate rather than react to possible problems.

**History** - Previously an exclusive anaesthetist role, a major part of the service development was the training of the nurses to undertake triage independently thus freeing the Anaesthetists for other duties.

Initially nurses were teamed with the anaesthetists to learn the complex reasoning and rationale for existing triage practices. As the nurses gained experience and confidence, they were able to triage independently.

**Current situation** - Every elective surgical case requiring anaesthetic input is referred to the Preadmission Service.

Each patient is referred to Preadmission by way of a booking ‘set’. Each set comes with a completed self-assessment health questionnaire [the ‘HQ’] and a patient registration form. The two forms are read by the nursing staff and further enquiries are made as indicated:

Enquiries can be directed towards other health providers [such as GP’s], hospital records [paper and electronic] or other health authorities [CRIS records for ADHB for example].

Phone calls direct to patients are often made, for example to clarify self reported medical history or, as is often required, to contact the anxious to offer reassurance and advice. This particular development has been much appreciated by anxious patients and has reduced day of surgery stress for staff and patients alike.

Wherever possible, minor or simple issues are sorted out on the phone thus avoiding a trip into hospital clinic for the patient.

Triage by nurses as opposed to doctors has proven to be reliable, clinically ‘accurate’ and acceptable to medical colleagues. It has produced no increase [and possibly a small decrease] in day of surgery cancellations and delays and has definitely reduced day of surgery anxiety for our more vulnerable patients.

The chart below illustrates the transition from exclusive doctor triage to exclusive nurse triage over a period of eight months Sept 2011 to May 2012.
The mauve column indicates the transition period when the anesthetists were training the nurses up in the role.

Note: the Anaesthetists are still responsible for the maternity triaging hence the 45-55 triages per month still indicated for the Anaesthetists.
Series 1 (A’s) reflects the pt’s who are not bought to clinic, (will see the procedural anaesthetist on the day).

Series 2 (B’s) are the pt’s triaged to attend for a short anaesthetic clinic appointment (20mins).

Series 3 (C’s) are those requiring a long consultation (40mins) due to their co-morbidities or the nature of the surgery or a combination of both.

3.5 Case Management

Case management ‘closing the loop’:

When complex patients are referred, further investigations are required along with communications with a range of professional colleagues. Before Preadmission nurses, it was all too easy for patients to become ‘lost in the system’ pending further investigations or even declined by other services without notification back to the referring specialist. The Preadmission Service keeps track of each complex case and reviews progress regularly. So once all the necessary work-up has been completed the pt can be formally cleared to proceed of surgery or declined as needs be.

3.6 Elective Surgical Centre [ESC] Planning

At present our nurse specialist is attending various ESC planning meetings as a representative of the Anaesthetics Department. Her involvement ranges from GP liaison through to process design and clinical guideline development.

An opportunity exists to instigate and develop a nurse-based, nurse run, specialist doctor-overseen Preadmission Service serving all surgical specialties in the new ESC. To get there we need nurses to be appointed well in advance, to train them in the
necessary skills and to develop the service proactively. We will only get this opportunity to work innovatively and efficiently once.

3.7 Changes to Documentation

The service has developed its own recognizable forms for clear documentation particularly in case management. This paperwork is added the patient’s notes as a formal, traceable account of the service’s involvement. Nurses are also dictating letters on the hospital’s Concerto system (electronic patient files).
4 Evaluation

As the data indicates all Ministry Key Performance Indicators have been attained.

4.1 Baseline KPI measures

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<tr>
<td>a) Percentage of day of surgery elective cancellations (by DHB)</td>
<td>0.5%</td>
<td>0.8%</td>
<td>1.4%</td>
<td>&lt; 2%</td>
</tr>
<tr>
<td>b) Percentage of day of surgery elective cancellations (by patient)</td>
<td>1.5%</td>
<td>2.0%</td>
<td>3.0%</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>d) Elective day of surgery admission</td>
<td>95%</td>
<td>94%</td>
<td>96%</td>
<td>&gt;= 90%</td>
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Baseline measures have been revised to only include the following elective sub-specialties: orthopedics, general surgery, urology, ORL and gynecology. Gastroenterology and obstetrics have been excluded (previously included). These revised measures will more accurately reflect the programme activity and allow for improved monitoring of the impact of introduction of anaesthetist led pre-anaesthetic nurse assessment. The average length of stay KPI has been also revised to include all sub-specialties (previously only reported for orthopedics).
The preadmission service analyses cancellation reports monthly. Recurring contributing factors are addressed to reduce subsequent cancellations. For example - team structures are being developed to foster greater cooperation between different anaesthetists working with the same surgical team. This reduces the adverse effect of opinion divergence between specialists [an unavoidable human factor particularly when dealing with professional groups]. In simple terms – we are promoting communication!
Cancellations by patients are often ‘social’ – the preadmission unit, through close personal contact with patients, particularly complex patients, helps to minimize social cancellations.
4.2 Schedule Plan

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<th>Revised Target Date</th>
<th>Status</th>
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<tr>
<td>1. Completion of project outline</td>
<td>31 Jan 2011</td>
<td></td>
<td>Completed</td>
</tr>
<tr>
<td>2. Complete recruitment of Pre admission clinic nurse coordinator</td>
<td>31 Mar 2011</td>
<td>10 Aug 2011</td>
<td>Completed</td>
</tr>
<tr>
<td>3. Complete protocols</td>
<td>31 Mar 2011</td>
<td>30 Sep 2011</td>
<td>Completed</td>
</tr>
<tr>
<td>5. Imbed model across service</td>
<td>31 May 2011</td>
<td>31 Dec 2011</td>
<td>Completed</td>
</tr>
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<td>6. Project update report to MOH</td>
<td>30 Jun 2011</td>
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<td>Completed</td>
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<tr>
<td>7. Commence analysis &amp; review</td>
<td>1 Apr 2012</td>
<td>No change</td>
<td>Completed</td>
</tr>
<tr>
<td>8. Final report submitted</td>
<td>30 Jun 2012</td>
<td>No change</td>
<td>Completed</td>
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</tbody>
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4.3 Patient Satisfaction

A telephone satisfaction survey was completed by the anaesthetic department’s Quality and Research Specialist Nurse. The initial data collected was of every patient phoned over four weeks from mid November 2011, then a subsequent week’s worth of calls to check the consistency of results (April 2012). The independent surveyor then called within a 3-4 week period after the original triage phone call.

The questions asked were:

- Did the Nurse introduce herself and explain the purpose of the telephone call?
- Did you like having a phone call rather than coming to clinic?
- How well would you rate the opportunity and time to discuss your medical issues?
- How well do you think the nurse listened to you and understood your medical concerns?

Patients appreciated the opportunity to discuss their case remotely rather than in a busy clinic. Due to the geographic nature of the DHB’s catchment, some patients have to travel considerable distances. WDHB is the largest DHB in NZ by population and extends as far as the northland boundary in the north (Wellsford, Snell’s Beach area) and to the harbour bridge in the south. There are 3 distinct areas - Waitakere (population 213,400); Rodney District (population 94,900) and North Shore City (population 232,150).

There are two public hospitals serving this population – North Shore Hospital and Waitakere Hospital. We endeavor to have patients attend the anaesthetic clinic nearest to them. They are reassured that face to face consultation is offered as a right and
many take up that offer. Most patients, if given the choice, prefer NOT to attend face to face clinic. So far, there has been no dissatisfaction expressed by any patients regarding the shift of process input from doctor to nurse. The only complaint from a patient was regarding being asked to attend their GP for blood pressure optimization as ‘it would cost too much’. Our policy is to encourage patients to attend their GP and, if cost is an issue, to have BP checks at their local pharmacy.

Overall, patient satisfaction was high. Patients appreciated the new option of having their concerns addressed on the phone and, generally speaking, they were not put off by the less ‘face to face’ nature of our interactions with them.

A professional and practiced phone manner, possessed by our nurses, explains the surprisingly painless transition to the new system from a patient perspective.

The plan is to repeat this survey at regular intervals as the nurses’ skill and knowledge is extended to ensure an ongoing high quality of service.

### 4.4 Costs

**Nursing input to the Preadmission Service has, so far, facilitated cost neutral or cost-beneficial changes to the way we run the Preadmission Service. Further savings are inevitable as these nurses become more skilled.**

Our current nurses have saved our department two half day specialist clinic sessions plus up to three half day triage sessions per week. Despite an ongoing significant increase in surgical throughput, sessions of specialist anaesthetist time dedicated to the preadmission process have decreased.

Five half day sessions per week of specialist clinical time costs approximately $200,000 pa.
4.5 Lessons learnt during the establishment and implementation phase.

Decision Matrix – The matrix assists in decision making by combining:

1. A measure of a patient’s general fitness, using the American Society of Anaesthesiology (ASA) scoring system.
2. An estimate of extent of surgery using categories agreed with each surgical specialty.

![Anaesthetic Pre Admission Triage Matrix](image-url)

Default ‘must see’
- over 70 years of age and no prior anaesthetic
- significant psychiatric history

Legend
- Triage
- Surgeon
- Nurse
- Specialist
- Phone call
- Direct to clinic

Version 1 – last updated 28 September 2011
4.6 The requirements for an efficient service: what we’ve learned

- **Effective booking clerk communication** is a vital pivot of the service.
- **Education and development** is essential:

  They need to become comfortable with airway assessment, basic clinical examination, detailed history taking, social problem identification, initial consent discussion, audit and risk stratification - a broad range of skills previously considered the doctors’ domain but ideally suited to the new breed of specialist nurses.

- **Personal case responsibility** - our initial evidence suggests that nurses are more than capable of case management.

- **Written communication** with medical, administrative and nursing colleagues- not a traditional nursing role but evidently not a weak area for our nurses.

- **Scenario recognition and ‘default’ pathways.** The majority of the nursing role at present is related to recognizing the groupings of patients and their specific requirements:

  - **Worried well** - may require a reassuring phone call, ‘chance to talk’- these patients are optimized and no further work-up is required but they have concerns and need a sounding board.
  - **Mentally ill** - need to be brought to clinic as the Health and Disability Commission strongly recommends this for the consent process - the stress associated with presenting for surgery with added psychiatric history does not lend itself to on the day consent.
  - **BP checks** - advise for GP optimization – educating patients that whilst hypertension may be a cause for theatre cancellation it is their long term health that is at risk.
  - **Smoking cessation** - offer referral to the WDHB Smoking Cessation Practitioner, reinforce that smoking cessation is a healthier lifestyle choice and for better surgical outcomes.
  - **Declined patients** - patients are declined surgery from time to time on grounds of unacceptable risk and, as a result, their treatment plans can be thrown into disarray. A key task for our preadmission service nurses is to coordinate timely answers to difficult clinical questions so that patients and their families can make appropriate decisions regarding ‘where to next’.
  - **HDU / ICU ‘heads up’** - When a patient has been identified as potentially requiring HDU/ICU post, the preadmission service is ideally placed to notify all concerned and to coordinate a large care team. This role is particularly important as the day of surgery approaches. Getting this element right has encouraged good communication between ICU / HDU and other clinicians [often a small battleground within surgical units] and has minimized day of surgery cancellations due to lack of ICU / HDU space.
5 Discussion

5.1 Impact on administrative staff and peri-operative nursing teams.

A common preadmission administrative pathway for multiple surgical services has been successfully established.

Back door referrals – Patients can occasionally appear on operating lists having failed to go through the agreed preadmission process. Whilst possibly convenient for a single patient or surgeon or anaesthetist, this practice encourages poor record keeping and diminishes transparency.

The practice of circumventing administrative process in the name of ‘getting the job done’ has been eliminated.

Workload shift – discussed in section 3.2

5.2 Impact upon theatre utilization.

- No measured increase in day of surgery cancellations nor delays
- Improved communication between preadmission service and day of surgery clinical team

5.3 Common approaches between DHBs.

There is an informal preadmission interest group involving medical and nursing staff from WDHB, ADHB, and CMDHB. There is an ongoing consultative process designed to share ideas and innovations. As time goes on, our ideas converge. At present, however, there is not a formal common approach to preadmission across the Auckland DHB’s.
6 Scalability and Sustainability

6.1 The future:

The medium term plan would be to broadly emulate the Whangarei preadmission service model. This model would require up to ten further FTE nurses for our DHB’s present throughput. This is to provide a comprehensive ‘umbrella service’ serving all surgical specialties. It is envisaged that such a service would decrease the workload of the currently fragmented surgical preoperative teams and would generate significant cost savings within surgical departments. The patients would get a more organized, more consistent service too.

Introduce nurse-run face to face and phone clinics both of which will be overseen by anaesthesia specialists.

6.2 Developing the Preadmission Nurse role

In addition to intensive on the job training with anaesthesit colleagues, the current nurses have both attended AUT and completed the post-graduate paper - ‘Advanced Assessment and Diagnostic Reasoning’.

This 30 point paper costs $1800 per student, with 7 study leave days (attending AUT), 120 practical hours required and extensive readings. There were 3 assessments over a 4 month period.

Note: This paper is a pre-requisite for the nurses at Whangarei.

Experience elsewhere, in particular Northland and Counties Manukau DHB locally and a number of centres overseas, has demonstrated that a well trained nursing cohort can offer an assessment and case management service the equal of [and sometimes superior to] a more traditional doctor-based service in the preadmission area.

Enlisting new staff will NOT produce immediate fiscal benefit – there is a lag time for new staff to become competent at what is a new skill. Estimated break even lag time is six months to one year. Initially there will be a financial cost to achieve a long term benefit.

6.3 Accommodation Requirement

The current Preadmission Service office accommodates two nurses, one doctor and any visiting staff. It contains four desks with three computers, three phone lines and one printer. It measures 4.5 x 3.5 metres and has no windows. Through this office pass twelve thousand packs each year.

If we are to develop a credible and functional Preadmission Service it is imperative that we have space in which to do so.
7. **Conclusions**

The pilot project has confirmed that a nurse-based Preadmission Service is cost-effective, clinically appropriate and acceptable to patients.

With the Elective Surgical Centre scheduled to open in mid 2013, now is the time to further develop the Preadmission Service.

Our ultimate goal is to recruit, train and house a team of motivated, skilled and productive Preadmission Service nurses. Acting under the guidance of the Anaesthesia Department, they will assess the needs of all surgical patients and coordinate the many elements of each patient’s preoperative journey.