1. **Title**

Impact of the acute surgical unit on a local, national and global scale; survey

1. **Investigator details**

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1. **Introduction**

The Acute Surgical Unit (ASU) is becoming a widely accepted model for the management of non-elective general surgery admissions.

Traditional arrangements superimposed emergency referrals and operating onto the elective workload of sub-specialty units in an on-call rotation. Registrars had divided commitments, and would review patients during elective commitments. Consultants similarly were periodically unavailable. Emergency procedures were performed either by the cancellation or rescheduling of elective ones, or afterhours.

An alternative model, the ASU, was introduced in Australia in 2005 at the Prince of Wales Hospital in Sydney, and has since spread across Australia and New Zealand. This system differed in three key aspects; an onsite registrar, on-call consultant, and dedicated emergency theatre, all available 24 hours a day with no other responsibilities. These nascent ASU units have generally demonstrated favourable outcomes.

1. **Anticipated start and finish dates**

Start 01/01/2019

Finish 01/12/2019

1. **Background**

Only 13 of the approximately 250 Australian general surgery departments have published their use of the ASU model [1-13]. The untested assumption is that the silent majority have also considered or implemented an ASU.

However, no attempt has been made to quantify uptake nor investigate lessons learned. Have there been significant successes, soft benefits, rejections of the model or unintended consequences?

1. **Purpose**
   1. *Objectives*

This study aims to assess the spread of ASU in Australia, the experience with this model, and the spectrum of alternative surgical models.

* 1. *Hypothesis*

The authors hypothesise that the ASU model will have spread significantly further than is appreciable in the literature, with on average positive results, both in staff satisfaction and patient outcomes.

1. **Study design**
   1. *Participants*
      1. *Inclusion criteria*

Heads of Unit, and on-call registrar, of Australian medium to large public hospital general surgery departments performing elective surgery on adults, as defined by the Australian Institute of Health and Welfare (AIHW) [14-15].

The AIHW definitions of acute public hospitals are as follows;

Small: Regional: <2,000 separations per annum (s.p.a.)

Remote: <5,000 s.p.a.

Medium: Regional: 2,000 – 10,000 s.p.a.

Major cities: 2,000 – 10,000 s.p.a.

Large: Remote: >5,000 s.p.a.

Regional: >10,000 s.p.a.

Major cities: >10,000 s.p.a.

* + 1. *Exclusion criteria*

All other persons.

* + 1. *Recruitment*

Telephone contact.

Dr Kinnear will contact eligible hospitals through publically available details on website listings. The first contact will typically be the hospital central switchboard. For each hospital three attempts will be made to contact the general surgery Head of Unit, and on-call registrar. Unsuccessful attempts, or successful attempts but reached at an inconvenient time, will seek to clarify a more suitable time for the successive attempt. Author telephone contact details will be left, to facilitate return phone call from recruited doctors at a time convenient to them. Email contact may be used, if this is more convenient.

* + 1. *Monetary reimbursement of participants*

Nil.

* 1. *Informed consent*

Recruited doctors will be invited to take part in a 10 minute phone survey. Verbal consent will be required for the conversation to proceed.

* 1. *Methodology*
     1. *Existing data*

Hospitals will be identified from publicly available governmental lists [14-15]. No other existing data will be used.

* + 1. *Data collection*

Telephone conversations

A telephone survey will be conducted of all 190 Australian public hospitals with general surgery departments. Eligible hospitals will be identified from publicly available governmental lists [14-15]. For each department, a predefined questionnaire (attached later) will be administered to the Head of Unit, and the on-call registrar of the day. Telephone calls will be made in business hours only.

Audio will not be recorded. Notes will be taken during the taken, in the form of data entry into the predefined spreadsheet (see attached).

Primary outcomes will be spectrum of surgical models including number of hospitals using the ASU model, chronology of ASU spread across Australia, and consultant and trainee satisfaction.

Secondary outcomes will be tabulation of unit characteristics, as collected in the attached intended survey.

A survey template is attached.

Email correspondence

Some participants, for reasons of busy schedules or need to ponder answers, may prefer to answer via email.

In this case, they will be emailed the survey template.

* + 1. *Telephone survey script*

REDACTED

* + 1. *Email correspondence script*

REDACTED

* + 1. *Identifiability of data*

Hospital data will be de-identified, and tabulated by state, region (metropolitan or regional) and size (medium, large, major). No hospital or staff will be identified by name.

To decrease the risk of identifiability, the above tabulations will occur independently, with hospital data pooled for presentation by state, region or size. For example, hospital data will not be simultaneously separated by state and size.

* 1. *Analysis*

Survey data will be tabulated. Hospital data will be grouped by Australian Institute of Health and Welfare hospital category [14-15]. Growth over time in percentage of hospitals using an ASU-type model will be graphed. Descriptive responses will be grouped by common themes. Interval variables such as number of consultants, or sentiment/ satisfaction on a Likert scale, will be described with median, mean and interquartile range.

1. **Confidentiality and Data Security**
   1. *What is being collected (data, specimens)?*

Data only.

* 1. *Is the data identified, re-identifiable or deidentified?  
     How it is to be kept (where, how)?*

*Who will have access to it?*

During data collection, study personnel conducting the telephone survey will collect responses in a password-protected spreadsheet, on personal password-protected laptops.

Email responses will be transcribed to the above spreadsheets, then deleted.

Only Dr Kinnear will have access to the full dataset. Other study personnel involved in survey administration will be supplied with a spreadsheet listing the fraction of the hospitals on which they will collect data.

Once combined by Dr Kinnear, participant and hospital names will be removed, and de-identified summary results generated.

All authors will have access to the de-identified summary results.

* 1. *How long will it be kept?  
     Will the data or specimen be destroyed (when)?*

After the study, all other personnel will destroy their files. Dr Kinnear will keep a copy of the raw data for seven years, again in a password protected spreadsheet, on a password protected laptop. He will then also destroy the files.

1. **Publication**
   1. How will the specimen be used or disclosed?

This study is intended to be published in a general surgical academic journal.

1. **Ethical considerations**
   1. *Benefits of the study*

The ASU model is becoming the new standard of care for staffing emergency general surgery, and single centre studies have demonstrated proven benefits for patients, hospitals and staff.

However, the degree of uptake nationally is completely unknown. This study study aims to address this deficit, to promote health policy leading to greater uptake of this model.

* 1. *What are the risks associated with the use and collection of the data / specimen and how can they be minimized?*

*What is likelihood and severity of any harm/s that may result from the risks above?*

* + 1. *Participants*

The authors hope that participants will speak candidly about their units. There is a small risk that if participants make negative reflections, and data confidentiality is breached, then participants could face repercussions.  
The likelihood of such a data breach is low. The severity of harm to the individual may be mild to moderate. Potential outcomes include diminished reputation.

* + 1. *Researchers*

No risk to the researchers is identified.

* + 1. *Community*

No patients will be involved in this study.

No community risks are identified.

* 1. *Risk mitigation*

To mitigate the risk of participant data leakage & repercussion, the authors will carefully maintain data confidentiality.

* 1. *Responsibility for liability*

The research will be conducted as part of Dr Kinnear’s Master of Philosophy, with the University of Adelaide.

The University provides insurance for all such research.

A certificate of insurance is attached.

* 1. *Conflicts of interest*

The authors have previously published on ASUs with positive outcomes [2]. Most of the authors work or have worked in an ASU.

No financial conflicts of interest exist.

Kinnear N, Britten-Jones P, Hennessey D, Lin D, Lituri D, Prasannan S, Otto G. Impact of an acute surgical unit on patient outcomes in South Australia. ANZ J Surg. 2017 Oct;87(10):825-829.

* 1. *How will the collection and management of the data adhere to the ethical principles in section 1 of the National Statement?*

Section 1 of the *National Statement on Ethical Conduct in Human Research 2007 (updated 2018)* describes the qualities of ideal research. These include research merit & integrity, justice, beneficence and respect.

The authors believe this project has *merit*, in its potential to lead to greater awareness and uptake of the ASU model throughout Australia. Given its demonstrated beneficial effect in reducing length of stay and complication rate, this may lead to better care for the 250,000 Australians who present annually with emergency general surgical conditions. This wide potential community good also speaks to the *beneficence* of the project.

The authors have carefully designed the survey to be short, and structured out recruitment plan to find convenient times to administer the phone survey to the involved doctors. We believe these attempts to not place unfair burden on participants meet the descriptions given in the *National Statement* regarding *Justice*. Lastly, as previously detailed, strenuous efforts will be made to deliver participant confidentiality. Participants will be freely able to decline involvement. These aspects meet the Statement’s requirement for *Respect*.

1. **Attachments**
   1. *Questionnaire template*
   2. *University of Adelaide insurance certificate*
2. **References**

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