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Acute surgical unit: The consultant experience

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RESEARCH

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ABSTRACT

Background
Establishment of the Acute Surgical Unit (ASU) has redefined the approach to emergency surgery in Australia with quantitative data showing improvement in patient outcomes. However, as qualitative data regarding the ASU remains scarce, we sought to determine the impact of the ASU on overall surgeon job satisfaction.

Aims
The aim of this paper was to specifically address the impact of the ASU on consultant surgeons overall job satisfaction.

Methods
We designed a 34 – item questionnaire with consultant general surgeons addressing important aspects of the ASU. Themes included on – call rostering and workload, academic pursuits, surgical training, work – life balance and overall job satisfaction.

Results
We received responses from 88 surgeons currently working on ASU units, responding correctly and in full to the survey. Overall, our surveyed cohort reported better on – call rostering, improved surgical training and higher levels of job satisfaction and overall work – life balance with ASU implementation.

Conclusion
Preliminary qualitative results indicate that the ASU may improve on – call rostering, work – life balance and overall job satisfaction.

Key Words
Acute surgical unit, ASU, emergency general surgical unit, emergency surgery, general surgery

What this study adds:

1. What is known about this subject?
Initial qualitative data from Canada suggests that the ASU (or equivalent) improves overall job satisfaction of consultant ASU surgeons.

2. What new information is offered in this study?
This paper suggests the implementation of an ASU improves overall surgeon job satisfaction.

3. What are the implications for research, policy, or practice?
The implementation of an ASU improves overall surgeon job satisfaction and work – life balance in addition to its known clinical benefits for patients.

Background

In recent years the traditional landscape of general surgery in Australia has been challenged by a new paradigm in surgical care, the Acute Surgical Unit (ASU). With an increasing and ageing population in Australia,[1] the demand on the health system is placing more pressure on surgical units. The workload for surgeons involved in emergency care remains a concern for individual and population health, especially with an ageing workforce.[2] The ASU, first established in Australia in 2005,[3] was created with the intention to improve the delivery of surgical care, allow for a more predictable on – call schedule for surgeons and

improve overall work – life balance. The service was designed to challenge the 'ad hoc' service whereby emergency cases were superimposed on existing elective lists of the on – call surgeons.[4] The ASU is founded on several principles including a dedicated on – call period (usually one week), a rigid handover process and an entirely independent emergency surgical list.[5]

There is substantial quantitative data showing improved clinical outcomes post ASU implementation. However, the levels of satisfaction of consultant ASU surgeons have not been readily investigated.

Our paper follows on from a previous quantitative review[5] and was designed to evaluate the satisfaction of Australian general surgeons with ASU implementation.

Method

Questionnaire design

A questionnaire was designed to qualitatively evaluate the ASU. Several consultant general surgeons were interviewed at our institution to determine the important aspects of the ASU. Important themes included on call rostering, case volume and diversity, academic pursuits, training and education of junior staff and work – life balance. The final questionnaire consisted of 34 – items. Answers were given, where possible, using the 5 point Likert scale. The questionnaire was distributed to members of General Surgeon's Australia in May 2014 via email using SurveyMonkey (Palo Alto, California, USA). The original email was followed by two electronic reminders a month apart. All responses were deidentified and logged using the surgeon's specific member number ensuring no conflicts of interest or duplication of answers.

Results

The survey was sent to all members of General Surgeons Australia (GSA). A response rate was unable to be accurately recorded, as all consulting surgeons not currently working under an ASU were told to not respond. In total, 107 consultants responded whilst 12 people did not want to participate. Of these, 88 consultant surgeons completed the survey correctly and in full.

Demographics of ASU surgeons

The majority of surveyed subjects were male (80 per cent) and worked in tertiary centres (44 per cent) (see Table 1). There was an even representation of subspecialties. The number of years practiced by surgeons varied widely between subjects.

Compared to the Royal Australian College of Surgeons (RACS) 2014 Annual report[6], our cohort was disproportionately represented by younger surgeons aged 35 to 45 years (41 per cent vs. 27 per cent; $P<0.05$).

Characteristics of surveyed ASUs

Most surveyed ASUs (68 per cent) were less than five years old and surgeons (74 per cent) had less than two years of experience as ASU consultants (see Table 2). The majority of ASUs had between four and six rotating surgeons (70 per cent) whom were non-permanent consultants of the ASU.

Workload, case mix and diversity

A small percentage of ASU consultants were required after hours (11 per cent). Many consultants operated between 2 and 6 hours (59 per cent) (see Table 2). The on call burden was usually less than seven days per month (88 per cent) and covering one or less weekends per month (76 per cent). The majority of surgeons stated that they were satisfied with the on call roster (75 per cent), the amount of work whilst on call (72 per cent) and would not change the amount of time on – call (75 per cent) (see Table 3). A small but notable proportion (38 per cent) stated they were exposed to surgeries they were not comfortable performing. There was no significant relationship between workload and levels of satisfaction on the ASU.

Overall Job Satisfaction

In total, 53 per cent of surgeons believed the ASU increased their overall job satisfaction and 52 per cent thought their life away from medicine was improved due to the ASU implementation (see Table 4). Seventy-four percent of surgeons were satisfied with their on call roster. Additional findings relating to public appointment are summarised in Table 5.

Discussion

There is limited qualitative data regarding the Australian devised ASU. Most surveys of consultant general surgeons regarding the acute care model have occurred in Canada[7,8] and the United States (US).[9–11] Canada's acute care surgery (ACS) model like Australia's ASU, employs a dedicated hospital based service that provides care for all general surgical emergencies over a defined period of time.[8] Similar to the ASU, the Canadian ACS model recruit general surgeons, regardless of specialty, for designated periods on an ACS roster whereby they forego their private practice to focus entirely on the ACS.[12] In the US, the ACS acts as a separate subspecialty comprised mainly of trauma surgeons.[13] To practice in the US as an ACS surgeon, one must complete both a trauma and specific ACS fellowship in

addition to general surgical residency,[14] thus making it less comparable to the aforementioned models.

Workload, operative volume and case mix

The majority of our surveyed surgeons were satisfied with the amount of on call work (see Table 3). A reason for this may be afforded to the structured ASU schedule. A dedicated consultant also allows for more operating to occur within day hours. This is an important point as several previous Australian studies show that in hours operating is associated with fewer complications and better patient outcomes.[3,15,16]

A consequence of the ASU is its influence on operative volume and diversity of case mix for the attending surgeon. In keeping with historical data[7,8] there was a small (but significant) proportion of our surgeons exposed to surgeries they were not comfortable performing (see Table 3). Despite this finding, previous data shows that the ASU (or equivalent) does not compromise surgical or patient outcomes.[4,16] It is unrealistic to expect the ASU to handle all complex surgical problems and part of the original ASU model encouraged early consultation for organ – specific emergencies.[3] It is common practice for ASUs to have a second roster of subspecialised peers that allows for a 'phone a friend' backup plan in organ specific emergencies.

Our findings may emphasise the effect of subspecialisation on emergency general surgery with a direction to focus on single organ, or at the very extreme, single operation surgery. Several authors have questioned whether this subspecialty focus may then risk a surgeon neglecting unique skills or competencies required for emergency surgery in Australia[3] and abroad.[13,17] Given the ASU's ability to increase operative volume, diversity and enhance surgical training[3,4,16,18] without compromising patient care, the ASU may potentially bridge this theoretical gap in knowledge required for acute emergency surgery.

Patient handover

One criticism of the acute care model is the potential threat to continuity of care, as various attending surgeons would execute follow up of one patient.[19] Interestingly though, the majority of our cohort were happy with handing over patients on the ASU (see Table 5). Of note, a recent Canadian review of ACS hand over practices found seldom was is it done as best practice.[20] Although no standardised protocol for handover exists, it should be a consideration for any institution considering implementing an ASU.

Education and research

The ASU has been linked with improved educational benefits for junior staff.[3,13,15,18] A significant proportion of our surveyed cohort (not shown in results) believed the ASU allowed more time for education and was advantageous for surgical training of juniors. Several Australian studies have shown that the ASU improves consultant supervision in theatre,[4,16] increases registrar case load and satisfaction[4,18] and allows more time for resident and medical student supervision and education.[3,18] Qualitative analysis of surgical residents in Canada and the US showed a perceived improvement in core surgical competencies amongst junior staff working in ACS.[21,22] Interestingly, there is evidence that links surgical mentoring with an improved sense of satisfaction and belonging amongst teaching surgeons.[23]

Most of our cohort stated the ASU had no impact on research commitments, which goes against the misconception that the on – call burden leaves no time for professional and academic pursuits.[24]

Personal satisfaction and lifestyle

The majority of our cohort stated improved overall job and personal satisfaction, independent of work load (see Table 4). Two qualitative Canadian studies similar to ours found significant perceived increase in overall job and personal satisfaction post ACS implementation.[7,8] Although not specifically assessing work – life balance, Barnes et al's[10] survey of US surgeons showed an overall increase in job satisfaction post ACS implementation. These findings are likely multifactorial revolving largely around a more reliable and consistent on – call schedule. A predictable on – call schedule may improve planning for personal interests and family. This is particularly of note given the increasing number of female surgeons[2] whom may consider these important aspects of a balanced surgical career.

Shortcomings/limitations

Despite substantial existing quantitative data on the ASU, Australian specific qualitative data remains scarce. The ACS model, used by Canadian surgeons, provides the most accurate comparison although there are still limitations comparing international cohorts of surgeons working in different health systems. Specifically, the heterogeneous reporting of qualitative outcome measurements in the literature made historical data comparison difficult. Only two other papers[5,7] have collected data in this area that lacked homogeneity, further complicating comparison. Outcome measures also differed between papers including how satisfaction was measured. The US ACS acts as an

entirely different subspecialty dedicated purely to trauma surgeons.

Our study used the 5 point Likert scale,[25] a universally applied method for survey collection. As satisfaction exists on a continuum it is impossible for each choice to be equidistant in meaning. The subjective nature of responses must also be cautiously interpreted and universal applicability questioned due to sample size and limited question format. The survey was sent to members of the GSA whereby not all general surgeons in Australia are members of GSA. Our cohort was significantly younger compared to the national cohort. One reason for this may be that younger consultants are often expected to handle on call more frequently early in their career and that this model of care is still in its infancy.

Our findings are limited by inherent non-response bias and as no data exists on the number of ASUs nationally and ASU consultants, it remains difficult to adequately estimate the size of our cohort and the applicability of findings. However, our survey is one of the first of its kind in Australia to qualitatively assess the ASU through the viewpoint of consultant surgeons whereby it draws its clinical relevance from.

Conclusion

In conclusion, preliminary results show that the majority of surveyed surgeons reported improved job satisfaction and work – life balance, better on call rostering, improved training for juniors and better patient outcomes with the implementation of the ASU.

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PEER REVIEW

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CONFLICTS OF INTEREST

There are no conflicts of interest to declare

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ETHICS COMMITTEE APPROVAL

Not Applicable

Table 1: Demographic and practice descriptions of surveyed surgeons compared to Royal Australian College of Surgeons (RACS) (6) †Cumulative total of general surgeons in either metropolitan or regional centres

Demographics of Surveyed Cohort	N (%) (ASU)	N (%) (RACS)	P value
Age			
<35	4 (5%)	85 (5%)	P = 0.73
35 – 45	36 (41%)	429 (27%)	P < 0.05
45 – 55	24 (27%)	422 (27%)	P = 0.90
>55	23 (26%)	638 (41%)	P < 0.05
Not stated	1 (1)		
Gender			
Male	70 (80%)	1353 (86%)	P = 0.06
Female	17 (19%)	221 (14%)	
Not stated	1 (1%)		
Subspecialty		N/A	
Hepatobiliary/Upper GI	20 (23%)		
Colorectal	23 (26%)		
Breast/endocrine	25 (28%)		
Trauma	5 (6%)		
Generalist	14 (16%)		
Other	1 (1%)		
Number of years as consultant		N/A	
<5	24 (27%)		
5 – 15	32 (36%)		
>15	32 (36%)		
Hospital of Employment			
Tertiary trauma	39 (44%)	1238† (79%)	P = 0.08
Tertiary non – trauma	23 (26%)		
Regional trauma	19 (22%)	336† (21%)	
Regional non - trauma and rural	7 (8%)		

Table 2: The level of experience and on call commitment of surveyed ASU members

ASU Consultant Experience	N (%)
Duration of ASU existence (years)	
<5	60 (68%)
6 - 10	28 (32%)
Experience as ASU consultant (years)	
<2 years	65 (74%)
3 - 5 years	21 (24%)
Not stated	2 (2%)
Number of consultants on ASU	
<3	25 (28%)
4 – 6	62 (70%)
Not stated	2 (2%)
Number of permanent ASU consultants	
0	42 (48%)
1	17 (19%)
2	10 (11%)
3	4 (5%)
4	1 (1%)
5	2 (2%)
5 or more	12 (14%)
On Call Commitment of ASU	
Required hours on call	
0800 – 1800	71 (81%)
1800 – 0800	11 (13%)
Number of consults per day	
<5	19 (22%)
5 – 10	34 (39%)
>10	34 (39%)
Not stated	1 (1%)
Operating hours on call	
<2	16 (18%)
2 – 6	62 (59%)
>6	10 (11%)
Days per month on call	
<7	77 (88%)
7 – 14	10 (11%)
Not stated	1 (1%)
Weekends per month	
0 – 1	67 (76%)
>2	21 (24%)

Table 3: The impact of the ASU on the on – call roster and workload

Current beliefs regarding ASU on – call periods	Response	Results N(%)
Are you satisfied with the ASU rostered period?	Very satisfied	44 (50%)
	Somewhat satisfied	22 (25%)
	Neutral	16 (18%)
	Somewhat unsatisfied	4 (5%)
	Very unsatisfied	2 (2%)
Are you satisfied with the amount of work while on call?	Very satisfied	26 (30%)
	Somewhat satisfied	37 (42%)
	Neutral	15 (17%)
	Somewhat unsatisfied	8 (9%)
	Very unsatisfied	2 (2%)
Would you like to work less on the ASU?	Yes	22 (25%)
	Neutral	24 (27%)
	No	42 (48%)
On the ASU I am exposed to surgeries I am not comfortable with	Yes – often	4 (5%)
	Yes - sometimes	29 (33%)
	No	55 (62%)

Table 4: Rates of overall job satisfaction after ASU implementation, and when factored with workload of the individual consultant

Overall Surgeon job satisfaction		Response	Results n(%)
Because of the implementation ASU, my overall job satisfaction is:		More	47 (53%)
		No different	28 (32%)
		Less	11 (13%)
		Uncertain	2 (2%)
Because of implementation of the ASU, my life away from medicine is		Better off	46 (52%)
		No different	34 (39%)
		Worse off	5 (6%)
		Uncertain	3 (3%)
ASU workload	Satisfied (n)	Not satisfied (n)	P value
1 or less on call weekends per month	34	10	P = 0.26
2 or more on call weekends per month	13	1	
Less than 7 days per month on	42	10	P = 1.00
More than 7 days per month on	5	1	
Less than 5 consults per day on	7	3	P = 0.40
More than 5 consults per day	37	8	
Less than 6 hours of operating per day	40	8	P = 0.65
More than 6 hours of operating per day	7	2	

Table 5: The impact of ASU on specific aspects of the consultant surgeon's public appointment

Consultant opinion of ASU impact on public appointment	Response	Results n (%)
Patient outcomes		
Because of implementation of the ASU, patient outcomes are	Better	50 (57%)
	No different	25 (28%)
	Worse	5 (6%)
	Uncertain	8 (9%)
Handover		
Are you satisfied handing over care of your ASU patients to other consultants?	Very satisfied	38 (43%)
	Somewhat satisfied	19 (22%)
	Neutral	16 (18%)
	Somewhat unsatisfied	12 (14%)
	Very unsatisfied	3 (3%)
Are you satisfied with the care of ASU patients by your consultant colleagues?	Very satisfied	33 (38%)
	Somewhat satisfied	35 (40%)
	Neutral	10 (11%)
	Somewhat unsatisfied	9 (10%)
	Very unsatisfied	1 (1%)
Education and Research		
Does the ASU allow you to do more teaching of junior staff?	More	51 (58%)
	No different	32 (36%)
	Less	4 (5%)
	Uncertain	1 (1%)
Is the ASU advantageous for surgical training?	Yes	57 (65%)
	Neutral	17 (19%)
	No	11 (12%)
	Uncertain	3 (3%)
Because of implementation of ASU, my desired research commitments are:	Better	5 (6%)
	No different	66 (75%)
	Worse	4 (5%)
	Uncertain	13 (15%)