



Queensland Government
Queensland Health

**Clinical Audit of General Surgical Services
Bundaberg Base Hospital**

Confidential Audit Report

BUN-CHQ/01

**Prepared by:
Dr Gerry FitzGerald, Chief Health Officer
Mrs Susan Jenkins, Manager-Clinical Quality Unit
Office of the Chief Health Officer**

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Introduction

Bundaberg is a progressive modern city with a population of 44,670, where residents are catered for with excellent shopping, medical services, education facilities and a diversity of recreational pursuits and experiences including the coral isles, coast and country. The city of Bundaberg is located 386kms north of Brisbane and 321km south of Rockhampton on the Central Queensland coast.

The Bundaberg Health Service District comprises a 136-bed hospital in Bundaberg, an 18-bed hospital in Gin Gin, an 18-bed hospital in Childers and a Health Centre in Mt Perry. The district extends from Miriam Vale in the north (including Town of 1770 and Agnes Waters), to Woodgate in the south, and services a population of 84,049.

Bundaberg Hospital is a modern 136-bed hospital and is the district's major referral centre, providing a broad range of secondary level services, including:

Hospital services including: emergency medicine, general medicine, renal dialysis, general, orthopaedic and vascular surgery, obstetrics, gynaecology, intensive care, coronary care, paediatrics and psychiatry. Surgical procedures are undertaken by visiting specialists and staff surgeons with the support of a staff anaesthetist. A staff physician is supported by a range of visiting specialists.

Diagnostic and laboratory services at a secondary level are provided

Allied Health services include: physiotherapy, occupational therapy, dietetics, speech therapy, psychology, social work, pharmacy, medical imaging and pathology.

Background data source: Queensland Government, February 2005, 'District and Hospital profiles' in the Queensland Health Electronic Publishing System (QHEPS) [Online]. Available at: <http://qheps.health.qld.gov.au/>

Background

This clinical audit of general surgical services at Bundaberg Base Hospital was undertaken in February 2005 by the Chief Health Officer, Dr Gerry FitzGerald and Mrs Susan Jenkins, Manager of the Clinical Quality Unit in the Office of the Chief Health Officer, both of whom are appointed by the Director-General as Investigators pursuant to Part 6 of the *Health Services Act, 1991*, enabling access to relevant clinical data

Definition of clinical audit

Clinical audit is a systematic review and critical analysis of recognised measures of the quality of clinical care, which enables benchmarking and identifies areas for improvement. Clinical audits are designed to complement accreditation surveys and focus on the outcomes of care rather than structures and processes.

Purpose of the clinical audit

This clinical audit was undertaken to measure the quality and safety of general surgical services at Bundaberg Base Hospital and identify areas for improvement. The Chief Health Officer had been approached by the District Manager (Bundaberg Health Service District) to conduct a clinical audit of general surgical services at Bundaberg Hospital. The catalyst for this request was a level of concern raised by a number of staff at the hospital in regard to some patient outcomes. In addition, some staff members expressed a level of distress about a number of staff interactions.

Scope of the clinical audit

The Chief Health Officer and Manager of the Clinical Quality Unit conducted an on-site visit at Bundaberg Base Hospital on February 14th and 15th 2005, to collect data and interview staff. In addition, data from the following facilities across Queensland were reviewed:

Northern zone: Mt Isa, Mackay

Central zone: Rockhampton, Gladstone, Hervey Bay, Maryborough, Redcliffe, Caboolture,

Southern zone: Ipswich, QEII, Logan, Redland,

These facilities were chosen to enable benchmarking between hospitals of similar size and scope across the three zones. This peer group of hospitals had previously been identified and used by the Measured Quality Programme for benchmarking purposes.

Data sources

Data were sourced from the following:

- Queensland Hospitals Admitted Patient Data Collection (QHAPDC – routinely collected hospital in-patient data)
- Interviews with staff members
- Other data collection systems at Bundaberg Hospital (for example, ACHS clinical indicator data, infection rates)

Service Capability Levels

The Queensland Health Service Capability Framework (2004) was used to compare the stated service levels at Bundaberg Hospital with the recommendations in the framework. The framework outlines the minimum support services, staffing, safety standards and other requirements for public and licensed private health facilities to ensure safe and appropriately supported clinical services. The Service Capability Framework serves two major purposes:

- To provide a standard set of capability requirements for most acute health facility services provided in Queensland by public and private health facilities
- To provide a consistent language for health care providers and planners to use when describing health services and planning service developments

When applied across an organisation, the same set of underlying standards and requirements for similar services will safeguard patient safety and facilitate clinical risk management across the state's health facilities.

Data source: Clinical Services Capability Framework – public and licensed private health facilities Version 1.0 - July 2004 Queensland Health.

Routinely collected data

The Client Services Unit (CSU) of the Queensland Health Information Centre (HIC) provided data for this review. The CSU was asked to provide data for the calendar year 2004, by doctor, ICD-10* and ICD-10-AM** codes and by specified hospital (as described above), including the following:

- Number and percentage of surgical episodes
- Number and percentage of episodes where the patient died in hospital
- Number and percentage of episodes where the patient was transferred to another hospital
- Number of episodes with a T81 ICD-10 code (complication of procedure not elsewhere classified)
- Number of episodes with a Y40-Y50 ICD-10 code (drugs/medicaments/biologicals causing adverse effects in therapeutic use)
- Number of episodes with a Y60-Y69 ICD-10 code (misadventures to patients during surgical/medical care)
- Number of episodes with a Y70-Y82 ICD-10 code (medical devices associated with misadventures in diagnostic and therapeutic use)
- Number of episodes with a Y83-Y84 ICD-10 code (surgical/medical procedures as a cause of abnormal reaction of a patient without mention of misadventure)
- T81 0 - Haemorrhage/haematoma complicating a procedure not elsewhere classified
- T81 1 - Shock during or resulting from a procedure
- T81.2 - Accidental puncture and laceration during a procedure not elsewhere classified
- T81 3 - Disruption of operation wound not elsewhere classified
- T81 41 - Wound infection following a procedure
- T81.42 - Sepsis following a procedure
- T81.5 - Foreign body left in a body cavity or operation wound
- T81.6 - Acute reaction to foreign substance left during a procedure
- T81.7 - Vascular complications following a procedure not elsewhere classified
- T81 8 - Other complication of procedure not elsewhere classified
- T81 9 - Unspecified complication of procedure

Interpretation of these data

On review of the data supplied by the CSU, there appear to be a number of areas worthy of a further, in-depth statistical analysis and, if indicated, a review of the clinical records in these cases. The areas are:

- Number of episodes with a T81 ICD-10 code (complication of procedure not elsewhere classified)
- Number of episodes with a Y60-Y69 ICD-10 code (misadventures to patients during surgical/medical care)
- Number of episodes with a Y83-Y84 ICD-10 code (surgical/medical procedures as a cause of abnormal reaction of a patient without mention of misadventure)
- Haemorrhage/haematoma complicating a procedure not elsewhere classified
- Accidental puncture and laceration during a procedure not elsewhere classified
- Other complication of procedure not elsewhere classified

(At Appendix 1 is a table summarising the key findings of ICD-10 codes T81 (all), T81 0, T81 2, T81.3, T81.41, Y60-69 and Y83-84, and a comparison of Bundaberg Hospital data with data from Queensland peer group hospitals.)

* ICD-10 – the latest version of the International Statistical Classification of Diseases and Related Health Problems, approved by the International Conference for the tenth revision of the International Classification of Diseases in 1989 and adopted by the 43rd World Health Assembly.

**ICD-10-AM – the Australian modification to the ICD-10, endorsed by the Australian Health Minister's Advisory Council.

Identification of staff opinion

Discussions were held with staff at Bundaberg Hospital and included the district manager, director of medical services and director of nursing. The discussions were designed to provide a non-threatening situation where participants could discuss their views so that these could be recorded and inform future practices. Several staff members were supported by representatives of their industrial organisation. Comments have been 'themed' below with the nine quality dimensions of the National Health Performance Framework.

Quality dimension	Summation of comments	Opportunities for improvement
Accessible	In medical services, there has been a lack of continuity, significant unrest and staff movements.	Review staff recruitment and selection processes.
	There is a high percentage of overseas trained doctors at Bundaberg Hospital.	Review staff retention strategies.
	The director of this division is accessible to GPs and easy to contact	
	The divisional director has a good work ethic and a heavy workload.	
	The divisional director undertakes most procedures	
Appropriate	The divisional director carried out excellent work triaging in ED following the tilt train disaster.	
	Some procedures and selection of patients are outside the scope of Bundaberg Hospital.	Implement the Service Capability Framework.
	There is not always good teamwork between OT and ICU and clinical issues are sometimes complicated by 'personality issues'.	Institute team building between and within disciplines.
	There is a lack of understanding of the Australian healthcare system.	Develop an orientation programme on this topic.
	Lack of protocols for the management of medical and surgical patients in ICU means there is no 'multi-disciplinary team management' of patients – this is detrimental to patients and staff.	Develop and implement policies and procedures for the multi-disciplinary management of patients in ICU with a view to improving patient outcomes and work practices for staff.
	No protocols to manage the transfer of patients from ICU to a higher level facility.	Develop and implement appropriate policies and procedures for patient transfers.
	Documentation in clinical records is sometimes less than optimal.	Develop, implement and monitor a policy and education programme for clinical documentation.
	Clinical decision-making is sometimes left to junior doctors.	Review leave arrangements to ensure appropriate ongoing patient care.
	No systems in place for involvement of relevant clinical specialists in patient care.	Review processes for multi-speciality involvement in patient care.
	Appropriateness of and/or capability to carry out some treatments	Review all clinical policies and procedures to ensure they are current, update as necessary and monitor staff compliance.
Contemporary	No systems for review of data to support the evaluation of patient care.	Develop a process of clinical audit (using routinely collected data) for evaluation of patient care.
	The divisional director is keen to be involved in activities such as ACHS accreditation.	

Identification of staff opinion (continued)

Quality dimension	Summation of comments	Opportunities for improvement
Capable	There is a mix of skills in the clinical workforce.	Review processes to ensure equitable access to professional development and training programmes.
	The credentialing and clinical privileges process has not yet been fully implemented.	Complete this process for all medical staff
	Hospital doctors and doctors working in the private sector do not always work well together.	Facilitate the development of good working relationships between the public and private healthcare sectors.
	Teams do not always work well together.	Institute team building between and within disciplines.
	No clear protocols for handover of patients to appropriate staff when surgeons go on annual/other leave.	Develop and implement appropriate protocols to ensure ongoing patient care when clinical staff are on leave.
	The divisional director is committed to teaching.	
	Discussions between staff members regarding patient care do not always take place in a relevant setting.	Ensure all staff are aware of their obligations in regard to patient confidentiality.
	There are no protocols for multi-disciplinary team meetings and ward rounds to plan, implement and review patient care.	Develop and implement a system for multi-disciplinary ward rounds and meetings to ensure the continuum of care
Responsive	Staff do not always comply with policies and procedures for patient confidentiality.	Ensure all staff are aware of their obligations in regard to patient confidentiality
	Patient satisfaction rates have increased.	
Effective	Throughput of elective surgery cases is good, but there are some unplanned re-admissions.	Implement an audit process to monitor, assess, take appropriate action and review this indicator.
Efficient	Lengths of stay for some procedures have increased.	Implement an audit process to monitor, assess, take appropriate action and review this indicator.
	The divisional director has created efficiencies in OT by changing some outmoded work practices.	
Safe	Complication rates have increased.	Implement an audit process to monitor, assess, take appropriate action and review this indicator.
	Staff do not always comply with infection control policies and procedures, including wearing of OT attire outside OT, hand washing between patients and appropriate use of instruments.	Review, update according to best practice and implement infection control policies and procedures and ensure staff compliance. Continue to monitor infection rates.
Sustainable	Interactions between some staff members could be improved.	Institute team building between and within disciplines. During significant organisational change, ensure Queensland Health's change management guidelines are used.
	Sometimes staff need more support from senior management.	Implement appropriate processes for staff to access senior management.
	Hospital doctors and doctors working in the private sector do not always work well together.	Facilitate the development of good working relationships between the public and private healthcare sectors.

Discussion of staff feedback

In general, staff have enjoyed their work at Bundaberg Hospital and only relatively recently have issues arisen which have caused concern. Staff clearly demonstrated their keenness to provide health services of a high standard.

However, as well as raising concerns, some staff made complimentary comments about the divisional director's commitment to teaching and mentoring of junior medical staff.

In addition, there has been a significant improvement in efficiency, especially in the operating theatre, and in meeting elective surgery targets with significant reductions in waiting times for surgery.

Opportunities for improvement identified from staff discussions

While it is recognised that many regional district health services (including Bundaberg Hospital) are faced with problems of lack of continuity, significant unrest and staff movements in medical services and that many hospitals have a high percentage of overseas trained doctors, this may be an opportune time to review recruitment, selection and retention policies and strategies in an effort to identify innovative solutions.

For staff in regional areas, access to professional development opportunities can be limited, and it may be useful therefore, to explore alternative strategies for the provision of ongoing training and development for all staff, including relevant topics for orientation and in-service education programmes.

In order to ensure optimal outcomes for patients and enhanced work experiences for staff, ongoing attempts to improve and maintain good communication between professional groups in the public and private sectors are essential.

Hospital policies and procedures, particularly for transfer of patients, management of surgical patients, multi-disciplinary involvement in patient care, case-conferencing, management of patients in ICU, clinical documentation, leave arrangements, patient confidentiality and infection control should be reviewed to ensure they are consistent with current best practice.

Multi-disciplinary involvement in a process of clinical audit needs to be developed and encouraged to maintain high quality services.

The process for credentialling of medical staff to ensure appropriate granting of clinical privileges, should be progressed.

The Queensland Health Service Capability Framework should be implemented to ensure all service levels are consistent with the framework.

1. Unplanned re-admissions within 28 days as a percentage of total discharges
(ACHS Hospital-wide Clinical Indicator – 2.1)

Bundaberg Hospital

Time period	Specialty	Discharges in period	Unplanned re-admissions	
		Number	Number	%
Jan-June 2003	All surgery	2648	50	1.9
	Surgery/Vascular/Urology/Endoscopy	1307	32	2.4
July-Dec 2003	All surgery	2392	36	1.5
	Surgery/Vascular/Urology/Endoscopy	1092	27	2.5
Jan-June 2004	All surgery	2695	56	2.1
	Surgery/Vascular/Urology/Endoscopy	1218	36	3.0
July-Dec 2004	All surgery	2561	45	1.8
	Surgery/Vascular/Urology/Endoscopy	1208	30	2.5

The latest ACHS results to be published (Determining the Potential to Improve Quality of Care, 5th Edition, ACHS Clinical Indicator results for Australia and New Zealand, 1998-2003) for this indicator are as follows:

Stratum	Year	No. HCOs	Numerator	Denominator	Stratum rate %
NSW	2002	110	14,158	779,834	1.8
	2003	119	18,605	829,599	2.2
Queensland	2002	50	6,916	404,226	1.7
	2003	45	8,348	429,914	1.9
SA	2002	28	2,658	179,055	1.5
	2003	25	3,050	150,315	2.0
TAS	2002	8	1,569	120,261	1.3
	2003	7	1,239	131,810	0.94
VIC	2002	90	10,355	576,034	1.8
	2003	84	10,402	560,182	1.9
WA	2002	19	1,903	120,747	1.6
	2003	28	4,018	286,880	1.4

2. The rate of patients having bile duct injury requiring operative intervention
(ACHS Surgical Clinical Indicator – 7.1)

Bundaberg Hospital

Time period	Specialty	Number of procedures	Number of injuries	Rate
January-June 2003	General Surgery	52	0	0.00
July-December 2003	General Surgery	53	2	3.77
January-June 2004	General Surgery	56	3	5.36
July-December 2004	General Surgery	62	5	8.06

(Note: Small numbers should be interpreted with some caution)

The latest ACHS results to be published (Determining the Potential to Improve Quality of Care, 5th Edition, ACHS Clinical Indicator results for Australia and New Zealand, 1998-2003) for this indicator are as follows:

Year	No HCOS	Numerator	Denominator	Rate %
1998	110	46	8,976	0.51
1999	118	42	9,527	0.44
2000	143	78	16,294	0.45
2001	167	70	15,676	0.45
2002	176	55	15,898	0.35
2003	155	45	15,436	0.29

3. Patient opinion

Surveys of patient opinion were conducted at Bundaberg Hospital by the company 'Press Ganey' in 2001 (pilot survey), 2003 and 2004.

In 2003, the results indicated that patients had rated the surgical services as 'significantly higher' than the mean Bundaberg Hospital score for 'doctor care'. Most aspects of surgical 'doctor care' were rated higher than the mean for all facilities participating in the survey, public hospitals participating in the survey and hospitals surveyed in the 101-150 bed range.

In 2004, the results indicated that patients rated 'doctor care' for surgical services as higher than the Bundaberg mean, although the difference was not statistically significant.

No statistically significant differences were found between the results for 'doctor care' between the 2003 and 2004 surveys. The Bundaberg Hospital scores were not significantly different from the mean scores of other hospitals participating in the survey. There was, however, a general decline in the score when compared to 2003.

Service Capability Framework

As stated previously, the Queensland Health Service Capability Framework (2004) outlines the minimum support services, staffing, safety standards and other requirements for public and licensed private health facilities to ensure safe and appropriately supported clinical services.

The capability levels applied to services at Bundaberg Hospital relevant to this audit are as follows:

Clinical service	Level
Anaesthetic services	2
Colorectal surgery	3
Diagnostic Imaging	2
Endoscopy services	2
Gastroenterology	2
Gastrointestinal surgery	3
General Surgery	3
Intensive Care Units	2
Internal medicine	3
Nuclear medicine	1
Interventional radiology	2
Operating Suite services	3
Pathology	2
Pharmacy	2
Urology	3
Vascular surgery	2

The service definition for a surgical service level 3 is as follows: 'surgical service level 3 provides a combination of intermediate surgery with high anaesthetic risk and complex surgery with medium or high anaesthetic risk'. (Service Capability Framework, Section C3, page 106).

For a Level 3 general surgical service, the support services should be at the following levels:

Required clinical services	Level	Level applied at Bundaberg Hospital
Anaesthetics	3	2
Critical care	ICU 1	2
Diagnostic imaging	2	2
Emergency	-	-
Endoscopy	2	2
Interventional radiology	2	2
Medical	2	3
Nuclear medicine	1	1
Operating suite	3	3
Pathology	1	2
Pharmacy	3	2

Comment: Service levels applied at Bundaberg Hospital for anaesthetic and pharmacy services (shaded areas) should be reviewed according to the Service Capability Framework

Summary

During this audit, a number of issues and concerns were raised with the reviewers. In addition, positive comments were made about the general surgical service, including the commitment of the Director of Surgery to his teaching responsibilities, throughput of elective surgical cases and the increased level of efficiency in the operating theatres.

The concerns raised by staff can be categorised into two main groups – these are:

- 1 **General surgical procedures being undertaken which are outside the scope of Bundaberg Hospital.** Comments made in regard to this included: there is sometimes a tendency to treat patients at Bundaberg when they should be transferred to a higher level facility with appropriate resources: a preparedness to demonstrate accountability (i.e. hand over patient care when indicated) is not always evident: there is a demonstrated lack of understanding of the capability of Queensland regional health services: infection rates and wound dehiscence rates have increased: unplanned returns to operating theatre have increased: the care of two patients in particular have highlighted the concerns of staff and caused them to voice their distress
- 2 **Lack of good working relationships between all staff in the general surgical service.** Comments made in regard to this included: the director of surgery has high standards and this has led to some degree of conflict with staff: there has been some 'cultural' conflict: there are not always good working relationships between hospital doctors and doctors in the private sector: the increase in work levels may be causing concern to some staff members: the director has a confronting personality which causes conflict with some staff members

Discussion

The two issues that appear to have been of significant concern to staff in the general surgical service and intensive care unit, have been the performance of complex procedures without the appropriate level of support services and the poor working relationships between some staff members. In addition, concerns were also raised about increasing unplanned readmission, complication and wound dehiscence rates

With regard to the conduct of inappropriate complex procedures, the surgeon involved has agreed to undertake only those procedures which are within the scope of the surgical service and relevant support services. The surgeon has also agreed to transfer patients more readily to higher level facilities.

As can be seen from the data presented earlier in this report (page 8), the rates of unplanned readmissions (general surgery/vascular/urology/endoscopy) at Bundaberg Hospital were higher in all time periods (2003 and 2004) than for the 'all surgery' category. The Queensland rate for 2003 was 1.9 (ACHS data - Determining the Potential to Improve Quality of Care, 5th Edition, ACHS Clinical Indicator results for Australia and New Zealand, 1998-2003). The rates of bile duct injury during laparoscopic cholecystectomy (page 9) at Bundaberg Hospital in 2003 were 0.00 (January-June), 3.77 (July-December) and in 2004, 5.36 (January-June) and 8.06 (July-December). The ACHS rate for 2003 (the most recent data) was 0.29 (Determining the Potential to Improve Quality of Care, 5th Edition, ACHS Clinical Indicator results for Australia and New Zealand, 1998-2003).

Following the discussions with staff held during the on-site visit, the issues raised about poor working relationships, both in the general surgical unit and between this unit and support services (e.g. ICU and infection control), still appear to be of concern to a significant number of staff members.

As has been stated above, although some staff members had reported examples of poor teamwork in the general surgical unit, other staff were keen to highlight positive aspects of general surgical service delivery, for example, a significant commitment to teaching of junior medical staff and efficiencies achieved in operating theatre processes.

Recommendations

Recommendations are provided, having been separated into 'strategic' and 'operational' areas

Strategic

1. Complete the implementation, and ensure the ongoing process of credentialling and granting of clinical privileges to medical staff which delineates the scope of practice.
2. Review staff recruitment, selection and retention strategies in an effort to attract and retain clinical staff and improve continuity of service.
3. Review the Queensland Health Service Capability Framework to ensure appropriate levels are applied to each service.
4. Ensure all staff are supplied with (or are able to access through QHEPS) the Queensland Health Code of Conduct, and that all staff are aware of their obligations and responsibilities in regard to the Code, for example, confidentiality of patient information, having respect for people, treating people with dignity.
5. Institute team building within and between disciplines.
6. Encourage all clinical units/divisions to be involved in an ongoing process of multi-disciplinary clinical audit, which is used to evaluate and improve patient care. This process should embrace performance indicators relevant to the clinical service, for example the ACHS clinical indicators, including unplanned re-admissions, unplanned returns to operating theatre, average lengths of stay, complication and infection rates.
7. When significant organisational changes are planned, ensure Queensland Health's change management guidelines are used.
8. Include education/information on the Queensland healthcare system in the hospital orientation programme to ensure all staff understand how the public and private sectors operate and the linkages between the two systems.
9. Facilitate improved working relationships between clinicians in the public and private sectors.
10. Review processes to enable equitable access to ongoing professional development and training programmes.
11. Implement appropriate processes to enable staff to access senior management.
12. Ensure the development and implementation of a policy (which is based on best evidence) and education programme for clinical documentation.

Operational

1. Review all clinical policies and procedures to ensure they are based on best evidence and implement a process to make certain that staff know about and comply with all policies and procedures.
2. Implement the Queensland Health Code of Conduct at department/ward/unit level.
3. Develop and implement policies and procedures, which are based on best practice for the following:
 - Multi-disciplinary management of patients in ICU
 - Transfer of patients to higher level facilities
 - Clinicians' leave arrangements to ensure appropriate ongoing patient care
 - Multi-specialty and multi-disciplinary involvement in patient care
 - Multi-disciplinary ward rounds, case conferences and meetings to ensure continuity of appropriate care for all patients
 - Infection control
 - Patient confidentiality, using the Queensland Health Code of Conduct as a guide

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Appendix

Summary table - ICD-10 codes T81 (all), T81.0, T81.2, T81.3, T81.41, Y60-69, Y83-84. Comparison of Bundaberg data with data from Queensland peer group hospitals.

These data are for the calendar year 2004

ICD-10 code	Bundaberg		Peer group	
	Number of surgical episodes = 408		Number of surgical episodes = 10,055	
	Number of complications	% of surgical episodes	Number of complications	% of surgical episodes
T 81 (all)	52	12.8	738	7.3
T 81.0 Haemorrhage or haematoma complicating a procedure	11	2.7	239	2.4
T 81.2 Accidental puncture and laceration during a procedure	17	4.2	66	0.66
T 81.3 Disruption of operation wound	4	0.98	73	0.73
T 81.41 Wound infection following procedure	11	2.7	292	2.9
Y60-69 Misadventures to patients during surgical/medical care	9	2.2	60	0.6
Y 83-84 Surgical/medical procedures as cause of abnormal reaction of patient without mention of misadventure	118	28.9	1278	12.7