Perioperative Medicine in Australia and New Zealand;
Starting the conversation
A Discussion Paper

Report of a strategic workshop facilitated by the
ANZCA, ASA and NZSA Perioperative Medicine Specialist Interest Group

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Executive summary

Perioperative medicine is a developing area of cross-medical interest that recognises the need to address the challenges of contemporary medical care for complex and vulnerable surgical patients. There is an emerging international consensus that a need exists for improved Perioperative Medicine to deliver better outcomes for patients.¹

As patients age their need for surgery to (1) control disabling symptoms (2) provide definitive care and to (3) provide palliative surgical techniques will place significant demands on perioperative resources. The rise in complex surgery involving patients with multiple co-morbidities has required the development of systems to identify, risk stratify and then provide continuity of care at all phases of the perioperative process. This has been a paradigm shift in the delivery of procedural healthcare.

In the last decade, a concerted effort has been made by various anaesthesia, medical and surgical representative bodies throughout the globe to develop greater understanding of the clinical care needs of these patients, to improve education and training of health professionals providing this care, and to improve service delivery for these patients during the perioperative period.

In 2009, the Perioperative Medicine Special Interest Group (PoM SIG) was formed as part of the tripartite arrangement between the Australian and New Zealand College of Anaesthetists (ANZCA), the Australian Society of Anaesthetists (ASA) and the New Zealand Society of Anaesthetists (NZSA).

In 2012, the PoM SIG commenced an Annual Symposium in Perioperative Medicine meeting which aims to bring together PoM enthusiasts from diverse specialties to help grow this new cross-specialty field.

In October 2016, a strategic workshop focusing on the future of perioperative medicine in Australia and New Zealand was convened as a satellite meeting of the Annual Symposium. Representatives of multiple stakeholder groups were invited to take part in the workshop. This included Anaesthesia, Internal Medicine, Geriatrics, Surgery, Palliative Care, Intensive Care Medicine, Health Service Managers, Health Insurance Funds, and HealthCare Innovation organisations.

The workshop aimed at (1) describing the status and issues around perioperative medicine in Australia and New Zealand and (2) commencing an ongoing discussion on how to develop better models of patient care.

Topics for discussion at the workshop were identified through a survey among participants prior to the meeting. Break out groups were formed around each of the principal areas identified and the conversations focused on determining the current issues in detail, as well as outlining possible solutions for moving forward.

The workshop produced a set of key recommendations that are summarised below:

¹ – Perioperative Medicine: The Pathway to better Surgical Care – The Royal College of Anaesthetists (2014)
Summary of Recommendations

Current clinical problems

Recommendations:

- Multi-disciplinary teams (MDT’s) should have a high degree of communication and collaborative decision making for complex and high risk situations.
- Simultaneously, there needs to be a delegated coordinator
- The coordinator should have an appreciation of all the specialities within the MDT.
- The MDT should ideally include General Practitioners (GPs) and allied health professionals
- Pre-operative planning and care should use existing systems such as GP Liaison officers and the Health Network pathways.
- There is a need to develop patient-centric models of care that focus on identifying the contextualised goals and desired outcomes of the patient, and include the patient, family and care givers where appropriate, as an integral part of the clinical decision making process.
- Shared decision making between clinician(s) and the patient should be recognised and built into current clinical pathways.
- For all patients, systematic assessment, optimization of chronic disease and preparation for surgery should commence early in the perioperative journey.
- Evidence based guidelines and active, open multidisciplinary communication should be used to prevent perioperative complications and harm.
- Improved communication between the community and hospitals should be a priority for system development and will prevent patient related adverse outcomes.
- Hospitals and GP should actively pursue the development of an Electronic Health Record available to all the health professionals involved in patient care. This was deemed to be essential for achieving quality integrated care.
- There should be ongoing development of systems and services to identify, investigate and optimise the high-risk patient coming forward for elective surgery starting at the initial referral from the GP to the surgeon.

Decision making around complex patients where risk-benefit ratio is uncertain

Recommendations:

- Robust risk stratification tools need to be developed and used more generally. This information should be interpreted given local resources and communicated in the patient’s context.
- In emergency and urgent high-risk surgery, there should be a locally developed system so that a multidisciplinary group of specialists can be consulted regarding
proceeding with surgery and the various aspects of perioperative care. In high risk, elective surgery Enduring Powers of Attorney and Advanced Health Directive should be encouraged to assist perioperative discussions on management of acute life-threatening events.

- Advance Care Plans should focus on goals of care rather than a listing of unacceptable or acceptable possible interventions.
- Easy access to this information from the community/GP to the hospital should be encouraged.
- A MDT approach is to be encouraged. How a MDT is formed and run will be driven by the local context.
- Active steps should be considered to develop trust between MDT members, particularly for new teams coming together for the first time.

Research and Metrics

Recommendations:
- Australia and New Zealand need to develop large scale audit data on outcomes after surgery.
- Outcome data needs to move towards a 90 day and 12-month end-point. Measurement of costs should also be included in data collection. Further research needs to be conducted on identifying and classifying high risk patients.
- Patient reported measures should be used in perioperative outcome assessment.
- A multi-centred research system that examines long term functional outcomes should be established bi-nationally. Ideally this should be built through collaboration between disciplines and leveraging from existing hospital systems.

Education and Training

Recommendations:
- Perioperative Medicine should ideally be a consultant led service.
- Perioperative medical specialists should be trained to a high level in communication.
- Those trained in Perioperative Medicine should have inter-speciality training.
- Whether training programs evolve to become multi-collegial or inter-collegial, the training should be based on a collaborative, multidisciplinary model of care.

Funding models

Recommendations:
- Evidence of improved patient outcomes and satisfaction should be sought as an incentive to funding bodies, both public and private, to invest in Perioperative Medicine.
- Future funding models ought to be based on patient outcomes and following best practice as defined by available evidence.
Close liaison should take place between Perioperative Medicine specialists, government and health funds when deciding on metrics and funding models.

Stakeholder engagement

Recommendation:
- The community should be engaged to play a key role as involved consumers and advocates, promoting the need for change, to achieve our mutual goals of improving surgical outcomes for patients and families throughout Australia and New Zealand.

Future Steps

The 2016 workshop was the first step in an ongoing discussion focusing on the development of Perioperative Medicine and Perioperative Systems. To move the discussion forward, the existing strong collaboration between the specialty Colleges and other stakeholders should be leveraged to gain high level advocacy both nationally and internationally. A wider group of stakeholders ought to be involved in future discussions with an emphasis on strengthened engagement with the Royal Australasian College of Surgeons in a formal sense, and with individual surgical opinion-leaders.

The next workshop to continue these discussions will be held as a satellite of the next Perioperative Medicine Symposium in early November 2017. This workshop will aim to continue to provide a platform to discuss issues, build relationships and move us closer towards our shared goal of providing the highest possible quality of care to our patients.
2. List of participants

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“Twentieth century advances have ensured that the technical delivery of surgery and anaesthesia is very safe in developed countries. Despite this, in the 21st century hundreds of thousands of patients each year are still subjected to potentially avoidable harm in the perioperative setting. Inpatient mortality accounts for just part of the public health issue: major complications occur in over ten times as many patients, and confer a risk of premature death and reduced health related quality of life for years after an operation. The time is right for a focus on research, audit and quality improvement in perioperative medicine”

Royal College of Anaesthetists, UK

3. Introduction

In 2009, the Perioperative Medicine Special Interest Group (PoM SIG) was formed as part of the tripartite arrangement between the Australian and New Zealand College of Anaesthetists (ANZCA), the Australian Society of Anaesthetists (ASA) and the New Zealand Society of Anaesthetists (NZSA).

In October 2016, this group convened a workshop to begin the discussion around establishing improved models of peri-operative care in Australia and New Zealand. It was held immediately prior to the 5th annual Australasian Symposium of Perioperative Medicine. Fifty-six invited participants (listed in Section 1) attended, representing a mix of stakeholder groups including anaesthetists, surgeons, geriatricians, internal medicine physicians, intensive care specialists, professional bodies representatives, health service managers, health insurance funds and health care innovation organisations. The attendees' geographical background covered Australia, New Zealand, UK and Singapore.

The overall aim of the workshop was to gain an overview of PoM throughout Australia and New Zealand and to start an ongoing discussion on how to improve service delivery.

3.1 Background:- The evolution of Perioperative Medicine

More than 2.6 million patients undergo surgery in Australia and New Zealand each year. In an era of an ageing population and increasing co-morbidity, the proportion of complex patients undergoing surgery is constantly rising.

Historically the care of patients undergoing operations has been focused around the operation and the associated surgical disease/condition itself. Because of the success of surgical therapies, there has been a global increase in high-risk operations and procedures, being performed on more complex and co-morbid patients. However, it is increasingly being recognised that post-operative complications are often primarily associated with the patient's comorbidities, rather than the operation or procedure itself. In some cases, these complications may have been preventable, and may have arisen due to comorbidities being overlooked or inadequately optimised preoperatively rather than technical errors or failures by the surgical team.

1 - Perioperative Medicine: The Pathway to better Surgical Care – The Royal College of Anaesthetists (2014)
3 - New Zealand Private Surgical Hospitals Association - https://www.nzpsh.org.nz
Reducing the risk of avoidable complications and improving patient outcomes and quality of life following surgery requires a broader approach when considering the complex patient. While many of the capabilities and systems needed to instigate new models of care already exist, identifiable deficiencies currently lie in the coordination of services and specialties.

Some appropriate strategies to improve post-surgical outcomes are well recognised. These include early patient assessment and identification of comorbidities, risk stratification, investigation and optimisation of occult medical problems. Also, MDT involvement in perioperative planning, appropriate intraoperative anaesthesia and surgical techniques to minimise risk of complications and enhanced recovery (ERAS). Other important processes include, monitoring for likely post-operative complications, early rapid response to complications, appropriate post-operative admission to critical care units, and early planning for streaming into rehabilitation. Also, early and continued involvement of senior medical staff (consultants) in medical care throughout recovery is imperative.

In the last decade, there has been extensive discussion around the world focusing on establishing improved models of perioperative care. Models of care need to be evidence based, improve clinical outcomes and minimise harm while reducing costs associated from preventable complications.¹

Concurrently, there has been a concerted effort by the Surgical Colleges (such as Royal Australasian College of Surgeons (RACS) and Royal College of Surgeons (RCS), Anaesthesia Colleges (e.g. ANZCA and Royal College of Anaesthetists (RCoA) and other specialist groups around the world (e.g. the British Geriatric Society; European Society of Anaesthesiology (ESA), American Society of Anaesthesiologists (ASA), Society for Perioperative Assessment and Quality Improvement (SPAQI) and Institute of Health Improvement (IHI) in the U.S.) to develop improved teaching and training in the management of patients during the perioperative period.

The aim of perioperative medicine (PoM) is to deliver the best possible care for patients before, during and after major surgery. Modern perioperative patient care includes an ever-widening range of specialists and stakeholders (Figure 1 - Introductory slide from Strategic Meeting) which consequently increases the risk of fragmentation, miscommunication and inefficiency. Minimising the potential for such inadequacies in the system requires harmony, coordination and collaboration between all the disciplines concerned.

¹ - Perioperative Medicine: The Pathway to better Surgical Care – The Royal College of Anaesthetists (2014)
3.2 Definition: - The Specialist in Perioperative Medicine
A perioperative specialist may be thought of as ‘a medical professional with the ability to work collaboratively with surgeons, proceduralists, sub-specialty physicians and community clinicians to manage patients and the procedural risks before, during and after surgery using patient-centred, evidence-based and cost effective care’.

3.3 Nuances between Australian and New Zealand health systems
In considering the development of new models of care within Australia and New Zealand there needs to be acknowledgement of the differences between the health systems of each country. Each of these will bring separate challenges.

The hospital system in Australia is fragmented, with considerable variation between hospitals, systems and jurisdictions. Over 60% of elective surgery is performed in independent private hospitals with many people holding private health insurance. Public hospitals are under the separate jurisdictions of the 8 State and Territory governments. Within each state, hospitals are managed by Local Health Districts, with various levels of autonomy.

On the contrary, New Zealand has a largely public funded health system.

Private hospital medicine is heavily oriented around ACC (Accident Compensation Corporation) a government funded organisation which provides compensation and often private care to all patients experiencing injury from an accident.

Many urgent operations are carried out routinely in private hospitals in Australia whereas in New Zealand this is rare.

4.0 Survey
A survey circulated to all participants prior to the workshop was used to determine specific topics for discussion (Survey results are shown in Appendix 1). The respondents were asked a series of questions, and answers or comments were used to generate a list of issues, as well as some recommended solutions, as a starting point for discussion in the workshop. The principal areas identified included:

Issues
- Clinical problems
- Decision making around complex patients where risk-benefit ratio is uncertain
- Research and Metrics
- Education and Training
- Service Delivery and funding
- Stakeholder engagement and collaboration
5. Workshop Discussion

5.1 Current clinical problems

Integration and coordination of multiple disciplines.

Perioperative Medicine involves multiple disciplines and medical specialties working together. This may be an informal development, or may be in a formalised team structure. (For the purposes of this report, MDT refers to ad hoc and informal or structured and formalised teams.)

While many of the components for effective perioperative medicine already exist within our healthcare systems, some of the current issues are a consequence of poor coordination of care and inadequate communication between different disciplines and specialty groups. This in turn leads to confusion in clinical decision making and fragmentation of patient care, resulting in suboptimal outcomes.

Better integration and coordination of the multiple medical disciplines, together with shared decision making (between patient and doctor) at critical points in the pathway were viewed as being critical to overcoming these issues. There was a keen sense that while MDT’s (whether ad hoc or formalised) generally need to have a flat hierarchy with heightened communication, concurrently there does need to be a clear leader or coordinator. In the absence of coordination, communication is likely to become confused and fragmented for both team members and the patient alike.

Points of collaboration where multidisciplinary (with other clinicians), or shared (with patient & family) decision making is necessary should be identified and built into current clinical pathways. These would include decisions such as whether surgery is appropriate in high risk and complex cases as well as collaboration over what outcomes are acceptable to the patient.

Determining which member of a MDT should have the main coordinating role may differ between teams and hospitals.

Within Australia and New Zealand, existing systems for everyday decision making range from having registrars making such decisions to two specialists attending ward rounds together and jointly making decisions. Neither scenario is optimal. The registrar will not necessarily have the breadth of understanding of all specialties in the MDT, while two or more specialists attending ward rounds is unnecessarily costly and inefficient for some hospitals. Other examples include the Proactive care of Older People going to have Surgery service (POPS) in the UK, where commonly the geriatrician takes on the role of perioperative specialist and accompanies both the surgical and nursing team on ward rounds. Similar models exist in NZ and Australia with ortho-geriatric services.

Recommendations:

- MDT’s need a high degree of communication and collaborative decision-making for complex and high risk situations. Simultaneously, they need a clear coordinator with an appreciation of all the specialities within the MDT.
- The MDT should ideally include General Practitioners (GPs) and allied health professionals
**Integrating Patient Care**

Complex patients may be seeing several specialists concurrently, answering the same questions multiple times and receiving differing communication from each. In some cases, the full range of options available to the patient may not be clear. This can, at times, result in poor decision-making around treatment options, futile surgery and suboptimal outcomes.

Ideally there should be one member of the MDT who attends to the patient consistently throughout their perioperative pathway and coordinates communication from all MDT members. This would ensure clarity and lead to improved management of the patient’s understanding of their options as well as their expectations.

Future models of care should be patient centric with the goals of the patient being identified and respected first and foremost. Shifting the focus to involve the patient in the decision-making process (Shared Decision-making) was commonly thought to be a much-needed change.

**Recommendations:**

- There is a need to develop patient-centric models of care that focus on identifying the contextualised goals and desired outcomes of the patient, and include the patient, family and care givers where appropriate, as an integral part of the clinical decision making process.
- Shared decision making between clinician(s) and the patient should be recognised and built into current clinical pathways.

**Defining the boundaries of the perioperative path**

The boundaries of the perioperative path need to be defined when contemplating future models of care. The consensus was that perioperative care begins when the patient first makes contact with a clinician about a procedural intervention and ends following functional recovery well after the patient returns home. Perioperative medicine spans the treatment of the patient before, during and after surgery. Given this breadth, it is vital to the success of PoM that GP’s and community-based allied health professionals are included in the MDT and planning of surgery.

While the surgeon is the one professional from the MDT who sees the patient regularly and consistently throughout the patient’s journey, the designated perioperative coordinator may be another specialist, highly specialised nurse or their regular GP. Some would argue that family doctors are often in the best position to fully appreciate the impact of surgery on patients.

**Recommendations:**

- Existing systems such as GP Liaison officers and the Health Network pathways should be used and built on to improve pre-operative planning and care.
Clinical Challenges to Perioperative Medicine

Several common co-morbidities were identified as presenting clinical challenges to the delivery of PoM. These included but were not limited to frailty, obesity, diabetes, chronic lung disease, cancer, complex chronic pain, cardiac disease, acute kidney injury, cognitive impairment and mental health. Poverty and social isolation were also discussed. In many cases, it is these conditions that contribute to poor outcomes following surgery.

There is a need for better co-ordination of care and simplification of pre-existing hospital systems (for example, pre-admission pathways) to ameliorate the impact of comorbidities. Different but complementary systems are needed for elective and emergency surgery due to the respective time frames available for preparing a patient for surgery.

Recommendation:
- Systematic assessment, optimisation of chronic disease and preparation for surgery should commence early in the perioperative journey for all patients.

Harm

The distinction was made and recognised between complications and harm.

The concepts of harm in clinical practice and patient safety go hand in hand. Harm results in injury to the patient and is accidental or preventable.4 Some examples of harm in the perioperative setting include unnecessary interventions and investigations, improper technique and training of invasive procedures, poor patient selection, inadequate staffing and post-operative monitoring (leading to failure to rescue). Improved coordination of care and hospital systems would lead to reduced patient harm.

Perioperative complications occur as part of the surgical journey. They are inherent to a biological system. Health providers naturally seek to minimise them through improved care. Common examples of such complications include: surgical site infection (SSI), deep vein thrombosis (DVT), pneumonia, acute kidney injury (AKI), and myocardial infarction, stroke and delirium. A perioperative complication can be due to harm. For example, a patient may sustain a DVT if the patient is high risk and measures to prevent venous thromboembolism are not undertaken.

Recommendation:
- Evidence based guidelines and active, open multidisciplinary communication should be used to prevent perioperative complications and harm.

Patient health records

Currently family doctors may not have access to the patient’s hospital records and most hospitals have limited ability to readily check what tests may have been carried out on a patient in the community. This can give rise to duplication, unnecessary cost, and patient harm. Even within hospitals, poorly designed patient information management leads to unnecessary duplication, cost and harm.

Electronic health records are a subset of digital health technology. There are seven ways that digital technology can drive improvement in the health sector: decision support and
standardised work flows, engaged patients, more proactive and targeted care, better coordinated care, improved access to specialist expertise, improved resource management, and continuous cycles of learning and improvement.

Ideally electronic records would allow patient medication charting to flow seamlessly from the inpatient to the outpatient setting and vice versa. They also allow ready access to outpatient letters and previous admissions including anaesthesia charts. They must be intuitive and user friendly. Communications between institutions that use different information technology systems presents a challenge, reinforcing the need to ensure that paper records are available electronically or in hard-copy. More broadly, digital technology supports developments that may transform clinical information handling and process management, with the potential to dramatically transform and improve perioperative patient care systems.

Recommendations:
- Improved communication between the community and hospitals should be a priority for system development to prevent patient related adverse outcomes.
- Hospitals and GPs should actively pursue the development of an Electronic Health Record available to all the health professionals involved in patient care. This was deemed to be essential for achieving quality integrated care.

Preparing the patient for surgery

When a patient presents for surgery they may have existing long term illnesses such as diabetes, cancer, cardiac or lung disease. These may not have been diagnosed. The 'perioperative insult' (i.e. surgery and anaesthesia) can often lead to a deterioration in such conditions thereby delaying or preventing patient recovery. It is essential to utilise the time prior to surgery to optimise the patient in preparation for the perioperative insult.

Preoperative assessment provides an opportunity to optimise treatment of existing disease, and make a detailed plan for care during and after surgery.

In some centres in Australia, there are mechanisms in place to assist with preparing patients for surgery, such as:

(1) GP liaison officers are a part of many hospitals and are involved in coordinating and communicating pre-operative care plans for the GP to follow.

(2) Health pathways are currently being rolled out nationally by Primary Health Networks (through the Federal government): - the aim of these is to ensure that appropriate pre-referral tests are carried out prior to the first surgical consultation.

These existing systems should be considered and incorporated into any future initiatives. Similar pathways and mechanisms occur at a district health board level in New Zealand.

Multiple perioperative assessment models exist. These range from nurse led perioperative assessment up to and including consultant anaesthetist led clinics for complex patients. Perioperative assessment will ultimately be delivered at a local level meeting local needs.
Recommendation:
• There should be ongoing development of systems and services to identify, investigate and optimise the high-risk patient coming forward for elective surgery starting at the initial referral from the GP to the surgeon.

5.2 Decision making around complex patients where risk-benefit ratio is uncertain

Defining complex and high risk

Currently there is not a universally accepted or validated method for defining what constitutes a complex and/or high risk patient.

Several models for complex decision making using validated tools were discussed including the NSQIP surgical risk calculator, P-POSSUM score in emergency laparotomies, and the CRASH neurotrauma model. It was felt that the statistics that these tools provide need to be interpreted within the clinical context and presented to the family within the context of the patient’s goals and wishes.

Recommendation:
• Robust risk stratification tools need to be developed and used more generally. This information should be interpreted given local resources and communicated in the patient’s context.

Decision-making in emergency and urgent patients

Surgical patients may be divided into immediate, urgent and elective.

Immediate patients are generally admitted through a hospital’s Emergency Department where the “four-hour rule” requires patients to be imminently transferred to the ward. This greatly limits the ability to bring MDT members together for collaborative decision making and care planning.

Decision making for these patients is time critical and will often come down to a joint decision between ED physician, Anaesthetist, Surgeon and Intensivist using the best information they have.

Urgent patients are classified as those requiring surgery within 24 hours which may give more scope for Multidisciplinary Teams to be involved and for appropriate bedside meetings with the patient and families to understand their goals and explain possible outcomes.

As patient complexity increases, the development of better hospital or system-wide models for assessing patients and assisting with complex decision making are urgently needed. It was recognised that it is often logistically difficult to bring all relevant teams into decision-making, particularly in emergency situations. Assessment systems need to be efficient in identifying patients where surgery might be of marginal benefit so that a MDT can be coordinated to provide more support to surgeons in deciding to proceed with surgery.
One example of such a system exists in Townsville Hospital in North Queensland. The presence of three factors (frailty, presence of a terminal illness and multiple co-morbidities) is used to indicate that the risk-benefit ratio of surgery is likely to be marginal and a multidisciplinary team is mobilised to aid decision making. Whilst the data on this initiative is yet to be analysed to determine the effectiveness of the system it does represent an example of a locally developed, simple and robust model that could be easily implemented.

Recommendation:

- In emergency and urgent high-risk surgery, there should be a locally developed system so that a multidisciplinary group of specialists can be consulted regarding proceeding with surgery and the various aspects of perioperative care. Discussions with the patient and family should identify and clarify their goals and wishes.

Advanced Care Plans

Pre-existing advanced care plans developed between the GP and patient may greatly assist decision making in cases of immediate and urgent surgery. A plan which includes an outline of the patient’s goals and wishes may be particularly helpful in instances where the patient is unable to communicate at the time surgery is required.

In the context of complex surgery, advanced care plans need to be sufficiently nuanced to address the patient’s goals of care. These plans need to extend beyond discussions on resuscitation status.

Comment was made that more attention needs to be directed at the quality of the discussions around advanced care plans rather than the simplistic documentation of the plans.

Recommendations:

- In high risk, elective surgery, the establishment of an Enduring Power of Attorney and Advanced Health Directive should be encouraged to facilitate perioperative discussions on management of acute life-threatening events.
- Advance Care Plans should focus on goals of care rather than a listing of unacceptable or acceptable possible interventions.
- Easy access to this information from the community/GP to the hospital should be encouraged.

Points of collaboration

Approaches to improving shared decision making between clinical teams and patients were discussed. Points of collaboration were explored and considered to be of paramount importance for complex cases. When the risk- benefit ratio is marginal, the MDT needs to be comfortable with a decision to proceed with surgery. Agreeing to surgery can be easier than declining it and in either case it was felt the option of a second independent opinion would be a good clinical practice.

In instances where the final decision is not to proceed to surgery then the reasoning should be communicated clearly and efficiently to the family and the patient. For marginal cases, it would be preferable to have a structured and transparent decision making process which would involve the patient and patient’s family.
In emergency and urgent cases, collaborative decision-making can be logistically challenging. When a patient is undergoing elective surgery, the MDT has more time to coordinate complex decisions. It was noted that there are some effective existing models of care in emergency situations such as the orthogeriatric model of care and the ELPQuIC2 pathway for emergency laparotomies. Both facilitate consultant level communication between clinical teams.

Other models include:
- A High Risk Perioperative Clinic where patients are referred prior to booking for assessment.
- Presentation of cases to Anaesthesia Consultants.
- Geriatric MDT discussions
- Intensive care liaison regarding post-operative disposition and limitation on organ support.

**Building trust between MDT members**

Trust and respect between members of the MDT is important at any time but become critical at times when complex decisions need to be made. Many disparate opinions need to be heard from the various specialties but there is a clinical need to reach a timely and appropriate consensus decision. A MDT needs to be efficient in its use of its member’s resources.

If there is to be a clear leader or coordinator within the team, then that person will need to have the breadth of understanding to analyse and co-ordinate the input of all the team members.

There is also recognition that communication with the patient’s family needs to be structured lest the multiple teams’ involvement lead to confusion in discussions.

*Recommendations:*

- A MDT approach is to be encouraged. How a MDT is formed and run will be driven by the local context.
- Active steps should be considered to develop trust between team members, particularly for new teams coming together for the first time.

**5.3 Research and Metrics**

**Data on Outcomes**

Evidence based perioperative care needs to be driven by robust audit data. Quality and meaningful data is lacking in this field. High quality, outcome-focused data is required for improving many aspects of perioperative medical care including developing models and tools to assist with decision making, measuring functional recovery and building effective funding models.

Discussions with families regarding the risks and benefits of complex surgery are currently hampered by the limited clinical data available regarding patient outcomes beyond short-term mortality.
Liaising with and engaging the public and government to help facilitate change requires specific cases and improved data.

The following issues were identified as priority areas requiring appropriate data to enable the development of better systems:

- Classifying high risk patients and predicting outcomes.
- Developing models to assist with decision making in complex, high risk cases.
- Measuring:
  - Complication rates after surgery
  - Deleterious changes in patient function.
  - Measuring functional recovery

**Recommendation:**
- Australia and New Zealand need to develop large scale audit data on outcomes after surgery.

**Patient Outcomes versus Key Performance Indicators**

Many measurements currently made by hospitals are centred around operational KPI’s for the hospital such as length of stay or waiting times for elective surgery. Measures of patient functional outcomes and quality of life are often not measured. There was a widely-held view that clinically meaningful outcomes need to be recorded and the data collected to enable a move beyond traditional parameters such as 30-day mortality and length of stay.

Several delegates discussed the advantages of analysing 90-day mortality and studying postoperative mortality over longer periods of time. This was felt to be an important goal for future discussions.

To successfully instigate change around the data collected, it was perceived that engaging with health system management would be of utmost importance. Widespread consultation throughout the health system with regards to what constitutes meaningful data is the most likely way to ensure that data is collected beyond the currently analysed endpoints (length of stay and 30-day mortality).

Before embarking on the process of collecting data it will first be necessary to establish clear definitions as to what constitutes high risk, the boundaries of perioperative care are and the most meaningful outcomes to measure.

**Recommendations:**
- Outcome data needs to move towards a 90 day and 12-month end-point. Measurement of costs should also be included in data collection.
- Further research needs to be conducted on identifying and classifying high risk patients.
Patient reported measures

Much discussion took place around patient reported outcomes and shifting the focus to recording and analysing such data. The Agency for Clinical Innovation has been partnering with local health districts to drive new programs for improvement and integration of healthcare across NSW. As part of this, a patient reported measures program has been established with the aim of improving communication between patients and their healthcare workers. It is widely accepted that patients who are engaged in their healthcare experience better outcomes and often choose less costly interventions. Four local sites are currently involved in a proof of concept program.5

Recommendation:

- Patient reported measures should be used in perioperative outcome assessment.

Building Research systems

There was extensive discussion around the concept of developing a multi-centred initiative throughout Australia and New Zealand to collect data and establish research systems that will look at long term and functional outcomes after surgery.

Good infrastructure already exists in hospitals for collecting quality data. Additionally, it was reported that there is funding and resources within some of the colleges for registrar led audits. Strong collaboration between disciplines and with hospital management and governmental groups will be needed.

If practice is to change it will be necessary to demonstrate to management hierarchies that the proposed systems and processes are viable from a business perspective and across funding jurisdictions. Utilising existing resources and using them more efficiently wherever possible would be ideal to minimise cost implications.

Current initiatives

It was noted that New Zealand already has a national system in place for the collection of perioperative data - The Perioperative Mortality Review Committee (POMRC).

The Victorian government have recently announced an initiative called ‘Targeting Zero’ which is aimed at reducing harm and producing better healthcare outcomes for patients. The initiative is based on recommendations laid out in The Duckett report6 and was developed in response to several preventable newborn and stillborn deaths at Bacchus Marsh Hospital in rural Victoria. The contents of The Duckett report including recommendations regarding incident reporting and monitoring, would be useful for safety committees and hospital and service governance to refer to and leverage from, where possible.

Recommendation:

- A multi-centred research system that examines long term functional outcomes should be established bi-nationally. Ideally this should be built through collaboration between disciplines and leveraging from existing hospital systems

5.4 Education and Training

Education and Training for Perioperative Medicine is developing and evolving in multiple specialties.

Communication

Discussing complex issues and surgery with high risk patients and their families is extremely challenging. It requires time, seniority and a high level of communication skills.

There was a widely-held view that perioperative medical training needs to incorporate a strong emphasis on communication skills and how to conduct difficult conversations such as choices in high-risk surgery, acute resuscitation planning, or end-of life discussions. Training should also include effective communication with colleagues as well as with patients.

Recommendations:
- Perioperative Medicine must be a consultant led service.
- Perioperative medical specialists must be trained to a high level in communication.

Cross specialty understanding

Perioperative Medicine is inherently collaborative and inter-disciplinary and as such there is a distinct need for specialists to understand each other’s areas of expertise. In recent years, the existing models of training have required a decreasing proportion of the trainee’s time to be spent in other specialties. In the current environment of increasing complexity, increased need for palliative surgery and increasing load on intensive care it was vital that future courses should cover greater cross-disciplinary training.

Recommendations:
- Those trained in Perioperative Medicine should have inter-specialty training.
- Whether training programs evolve to become multi-collegial or inter-collegial, the training should be based on a collaborative, multidisciplinary model of care.

5.5 Funding models

Consistent with the need for systems to become more focused on patient outcomes, which was expressed extensively, it follows that future funding models should also be outcome focused. Health Fund representatives present at the workshop stated that funding models should also include the requirement to follow appropriate standards of care.

Australian private health funds are already moving towards outcome based payment but also incorporate the requirement to follow standard procedures. If a patient has a poor outcome but the hospital has followed evidence based guidelines then they are not penalised, however, if it is found that they did not follow procedure then financial penalties may apply. The concept of a ‘Best Practice’ tariff was proposed and may fulfil many of these requirements. This model has been successfully implemented in the UK NHS for the management of hip fractures.
Models have been proposed within government departments that penalise for complications. There was a strongly held view that this kind of system should be actively discouraged as it unfairly jeopardises the reputation of surgeons or hospitals that focus on complex patients and may lead to them being denied surgery. Experience in the UK has suggested that public reporting of adverse surgical outcomes can have detrimental effects.

Discussion also took place with regards to incentivising funders to ensure that there is integrated care within the PoM setting. In this light, private health funds could become an advocate for enabling the changes which need to occur in PoM.

Recommendations:
- Evidence of improved patient outcomes and satisfaction should be obtained as an incentive for funding bodies, both public and private, to invest in PoM
- Future funding models ought to be based on patient outcomes and following best practice as defined by available evidence.
- Close liaison should take place between Perioperative Medicine specialists, government and health funds when deciding on metrics and funding models.

5.6 Stakeholder engagement

It was considered that one of the most effective ways to instigate change is to educate the public with regards to the deficiencies in the current system and how to correct them. Engaging the community and transfer of ideas to and from them is likely to lead to effective public advocacy and lobbying to government.

Educating the public involves building a compelling case around the need for change. In turn, this requires convincing data which will have high impact. Consideration should be given to what data is needed for the public, and how to build this into any future initiatives around research and metrics.

Recommendation:
- The community should be engaged to play a major role as involved consumers and advocates, promoting the need for change, to achieve our mutual goals of improving surgical outcomes for patients and families throughout Australia and New Zealand.

6. Progressing the discussion

It is widely acknowledged that there is an urgent need for change in the delivery of perioperative medicine and the time to start developing a roadmap for the future is now. This first strategic workshop has discussed extensively how perioperative medicine may provide a solution by offering an additional level of care throughout the perioperative period. Whilst there are several examples of how parts of such a system may work, there is a great deal of work to be done in ensuring that the whole pathway of care can be offered to every eligible patient.

Clearly there are large challenges ahead but there are examples that can be drawn on to demonstrate how Perioperative Medicine may develop. These include the Australia and New Zealand Faculty of Pain Medicine, and ongoing UK National Audit Projects. The development
of the FPM successfully brought about change in thought processes and training, and improved the delivery of effective pain medicine. In the UK, National Audit Projects have played a key role in driving change in the health system. Data from the Audits has been used to develop national guidelines which are in turn linked to the funding system.

A high degree of collaboration and cooperation is going to be fundamental to bringing about the necessary changes. Since Medical Colleges both nationally and internationally already have strong links and relationships, it was generally agreed that these can be leveraged to gain advocacy at a high level both nationally and internationally.

Importantly, future discussions need to bring together the full range of stakeholders required with surgeons playing a significant role in the process, working with anaesthetists, GP’s, physicians, geriatricians, nurses, allied health professionals, radiologists and other specialties. Patients must also be brought into the discussions in the future.

It was also noted that building appropriate funding models will require drawing on the skills of health economists and finance professionals.

The immediate task at hand is to involve emerging and developing opinion leaders from all disciplines in progressing the discussion of issues identified in the first strategic workshop in time for continuing the conversation at the next Perioperative Medicine workshop in November 2017.
Appendix 1 – Details of survey and responses

Clinical Problems

- Poor co-ordination of care
- Identification of high risk patients in preoperative clinics
- Consistency of care / practice - clinical variation
- Data on timing of surgery
- Diabetes
- Multidisciplinary team integration
- Communication - patient data/information that can be accessed and shared by all members of the team
- Developing clinical skills and pathways in other surgical fields beyond orthopaedics
- Preoperative optimisation
- Frail patient management
- Parallel care rather than sequential care

Decision making surrounding complex patients where risk-benefit ratio uncertain

- MDT in making complex decisions
- Futile surgery pathways
- Fee for service in private sector (incentive to proceed with surgery)
- Unrealistic patient expectations re outcomes. Patients need education on Perioperative risk
- Better use of and communication of advanced care directives
- Cost of healthcare and unrealistic expectations
- Consent process - what data is being provided for decision making? What conflicts of interest are there in making recommendations?
- Weed out ineffective procedures. Make risk adjusted outcomes (M&M and QOL) available

Research and Metrics

- Lack of uniform outcome data
- Measurement of impact and harm of surgery
- Sharing data between disciplines and data
- Dissemination
- Data in surgery beyond hip fractures
- Who holds outcome data and how is it shared?
- Developing data to provide evidence to drive and sustain change
- Difficult to prove case for perioperative care when minimal resources to collect data
Education and Training

- Education and training resourcing in public service hospitals
- Inadequate training of critical care medicine & Anaesthesia for clinical group caring for frail patients post-operatively who have complex co-morbidities
- Accreditation for training across different specialties

Service Delivery and Funding / Stake Holders and How to Collaborate

- Funding framework for perioperative infrastructure for better outcomes - what strategy and data needed to justify funding?
- Funding models
- Funding of procedures should move away from fee for service for specific interventions to bundled care for conditions
- Networked service providers should be supported within regions
- Funding correct clinical measures in outcomes not administrative measures
- Health insurance company buy in if risk minimisation and decreased complication rates
- Service delivery models
- Workforce issues
- Registrar training
- Registrar vs consultant led care in public hospitals
- Nursing
- Specialty roles e.g. Anaesthesia vs General Medicine/co-ordination of specialties in addressing different issues in perioperative care
- Access to appropriate care particularly in smaller centres
- Bringing GPs into care

Suggested Solutions and recommendations

Education

- ANZCA council could emulate NZ Perioperative Mortality review committee
- Define skills and knowledge for formal qualifications / curriculum supporting use of protocols and currently available tools e.g. NSQIP risk calculator and UK Perioperative guidelines
- Create courses for anaesthetists and surgeons to support preoperative discussion re complications and risks and to assess usefulness of intervention
- "Closed" national Perioperative group platform: Website for clinicians to share and discuss service and clinical issues
- Patient education - YouTube and flyers / public awareness campaign
- Teaching care co-ordination (making conductors not Prima donnas)
- Cross-fertilisation of training across specialties
- Perioperative fellowships - offer PoM in ANZCA curriculum? Geriatric curriculum
- Bypass political challenges and focus on teaching at faculty level - results will follow
Research

- Collaborative research - more joint meetings
- Coordinated effort to gather long term patient focused QOL outcomes data
- Evidence based physician involvement leads to cost beneficial care and better outcomes
- Risk assessment tools
- Extended recovery trials
- Practical Frailty index
- Prevention & treatment of Delirium
- NOACs
- Bridging anticoagulation
- Diabetes
- Identify key postoperative complications that occur in older surgical patient
- Forms of Anaesthesia and analgesic yes in the elderly
- Pre-op carbohydrate loading
- Postop goal directed fluid management
- Risk Stratification
- Functional recovery
- Do clinicians follow protocols / evidence based guidelines for patient care? If not, why not?
- Best methods for interdisciplinary communication
- Which models of care work?
- Organ specific research - COPD / anemia /diabetes
- Optimisation - does it work if done within specific timeframe?
- Assessing risk assessment tools

Database establishment

- Assessment of surgical outcomes (similar to ACS NSQIP) /co-ordination with current surgical databases
- Shared outcome data at all levels - national / regional / hospital

Guidelines

- Standardised protocols for emergency surgical admissions including: VTE, antibiotic, diabetes and medication cessation
- Structured approaches to preoperative work up and extended recoveries
- Defined leadership in complex surgery / futile surgery decisions
- National clinical guidelines
- Adopt models from elsewhere - ERAS
- Guideline or approach to unwarranted surgery
- Modular guidelines – adaptable to units with no perioperative resourcing
Models of care

- Daily meetings between surgeons / anaesthetists and geriatricians ensures clarity of purpose and build relationships - monitors outcomes
- Flattening the hierarchy
- Access to centrally recorded patient data / better documentation and written communication between disciplines - use of technology (group messaging?)
- Identifying team leader or coordinator
- Multidisciplinary clinics
- Centralisation of services (reduce number of units offering ITU)
- Patient centred meetings rather than specialty centred meetings
- Research on what interventions in postoperative period have a bearing on

Political

- Clear and agreed definition of Perioperative medicine
- Clear endorsement from national organisations that this is a collaborative specialty - bring best care practice under one umbrella rather than worrying about which specialty is doing it better
- Common body that sets standards and best practice (Faculty?)
- Role delineation and improved funding model to support multidisciplinary care
- National co-ordination body? Or State groups?
- Work with colleges
- Investigate different specialty group’s expectations - what does each stakeholder want from other Perioperative service providers?
- Governance of Perioperative training, qualifications and standards

Role of the Perioperative SIG

- Safer Australian Surgical Teamwork course for smaller and rural hospitals
- Separate policy and clinical streams
- Continue to bring stakeholders together
- Consensus statements
- Reporting local initiatives / improvements
- Task lists for college / society
- Continue with broad general topics that are highly practical
- Trainee support - posters / presentations
- Provide networking opportunity
- Rather than form another splinter group bring disciplines together
- Become a specialist society like ANZICS
- Hands on tutorials for new bedside technology e.g. echo workshops
- Frequent state level meetings
- Working group
- Provide central hub for multicenter trials in Perioperative care
- Portal to share pathways / literature
Other important Stakeholders

- Nursing
- RACs
- GPs
- Health insurance companies
- ACS NSQIP / NSW NSQIP collaborative
- IMSANZ (Internal Med Society)
- Medical schools
- Palliative care
- ANZICS
- State and federal health departments
- Allied Health – physio and OT
- Pharmacy