Improving post operative recovery, and reducing length of stay: ERAS and alternative post-operative care models

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## Context

On 3 April 2022, the Victorian Government announced a $1.5 billion Surgery Recovery and Reform Plan to boost surgical activity across the state.

A key component of the Plan is the need to systemically reform how the health system delivers surgical services in Victoria, on an enduring and sustainable basis.

Safer Care Victoria (SCV) has been resourced to assist the Surgery Recovery and Reform Branch (currently known as Planned Care Recovery and Reform Branch) in the Department of Health to progress its reform agenda. To assist with this work, SCV established the Perioperative Learning Health Network (LHN) and Perioperative LHN Advisory Group led by Professor David Watters.

This report was requested to provide clinical advice to **guide improving post-operative recovery and reducing length of stay (LOS): Enhanced Recovery After Surgery (ERAS) and alternative post-operative care models**. The Advisory Group and Expert Working Group (EWG) have provided expert advice addressing key areas requested and have outlined these in the following report, which was completed in December 2022.

## Executive summary

SCV has investigated the role that ERAS pathways and alternative post operative models of care can play in improving patient outcomes and reducing LOS for planned or emergency surgery cohorts in Victoria.

This report is the result of extensive investigation through a rapid literature review and engagement with stakeholders across the health system. To achieve optimal surgical outcomes, ERAS principles and bundles of evidence-based care can and should be implemented throughout the entire patient journey- before, during, and after surgery (Wall et al 2022).

There are many benefits to expanding ERAS pathways in Victoria. Despite challenges of implementation and sustainability, the ERAS model provides evidence-based care for the right patient, at the right time and at the right place. However, the traditional hospital focused ERAS pathways often do not consider the entire perioperative journey, nor the importance of integration with primary and community care settings.

We recommend an extended ERAS Plus model (Table 7) where all patients, including high-risk populations, are managed by applying the following core principles:

* Integration of acute and primary care settings
* Patient centred focus with shared decision making at all stages of the surgical pathway
* Providing evidence-based care bundles before, during and after surgery
* Multidisciplinary Team (MDT) approach to minimise variation in care
* The use of digital health enablers to support care delivery
* Data collection and use for continuous improvement

The ERAS Plus model also considers the role of alternative post-operative care models and digital health enablers across all parts of the patient’s journey. This approach identifies that care begins when the patient first discusses surgery, and that early assessment of high-risk patients will enable appropriate care pathways (Wall et al 2022).

##

## Recommendations

The following recommendations were developed from extensive consultation with clinical experts, consumers, and findings from current research. The **five key recommendations** are pivotal for the safe and sustainable **implementation of ERAS Plus** across Victoria:

1. **Strengthen the transition of care and communication between acute and primary health services.**

Improved integration and communication with primary care providers offers the potential for minimising errors around transitions of care before and after surgery, as well as maximising opportunities for patient optimisation, including lifestyle modification (e.g., activity/exercise, smoking and/or alcohol cessation), pain management and medication optimisation (Grocott et al 2019). This can be achieved by:

1. Integrating and imbedding surgical pathways in acute and primary care, ensuring accessibility and useability to all members of the perioperative team including the General Practitioner (GP).
2. Assessment and flagging of high-risk patients at the time of referral to surgery. Early risk assessment with evidence-based screening tools can help inform decision making and establish patient focused goals.
3. Standardised discharge care planning with clear care instructions, detailed follow up requirements and a clear escalation process.
4. Providing patients with written communication after a consult and before discharge.
5. Effective handover of care based on the Australian Medical Association (AMA) policy for transfer of care (AMA 2018[[1]](#footnote-2)).
6. **Build a specialised, sustainable, and skilled multidisciplinary workforce to deliver best surgical care.**

ERAS Plus is a detailed model of care which needs dedicated resources to achieve successful implementation and ongoing sustainability. Key elements of ERAS Plus and use of post-operative recovery spaces requires an appropriately skilled workforce. This can be achieved by:

1. Providing dedicated ERAS coordinator(s) and administrators to support the wider MDT.
2. Promoting medical/nursing perioperative specialist post-graduate programs to ensure a sustainable workforce with the appropriate knowledge and skills.
3. Increasing allied health resourcing to enable a seven day a week service. To support day procedure centres, pre-admission clinics and Better At Home programs to facilitate patient optimisation, early discharge, and improved recovery.
4. Increasing access to older person medical teams across the perioperative journey to improve post-operative recovery and shared decision making opportunities around the right pathway of care, for example surgical versus non-surgical pathway.
5. Continued opportunities for collaboration and sharing that will support and scale implementation of the ERAS Plus model e.g. Communities of Practice.
6. Providing staffing models to support appropriate post-operative recovery spaces such as a Surgical High Acuity Unit (SHAU) or Advanced Recovery Room Care (ARRC).
7. **Expand digital health capability to improve access and engagement across the perioperative journey.**

Digital enablers (table 12) can help improve access and engagement to services in rural and remote areas, improve patient monitoring, improve provision of standardised information, improve interface between acute and primary care, and reduce costs. The following digital enablers could be scaled statewide:

1. Virtual surgical school model to be run at either health services or at statewide level.
2. An e-platform such as the Customer Relationship Management (CRM) system, to support an integrated surgical pathway that is accessible by all members of the MDT. This system could be implemented at a statewide level.
3. Multimodal approach to optimising patients before surgery and facilitating post-surgical recovery by using existing digital platforms such as the online Safe Exercise at Home platform, and/or virtual care/telehealth models.
4. Exploring options for wearable devices in monitoring patient haemodynamic status throughout the surgical patient journey for example during optimisation and post-surgery.
5. **Develop a coordinated communication plan with consistent messaging for consumers and clinicians.**

Creating a communication plan with consumers at the centre to assist with public messaging and setting expectations around surgical care. This can be done by:

1. Using the principals of co-design when creating education material and the development of surgical pathways.
2. Using patient stories to underpin an awareness campaign of the surgical reform.
3. Developing a communication plan that provides clear expectations around the surgical patient journey and support continuity of care.
4. Promoting the role of shared decision making to engage patients to be in control of their own surgical journey and outcomes.
5. **Improve data quality, use and transparency for reporting perioperative outcomes.**

An essential element of ERAS is data collection and monitoring of outcomes using an audit system which is reviewed during regular MDT meetings. (Nelson et al 2021; Liunggvist et al 2021). Monitoring outcomes and processes helps identify variation and improve compliance with care bundles. Improved data quality, use and transparency requires:

1. Providing adequate administrative resourcing to support data collection, reporting and analysis at health care service level.
2. Funding for health care services to participate in relevant registries.
3. Streamline process for application to data registries to encourage participation and allow for improved data sharing across the state.
4. Develop a state-wide datahub and associated dashboard to allow for real-time monitoring, which includes agreed quality and safety measures.
5. New measures required: Currently there is difficulty reviewing the impact of care on patient reported outcomes (PROMS) and experience (PREMS) at a state level. To ensure quality care is provided, it is important to review the impact of care from the patient’s perspective by:
	1. Collecting patient outcome measures using validated tools e.g. the EQ-5D and surgical specific outcomes such as oxford hip/knee scores for Arthroplasty, at three, six and 12 months.
	2. Collecting patient experience using a standardised questionnaire that identifies the type of surgery conducted and the pathway of care e.g. day surgery.
	3. Digital enablers should be considered to assist in collection e.g. CRM platform.

## Background

For the patient, the pathway to surgery commences when they first discuss surgery or other care options for a condition with their GP (Wall et al 2022). In most instances, a preoperative anaesthetic assessment occurs in the weeks leading up to surgery, but the opportunity to optimise a patient’s therapy, medications or expectations prior to surgery is profoundly limited by the time available between meeting the patient for the first time and the date of surgery (Ljunggvist et al 2017; Ljunggvist et al 2021).

ERAS pathways have historically been referred to as enhanced, rapid, accelerated recovery, or fast track surgery (Beal et al 2021). The primary aim is to accelerate recovery by reducing a patient’s surgical stress response, optimising physiological function, leading to reduced hospital stays and complications (American Society for Enhanced Recovery and Perioperative Medicine (ASER) 2019; Beal et al 2021; Ljungqvist et al 2017; Ljungqvist et al 2021). ERAS provides ‘bundles’ of evidence-based care before, during and after surgery. Key principles of applying ERAS pathways include MDT teams working with the patient, a multimodal approach to resolving issues that delay recovery and cause complications; an evidence-based approach to care protocols; and a change in management using interactive and continuous audit (real-time quality control).

The ERAS® society trademarked guidelines are available for purchase from an appointed ERAS® implementation program which provides training from overseas, certification and access to their interactive audit system with annual fees for each purchased ERAS pathway (ERAS Society 2022). This has been implemented at many health services around the world and some pathways have been purchased for use in some Victorian health services.

ERAS pathways have been adopted internationally with reports of up to 30%-50% reduction in length of stay and 20% reduced readmission (Ljungqvist et al 2021). To achieve these outcomes requires 70-80% compliance with all evidence-based elements listed in published guidelines (Ljungqvist et al 2017; Ljungqvist et al 2021; Taurchini et al 2018; Nelson et al 2021) (See Appendix A). High-risk patients have often been excluded from the ERAS pathways. However, with a tailored approach, high-risk patients can be successfully managed on ERAS pathways with smaller gain in LOS and morbidity (Braga et al 2017; Millan 2020).

ERAS bundles of care can be challenging to deliver. There are difficulties in: achieving consensus between different craft groups; protocol implementation and compliance; maintenance of protocols; reluctance to change logistics; lack of administrative support to facilitate data collection and support multi-disciplinary meetings; as well as education support for patients, carers, and staff (Beal et al 2021; Nelson et al 2021). This complexity has allowed room for clinical interpretation which can lead to variation in care (Toh et al 2022). ERAS has historically been hospital focused and does not have a strong interface with the community and primary care sector, although this has been highlighted as an essential requirement to achieve same day models of surgical care (National Health Service (NHS) 2020; NHS 2022).

Alternatively, a model such as ‘-Getting it Right First Time’ (GIRFT) is designed to reduce variation in care and improve patient outcomes in orthopaedics and other surgical specialties (NHS 2022). GIRFT requires integrated surgical pathways that are developed in partnership with healthcare networks and primary and community services. It is important to recognise the role of general practitioners and community services in patients’ pre and post-operative care (NHS 2020; NHS 2022).

## Current state

### ERAS use outside of Victoria

ERAS pathways are used extensively outside Australia in the United Kingdom (UK), Europe and the United States of America (USA), although there is some national/regional variation in their detail and delivery. Sweden uses traditional ERAS guidelines. However, ERAS+ was implemented at Manchester Royal Infirmary (UK), which includes everything that is core to ERAS with a broader care plan throughout the surgical journey. The GIRFT model in the UK demonstrates that reducing variation in care can deliver better outcomes by using an integrated surgical pathway (NHS 2020).

The New South Wales Agency for Clinical Innovation (ACI) has recently published ‘Enhanced recovery after surgery: key principles for colorectal surgery’ (NSW ACI 2022) which outlines steps and processes to provide safe and effective early discharge of patients following colorectal surgery. Some health services in Queensland are using ERAS although they have not reported consistent use at a state-wide level. South Australia has ERAS pathways for colorectal surgery at the Royal Adelaide Hospital and well-developed pathways for hip fracture patients based on the national hip fracture clinical care standard throughout the state.

### ERAS pathways in Victoria

ERAS was piloted in Victoria 10 years ago (Thompson et al 2012) with considerable variation in uptake across the state since. Peter MacCallum Cancer Centre is the only listed ERAS accredited centre in Australia (ERAS Society 2022). Some health services may identify as having an ERAS pathway, but in practice, it may be isolated to a single bundle of care being applied by one discipline e.g. an anaesthetic bundle. Other health services provide an evidence-based pathway, but do not identify as having an ERAS pathway despite following similar elements of the relevant bundle. ERAS has recently attracted more interest, with many health services currently in the process of implementing ERAS pathways for specific clinical cohorts. Due to the variation of what is considered to be an ERAS pathway among health services, it has been hard to document the extent of ERAS in Victoria.

### **Priority Cohorts** Table 3: priority cohorts

|  |
| --- |
| **Priority cohorts**  |
| * + - * + Elective Total Hip Arthroplasty
				+ Elective Total Knee Arthroplasty
				+ Elective Major Colorectal Surgery
				+ Gynaecological Procedures
* Abdominal Hysterectomy
* Vaginal Hysterectomy
	+ - * + Cardiac Surgery
* Valve Procedures
* Coronary Artery Bypass Graft
	+ - * + Head & Neck
* Thyroidectomies
* Hemithyroidectomies
* Parathyroidectomies
	+ - * + **Hip Fracture**
				+ **Emergency Laparotomy**
 |

Several priority procedures have been identified from the review of the literature and discussion with key stakeholders.

Each selected cohort has existing published ERAS guidelines (see appendix 1).

The bolded procedures are included as emergency procedures to emphasize the possibility of including ERAS principles to emergency procedures as well as planned surgery lists. Emergency procedures that require extended stays impact the system’s ability to perform planned surgery as well as increases the risk of poorer patient outcomes.

Hip fracture mortality is increasing in Victoria which highlights the importance of ensuring safe effective care.

## Data

It is essential to monitor that as LOS is reduced, it is done safely, and high-quality care is provided. It is important to monitor LOS along with other safety and quality measures such as discharge destination; readmission/representation rates; hospital acquired complications (HAC); days at home; mortality; serious medical complications; ICU usage; patient outcomes and experience. Monitoring the system using data helps to identify variation and safety concerns early so adjustments can be made to ensure safe quality care is provided.

Data supplied from the Victorian Admitted Episodes Dataset (VAED), Elective Surgery Information System (ESIS), and Victorian Emergency Minimum Dataset (VEMD), highlights that currently across Victoria there is wide variation in LOS. Using total knee arthroplasty as an example, the current data (Graph 1-6) show that some health services are achieving a reduced LOS safely without compromising quality.

Three standout sites 19, 16 and 11 are achieving a higher percent of patients with a reduced LOS, low HAC, low readmission rates, with no mortality at 30-, 90- or 12-months post procedure OR major medical complications within 30 days (noting that mortality at 12 months for 2022 patients is incomplete). However, site 19 demonstrates a representation to emergency department rate which is higher than the state average, emphasising the importance of ensuring effective transfer of care, establishing clear escalation pathways and monitoring readmission/representation rates during the scaling of this work.

Overall, current data supports that reducing LOS can be done safely, with the appropriate safety signals in place. For example, careful monitoring will be required to ensure extra pressure is not displaced to other areas of the health system such as emergency departments.

**Graph 1: Length of stay from 2021/22 for total knee arthroplasty across Victoria. **

**Graph 1:** Six sites are currently achieving 40% or more patients having a two night or less acute stay. Site 30, 28 and, 23 all had reduced acute LOS however it was noted that a high percentage of patients continued to rehab.

**Graph 2: Discharge destination distribution of the six health services with high percentage of patients with shorter LOS.**

**Graph 2:** Highlights that a low percentage of patients from health service 30, 28 and 23 were discharged directly home many continued to rehab which accounted for reduced LOS.

**Graph 3: ASA (American Society of Anesthesiologists ) scores distribution for lower LOS health services VS higher LOS health services.**

**Graph 3:** ASA (American Society of Anesthesiologists ) score, which can be used as part of risk prediction for LOS, 19, 16 and 11 compared to longer LOS sites 33, 4, 39 and 24 and did not indicate a lower percentage of low-risk patients that would account for achieving a higher percentage of shorter LOS.

**Graph 4: Readmission rate within 48hrs and 28 days.**



**Graph 4:** Health services with the shorter LOS are starred demonstrating all three sites performed well in terms of readmission rates.

**Graph 5: Representations to the emergency department within 28 days.**



**Graph 5:** Health services with the shorter LOS are starred. Sites 11 and 16 re-presentations have some of the lowest rates in the state. However, it was noted that site 19 has a readmission rate of 9.52, higher than the state average of 5.38. There were no themes noted in the reason for representations.

**Graph 6: Percentage of any HAC.**



**Graph 6:** Health services with the shorter LOS are starred. All three health services also performed well in terms of hospital acquired complications

## Benefits of ERAS

Benefits to expanding ERAS pathways can be seen at patient, health service and system levels.

|  |  |  |
| --- | --- | --- |
| **Patient level** | **Health service level** | **System level** |
| * improved quality of life
* sets clear patient and carer expectations
* enhanced recovery
* reduced length of stay
* improved surgical outcomes
* improved patient experience
* being more emotionally prepared for surgery
* reduced risk of mortality.

  | * reduced hospital length of stay
* reduced cancellations
* reduced HAC
* reduced readmissions
* reduced demand for other services such as ICU and ED
* improved quality of care delivery, staff satisfaction and retention
* reduction in nursing workloads
* improved cost savings.
 | * reduced preparation list
* efficient use of health resources
* improved workplace participation
* improved population health.

  |

 Table 4: Benefits of ERAS

## Barriers and enablers for scaling and sustaining ERAS

There are several barriers to implementing ERAS in the Victorian healthcare system. Table 5 outlines the barriers and their respective actionable enablers to safely scale and sustain ERAS. This information is based on a review of the literature, discussions with ERAS champions in Victoria, and local consultations with clinicians involved in implementing ERAS and understanding their challenges.

Table 5: Barriers and Enablers

|  |  |
| --- | --- |
| Barriers | Enablers |
| ERAS requires specialised training for staff. There is no formal ERAS training available within Australia.  | Investment in **ERAS trainers** (Melbourne Health, Peter MacCallum – the latter is the only ERAS® centre of excellence in Australia and are in the process of becoming a train the trainer facility).Specialist **post-graduate programs** to develop appropriate knowledge and skills. |
| High demand on staff workload. | **Have dedicated staff** and resources. |
| Lack of available workforce to support regional areas. | There are existing significant challenges in recruiting and retaining healthcare workers in regional areas. This may require a specialised review to incentivise an appropriate regional workforce. |
| Staff engagement.  | **Listen** to staff concerns and quickly adapt to **support** them. Have regular **MDT meetings**.  |
| Surgeon preference for procedures and post-operative management.  | Establish **collaboration** and **communication** between champions to advocate for evidence-based practice. |
| GP expectations of care.  | Improved **collaboration between health services** and **primary care** settings. |
| Cost of implementation. | **Funding** to support implementation.Share evidence of **cost saving** potential post implementation. Use the Institute for Healthcare Improvement (IHI) breakthrough series methodology to implement ERAS program. |
| Ethics application process for being involved with or supplying data to registries.  | **Streamline processes** for application to share data on quality improvement platforms such as: ERAS® society, ANZHFR, NSQIP, ANZELA-QI, national joint registry.  |
| Data collection.  | **ERAS co-ordinator(s)** and **administration** staff to enable data collection. **Strengthen data** collection of patient reported outcomes and experience. |
| Access to digital devices and poor computer literacy.  | Provide **alternative methods** to assist with using digital devices e.g. face to face assistance, phone call.**Engagement** with family members by allowing access via poxy accounts. Provide **loan devices** where appropriate/required.  |

## Risks and mitigation for expanding ERAS pathways in Victoria

ERAS is a model that provides evidence-based care throughout the surgical journey. However, there are several risks to expanding ERAS pathways across Victoria. Table 6 describes the risks and identifies mitigation strategies that would minimise the impact.

Table 6: Risks and mitigation

|  |  |
| --- | --- |
| **Risk** | **Mitigation** |
| High-risk patients are often excluded from traditional ERAS pathways.  | Develop pathways which recognise that **different cohorts** require **tailored care,** by: * Completing **early screening** for **risk** factors and providing **optimisation of patients** prior to surgery.
* Selecting appropriate patients for same day surgery.
* Providing **best practice pathways** for patients who require **ICU**.
* **Tailoring approach** for patients with **high** number of **comorbidities** and **frailty**.
 |
| Increased readmissions and re-presentations to ED/urgent care settings.  | **Monitoring systems** to identify increases in readmissions/representations and reasons.Well **planned discharge** and **effective alternative care** models for high-risk patients.  |
| Clinician resistance and poor adherence to pathways/guidelines. | Strong **multi-disciplinary engagement** from **all areas** of the patient’s journey.Staff education that bundles of care are evidence-based and lead to improved outcomes. ERAS leads/ clinical champions.  |
| Sustainability. | **Continuous audit to** **monitor** patient outcomes and adherence to bundles.Investment in **resources** such as ERAS coordinator/liaison nurse.**Learning Health Systems** framework to support collaboration across the state. Regular MDT meetings: **listen to staff and adjust** quickly to support them.Ensure institution specific **ERAS education** for rotational staff e.g. junior doctors. |
| Patient/carer anxiety. | Provide opportunities for shared decision-making conversations. **Set expectations** and **focus** on **best care** and patient **safety.**Develop:* **Consistent** **messaging for patient, carer, family and GP.**
* Formal **pathways** for patients to **escalate concerns.**
* Pre-agreed Q&A sheets for the whole team.
* Consistent public facing messaging.
* **Written information** for the patient.
* Use **patient testimonials**.
 |
| Failure to respond to complications and deterioration in a timely manner. | Pre-arrange follow up. Post-op **phone call**/home visit within **24 – 48 hrs**. **Effective** communication **transfer** of care to GP on discharge. **Written care plan** supplied to the patient after consultation or discharge from the hospital.Provide a **clear** line of **escalation** for deterioration e.g. a number/platform patient or GP can escalate concerns in a timely manner with closed loop communication back to the person escalating concern.  |
| Lack of focus on patient goals.  | The patient/carer/family are an important member of the multi-disciplinary team. Provide opportunities for **shared decision-making** across the entire perioperative journey. Collect and **use data** that focuses on **patient** **outcome** measures and **experience**.Support **patient engagement** by supplying **multimodal options** that meet the individual patient needs.  |

## Proposed Victorian ERAS Plus model of care

Improving post-operative recovery and reducing LOS will require a system that supports the provision of safe effective person-centred care across the entire perioperative journey, by providing evidence-based care at the right time, in the right place, with the right team.

Consumers commented that much of the language used with ERAS is not consumer friendly. They highlighted the importance of shifting the terminology from “Enhanced”, “Fast track” or “Rapid recovery” to better describe the provision of best care for all patients including those who are high-risk and the importance this language will have on engagement from patients.

The Expert Working Group and Advisory Group recognised that while ERAS guidelines play a role in improving LOS, more could be done in preparation for surgery and to support discharge and post-surgery recovery. The proposed ERAS plus model (Table 7) considers some of the limitations of traditional ERAS such as the exclusion of high-risk patients and the in hospital focused pathways. This model recognises the importance of improving all aspects of the perioperative journey.

ERAS Plus builds upon principles already presented in the Expanding Day Surgery report by SCV. To achieve improved patient outcomes and reduced LOS, the following key principles should be applied throughout the perioperative journey:

* **Strengthen the transition of care and communication between acute and primary health services**

Improved integration with primary care providers offers the potential for minimising errors around transitions of care before and after surgery. Concerns were specifically raised about gaps in communication between acute and primary carers, and the safety risk this poses. This area can be improved by applying the AMA guidelines for transfer of care (AMA 2018). Consumers highlighted the need to consider other communication options to the primary care sector for patients who do not have a regular GP. They also highlighted the importance of supplying patients with written information about their medical care post specialist consultation and discharge, to provide to any clinician they seek treatment from.

* **Patient centred focus with shared decision making at all stages of the surgical pathway**

Providing the opportunity for shared decision making begins with assessment of risk when surgery is first discussed. Early identification of high-risk patients with chronic illness (e.g diabetes, cardiac disease, geriatrics) and/or modifiable risk factors (e.g anaemia, low/high body mass index) maximises opportunities for optimisation, including lifestyle modification (e.g activity/exercise, diet) and psychological wellbeing (Grocott et al 2019, Saripella et al 2021). Early and frequent opportunities for shared decision making ensures the right pathway for each patient. Patient engagement with programs is fundamental to success (Levett et al 2016). Shared decision making and optimisation programs need to be multi-modal, including online, in the community and hospital based to empower patients to take control of their own perioperative journey. Setting expectations from the beginning of the patient journey helps promote engagement and requires all members of the MDT to deliver a consistent message.

* **Providing evidence-based care bundles before, during and after surgery**

A scientific, evidence-based approach to care has been shown to improve patient outcomes and reduce LOS (ERAS Society 2022). This includes provision of care while patients are on the preparation list as well as optimisation pathways prior to surgery. Table 8, 9 and 10 describe key elements required before, during and after surgery, and the enablers and actions that help to deliver safe and effective care. These do not replace the care bundles described in ERAS guidelines but rather can guide the development of bundles of care (ERAS Society 2022).

* **MDT approach to minimise variation in care**

The ERAS Plus model requires a move from the traditional surgeon/anaesthetist coordinating care model, to that of an MDT, including the GP, providing multi-modal perioperative care (Francis et al 2018, Ljungqvist et al 2017, Ljungqvist et al 2021, Smith et al 2020, Taurchini et al 2018).

* **The use of digital health enablers to support care delivery**

There are some excellent digital health enablers (Table 12) examples in Victoria that have the potential to be scaled across the state.

* **Data collection and use for continuous improvement**

An essential element of ERAS pathways is data collection and monitoring using an audit system which is reviewed during regular MDT meetings. Monitoring outcomes and processes helps to identify variations and improve compliance with care bundles (Nelson et al 2021; Ljungqvist et al 2021). This requires adequate administrative resourcing and ongoing regular MDT meetings (Hill 2018; Nelson et al 2021).

**Table 7: Proposed Victorian best care surgical (ERAS Plus) model**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model of care**  | **Setting**  | Community/Primary care  | Hospital/Day Surgery Unit  | Community/Primary care  |
| **Stage** | Pre-assessment | Pre-operative | Intra-operative | Post-operation | Post-discharge |
| **Right time** | Surgery is being considered | Before surgery | Surgery | Recovery | Home |
| **Right place** | GP run clinic**Screening** clinicsSurgical hub**High risk** clinicCommunity based prehabilitation. | GP run clinicSurgical hub (**virtual** clinics to support rural patients) **Community** based prehabilitation. | Surgical operating suite | Discharge ward for same day surgery patients.Hospital specialist ward.Step down unit /rehabilitation for high-risk patients. | **Patient home** with right post-operative supports in place . |
| **Right care** | **Decision tool** to support shared decision making and to identify the **right** surgical **pathway**:* Day surgery
* In-patient
* Prehab program
* Specialist pathway for high-risk patients
* Alternative to surgery pathway

**Active management** and regular review while on the preparation list  | **Bundle of care** elements:* bowel preparation
* carbonated drink
* **fasting** (consider formal fasting **protocols** such as ‘Sip Till Send’)
* post op nausea and vomiting prophylaxis.

Review and re- prioritise preparation list (same day cases should be placed early on the preparation list) **Optimisation** pathways for **high risk** patients  | **Bundle of care** elements:* **minimal invasive** surgery
* minimise drains
* regional analgesia
* **opioid sparing** analgesia
* **balanced fluids**
* temperature control.
 | Bundle of care elements:* early removal of drains
* **early mobilisation**
* nutrition/fluids
* **opioid sparing** pain control
* nausea/vomiting.

**Criteria based discharge*** Post anaesthetic discharge scoring system (PADSS)

Post **discharge** pre prepared **packs*** 5-day supply post-operative medication
* **Instructions** when **medication** is next due
 | Bundle of care elements:* **Patient information** for symptom management.
* **Clear instructions of** who to **contact** in an emergency.
* **Appropriate** care put in place prior to discharge.
* **Targeted telehealth** to high-risk patient groups.

**Discharge plan to GP** * Patient care plan with **clear escalation** pathway
 |
| **Right team** | **General practitioner**Nurse led clinic. Administrative booking and scheduling team.**Specialised multidisciplinary** team including Geriatrician.  | Multidisciplinary team:* **coordinator**/

Liaison Nurse (must have)* **administrative** support
* geriatrician
* allied health
* anaesthetist.
 | Multidisciplinary team* **Surgical team**, including anaesthetist.
* **Flexible teams** that can rotate through roles.
 | Multidisciplinary team:* **recovery** room team
* ward **nurse**
* **allied health** team 7 days a week
* nurse led discharge for same day surgery.
 | Multidisciplinary team: * **general practitioner**
* hospital in the home/**better at home** team
* **community** home services
* community **allied health** services.
 |

### Before Surgery

Before surgery the key focus is ensuring that the pathway of care is aligned - to the patient’s needs and preferences. Optimisation of the patient including active management and review while awaiting surgery have been identified as an essential element to achieving improved outcomes and reduced LOS particularly for high-risk patients. Table 8 describes the key elements, enablers, and action examples to achieve safe and effective person-centred care before surgery.

Table 8: Key elements for Victorian ERAS plus model before surgery

|  |  |  |
| --- | --- | --- |
| **Key element**  | **Enabler** | **Action example** |
| **Optimise transfer of care**  | Integrated GP referral with acute care setting using standardised criteria. | GP eReferrals to specialist clinic (table 12).My Health Record. |
| **Set expectations for the GP.****Commence discharge planning**  | Provide improved access to education.Education provided throughout the journey. Set goals of care. Shared decision making as to whether surgery is the best option and/or alternative pathways. | Virtual surgery school (table 12).Question and answer scripts (EWG 1).Decision tool to support shared decision to identify the right surgical pathway (EWG 1). |
| **Early assessment and treatment/management pathways for high-risk patients**  | Use of validated screening tools. | eHAQ (Peter Mac) (table 12)Risk assessment and prediction Tool (RAPT)Prehabilitation pathways (Clinical Excellence Queensland 2021) |
| **Empower the patient to take control of their surgical journey** | Access to information throughout the perioperative journeyShared decision making. | CRM (Table 12).Shared decision making. Digital engagement tools.Patient testimonials.  |
| **Patient optimisation.** | Provide access to prehab, physical function, comorbidities, nutritional care, self-care.  | MDT for high-risk patients (EWG 1)Geriatrician access/ older person clinics for high-risk patients (EWG2).Prehabilitation programs that are accessible in the community as well as the hospital (EWG1).Preparation lists (Levett & Grimmett 2019).Safe exercise at home (Safe exercise at home 2020). |
| **Active management on the waitlist.**  | Multimodal options for patients to access therapy.  | Regular via telephone/telehealth/face to face/text message. Digital engagement tools.  |

During Surgery

During surgery, the key focus is providing the best evidence-based care that meets individual patient needs, including high-risk patients and those requiring ICU admission. Table 9 describes the key elements, enablers, and action examples to achieving safe effective person-centred care during surgery. It is important to note that these do not replace the care bundles described in the ERAS guidelines, but rather should be used to develop evidence based of bundles of care (ERAS society 2022).

Table 9: Proposed elements for Victorian ERAS plus model during surgery

|  |  |  |
| --- | --- | --- |
| **Key Element**  | **Enabler** | **Action example** |
| **Manage bed flow** | Operative liaison nurse ring fencing beds (NHS 2022) | ERAS Co-ordinator (Pache et al 2021).List order to prioritise same day cases early.Assign set bed numbers for elective surgery that are protected from being used to manage overflow (NHS 2022). |
| **Nutrition/ hydration management 24-48 hrs prior to surgery**Part of evidence-based care bundle (Ljungqvist et al 2017; ERAS society 2022) | Fasting protocols including carbohydrate loading for minimal fasting | Clear fluid up to 2 hours pre-op. ‘Sip Till Send’ initiative (NHS 2021).  |
| **High level care is essential for some cohorts** | ERAS pathway includes high level care  | ICU stay built into the care pathway. ECG for all post-op patients (Foran 2020). ARRC (Peter Mac)  |
| **Reduce variation in care by adopting evidence-based bundles of care** (ERAS society 2022).  | Agreement of evidenced based bundles of care  | GIRFTColorectal bowel prep Anaesthetic/analgesia protocols (Ljungqvist et al 2017; ERAS society 2022) Inpatient care pathways/checklists (EWG 1)  |
| **Goal directed therapy** | Advanced haemodynamic monitoring  | Wearable devices (Knight et al 2021)IV fluid management (Ljungqvist et al 2017)  |
| **Reduce risk and monitor for pulmonary complications** | Patient engagement,assessment of pulmonary status pre-surgery  | Deep breathing and coughing education pre-surgery (Boden et al 2021)Built in prompts for staff in care pathways  |

After Surgery

Improving post-operative outcomes and reducing LOS requires effective discharge planning that begins from referral to ensure safe effective transfers of care post-surgery. Table 10 describes the key elements, enablers, and action examples to achieving safe effective person-centred care after surgery.

Table 10: Key elements for Victorian ERAS Plus model after surgery

|  |  |  |
| --- | --- | --- |
| **Key Element**  | **Enabler** | **Action example** |
| **Discharge planning** | Discharge planning begins from referral.Setting expectations. Agreed discharge criteria.  | Criteria led discharge (EWG 1). Shared decision making.CRM (table 12). Checklist. |
| **Facilitate return of gastrointestinal and bowel function**. Part of evidence-based care bundle (Ljungqvist et al 2017; ERAS society 2022) | Protocol for early nutrition. | Early nutrition within 12 hours of surgery (Ljungqvist et al 2017; ERAS Society 2022).Standard aperient regime and monitoring of bowel movement post op.  |
| **Early mobilisation on the day of surgery** Part of evidence-based care bundle (Ljungqvist et al 2017; ERAS society 2022) | Provide allied health including weekends,optimal ratio of allied health input for orthopaedics  | High frequency physio (Kimmel et al 2016) /BOOST Program (high frequency physio delivered by alternative workforce for hip fracture management).  |
| **Optimise pain management and post-operative nausea and vomiting** Part of evidence-based care bundle (Ljungqvist et al 2017) | Anaesthetist agreement of best care.Psychological preparation before surgery.   | Anaesthetic/analgesia protocols with multimodal analgesia (Ljungqvist et al 2017).Regular assessments of pain and post-operative nausea and vomiting (Ljungqvist et al 2017). |
| **Safe transfer of care to GP**  | Standardised communicationprotocols with a clear pathway for escalation. | Surgical post-operative care plan with escalation criteria e.g. a number/platform patient or GP can escalate concerns in a timely manner with closed loop communication back to the person escalating concern (EWG1). Written care plan supplied to the patient after expert consultation or discharge from hospital (EWG 1). |
| **Return home with the right supports**  | Provide access to support from home, empower the patient to self-escalate once discharged home. | HARP 100 (Follow up phone call by community trained nursing staff to ensure the correct support in place at home).Centralised hotline.High-risk telehealth clinics.Virtual care model (see table 12). Pre-arranged GP and specialist appointments before admission/discharge. (EWG 2).  |

## Other post-operative models of care: alternative recovery spaces

Post-operative complications have consequences to a patient’s recovery and wellbeing, and healthcare resources (Ludbrook & Leaman 2022). Post-operative complications are common and may be under-recognised practically very early after surgery (Ludbrook et al 2020). There is evidence that patients who have post-operative hypotension are associated with an increased risk of acute kidney injury, myocardial infarction, and mortality (Lubrook et al 2020). Studies have shown that closer monitoring may have positive effects of in-hospital complications in moderate to high-risk patients who do not meet the criteria required for ICU admission (Ludbrook et al 2020).

Royal Adelaide Hospital implemented an Advanced Recovery Room (ARRC) (table 11) which has reduced post-operative complications and had a cost benefit of 3-5:1. Similar spaces/concepts have been applied to other patient cohorts across Victoria e.g stroke.

The model has potential for scalability as it can be adapted to meet the needs of the individual health service.

 Table 11: Key elements of the Advanced Recovery Room Care program at the Royal Adelaide Hospital

|  |
| --- |
| **Advanced Recovery Room Care, Royal Adelaide Hospital**  |
| **Ward*** 10 beds (The minimum ward size is 4 beds to be cost effective).
* Open 4 bed bays, ‘nightingale’ set up for increased visualisation of patient.
* Near recovery, has potential to be part of surgical ward, important to also consider proximity to ICU.
* Open from Monday midday to Friday PM, no new patient admitted on a Friday.

**Staffing:** * Nursing 1:2 ratio, 1:1 if on vasopressor, some patients suitable for 1:3, background experience in recovery room spaces including cardiovascular lab and endoscopy suite, emergency, trauma or high dependency unit (HDU) preferred, no formal post graduate study required inhouse upskilling provided as required.
* Registered medical officer (RMO) 24hrs, usually with anaesthetist, intensive care, or surgery interest, also looking at expanding to doctors with a geriatrician interest.
* Support and supervision by consultant anaesthetist.

**Monitoring and intervention:*** Continuous monitoring, manual or invasive, depends on the needs of the patient.
* Medical review hourly for the first three hours then 3hrly until discharge to the ward.
* AM and PM ward rounds to discuss care needs.
* Vasopressors and well-balanced IV fluid management for blood pressure support.

**Identification of suitable patients:** * National Surgical Quality Improvement Program (NSQIP) risk assessment tool.
* Medium to high risk.
* Patients with responsive behaviours often excluded.

**Benefits:*** Increased close monitoring.
* Increased recognition of patient deterioration.
* Increased ability to provide goal directed therapy for haemodynamic status.
* Faster intervention and review
* Reduced ICU/HDU demand
* Reduced complications
* Cost effective.

**Risks:*** Inability to staff
* Used as a substitute for patients that do require ICU.
 |

## **Digital health enablers**

There are multiple existing digital enablers either in use or being developed across the state or interstate that would assist in improving post-operative outcomes, patient experience and reduction in LOS for surgical patients across the state.

**Table 12: Existing digital enablers with potential for scaling**

|  |
| --- |
| **Digital health enablers**  |
| **Customer Relationship Management system*** A collection of apps with the patient at the centre. Assists with patient journey management. Provides two-way communication between clinician and patient.
* Is available in multiple languages which is often a limitation of other patient platforms within Electronic Medical Records (EMR) across Victoria.
* Allows for remote monitoring including automatic and manual activation.
* Has the capability to automate referrals to appropriate clinics depending on answers to questionaries.
* Operates independently of EMR while allowing for communication with EMR.
* Has the potential to interface with GP software.
* Proxy access for next of kin / carer where needed.
* Could provide a platform to collect PROMS and PREMS data.
 |
| **eHAQ Risk screening tool** * Online risk assessment tool using validated assessment tool.
* Delivered in modules.
* Delivered via patient portal within EMR.
* Automates referrals based on answers to risk questionnaires.
* Can help identify areas where the GP can assist with peri-operative workup.

**Limitations*** This platform communicates with one hospital management software system, EPIC, and may not be compatible with other hospital management systems such as Cerner.
* Not currently available in languages other than English but the screening questions are transferable to another system.
 |
| **GP referrals*** The Department of Health Victorian eReferral program was piloted in 2016 at Eastern Health, The Austin, Peninsula Health and Loddon Mallee.
* The pilot was successful but the scalability, transferability, and financial viability of this solution, is yet to be determined.
* Expanding to other health services is subject to being funded.
 |
| **Virtual Model of Care** * Utilises remote patient monitoring (RPM) platform to support the transition of care from hospital to home.
* Observations can be reported by monitoring equipment or via manual submission (text message).
* Multimodal follow up method including telephone call, text message, video call, messaging through the RPM system.
* Defined escalation procedure using risk stratification.
 |
| **Virtual surgery school (Peter Mac)*** Online education pre-surgery.
* Curriculum covers:
	+ key ERAS concepts
	+ respiratory complications and breathing exercises
	+ pain management
	+ pre surgery exercise
	+ nutrition.
 |
| **Virtual exercise models*** Cardiac rehab post-op.
* Safe exercise at Home: (Safe exercise at home 2020)
	+ [online public resource](https://www.safeexerciseathome.org.au/) <https://www.safeexerciseathome.org.au/>
	+ provides information for patients and health professionals about the importance of staying active
	+ free service
	+ self-paced, three levels and provides tips on keeping motivated.
 |
| **Other*** Text messaging prehabilitation (Kulinski & Smith 2020).
* Telehealth prehabilitation (Waterland 2021)
* Digital monitoring:
	+ wearable devices (Allenson et al 2021), currently being used in cardiac patients in some parts of the state
	+ digital engagement tool (Milliren et al 2022).
* Telemedicine in post-operative care can enhance access for patients in rural and remote areas.
 |

## **Conclusion**

Improving post-operative outcomes and reducing the length of stay requires system improvement across the entire peri-operative journey. Consumers and clinicians have reported the need for improved communication between the GP and the acute health service, early assessments for high-risk patients, tailored consumer engagement to set better expectations for surgery including shared decision making opportunities, as well as the need for better data collection and evaluation to assess patient reported outcomes - and quality and safety measures.

ERAS champions have highlighted challenges in maintaining optimal care and the need for workforce support through training, education, and regular team meetings to stay connected and engaged. There are significant opportunities within ERAS and other post-operative care models to make improvements that will positively impact patient outcomes and length of stay.

The ERAS Plus model highlights key elements that can be prioritised to achieve optimal outcomes and reduced LOS. Specific examples of exemplar models supporting these elements have been highlighted, with the potential to be scaled statewide.

Finally, the five recommendations in this report identify the requirements to enable successful implementation of the ERAS Plus model.

## References

**Groups consulted**

SCV Perioperative LHN Advisory Group (Appendix B)

SCV Perioperative LHN Expert Working Group (Appendix C)

CRM: Alan Pritchard, Director, EMR and ICT Services, Austin health

ARRC: Prof Guy Ludbrook, Professor of Anaesthesia, University of Adelaide, Royal Adelaide Hospital

ERAS for colorectal surgery: Ian Faragher, Head Colorectal Surgeon and General Surgery Unit, Western Health

eHAQ: Dr Christelle Botha, Anaesthetic Consultant, Peter MacCallum Cancer Centre

ERAS at Peter Mac: Catherine Sinton, ERAS Clinical Nurse Consultant, Pater Mac, Mardi Durling, Perioperative Project Lead, VMIA

ERAS at Alfred Health: Lara Kimmel, Senior Orthopaedic Physiotherapist, The Alfred Hospital

GP Communication: A/prof Ralph Audehm, General Practitioner

BOOST program: Marie March, Senior Physiotherapist and PhD Candidate, Clinical lecturer, University of Sydney

Harp 100 Royal Melbourne Hospital: Amanda Muller I Care Coordinator Better@Home Project, Kelly Henderson, Anne West, Anna Maywald

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### Appendix:

### Appendix A: ERAS® Society Guidelines

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| Guidelines for Perioperative Care for Liver Surgery: Enhanced Recovery After Surgery (ERAS) Society Recommendations 2022 | Guidelines for Perioperative Care in Esophagectomy: Enhanced Recovery After Surgery (ERASÒ) Society Recommendations |
| Perioperative care in open aortic vascular surgery: A consensus statement by the Enhanced Recovery After Surgery (ERAS) Society and Society for Vascular Surgery | Guidelines for Perioperative Care for Liver Surgery: Enhanced Recovery After Surgery (ERAS) Society Recommendations |
| Guidelines for Perioperative Care in Bariatric Surgery: Enhanced Recovery After Surgery (ERAS) Society Recommendations: A 2021 Update | Optimal Perioperative Care in Major Head and Neck Cancer Surgery With Free Flap Reconstruction |
| Consensus statement for perioperative care in total hip replacement and total knee replacement surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations | Consensus Guidelines for Perioperative Care in Neonatal Intestinal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations |
| Addendum: Consensus statement for perioperative care in total hip replacement and total knee replacement surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations | Enhanced Recovery After Surgery (ERAS) for gastrointestinal surgery, part 1: pathophysiological considerations |
| Consensus statement for perioperative care in lumbar spinal fusion: Enhanced Recovery After Surgery (ERAS®) Society recommendations | Enhanced Recovery After Surgery (ERAS) for gastrointestinal surgery, part 2: consensus statement for anaesthesia practice |
| Guidelines for Perioperative Care for Pancreatoduodenectomy: Enhanced Recovery After Surgery (ERAS) Recommendations 2019 | Consensus guidelines for enhanced recovery after gastrectomy: Enhanced Recovery After Surgery (ERAS®) Society recommendations |
| Guidelines for Perioperative Care in Elective Colorectal Surgery: Enhanced Recovery After Surgery (ERAS®) Society Recommendations: 2018 | Guidelines for Perioperative Care for Emergency Laparotomy Enhanced Recovery After Surgery (ERAS) Society Recommendations: Part 1—Preoperative: Diagnosis, Rapid Assessment and Optimization |
| Guidelines for perioperative care in gynecologic/oncology: Enhanced Recovery After Surgery (ERAS) Society recommendations—2019 update | Guidelines for Perioperative Care in Cytoreductive Surgery (CRS) with or without hyperthermic IntraPEritoneal chemotherapy (HIPEC): Enhanced recovery after surgery (ERAS®) Society Recommendations — Part I: Preoperative and intraoperative management |
| Guidelines for enhanced recovery after lung surgery: recommendations of the Enhanced Recovery After Surgery (ERAS®) Society and the European Society of Thoracic Surgeons (ESTS) | Guidelines for Perioperative Care in Cytoreductive Surgery (CRS) with or without hyperthermic IntraPEritoneal chemotherapy (HIPEC): Enhanced Recovery After Surgery (ERAS®) Society Recommendations — Part II: Postoperative management and special considerations |
| Guidelines for vulvar and vaginal surgery: Enhanced Recovery After Surgery Society recommendations | Guidelines for perioperative care after radical cystectomy for bladder cancer: Enhanced Recovery After Surgery (ERAS®) society recommendations |
| Guidelines for Antenatal and Preoperative care in Cesarean Delivery: Enhanced Recovery After Surgery Society Recommendations (Part 1) | Guidelines for Perioperative Care in Cardiac Surgery: Enhanced Recovery After Surgery Society Recommendations |
| Guidelines for intraoperative care in cesarean delivery: Enhanced Recovery After Surgery Society Recommendations (Part 2) | Consensus Review of Optimal Perioperative Care in Breast Reconstruction: Enhanced Recovery after Surgery (ERAS) Society Recommendations |
| Guidelines for postoperative care in cesarean delivery: Enhanced Recovery After Surgery (ERAS) Society recommendations (part 3) | Guidelines for Perioperative Care in Bariatric Surgery: Enhanced Recovery After Surgery (ERAS) Society Recommendations |

### Appendix B: Perioperative LHN Advisory Group Members

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| Denice Spence | Consumer advocate | VPCC |
| Jen Morris | Consumer advocate | SCV |
| Briana Baass | Chief Allied Health Officer, Victoria | SCV |
| Prof Adam Elshaug | Director, Melbourne School of Population and Global Health; Professor of Health Policy, Melbourne School of Population & Global Health and Melbourne Medical School | Melbourne University |
| Dr John Elcock  | CMO | Goulburn Valley Health |
| Paula Foran | Perioperative Nurse; VPCC  | Mercy Hospital for Women, VPCC |
| Dr Kate Gregorovic | Chronic Disease Physician; Chronic and Prevention Clinical Lead, Centre of Clinical Excellence, SCV | Royal Melbourne Hospital; SCV |
| Dr Andrew Hardidge | Orthopaedic Surgeon | Austin Health |
| Dr Richard Horton | Anaesthetist; Chair of Victorian Anaesthesia Directors' Group | Western Health |
| Dr Vahid Masoumi  |  Primary Care Physician (GP)  | RACGP Victoria  |
| Dr Margot Lodge | Geriatrician, completing PhD in geriatrics periop | Peninsula Health, Alfred Health |
| Sharyn Milnes  | Clinical nurse with expertise in ICU, goals of care, limitations of treatment | Barwon Health |
| Dr Gerard O’Reilly | Emergency Medicine Physician; Emergency Care Clinical Lead, Centre of Clinical Excellence SCV | Alfred Health, SCV |
| Uyen Phan | Associate Director Allied Health – Physiotherapy & Exercise Physiology | Northern Health |
| Prof Ben Thomson | Director of Surgery; Department of Health Chief surgical advisor, Surgery Recovery and Reform Taskforce | Melbourne Health, Department of Health |
| Dr Deb Harley | Primary Care (GP) | Western Victoria PHN |
| Prof Zoe Wainer  | Enterprise Professor (Hon); Deputy Secretary, Public Health                                  | The University of Melbourne; Department of Health  |
| Prof David Watters | SCV Perioperative Director; Alfred Deakin Professor | SCV; University Hospital Geelong, Barwon Health; Deakin University |
| Simone Redpath | General Manager of Critical Services | La Trobe Regional Hospital |
| A/Prof Paul Cashin | Service Director of General Surgery; Senior Upper Gastrointestinal Surgeon; Director of Medical services; A/Prof of surgery in the Dept. Of Surgery, Southern Clinical School, Monash University  | Monash Health, Jessie McPherson Private Hospital, Monash University |

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| Denice Spence | Consumer |  |
| Sally Fraser  | Consumer  |  |
| Lester Sawyer  | Consumer  |  |
| Andrew Hardidge | Orthopaedic Surgeon | Austin Health  |
| Margot Lodge | Geriatrician, completing PhD in geriatrics periop  | Peninsula Health, Alfred Health  |
| Sonia Coleman  | Elective Surgery Reform Program DirectorWest Metro Health Service Partnership | Mercy Hospital, Werribee, Peter MacCallum Cancer Centre, Royal Children’s Hospital, Royal Melbourne Hospital, The Women’s and Western Health |
| Prof Ben Thomson  | Director of Surgery; Department of Health Chief surgical advisor, Surgery Recovery and Reform Taskforce  | Melbourne Health, Department of Health  |
| Dr Kate Gregorovic  | Chronic Disease Physician; Chronic and Prevention Clinical Lead, Centre of Clinical Excellence, SCV  | Royal Melbourne Hospital; SCV  |
| Dr Georgina Christelis | Specialist Ana​esthetistEnhanced Recovery After Surgery (ERAS) Lead & Pre-Anaesthetic Clinic Co-Clinical Lead | Peter MacCallum Caner Centre  |
| Prof David Pilcher  | Intensive Care Medicine | Alfred health  |
| Lisa Todd | Elective surgery reform project lead  | Grampians HSP |
| Andrew Saunders | Executive Director Grampians HSP  | Grampians HSP  |
| Dr Corina Behrenbruch | Colorectal Surgeon  | Royal Melbourne Hospital, Peter Mac, St Vincents  |
| Marisa Delahunt  | Advanced scope musculoskeletal physio/ERP project lead and patient navigator  | Austin Health  |
| Jane Stephens | Better at home  | Goulburn Valley Health  |
| Professor Bernhard Riedel | Director of Anaesthesia, Perioperative and pain Medicine  | Peter MacCallum Cancer Centre  |
| Prof David Watters  | SCV Perioperative Director; Alfred Deakin Professor  | SCV; University Hospital Geelong, Barwon Health; Deakin University |

**Appendix C: Perioperative LHN Expert Working Group Members**

## Glossary

**Encare:** Established in 2009 in co-operation with the ERAS® Society to provide the software tool for the ERAS Interactive Audit System and the ERAS Implementation Program.

**ERAS (Enhanced Recovery After Surgery):** refers to a multimodal perioperative care pathway or protocol designed to achieve early recovery for patients undergoing major surgery.

**ERAS bundles of care:** Three to five evidence-based interventions which, when performed together, have a better outcome than if performed individually.

**ERAS Plus:** A surgical care pathway proposed by SCV Perioperative LHN including all the ERAS principles as well as an emphasis on pre-operative patient optimisation, improved communication with primary care networks, and early risk assessment for all patients.

**ERAS+:** A model implemented at Manchester Royal Infirmary (UK) to include everything that is core to ERAS, but with a broader care plan throughout the entire surgical journey

**ERP (Enhanced Recovery Program):** An independently written surgical care pathway based on the ERAS principles, with emphasis on the additional care before surgery. ERP reflects the whole patient journey, where ERAS can imply care is applied ‘after’ surgery.

**Patient-reported experience measures (PREMs)**

PREMs are questionnaires used to obtain consumers’ views and observations on aspects of health services they have received. This includes their views on the accessibility and physical environment of services (for example, waiting times and the cleanliness of consultation rooms and waiting spaces) and aspects of consumer–clinician interactions (such as whether the clinician explained procedures clearly, or responded to questions in a way the consumer

could understand).

**Patient-reported outcome measures (PROMs)**

PROMs are questionnaires which consumers complete. They ask for the consumers’ assessments of how health services and interventions have, over time, affected their quality of life, daily functioning, symptom severity, and other dimensions of health which only consumers can truly know. PROMs promise to fill a vital gap in knowledge about outcomes, and about whether healthcare interventions make a difference to people’s lives.

**Shared Decision Making:** Shared decision making involves discussion and collaboration between a consumer and their healthcare provider. It is about bringing together the consumer's values, goals and preferences with the best available evidence about benefits, risks and uncertainties of treatment, to reach the most appropriate healthcare decisions for that person

**Victorian Agency for Health Information (VAHI)**

VAHI was created as part of Victorian Government reforms to overhaul quality and safety across Victoria’s public health system. VAHI produce regular reports for health services to monitor safety and performance through data (such as rates of potentially preventable infections and readmissions). Health services can see their performance against relevant targets and compare this to the performance of similar health services. VAHI also collect and report on consumers’ experiences of Victoria’s public health services, and work with other stakeholders to produce reports on selected topics of public interest.

1. **Note**: The Australian Medical Association (AMA) have released an [updated 2023 guidelines](https://www.ama.com.au/articles/general-practicehospitals-transfer-care-arrangements) < https://www.ama.com.au/articles/general-practicehospitals-transfer-care-arrangements> on the appropriate and effective transfer of care between the primary care sector and the hospitals and vice versa following this 2022 report. [↑](#footnote-ref-2)