Start here. Start now.
A large body of clinical evidence* demonstrates

If you reduce variability in volume administration,

you can reduce post-surgical complications, LOS and associated costs1-4

HOW → Maintain your patients in the optimal volume range using:

- Dynamic and flow-based parameters
- A Perioperative Goal-Directed Therapy (PGDT) protocol

*30+ RCTs and 14+ meta-analyses

A large body of clinical evidence* demonstrates

If you maintain your patients in the optimal volume range,
you can reduce post-surgical complications, LOS and associated costs¹-⁴

HOW → Hemodynamically optimize your patients using:
- Dynamic and flow-based parameters
- A Perioperative Goal-Directed Therapy (PGDT) protocol


*30+ RCTs and 14+ meta-analyses
Implementing PGDT alone* in moderate to high-risk surgery has shown significant clinical and economic benefits, including:

- Reduce hospital LOS: 1–2 days\(^4,5\)
- Reduce morbidity: 23–56%\(^1,3\)

*versus full ERP pathway.

References:
Start here.

- **Perioperative Goal-Directed Therapy**
  - can also be part of a larger initiative, such as…
    - Enhanced Recovery After Surgery (ERAS)
    - Perioperative Surgical Home
    - Quality Improvement Initiatives
    - Other Enhanced Recovery Pathways
Enhanced Recovery Partnership (ERP) pathway

**Role of Primary Care**
- Shared decision making clarifying the range of treatment options
- Optimizing preoperative hemoglobin levels
- Managing preexisting comorbidities
- Discharge planning and liaising with social care

**Patient Preparation**
- Optimized health/medical condition
- Informed and shared decision making
- Preoperative health and risk assessment
- Patient information and expectation managed
- Discharge planning (expected date)
- Preoperative therapy instruction

**Admission**
- Shared decision making
- Admission on day of surgery
- Optimizing fluid hydration
- CHO loading
- Reduced starvation
- No/reduced oral bowel preparation (bowel surgery)

**Intraoperative**
- Minimally invasive surgery
- Use of transverse incisions (abdominal)
- No NG tube (bowel surgery)
- Use of regional/LA with sedation
- Epidural management (incl. thoracic)

**Start here.**
- Optimize fluid management technologies to deliver individualized goal directed fluid therapy

**Postoperative**
- Planned mobilization
- Rapid hydration and nourishment
- Appropriate IV therapy
- No wound drains
- No NG (bowel surgery)
- Catheters removed early
- Regular oral analgesia
- Paracetamol and NSAIDS
- Avoidance of systemic opiate-based analgesia where possible or administered topically

**Post Discharge Care**
- Discharge when criteria met
- Therapy support (stoma, physio)
- 24-hour telephone follow up

Hemodynamic optimization using Perioperative Goal-Directed Therapy
Edwards Enhanced Surgical Recovery program

ERAS Society Protocol

Pre-Op
- Preadmission counseling
- Fluid and carbohydrate loading
- No prolonged fasting
- No/selective bowel preparation
- Antibiotic prophylaxis
- Thromboprophylaxis
- No premedication

Intraoperative
- Short-acting anesthetic agents
- Mid-thoracic epidural anesthesia/analgesia
- No drains
- Avoidance of salt and water overload
- Maintenance of normothermia (body warmer/warm intravenous fluids)

Postoperative
- Mid-thoracic epidural anesthesia/analgesia
- No nasogastric tubes
- Prevention of nausea and vomiting
- Avoidance of salt and water overload
- Early removal of catheter
- Early oral nutrition
- Non-opioid oral analgesia/NSAIDs
- Early mobilization
- Stimulation of gut motility
- Audit of compliance and outcomes

Hemodynamic optimization using Perioperative Goal-Directed Therapy
Edwards Enhanced Surgical Recovery program

Start here.

Perioperative Surgical Home (PSH) Elements

### Pre-Op
- Admission through a centralized preoperative area/clinic
- Early preadmission assessments
- Centralized systems to gather health and other information about patients before hospital admission
- Preoperative innovations such as "prehabilitation" programs for targeted patients
- A triage system to identify which patients need to attend a preadmission clinic or program
- Use of a multidisciplinary team based clinical care process within the hospital to coordinated preparation of patients before surgery

### Intraoperative
- Integrated pain management
- Fast-track surgery and discharge home
- Precise fluid management
- OR delay reduction techniques
- Increased OR efficiency through improved OR flow
- Scheduling initiatives to reduce cancellations and increase efficiency

### Postoperative
- Integrated pain management
- Early postoperative mobilization by physical therapy and integrated acute-care and rehabilitation care
- Improved coordination of care from postoperative to discharge home
- Improved discharge protocol
- Increased patient and caretaker education concerning post-discharge care

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ACS NSQIP Enhanced Recovery Variables

Pre-Op
- Preadmission counseling

Intraoperative
- Allow clear liquids up to three hours before induction
- Use of thoracic epidural anesthesia for open surgery
- Use of multi-modal pain management
- Normal temperature on arrival to PACU
- Use of goal-directed therapy

Postoperative
- Use of multi-modal anti-emetic prophylaxis
- Mobilization once POD #0
- Patient was given clear liquids on POD #0
- IV fluids discontinued POD #0
- Mobilization BID POD #1
- Solids given POD #1
- Foley removed on/before PD #1
- Mobilization BID POD #2
- Date of return of bowel function
- Date tolerating diet
- Date pain controlled with PO medication

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Edwards Enhanced Surgical Recovery program

Start here.

Impact of implementing PGDT v. Full ERP Pathways

Comparison of two meta-analyses, each with 38 RCTs, demonstrating the benefit of:
- PGDT alone*
- ERP pathways**

- Decrease in morbidity:
  - PGDT alone*: 23%
  - ERP pathway**: 29%

- Decrease in hospital LOS:
  - PGDT alone*: 0.79 days
  - ERP pathway**: 1.14 days

PGDT is simpler and easier to implement than a full Enhanced Recovery Pathway.

*Pearse et al, JAMA 2014.
Edwards Enhanced Surgical Recovery program can help implement PGDT.