Implementation of an enhanced RECOVERY AFTER SURGERY PROGRAMME

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INTRODUCTION

More than twenty years after the initial publications from pioneer teams, and a few years after the publication of several randomised studies, cohort studies and meta-analyses that proved the efficacy of enhanced recovery after surgery programmes (ERAS) in terms of **reduction in morbidity and shorter hospital stay,** the time is ripe to implement enhanced recovery after surgery programmes in various specialities.
This document was drawn up by the Francophone Group for Enhanced Recovery After Surgery (GRACE) to help different healthcare establishments and teams to implement these ERAS programmes.

GENERALITIES OF ENHANCED RECOVERY AFTER SURGERY (ERAS)

A better understanding of the pathophysiologic phenomena that surround surgery (surgical insult or stress), the development of mini-invasive surgical techniques, improvement of perioperative analgesia, and the publication of several scientific studies on perioperative care with a high level of evidence have led to the advent of enhanced recovery after surgery. In the mid-1990s, **Henrik Kehlet** from Copenhagen was the first to talk about "fast-track surgery" in colorectal surgery. Larger studies then helped develop the paradigm now known as ERAS (enhanced recovery after surgery), because the word "fast-track" refers only to the secondary benefit of better postoperative convalescence and reduced overall morbidity.

Numerous studies have shown that ERAS was able to reduce postoperative complications by nearly 50%. This reduction of morbidity concerns mainly "medical" complications
But, aside from this objective and easily measurable effect, the quality of life of patients is also improved as they have less postoperative pain, ileus and fatigue. The result is a significantly shorter duration of hospital stay and convalescence without any significant increase in the rehospitalisation rate.

ERAS was initially evaluated within the framework of colorectal surgery. But indications have rapidly extended to other specialties in the gastrointestinal (bariatric, pancreatic, gastric, oesophageal), orthopaedic, thoracic, urologic, gynaecological and cardiovascular surgery.

ERAS PROGRAMMES

1. General principles

The programmes typically include **3 phases**: **preoperative, intraoperative and postoperative.** The overall philosophy behind all ERAS programmes is to reduce surgical insult (or stress) by a **variety of medical and surgical means** thereby allowing the patient to recuperate quickly under the best conditions. In addition to usual measures (antibiotic and thromboembolic prophylaxis according to clinical practice recommendations, screening and treatment of anaemia), the main elements of the programme are summarised in the following table:

Preoperatively

- Improve nutritional and physical status by suitable management
- Limit the fasting period to a strict minimum
- Reduce the incidence of insulin resistance by glucidic loading
- Explain to the patient the sequence of events concerning the operation and his or her role during the procedure
- Avoid routine prescriptions such as pre-medication or colonic prep

Intraoperatively

- Prefer minimal-access surgery
- Prefer anaesthetic protocols with few opioids and multimodal management of pain
- Prevent intraoperative hypothermia
- Ensure appropriate and monitored intraoperative vascular volume
- Perform meticulous haemostasis

Postoperatively

- Ensure multimodal analgesia with few opioids
- Avoid routine use of naso-gastric tubes, drainages and bladder catheter
- Control postoperative bleeding
- Feed patients early
- Encourage early mobilisation

2. Programmes by specialty

Several specialities are involved. The protocols for which the elements (perioperative care measures) have the highest levels of evidence are those for colorectal surgery. A generic summary of the protocols validated by the GRACE Scientific Committee and Board of Directors are available free of charge on the website **www.grace-asso.fr.** More detailed protocols compliant with international recommendations for gastrointestinal (colorectal, hepatitic, bariatric, pancreatic and oesophageal, and gastric), orthopaedic and thoracic surgery are also available in the "members" section. Protocols for gynaecological surgery (caesarean section and hysterectomy) and urological surgery (cystectomy, nephrectomy, prostatectomy) are being prepared.

However, more than a written protocol is needed to correctly implement ERAS in daily practice. The involvement of various different health care stakeholders and a structured organisation are essential elements for success.

STAKEHOLDERS

1. Patients

The main particularity (as for ambulatory surgery) of ERAS is to consider the patient as an **active, central player in their care process**. The role of the patient is essential for the success of this management. Patient participation should begin as early as the initial medical consultation before the operation and should continue afterwards, even after the patient leaves hospital.

At the initial consultation the patient should be **informed** of the details of the programme, of his or her role in the management plan, and how the discharge from hospital will take place. Both oral and written information is provided (clear and understandable document), and/or possible electronic (slide show or video). This information is delivered the care team (surgeon, anaesthetist, nurse, and possibly physiotherapist) in a coordinated manner at the consultation and repeated as necessary when the patient comes for treatment (the day before the operation or the day of the operation if admission is scheduled for then). This therapeutic education is essential and each team must define the best way to deliver it according to the available resources. In order to involve the patient in their own care plan, the care team should provide the patient with a notebook that should be filled in every day.

As part of ERAS, **early mobilisation**, in which the patient must take an active part, is essential. The patient transitions from a "passive horizontal position" to an "active vertical position". Indeed, active and early mobilisation is not only a well-recognised major factor of success in any ERAS programme but also significantly reduces the incidence of respiratory and thromboembolic complication in particular. However, early mobilisation also requires the application of other recovery measures. A patient who has been well informed before surgery of the concepts and benefits of ERAS, who does not have any pain, nausea, intravenous lines or gastrointestinal tubes, or serious complications and is eating... will more easily accept mobilisation from bedrest.

2. Caregivers

ERAS is a **multimodal**, and therefore multidisciplinary, approach. A glance at the care protocols is enough to reveal the importance of collaboration between the various stakeholders: anaesthetist, surgeon, nutritionist, nurse, auxiliary nurse, physiotherapist, administrative personnel. In all cases, the care team is composed of a "trinomial leader" (surgeon, anaesthetist, nurse) and in some cases, other specialists or corporate associations whose participation is essential: nutritionist, physiotherapist, and auxiliary nurse. This allows all stakeholders to converge on the same common target. The whole team (medical and paramedical) should take ownership of the ERAS programme which will then be considered the healthcare standardand involve all institutional stakeholders.

3. The administration

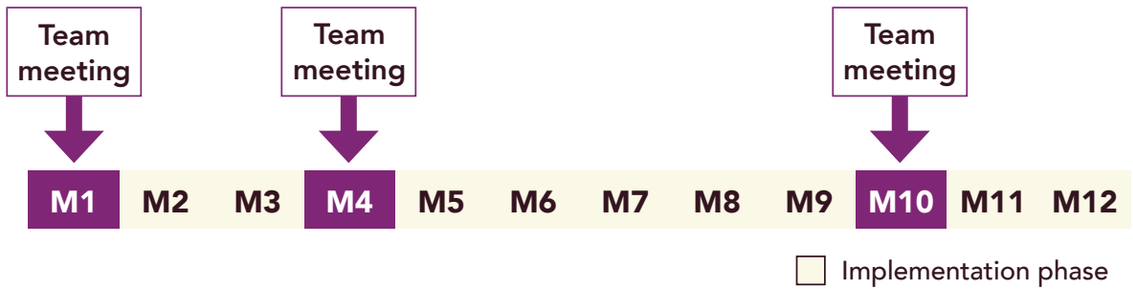
The role of the administration is **essential** for the success of the ERAS programme. This involves training the medical and paramedical personnel within the framework of a Continuous Professional Education programme. The administration should organise the human and material resources necessary to implement the ERAS programme. The cost of this investment will be absorbed later by the reduction of morbidity and duration of hospital stay (such a return on investment has been shown in all the medico-economic studies published to date). The role of the administration is also to validate a team-based functional charter, participate in the free-flow application of the programme, answer the functional requirements of the team (particularly at the start of the programme), by designating and/or hiring a dedicated nurse or auxiliaries.

CALENDAR OF IMPLEMENTATION

An overview of the situation should be made before the implementation phase is advised to determine where improvement in patient management can be made, document the improvements and progress associated with each phase of implementation and thus reinforce acceptance of and compliance with the ERAS programme. The calendar should be established before the implementation phase, and should be the result of joint and shared reflection among all stakeholders (physicians, nurses, administration). Adherence to a calendar is essential as this guarantees mid- and long-term continuation of implementation.

1. The first year

The calendar is summarised below (M = month):



A first multidisciplinary kick-off meeting to present the project (including a therapeutic education document) to the entire team including the administrative executives. This is followed by an initial practical implementation phase with details of the application of the programme elements in everyday practice.

M1

A second evaluation meeting appraises the implementation of the programme and, above all, any constraints that need to be discussed and overcome. Next, there is a 6-month implementation phase evaluated by local audit within the framework of the **FREE «GRACE-AUDIT»** database.

M4

A third meeting is organised before the end of the first year to optimise the programme and apply the elements that seem difficult to implement.

M10

2. Follow-up

After the first year, the entire care team should meet at least **once a year** with a presentation of the results of the audit, including:

- the number of patients included in the data base (audit);
- the proportion of patients included compared to the total number of patients treated over the same year;
- the degree of implementation for each element of the protocol;
- corrective measures to increase the degree of implementation where necessary.

TEAM SPIRIT

Team spirit is essential for the success of the ERP. The involvement of various players at different moments of perioperative management calls for the development of a real team spirit. For an ERAS programme to be successful, each member of the team should be aware of as many aspects of management as possible. This means that team spirit should be a **daily preoccupation**. This team spirit is undeniably associated with improved quality of care and management of associated risks.

Similarly, and perhaps even more so than for ambulatory surgery (because major surgery is involved), team spirit, daily communication and collaboration are necessary for the success of any ERAS programme.

THE CONSTRAINTS AND HOW TO LIFT THEM

Multiple constraints may be encountered, especially **at the outset**. It is important to remember not to try to have everything in place at the start but rather to implement the programme progressively, intervention by intervention (or groups of interventions) according to the motivation of the different stakeholders.

There are three types of constraints, interlinked to several factors:

Factors related to the patient (or close relations):

- resistance to change (part of human nature);
- fears concerning innovation;
- belief that fasting the night before surgery is important;
- fear of feeding before the return of intestinal activity;
- fear of ambulation too early;
- fear of leaving the hospital too early;
- fear of economic constraint on care (bed needed for another patient, etc.).

Factors related to healthcare stakeholders:

- fear of economic constraint on care;
- resistance to change and to discard ideas and procedures that are anchored in daily practice (classical constraint for innovation);
- incomplete knowledge of latest scientific progress;
- absence of motivation;
- rapid turnover of caregivers (not familiar with ERAS);
- conviction that ERAS should apply only to selected patients;
- belief that ERAS does not apply to the elderly

Factors related to resources:

- ERAS documentation not readily available and easily accessible to stakeholders;
- lack of time to train and educate the teams;
- time necessary for the therapeutic education of the patient;
- time necessary to fill in the audit database;
- organisational factors relating to the management of patients after their early discharge

To resolve these constraints, one must:

- appoint **strong leaders** (trinomial care providers) who are good communicators and capable of convincing the rest of the team, particularly those who are most reluctant;
- develop a team spirit, and have written and adopted a protocol for each disease;
- not neglect the information and training of all the members of the care provider team;
- every day, try to convince by example and show that once the programme is applied to one's own patients, there are fewer complications and increased patient satisfaction;
- not hesitate to schedule team meetings to show the **audit results**, and to facilitate access to specific documentation available on the website **www.grace-asso.fr**.

AUDIT

Daily evaluation of professional practices helps improve the quality of care. It is important to choose end-points to continuously evaluate the audit.

1. Which end-points?

This may involve principal criteria:

- duration of postoperative hospital stay;
- the difference between real and theoretical duration (according to pre-established discharge criteria, cf. GRACE protocols);
- overall morbidity;
- degree of implementation (number of elements applied in practice).

Or secondary criteria:

- rate of patients participating in an ERP compared to all patients admitted for the same surgical indication;
- patient quality of life;
- patient satisfaction;
- return to activity at least equivalent to that before the operation;
- return to work, if employed.

2. Auto – and hetero – evaluation

Auto-evaluation is necessary and useful especially during the initial phase of implementation and until the moment when ERAS becomes the daily standard of care. Any team can develop its own evaluation software but GRACE provides this free of charge. Thanks to the functionalities of the **free** GRACE-AUDIT database, after connection, the user can simply "click" on the "AUDIT" tab which leads to a diagram showing the **rate of implementation** of each element of the ERAS programme and for each relevant specialty. The user can quickly see which elements need to be improved. The software also provides the user with a **comparative curve** plotting the number of implemented elements against the postoperative duration of hospital stay, the average duration of stay, and the average difference between the real and theoretical durations (thereby targeting any organisational problems that might account for this difference). The software is also designed to provide the ratio between the number of elements implemented and morbidity. It also allows each participant to **compare** his or her results with the overall results in the database, by clicking "see all centres". This auto-evaluation can thus be performed with a simple click.

THE ROLE OF GRACE

The GRACE Group was created for the large-scale implementation of ERAS in **French-speaking** countries (Belgium, France, Switzerland). Several tools are therefore available to help establishments with the implementation of the ERP. Detailed protocols are available online in the "members" area. Membership is open to healthcare professionals and costs €50 per year.
The GRACE Group has also established **a «GRACE Centre» label** that can award to any centre wanting to develop an ERAS programme. With this label, the member has access to the precise specifications and the label can be renewed every year, according to the annual report of the GRACE Centre. The Group has also developed a **KIT-GRACE** implementation tool.

1. Website

The website **www.grace-asso.fr** was designed to achieve several targets with one part that is free for anyone to access and one part only for subscribers. The free access part is intended for both the public and patients. The professional part includes a bibliographic section (bibliography and scientific watch), a "GRACE Centres" section where all the label-approved centres are listed with their area of expertise, and an "Audit software" section that is FREE OF CHARGE but requires registration and supported by the French National Assurance Company (Caisse Nationale d'Assurance Maladie). The GRACE-AUDIT database contains different modules on colorectal, bariatric, orthopaedic (hip and knee), liver and pancreatic surgery.

2. KIT-GRACE

The KIT-GRACE is provided free of charge to members and GRACE Centres and contains:

- a practical booklet;
- Powerpoint slide shows on the protocols and means of implementation (that users can use as they stand or improve);
- this document;
- the content of the GRACE website (scientific watch freely accessible and sources in the «members' area»).

3. GRACE Centres

The Implementation Committee certifies these specialised Centres. The Centres must meet the following **specifications**: dedicated team, expertise in rehabilitation, yearly participation in a scientific manifestation on this theme, participation in the GRACE-AUDIT database.

4. Organisation of local meetings

According to the specifications, each GRACE Centre is required to hold at least one **local meeting** for the purpose of **diffusing the ERAS concept among the local care Centres**. For that, each Centre has the list of GRACE industrial partners who have signed a partnership stipulating their participation in local meetings (list available on the website **www.grace-asso.fr**). Members of the Board of Directors can also travel to attend these meetings and assist the GRACE Centres diffuse the implementation.