SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliero - Universitaria di Ferrara
Dipartimento Interaziendale di Chirurgia
Direttore: Prof. Carlo FEO

Università degli Studi di Ferrara

Implementing Enhanced Recovery program across Europe. The EUPEMEN project

Carlo FEO | Ferrara, Italy

October 17, 2023

AEC ASOCIACIÓN ESPAÑOLA DE CIRUJANOS
GERM GRUPO ESPAÑOL DE REHABILITACIÓN MULTIMODAL
Co-funded by the Erasmus+ Programme of the European Union
EUPEMEN European Perioperative Medical Networking

Outline

- What is the EUPENEM Project?
- Aims and objectives
- Results achieved and impact
- Future perspectives

EUPEMEN Project

- **EU**ropean **PE**rioperative **ME**dical **N**etworking
- **Erasmus+ programme**: EU programme for education, training, youth and sport
- 2-year project (2021-2022)
- The **goal** of the EUPEMEN project was to bring together the expertise and experience of national clinical champions who had previously helped to deliver major change programs in their countries and to use them to **spread the ERAS protocols in Europe**

https://erasmus-plus.ec.europa.eu/

EUPENEM Objectives

- To prepare an **educational project**
- To **implement** in a significant number of European hospitals the evidence-based **ERAS protocols** in a homogeneous and standardized way
- To **collect data** about hospital stay, morbidity and mortality of European surgical patients to improve the appraisal of the surgical risk of an individual patient, hence to prevent perioperative complications

EUPENEM Partners (I)

Five partners from university hospitals in **four** different EU **countries**

EUPENEM Partners (II)

AUSLFE
Azienda Unità Sanitaria Locale
Ferrara, **Italy**

UMH
Universidad Miguel Hernandez
De Elche | Elche, **Spain**

CUNI
Univerzita Karlova
Praga, **Czech Republic**

IIS ARAGON
Fundación Instituto de
Investigación Sanitaria
Saragoza, Aragón, **Spain**

GPAP
General Hospital G. Papanikolaou
Thessaloniki, **Greece**

EUPENEM Partners (III)

Partners	Role	Institution	Country
• José Manuel RAMIREZ • Sergio CERVERO BENEDÍ • Marta TERESA FERNANDEZ	Coordianator	IIS ARAGON	Saragoza, Aragón, Spain
• Carlo FEO • Antonio PESCE • Nicolò FABBRI	Partner 1	AUSLFE	Ferrara, Italy
• Petr KOCIÁN • Adam Whitley	Partner 2	CUNI	Praga, Czech Rep
• Luiz SANCHEZ • Antonio ARROYO	Partner 3	UMH	Elche, Spain
• Orestis IONNIDIS	Partner 4	GPAP	Thessaloniki, Greece

Target groups

- **Direct target groups**
  - **Health professionals** who are directly in charge of surgical patients' care (i.e., surgeons, anaesthetists and nurses), but also all professionals who are related to the **interdisciplinary treatment** of these patients (e.g., dieticians, stoma-therapists, physiotherapists, rehabilitators)
  - As effectiveness (hospital stay reduction and optimization of the use of other resources) is one of the advantages of these programs, **health centre administrators**, **clinical managers** and **quality coordinators** may also benefit from the project
- **Indirect target groups**
  - Due to the characteristics of ERAS, **primary care physicians** and **patients** play a very active role, too
- **Stakeholders**
  - Local, regional and national authorities, disease associations

Activities & Methodology

- Preparation of an **ERAS manual** with the **protocols** of seven different modules (ie, bariatric surgery, oesophageal surgery, gastric surgery, colon surgery, intestinal obstruction, appendectomy, and hepato-biliary surgery) to be followed by all the target groups
- "**Learning teaching training**" to teach the future teachers the different protocols, to be able to teach them in the different hospitals
- Development of the EUPEMEN **online platform** to host an e-learning training course and a collaborative area to improve and to participate in the ERAS protocols
- Dissemination of the results in five **multiplier events**
- Four **transnational meetings**

Virtual meetings

Ferrara, Italy
September 24, 2021

Thessaloniki, Greece
May 5-6, 2022

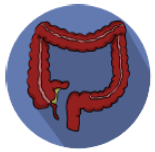
ERAS Manual

- Based on **Clinical Pathway RICA**
- English polishing by mother tongue
- Only in English

EUPENEM Protocols

- Bariatric surgery
- Oesophageal surgery
- Gastric surgery
- Colon surgery
- Intestinal obstruction
- Appendectomy
- Hepato-biliary surgery

- English, Spanish, Italian, Czech and Greek versions



EUPEMEN PROTOCOL

COLON RESECTION

1	Before Admission Anaesthetist, Surgeon, Nurse, Nutritionist, Stomal Therapist
1.1	**Preoperative counselling** The patient should be fully informed on procedure and perioperative course both verbally and in writing. Signed informed consent should be obtained.
1.2	**Comprehensive medical assessment** This should include medical history, physical examination, chest X-ray, blood tests (coagulation parameters, biochemical profile including C-reactive protein and full blood count) and electrocardiogram.
1.3	**Frailty Assessment** For patients over 65 years of age a frailty assessment should be performed.
1.4	**ASA level assessment**
1.5	**Apfel score** The risk for postoperative nausea and vomiting should be assessment with the Apfel score.
1.6	**Compensation of chronic diseases** All chronic diseases should be optimised before surgery. All cases of recent onset or active cardiovascular diseases should be evaluated by a cardiologist.
1.7	**Evaluation of Diabetes Mellitus** Blood glucose and HbA1c levels should be investigated. All cases of poorly controlled or previously undiagnosed diabetes should be referred to primary care or endocrinology before surgery.
1.8	**Evaluation and management of anaemia and iron deficiency** Iron deficiency anaemia should be ideally managed by parenteral iron administration.
1.9	**Nutritional screening** Nutritional screening should be done by using the *Malnutrition University Screening Tool (MUST)*. Patients at risk of malnutrition should receive oral nutritional supplements preferably immunonutrition for a period of 7 days before and 5 days after surgery.
1.10	**Abandon tobacco and reduce alcohol consumption at least one month prior to surgery**
1.11	**Multimodal prehabilitation including aerobic and resistance exercises**
1.12	**Low-residue diet at least 5 days before surgery**

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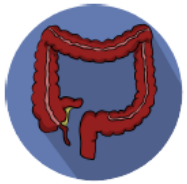

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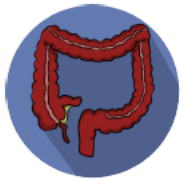

EUPEMEN PROTOCOL

COLON RESECTION

1.13	**No mechanical bowel preparation except perioperative colonoscopy**
1.14	**Cleaning Enema** Two cleaning enemas the afternoon before surgery (left-sided procedures)
2	**Perioperative**
2.1	**Immediate Preoperative** (Schedule admission the same day of surgery if possible) Anaesthetist, Surgeon, Nurse, Nutritionist, Stomal Therapist
2.1.1	**Preoperative hygiene** The patient is instructed to take a full shower or bath the evening or morning before the surgery.
2.1.2	**Compression stockings or intermittent pneumatic compression** Compression stockings or intermittent pneumatic compression should be worn from admission to hospital.
2.1.3	**Low molecular weight heparin** Low Molecular Weight Heparin should be administered 2-12 hours before surgery (depending on whether neuraxial anaesthesia is to be performed or not).
2.1.4	**Carbohydrate drink** A drink high in carbohydrates (12.5% maltodextrins) 800 ml should be given in the evening before surgery and 400 ml 2 hours prior to anaesthesia. For diabetic patients administer this together with antidiabetic medication.
2.1.5	**Preoperative fasting** Fasting of 6 hours for solids and 2 hours for clear liquids.
2.1.6	**Shaving with electric razor** The site where the incision will be performed should be shaved with an electric razor, if necessary.
2.1.7	**Stoma marking (if expected)**
2.1.8	**Prophylactic antibiotics** Prophylactic administration of antibiotic 30-60 minutes before incision. In prolonged procedures repeat doses according to the half-life of the drugs.
2.2	**Intraoperative** Anaesthetist, Surgeon, Nurse
2.2.1	**WHO Surgical Safety Checklist**

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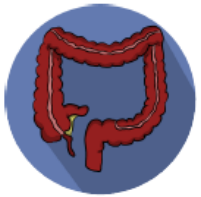
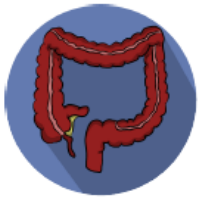
GERM

GRUPO ESPAÑOL DE REHABILITACIÓN MULTIMODAL



EUPEMEN PROTOCOL

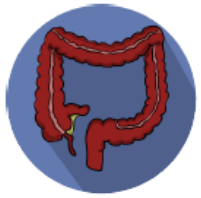
COLON RESECTION



EUPEMEN PROTOCOL

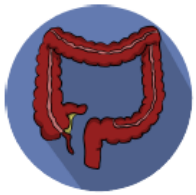
COLON RESECTION

	infiltration trocars with local anaesthetic or other alternatives to epidural analgesia.
2.2.14	**Intravenous analgesic adjuvants** Recommended adjuvant analgesics are non-steroidal anti-inflammatory drugs, lidocaine, ketamine, magnesium sulphate and dexmedetomidine.
2.2.15	**Perioperative glycaemic control** For diabetic patients use local hospital protocol for diabetics undergoing surgery. In patients at risk of developing insulin resistance avoid blood glucose levels higher than 180 mg/dL.
2.2.16	**Skin disinfection** Skin should be disinfected centrally to peripherally with chlorhexidine in a 2% alcohol solution.
2.2.17	**Avoid drains** Abdominal drains should be avoided as much as possible.
2.3	**Immediate Postoperative** **(Resuscitation Unit / Intermediate Care Unit)** **Anaesthetist, Nurse**
2.3.1	**Maintenance of normothermia** Temperature should be regularly measured and normothermia should be maintained.
2.3.2	**Opioid sparing analgesia** Active or preventive multimodal analgesia should be used. Restrict the use of opioids. Aim for a VAS score of less than 3.
2.3.3	**Restrictive fluid therapy**
2.3.4	**Early feeding** Beginning of oral fluid intake from 6 hours after the surgery.
2.3.5	**Respiratory physiotherapy**
2.3.6	**Early mobilisation** Patients should sit up by 3 hours after surgery and should begin ambulation 8 hours after surgery with respect to night time hours for sleeping.
2.3.7	**Thromboembolic prophylaxis** Low Molecular Weight Heparin should be given 12 hours after surgery.
2.3.8	**Prophylaxis of postoperative nausea and vomiting** Give antiemetic therapy according to the Apfel score.
2.3.9	**Maintenance of FiO2 0.5% for 2 hours after surgery**
2.3.10	**Perioperative glycaemic control** For diabetic patients use local hospital protocol for diabetics undergoing surgery. In patients at risk of developing insulin resistance avoid blood glucose levels higher than 180 mg/dL.
3	**Postoperative Day 1** **(Ward)** **Surgeon, Nurse, Stomal Therapist**
3.1	**Early feeding** A liquid or semi-solid diet should be started depending on tolerance.
3.2	**Avoid intravenous infusions** If patients tolerated peroral fluids withdraw intravenous fluid therapy.
3.3	**Early mobilization** Patients should be encouraged to move from bed to bed-side chair.
3.4	**Opioid sparing analgesia** Ensure good pain control. Aim for a VAS score of less than 3.
3.5	**Remove urinary catheter** If a urinary catheter has been inserted assess whether it can be removed.
3.6	**Removal of drains** Assess removal of drains, if present.
3.7	**Respiratory physiotherapy**
3.8	**Thromboembolic prophylaxis** Thromboembolic prophylaxis consisting of compression stockings or intermittent compression and low-molecular weight heparin should be give according to the local hospital policy.
3.9	**Prophylaxis of postoperative nausea and vomiting** Give antiemetic therapy according to the Apfel score.
3.10	**Anti-ulcer prophylaxis**
3.11	**Perioperative glycaemic control** For diabetic patients use local hospital protocol for diabetics undergoing surgery. In patients at risk of developing insulin resistance avoid blood glucose levels higher than 180 mg/dL.
3.12	**Stoma care education (if present)**



EUPEMEN PROTOCOL

COLON RESECTION



EUPEMEN PROTOCOL

COLON RESECTION

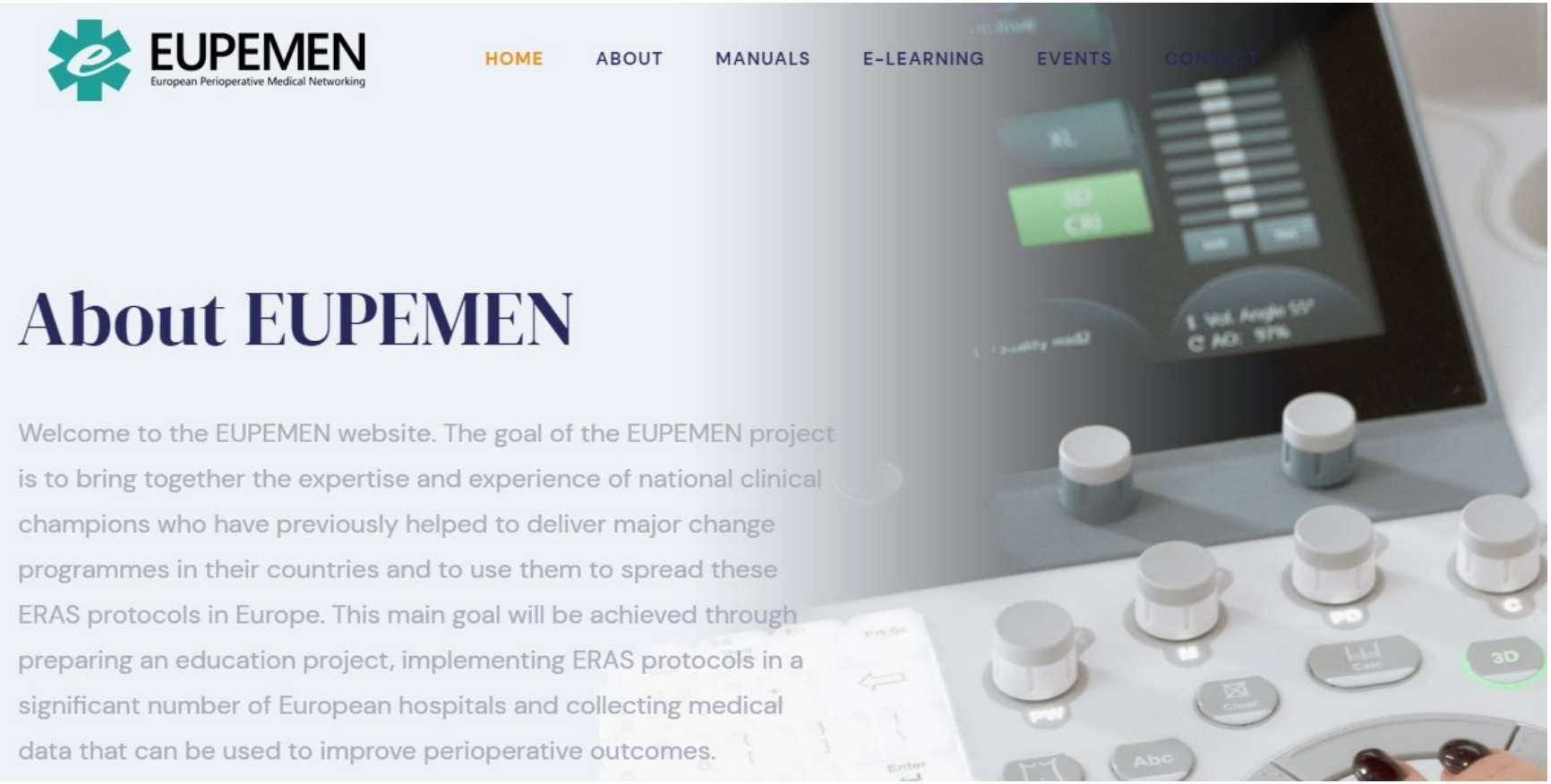
3.13	**Laboratory tests** Blood tests including C-reactive protein should be performed.
4	**Postoperative Day 2** **Surgeon, Nurse, Stomal Therapist**
4.1	**Early feeding** A semi-solid or solid diet should be given.
4.2	**Avoid intravenous infusions** Withdrawal of intravenous fluids if it has not been done previously.
4.3	**Early mobilisation** Patients should be able to walk short distances.
4.4	**Opioid sparing analgesia** Ensure good pain control. Aim for a VAS score of less than 3. Assess oral analgesia.
4.5	**Remove urinary catheter (if it has not been done previously)**
4.6	**Respiratory physiotherapy**
4.7	**Thromboembolic prophylaxis**
4.8	**Prophylaxis of postoperative nausea and vomiting**
4.9	**Anti-ulcer prophylaxis**
4.10	**Perioperative glycaemic control**
4.11	**Continue with previous stoma care education (if present)**
4.12	**Laboratory tests** Blood tests including C-reactive protein should be performed.
5	**Postoperative Day 3** **Surgeon, Nurse**
5.1	**Early feeding** A solid diet should be given.
5.2	**Early mobilisation** Patients should be fully ambulated.
5.3	**Oral analgesia**
5.4	**Withdrawal of the venous line**
5.5	**Respiratory physiotherapy**
5.6	**Thromboembolic prophylaxis**
5.7	**Perioperative glycaemic control**
5.8	**Laboratory tests** Blood tests including C-reactive protein should be performed.
5.9	**Assess discharge criteria** Consider discharge if there are no surgical complications that cannot be managed in an outpatient setting, no fever, pain controlled with oral analgesia, full ambulation, tolerance of oral intake of food and acceptance by the patient.
6	**At discharge** **Surgeon, Nurse, Primary Care**
6.1	**Discharge documentation** On discharge patients should be given personalized, understandable and complete information on hospital stay and recommendations for care at home.
6.2	**Thromboembolic prophylaxis** Thromboembolic prophylaxis should continue until 28 days after surgery.
6.3	**Follow-up** Patients should be followed-up in the first week after discharge in an outpatient setting or by telephone. Further check-up visits should be planned for 1, 3 and 6 moths after discharge. A visit to the primary care physician should be organised and if needed home support should be coordinated.

Online Learning Activities

Title	Author	City (Country)
The RICA Pathway	J. Ramírez	Zaragoza (E)
Preparatory Preparation	P. Kocian	Prague (CR)
Rica Pathway key points: Surgery, drains and nasogastric tube	J.L. Sánchez	Elche (E)
RICA Pathway key points: Anaesthesia	A. Pascual	Zaragoza (E)
RICA Pathway key points: Nursery	A. Pascual	Zaragoza (E)
RICA Pathway key points: Nutrition	O. Ioannidis	Thessaloniki (G)
Scientific evidence and recommendation guidelines: Implementation problems, difficulty of adherence and sustainability	C. Feo	Ferrara (I)

All videolectures in English, with the slides available also in other languages

Website EUPEMEN Platform



https://eupemen.eu

Manuals in various languages

ERAS protocol for Bariatric Surgery (pdf)

ERAS protocol for Colon Surgery (pdf)

Multiplier events (I)

https://eupemen.eu

Multiplier events

ENHANCED PERIOPERATIVE CARE IN COLORECTAL SURGERY
EUPEMEN LOCAL FORUM

PETR KOCIÁN
ADAM WHITLEY
TOMÁŠ KOPRIVA
KATEŘÍNA DRLÍKOVÁ

PART 1: 09.00-12.00
- Overcoming barriers in the implementation of early recovery programs
- The role of the anesthesiologist in enhancing recovery
PART 2: 13.00-15.00
- Colorectal surgery and enhanced recovery: principles and implementation
- The current and future role of nurses within enhanced recovery program
PART 3: 15:30-19:30
- Colorectal Cancer and Early Recovery after Surgery
- Implementation of robotic surgery into an enhanced recovery program

CAMPUS ŽÍŽALA
OCTOBER 27, 2022
09:00 – 19:30

EUPEMEN

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Results & Impact

- Development of **ERAS Protocols Training Program** for health professionals
- **Training to multidisciplinary professionals** (200): All the direct target groups involved in peri-operative procedure
- **Implementation of the Enhanced Recovery Programs** in, at least, five hospitals in Europe (Spain, Italy, Czech Republic and Greece)
- Creation of a **professional network** with the capacity to train stakeholders in hospitals, and to audit the trainers to guarantee the correct implementation of the program

Long-term effect

- Decrease the secondary effects after surgery for patients, consequently with a faster patient recovery
- Reduce morbidity and mortality caused after surgeries
- Reduce the length of stay (LoS) in the hospital and, consequently, save money for the public health system and to have more free beds for other new requested patients


Journal of
Clinical Medicine

MDPI

Article

The EUPEMEN (EUropean PErioperative MEdical Networking) Protocol for Bowel Obstruction: Recommendations for Perioperative Care

Orestis Ioannidis [1,*], Jose M. Ramirez [2,3], Javier Martínez Ubieto [2,4], Carlo V. Feo [5], Antonio Arroyo [6], Petr Kocián [7], Luis Sánchez-Guillén [6], Ana Pascual Bellosta [2,4], Adam Whitley [8], Alejandro Bona Enguita [9], Marta Teresa [2] and Elissavet Anestiadou [1]

- Multicentre international study
- Incidence and risk factors for prolonged postoperative ileus in elective colorectal surgery
- Database
- Ethics approval obtained in Czech Republic, submitted and under revision in other centres

Summary

- EUPENEM is a **multicentre international European project** funded by the EU (Erasmus+)
- Educational project to **favour implementation of ERAS protocols in Europe** and **collect data** on hospital stay and perioperative surgical care across Europe
- This was mainly achieved through an **online platform**, free of charge, to offer evidence based standardized perioperative care protocols, learning activities, and assistance to health professionals interested to enhance the recovery of their surgical patients
- Finally, we established an **international collaborative research group** to increase the power of the studies on perioperative care for the surgical patient

Thank you for your attention