

# Perioperative Pain Medicine

## Recommendations of the Swiss Society for Anaesthesiology and Perioperative Medicine, SSAPM

Contributors (in alphabetical order):

Andrea Berendes, St. Gallen; Mirko Binda, Lugano; Severin Burki, Stans; Sibylle Chettata, Basel, Renate Gerber-Herren, Winterthur; Michael Harnik, Bern; Katrin Meyer, Luzern; Benno Rehberg-Klug, Genève; Wilhelm Ruppen, Basel; Jürg Schliessbach, Zürich; Tobias Schneider, Basel; Susanne Schwarz, St. Gallen; Ulrike Stamer, Bern; Konrad Streitberger, Bern; Luzia Vetter, Luzern

Editorial direction: Benno Rehberg-Klug, Genève

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## Abbreviations

APS	Acute Pain service
CPSP	Chronic Post-Surgical Pain
ICD-11	11th Version of the International Classification of Diseases of the WHO
NRS	Numerical Rating Scale
PROs	Patient-reported outcomes
SOP	standard operating procedure
TENS	transcutaneous electrical nerve stimulation
TPS	Transitional Pain Service

## 1. Introduction

The growth and aging of the population have led to an increasing number of surgical interventions performed annually. Furthermore, healthcare politics requires a transition to outpatient procedures whenever possible. Surgical treatment, although minimally invasive, is associated with acute postoperative pain, which is also associated with the development of chronic pain after surgery.

Anaesthesiology must adapt to these challenges. The term “perioperative medicine” encompasses this broader approach to patient care, in which pain management is a key component in this emerging field. Thus, perioperative pain management is an indispensable component of patient care, starting before surgery and, if needed, with follow-up of patients presenting problematic pain trajectories and/or risk factors for unfavourable pain-related outcomes after discharge.

### Aim

The present document summarizes the recommendations of the Swiss Society for Anaesthesiology and Perioperative Medicine (SSAPM) for the management of acute and subacute pain after surgical interventions (henceforth termed “perioperative pain”) as well as chronic post-surgical pain (CPSP). It provides an overview of the recommended necessary structures and processes that need to be considered and refers to pain-specific outcome measures. Ultimately, it may serve as a guideline for healthcare providers on how to improve perioperative pain-related patient care and outcomes. The document therefore focuses on recommendations for structural requirements and processes, with an emphasis on interdisciplinary and interprofessional cooperation with surgical departments and other important members of the perioperative team, such as physiotherapists.

There is a need to identify “patients at risk” for problematic pain trajectories, such as severe acute pain resulting in prolonged recovery and development of CPSP (Lavand’homme, 2017). Certain patient groups, such as those with pre-existing chronic pain and long-term preoperative opioid therapy, may benefit from treatment approaches in close cooperation with colleagues specialized in chronic pain treatment.

## 2. Structural and organizational recommendations

### 2.1. Structural requirements

Although there have been substantial developments in analgesic techniques, for example, increasing use of peripheral nerve blocks, the overall improvement in the quality of perioperative pain management has been questioned or has been at least less than anticipated despite local quality improvement initiatives and advanced treatment strategies (Meissner *et al.*, 2018). One reason is that favourable results of pain-related patient-reported outcomes (PROs) in the long term are only achievable if continuous education of all healthcare professionals involved is performed (Reinhard *et al.*, 2023).

As Rawal and Berggren pointed out 30 years ago, the solution to the problem of inadequate postoperative pain relief lies not so much in the development of new techniques but in the development of a formal organisation for better use of existing techniques (Rawal and Berggren, 1994).

However, this formal organisation of perioperative pain management is insufficient in many hospitals or only exists within the department of anaesthesiology without a common overarching hospital-wide concept integrating all departments and disciplines involved. Perioperative patient-centred care is considered a key element of care, which encompasses good communication with the patient, giving him sufficient treatment information, allowing him to participate in decisions, and providing continuous patient education (Schwenkglenks *et al.*, 2014; Zaccagnino *et al.*, 2017; Komann *et al.*, 2021). Qualified personnel, clear-cut responsibilities, and well-defined tasks are needed.

Minimal standards and consensus on adequate staffing are key to high-quality care (Werner *et al.*, 2002). More important than sophisticated analgesic techniques are dedicated teams that can optimize multimodal treatment regimens through close interdisciplinary and interprofessional collaboration (Rawal 2016; Said *et al.* 2018). A common understanding of all the professions and disciplines involved is necessary. Team leaders should also have experience in chronic pain management. Ideally, there would be an experienced pain specialist available 24/7, but this is currently not realistic. Therefore, more anaesthesiologists should be educated in chronic pain management in the future.

Written interdisciplinary and inter-professional agreements are strongly recommended. They should address who gives orders in which area and at which time, so that there are no parallel or missing medical orders. Furthermore, these agreements should provide regulations on the delegation of medical activities to nursing staff and the necessary right of doctors working in the pain service to issue instructions to the nursing staff in the ward (Erlenwein *et al.*, 2019).

A common understanding and attitude regarding analgesia among all professionals of all departments involved is necessary, preferably within a joint structure in perioperative care.

For a joint perioperative pain concept, the tasks, competencies, and responsibilities of individual disciplines and professions should be defined and recorded in writing (Table 1).

**Table 1:** Structural requirements of perioperative pain services in hospitals.

Domain	Requirement	recommendation strength
Personnel	Designated qualified medical and nursing staff responsible for perioperative pain management with reserved time contingents for perioperative pain management is available.	strong recommendation
	The head of the pain service is a consultant with overall responsibility (FMH-certified anaesthesiologist).	strong recommendation
	The head of the pain service has at least the certificate “SPS pain specialist” or an equivalent.	strong recommendation
	In large (A1) hospitals, the head of the pain service has at least the certificate “SSIPM” or an equivalent.	strong recommendation
	Anesthesiologists in training have a scheduled rotation in the pain service.	recommendation
	Nursing personnel of the pain service holds a degree in anaesthesia nursing and/or a dedicated training as a pain nurse.	strong recommendation
	Nursing personnel of the pain service has a certificate in pain medicine training, for example the “SPS pain specialist” or equivalent.	recommendation
	In larger hospitals, employment of an Advanced Practice Nurse (APN) can make sense for coordination of organizational tasks or perioperative management of complex or long-hospitalized patients.	recommendation
Availability	The pain service has a 24/7 availability with dedicated contact information, visible for all disciplines and professions of the hospital.	strong recommendation
	Outside working hours, an FMH-certified anaesthesiologist is responsible for pain management.	strong recommendation
	Outside core working hours, at least one pain specialist is available either as in-house physician or on call.	open (*)
	Any doctor being responsible for the pain service during on-call hours has undergone at least a 2-month rotation in the pain service.	recommendation

Organisation	Written agreements between surgical departments and the pain service detail responsibilities.	strong recommendation
	Clearly defined communication pathways between pre-, intra-, and postoperative healthcare providers exist.	strong recommendation
	Regular (at least weekly) meetings of the pain service team to discuss and communicate patient-related problems exist.	recommendation
	Regular (at least monthly) meetings of pain service team to discuss structural problems exist.	recommendation
Documentation	An electronic documentation system exists and is accessible to all disciplines and professions.	Strong recommendation
	The documentation includes patients' current therapy, analgesia orders including rescue medication, PCA parameters and use, patient-reported pain intensity, pain-related PRO measures addressing physical and affective functional interference, side effects.	strong recommendation
Teaching activities	The organisation and implementation of regular training courses for collaborators from all departments is a central task of the pain service.	recommendation
Education and training	Personnel of the pain service participates in at least 3 hours of continuing medical education related to pain management per year.	strong recommendation

These recommendations are the result of a Delphi process among 16 perioperative pain experts, based on previous suggestions in the literature (Rawal, 2016; Erlenwein *et al.*, 2019; Stamer, Liguori and Rawal, 2020; Brunsmann, Stamer and Meissner, 2021; van den Heuvel *et al.*, 2024).

A “strong recommendation” indicates that at least 75% of the experts have voted for a strong recommendation and that this should be an indispensable requirement. “recommendation” indicates that less than 75% of the experts have voted for a strong recommendation, but more than 25%. “Open recommendation” means that less than 25% have voted for a strong recommendation.

(\*) This recommendation was left open, knowing that there are not enough pain specialists available.

## 2.2. Process requirements

Whereas structures describe the environment in which care is delivered (including personnel, organizational characteristics, and resources), processes describe how care is provided to patients in daily clinical routine, how personnel interact with patients, and how the cooperation of different disciplines and professions works.

Pain management is a multidisciplinary, multiprofessional approach which must be regularly reinforced and updated. Only a good interplay between structures and processes can result in overall favourable patient outcomes and will have an effect on population health. For patients at risk of CPSP, it is especially important to ensure a continuum between inpatient and postoperative outpatient pain management. Clearly defined processes between institutions and primary care providers are mandatory to prevent transition to chronic pain.

The recommended process requirements are listed in Table 2.

**Table 2:** Process requirements of a Perioperative Pain Service in hospitals (adapted from (Stamer, Liguori and Rawal, 2020; Brunsmann, Stamer and Meissner, 2021; van den Heuvel *et al.*, 2024))

Collaboration with other disciplines	E.g., surgery, physiotherapy, pharmacy, psychology, psychiatry: to develop common pathways and standards in prevention, documentation, and treatment of pain
Patient information and education	Preoperative patient information regarding analgesic treatment options and possible adverse events/risks. Shared decision making and communication of a treatment plan.  Patient education on: <ul style="list-style-type: none"> <li>• goals of analgesic therapy</li> <li>• realistic treatment expectations</li> <li>• assessment of pain and function</li> <li>• non-medical treatment approaches</li> <li>• self-efficacy</li> </ul>
Identification of patients at risk for complicated perioperative pain management and CPSP	At every perioperative stage: preoperatively by the surgeon and/or the anaesthesiologist, in the PACU and postoperatively on the ward (c.f. chapter 4 for details)
Discharge management	Tapering of opioids should be started as early as possible. The general aim is a discharge without any opioid medication. (c.f. chapter 4.2 for details) <ul style="list-style-type: none"> <li>• Written patient information on how to continue and taper analgesics should be handed out and explained orally.</li> <li>• Written recommendations to the general practitioners/ doctor who provides further treatment including dosing of analgesics and co-analgesics.</li> </ul>

Transition management	<p>Clearly defined pathways and structured communication between staff responsible for inpatient and postoperative outpatient care including:</p> <ul style="list-style-type: none"> <li>• surgeons</li> <li>• pain specialists</li> <li>• physiotherapists</li> <li>• primary care providers</li> </ul> <p>This may include the implementation of a transitional pain service as a link between inpatient and outpatient care (c.f. chapter 5)</p>
Quality management	<ul style="list-style-type: none"> <li>• Continuous measures of quality improvement are performed considering processes and patient-reported outcomes.</li> <li>• Regular audits of risks and benefits of analgesic techniques.</li> <li>• Critical incident analysis.</li> </ul>

Hospital-specific standards (SOP/guidelines for perioperative pain management) jointly developed and implemented by all disciplines and professions should be available. These should include standards for pain management based on a multimodal concept in up-to-date guidelines (for example, ANZCA<sup>1</sup> and PROSPECT<sup>2</sup>). This includes, but is not limited to, the methods presented in Table 3.

**Table 3:** Multimodal perioperative analgesia. Contraindications between all drugs and methods should always be considered.

Systemic analgesia	<ul style="list-style-type: none"> <li>• Basic analgesia with one to two nonopioid analgesics: NSAIDs, metamizole, paracetamol in sufficient daily doses</li> <li>• If indicated: short-acting opioids, including oral or iv patient-controlled analgesia (PCA)</li> </ul>
Regional anaesthesia: Use whenever possible!	<ul style="list-style-type: none"> <li>• Neuraxial analgesia, particularly epidural catheters for extended abdominal / thoracic surgery</li> <li>• Truncal blocks such TAP-block, PEC-block, paravertebral block</li> <li>• Peripheral nerve blocks (“single shot”)</li> <li>• In select cases peripheral nerve or plexus catheters with continuous drug administration</li> </ul>
Co-analgesics  Cave: use only for specific indications, evidence is weak for most types of surgery!	<ul style="list-style-type: none"> <li>• dexamethasone (for analgesic effects at least 8 mg given in timely manner for the delayed effect)</li> <li>• i.v. Ketamine</li> <li>• i.v. Lidocaine</li> <li>• others, e.g. gabapentinoids, antidepressants, <math>\alpha</math>2-agonists...</li> </ul>

<sup>1</sup> <https://www.anzca.edu.au/resources/college-publications/acute-pain-management/apmse5.pdf>

<sup>2</sup> <https://esraeurope.org/pain-management/>



Physical treatments	<ul style="list-style-type: none"> <li>• Early ambulation/mobilization</li> <li>• Physiotherapy</li> <li>• Acupuncture, either for treatment of pain or PONV</li> <li>• TENS</li> <li>• Physical measures such as cold packs and positioning</li> </ul>
Psychological interventions  Note: should already start preoperatively whenever possible	<ul style="list-style-type: none"> <li>• Patient education (ideally for all patients)</li> <li>• Reduction of fear and anxiety e.g. by hypnosis</li> <li>• Specific short interventions for patients with catastrophization or low self-efficacy</li> <li>• Treatment of depression</li> </ul>

Further “standard operating procedures (SOPs)” should be formulated for specific procedures. These SOPs should be available in written form and accessible to all personnel involved.

#### Examples for SOPs:

- postoperative epidural analgesia on the ward
- postoperative continuous peripheral nerve blocks
- analgesic concepts after specific types of surgery (C-section, bariatric surgery, THA etc.)
- administration of systemic opioids (i.v. and oral administration, PCA)
- diagnosis and treatment of severe complications, e.g. suspected epidural hematoma, epidural abscess
- management of special patient groups, such as patients on long-term opioids before surgery, and palliative patients

### 3. Interdisciplinary cooperation with surgical departments

For most surgical patients, postoperative pain therapy is provided by the surgical team. Depending on surgical procedures and analgesic techniques, only a minority of patients need to be cared for by the acute pain service.

However, in today's busy hospital environment, surgeons and ward nurses have only limited resources for pain management. Interdisciplinary cooperation is thus necessary to optimise resource use of all disciplines. Anaesthesiologists should engage in this cooperation in the following domains:

#### 3.1 Development of standards for pain therapy

Each hospital needs to have common standard procedures for the treatment of postoperative pain (see chapter 2.2. and table 3), elaborated jointly by the surgical and anaesthesia departments. These should include indications for non-opioid analgesics, co-analgesics, and especially opioids. For opioids, suggestions on the duration of therapy may be included.

Evidence-based international recommendations should be used and may be adapted to local specificities (Chou *et al.*, 2016; Schug *et al.*, 2020; AWMF S3 Leitlinie Akutschmerz, 2021; Joshi *et al.*, 2023).

#### 3.2. Provision of education in pain therapy

Hospitals should provide education in pain management for surgical teams (surgeons, nurses, and physiotherapists), and anaesthesiologists involved in pain therapy should cooperate in providing such education.

#### 3.3. Cooperation for perioperative patient evaluation

Surgeons see patients much earlier before surgery than the anaesthesiologist and may thus be better placed to identify patients at risk for severe acute pain or chronic post-surgical pain (see chap. 4) early, and to initiate preventive measures. Cooperation between surgeons and anaesthesiologists can help to convert the waiting time before surgery into a "preparation time" (= prehabilitation).

Similarly, surgeons and anaesthesiologists should cooperate in the follow-up after surgery, especially in patients identified as being at risk for chronic pain after surgery and those discharged with a new opioid medication. For example, this can be organised as a regular meeting and case discussion between surgeons and the pain service team.

#### 3.4. Special case: palliative patients

In some hospitals palliative patients are cared by a specialised palliative care service, in other hospitals perioperative care of palliative patients needs to be shared by the surgical and anaesthesia teams.

Therapeutic approaches should put symptom control as well as their individual quality of life into the primary focus, even in the perioperative setting. An interdisciplinary and multi-professional, biopsychosocial and spiritual approach and assessment is recommended.

In the perioperative setting, clear decisions regarding life-supporting measurements, resuscitation and therapeutic escalations should be defined before surgery.

#### 4. Identification of patients at risk for unfavourable pain-related outcomes after surgery

An unfavourable pain-related outcome after surgery can be severe acute pain with difficult postoperative pain management, and in the long run, the development of chronic pain after surgery, and the long-term use of opioids. Chronic pain can significantly interfere with activities of daily living and result in reduced health-related quality of life. This is also reflected in the ICD-11 definition of chronic pain<sup>3</sup>.

##### **Box 1 - ICD-11 definition of chronic pain:**

Pain is an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.

Chronic pain is pain that persists or recurs for longer than 3 months. Chronic pain is multifactorial: biological, psychological, and social factors contribute to the pain syndrome.

With the launch of the 11<sup>th</sup> version of the International Classification of Diseases (ICD-11) by the WHO in 2023, chronic pain is now recognised as a disease and not as a symptom only (Schug et al. 2019). Chronic postsurgical pain (CPSP, code MG30.21) and chronic posttraumatic pain (MG30.20) will be included in future healthcare statistics.

##### **Box 2 - ICD-11 definition of chronic postsurgical pain CPSP<sup>3</sup>**

Chronic postsurgical pain is chronic pain that develops or increases in intensity after a surgical procedure and persisting beyond the healing process, i.e. at least 3 months after surgery.

The pain is either localised to the surgical field, projected to the innervation territory of a nerve situated in this area, or referred to a dermatome (after surgery/injury to deep somatic or visceral tissues).

Other causes of pain including infection, malignancy etc. need to be excluded as well as pain continuing from a pre-existing pain problem.

Dependent on type of surgery, chronic postsurgical pain often may be neuropathic pain.

If the pain continues from a preoperative condition, either intensity or pain characteristics must be different from the preoperative status.

CPSP has been identified as a major cause of postsurgical morbidity. To better assess the multidimensional aspects of chronic pain, the WHO defines “pain severity” by three dimensions: pain intensity, pain-related functional interference, and pain-related distress. All three dimensions should be assessed as a so-called “postcoordination” of ICD-11 code<sup>3</sup> (Treede *et al.*, 2019; ICD web interface, WHO).

<sup>3</sup> ICD-11 for Mortality and Morbidity Statistics. (<https://icd.who.int/browse/2024-01/mms/en>).

#### 4.1. Identification of patients at risk for severe acute pain or CPSP

To prevent severe acute pain or the development of CPSP, patients at risk for an abnormal pain trajectory need to be identified, ideally before surgery, and followed up after discharge. Risk factors for chronic pain after surgery have been extensively studied (Segelcke, Rosenberger and Pogatzki-Zahn, 2023).

Some surgical procedures are known to result in high rates of CPSP, such as limb amputation, arthroplasty, spine surgery, mastectomy, and thoracotomy. In addition, there are well-described patient-related factors that increase the risk of chronic pain after surgery, such as younger (adult) age, female sex, and socioeconomic status, as well as psychological factors such as state and trait anxiety, depression, pain catastrophising, kinesiophobia, and low self-efficacy (Giusti *et al.*, 2021).

Patients on long-term opioids before surgery also need special attention to avoid accidental interruption of therapy and to plan alternatives to opioid-based analgesia in some cases. Written SOPs should exist to manage these patients (see chapter 2.2).

In addition to preoperative patient screening, there are postoperative alerts that should lead to a follow-up: Any abnormal postoperative pain trajectory should be evaluated by the pain team during hospitalisation, since it signals a risk for CPSP development. The abnormal pain trajectory may be signalled by several parameters, which should be monitored manually (by chart review, patient visits, and or cooperation with surgeons, ward nurses and physiotherapists) or automatically (by alerts in an electronic patient data management system):

- unusually high acute pain scores at the first postoperative day
- pain scores not regressing during hospitalization
- abnormally high use of on-demand pain medication
- Patient not performing physiotherapy as scheduled (after having ruled out insufficient pain therapy as a reason).
- Patient discharged with opioids, if not pre-planned by a fast-track protocol.

#### 4.2. Patients at risk for long-term opioid use after surgery

In general, patients on opioids before surgery will stay on opioids after surgery, specifically if no effort has been made to reduce the dose preoperatively and doses are high.

New long-term opioid medication due to chronic pain after surgery is discussed as one reason of the North American opioid crisis with prescription practice of the physicians contributing considerably. In Europe, opioid prescriptions in general have also increased, however, an opioid epidemic specifically induced by long-term opioid use due to CPSP not be verified up to now (Hofer *et al.* 2024). Most patients on postoperative long-term opioids had chronic pain unrelated to surgery or pre-existing chronic pain at the surgical site not meeting the ICD-11 definition.

In the same way as one might collect cardiovascular risk factors, relevant risk factors for persistent opioid use should be assessed preoperatively. These include pre-existing chronic pain before surgery, preoperative opioid use, psychosocial factors (e.g., anxiety, depression), and a history of substance abuse. Perioperative indicators are severe pain and high opioid demands.

Patients scheduled for surgery, who have preoperative pain at the surgical site (before e.g., joint replacement, back and spine surgery) often benefit from surgery with less pain and improved function. However, opioid medication must be tapered and this should be clearly communicated. Starting to reduce the opioid dose preoperatively would be helpful for the perioperative and postoperative phase, but someone has to take care of it (→ communication, responsibilities). Realistic expectations for pain control should be discussed, including non-pharmacological pain treatment and safe analgesic use. Perioperatively, a multimodal analgesic regimen should be established (Table 3), and opioids should be tapered as soon as possible.

Before discharge, patients should be instructed about reduction regimens for analgesics, with opioids being the first drug to be tapered. Number of tablets given, and duration of opioid prescription should be limited, usually to a week post discharge.

Repeated opioid prescriptions increase the risk for long-term opioid use, and the primary care physician of the patient should be informed about the need of opioid tapering. If pain exceeds the usual healing period, consider referral to a pain specialist, particularly in case of ongoing intake of opioids. Several consensus statements have been published to give guidance on the safe peri-operative use of opioids (Levy et al., 2021).

## **5. Improved communication between acute pain service and chronic pain consultation**

In cases in which outpatient pain clinics and inpatient acute pain services are separate entities, there is often no continuum of care between inpatient and outpatient pain management. However, such a continuum of care is crucial for the follow-up of patients at risk of persistent postoperative pain and should also include the primary care provider (family physician).

As discussed in Chapter 4, patients with chronic pain are at risk for unfavourable postoperative pain outcomes (severe acute pain and chronic postoperative pain), and the knowledge and experience of chronic pain specialists are necessary to adequately manage these patients. Even with training (see Chapter 2), acute pain teams often lack experience with the complex psychosocial components of chronic pain. In addition, these patients required follow-up after hospital discharge. This follow-up should be shared between the primary care provider and the chronic pain consultation.

Clearly defined pathways and structured communication within the healthcare institution (including surgeons, inpatient and outpatient pain specialists, and physiotherapists) and between the institution and primary care providers are essential to provide effective pain management and potentially prevent the transition to chronic pain.

To facilitate the transition from inpatient to outpatient pain management, some institutions may choose to create specialised teams, as has been discussed and published from several hospitals, such as Toronto (transitional pain service, TPS), Belgium (Chronic Postsurgical Pain Service), Helsinki (Acute Pain Outpatient Clinic), and the USA (Perioperative Surgical Home, PSH) (Katz 2015; De Kock 2009; Tiippana et al. 2016; Vetter and Kain 2017).

There is no recommendation to create a specialised team (called “transitional pain service”), and the organisation will depend on the specificities of each hospital. The important element that all these services have in common is the structured transfer of information and cooperation between all care providers.

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## Appendix

### Examples of the implementation of structured communication in a large interregional hospital (St. Gallen) and a regional hospital (Nidwalden).

#### **Example St. Gallen:**

The Kantonsspital St. Gallen implemented a specific transitional pain service (TPS, in St. Gallen called “Mobiles Schmerzteam” consisting of a specialized pain nurse, a senior palliative care doctor specialized in pain medicine and the junior doctor in rotation from Anaesthesiology). Patients with risk factors for an unfavourable pain outcome may be addressed preoperatively by the surgical or anaesthesiologic preoperative consultations to the TPS.

In addition, the anaesthesiologic Acute Pain Service and all hospital wards can refer patients with complex pain problems (e.g. high opioid dose or opioid agonist therapy, severe side effects, expected long-time opioid use after discharge, preoperative long-term opioid therapy, psychosocial comorbidities) to the TPS during hospital stay.

During the postoperative hospital stay patients are seen by the TPS once daily either together with the anaesthesiologic Acute Pain Service if involved or on their own. At hospital discharge high-risk patients can be transferred by the TPS to the outpatient pain clinic for further consultation.

#### **Example Nidwalden:**

In the Spital Nidwalden, acute pain nurses also coordinate the management of patients with complex pain, supervised by two pain consultants (also working in the outpatient pain clinic). Owing to the small and stable teams and short distances, direct communication between all involved disciplines is possible. Patients with risk factors are preoperatively identified and noticed on the OR-schedule. Written SOPs exist in patients undergoing preoperative long-term opioid therapy and in complex cases. Postoperatively, the acute pain nurses identify patients with high opioid use and discuss these cases with the supervising pain physician. If patients are discharged on opioids, the primary care physician receives a proposal for opioid tapering and referral to an outpatient pain clinic.