Day surgery, variations in routines and practices a questionnaire survey

Margareta Warrén Stomberg a, Metha Brattwall b, Jan G. Jakobsson c,d,*

a University of Gothenburg, The Sahlgrenska Academy, Institute of Health and Care Sciences, Gothenburg, Sweden
b Department of Anesthesiology & Intensive Care, Institution for Clinical Sciences, Sahlgrenska Academy, Gothenburg, Sweden
c Department of Anaesthesia & Intensive Care, Karolinska Institutet, Stockholm, Sweden
d Institution for Physiology & Pharmacology, Karolinska Institutet, Stockholm, Sweden

ABSTRACT

Background: Day surgery is expanding however little is known about every day practice and routines.

Methods: A web-based questionnaire including 34 questions with fixed multiple choice responses around routine and practice for the perioperative handling of patients scheduled for day case surgery was send to 100 hospitals.

Results: There was an overall response rate of 70%. Most centres had a dedicated day surgery unit (87%). Preoperative assessment routines, when, how and by whom varied. Patient self-assessment questionnaires were common practice (87%). Upper age limit was uncommon (10%), lower age limit common (77%), and fixed high body mass index-limitation showed a mixed pattern, mean 40%. Postoperative nausea and vomiting risk stratification varied mean 46%. Anxiolytic premedication was uncommon. Administration of oral analgesics varied, mean 70%; paracetamol (94%), NSAIDs (80%) and opioid (28%). Preferred general anaesthesia technique varied considerable. Laryngeal mask airway was consistently used. Management of pain while in hospital was consistently performed. A majority centres provided take-home analgesics "tablet-package" (69%) or as prescription (80%). Strong opioids to be taken at home were given or prescribed by 59% of units. Written information about the postoperative care was common practice (90%), written instruction about management of pain was less frequently provided (69%). Most hospitals (93%) had standardised discharge criteria, including demand of an escort (75%) and not being alone first postoperative night (81%).

Conclusions: We found that regime for day surgical anaesthesia practice varied between as well as within countries. There is obvious room for further research on how to achieve safe and cost-effective logistics and practice for day case surgery.

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Day surgery, coming and leaving hospital day of surgery is today well-established practice in many European countries. National statistics for Sweden show that a majority of procedures are since the last five years done as day surgery and that there is no age limits. Day surgery has been shown reassuringly safe. The classical major follow-up study by Warner et al. documented a most reassuring low incident of major adverse events. There are two recent major follow-up surveys performed in Denmark reported likewise low incidences of morbidity and need for return to-hospital. We studied the practice of day surgery in Sweden by an extensive questionnaire survey sent to all 92 hospitals 2005 and found high degree of standardisation of regime for day surgical practice. A national follow-up survey conducted 2011 showed further standardisation and with a minimal variation in practice between units.

The aim of the present survey was to gain a view of to what extents day surgical routines and practices differ between eight European countries.

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A web-based questionnaire including questions similar the once used in a previous national Swedish surveys, around clinical routine and practice was sent to all 92 hospitals 2005 and found high degree of standardisation of regime for day surgical practice. A national follow-up survey conducted 2011 showed further standardisation and with a minimal variation in practice between units.

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head of anaesthesia departments at 100 hospitals in eight different European countries known to have an interest and experience in day surgery.\(^2\)

The survey addressed the three areas; preoperative, intraoperative and postoperative routines and practices. It included in all 34 questions with fixed multiple choice responses; yes or no to firm questions, or please indicate your current practice; e.g. what is your preferred induction agent for day case anaesthesia; propofol, thiopentone, methohexitone, etomidate or other.

Results are presented as response rates and percentages of actual answers to each question. Data from the eight different countries is presented as response rates, yes or no.

2. Results

The overall response rate was 70 out of 100 asked (70%), Table 1. Sixty-one of the 70 (87%) responding centres had a separate devoted day surgical unit.

3. Preoperative assessment routines

Routines for preoperative assessment varied, both by means of when it was performed and by whom, Table 2. A majority, in average 68%, of units responded no to “do you regularly send day cases patients for a preoperative visit in preoperative assessment unit. Preoperative assessment was commonly done by an anaesthesiologist in 53% (37/70) followed by a nurse in 31% (22/70), Table 3. Telephone preoperative assessment was used in several units. Cooperation between anaesthesiologist and nurse in the assessment process was a common comment about current routines, e.g. from Denmark, Iceland and Netherlands. The use of patient self-reported medical history (structured leaflet for patient’s self-reported medical history) was common practice, Table 2.

Upper age limitation was infrequently practiced while a lower age limitation especially for children scheduled for general anaesthesia was commonly seen in all countries. Most centres (60%) had no upper body mass index (BMI) limitations for patients scheduled for general anaesthesia.

PONV risk scoring routinely varied and was done systematically in 32 centres only, less than half of centres in Norway, Finland and UK.

4. Intra operative and discharge routines

Anxiolytic premedication was only rarely administered on a routine base to adult patients, overall only 3 centres responded yes about routine anxiolytics. Anxiolytic premedication was somewhat more common for children, Table 4.

Per oral preoperative analgesics were provided routinely in 49 centres, but this practice differed between countries from all responding Sweden and Norway but only 1/7 centres in Portugal. One third of units did not provide any preoperative oral analgesics at all. Paracetamol was the most common analgesic used. The preoperative administration of an NSAID was less common and not at all practiced in Portugal. Coxibs were used preoperatively in some centres in Sweden, Norway, Finland and Iceland. Oral opioid prior to surgery was commonly administered in Sweden but seldom or never elsewhere, Table 4.

The preferred induction agent was propofol. Four centres commented on the use of sevoflurane as an alternative induction agent. Preferred main anaesthetic differed; Norway and Denmark used propofol (total intravenous anaesthesia) solely; all other countries used both inhaled anaesthetics (mainly sevoflurane) and propofol. Desflurane was used by two centres (Portugal and Island) and isoflurane was still used by one country (UK) (Fig. 1).

Also preferred intraoperative opioid varied Fig. 2. Fentanyl and remifentanil were the two most commonly opioids used during surgery. Sufentanil was used solely in the Netherlands and alfentanil as preferred opioid was only used by UK and Sweden. Anaesthetic technique varied, in all 12 different combination of main anaesthetic and opioid were used. Norway and Denmark used solely a propofol and remifentanil combination while Sweden, Finland and Iceland used sevoflurane and fentanyl combination to a huge extent. UK showed the largest variation in different drug combinations for maintenance of anaesthesia.

Laryngeal mask airway was the preferred choice airway for day surgery in all but two centres.

<table>
<thead>
<tr>
<th>Table 2</th>
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<tbody>
<tr>
<td>Preoperative routines, number of Yes/number of No answers, (%)</td>
</tr>
<tr>
<td>SE</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Does your institution have a separate devoted Day Surgical unit?</td>
</tr>
<tr>
<td>10/2</td>
</tr>
<tr>
<td>Do you use a structured leaflet for patient’s self assessment? Yes/No</td>
</tr>
<tr>
<td>12/0</td>
</tr>
<tr>
<td>In preoperative assessment done in conjunction with the surgical consultation? Yes/No</td>
</tr>
<tr>
<td>3/9</td>
</tr>
<tr>
<td>In preoperative assessment done at a visit at a preoperative assessment unit? Yes/No</td>
</tr>
<tr>
<td>1/11</td>
</tr>
<tr>
<td>In preoperative assessment done at the day of surgery? Yes/No</td>
</tr>
<tr>
<td>4/8</td>
</tr>
<tr>
<td>In preoperative assessment done another way? Yes/No</td>
</tr>
<tr>
<td>4/8</td>
</tr>
<tr>
<td>Do you have an explicit/defined BMI limit for day case patient? Yes/No</td>
</tr>
<tr>
<td>8/4</td>
</tr>
<tr>
<td>Do you have an explicit/defined upper age limit for day case patient? Yes/No</td>
</tr>
<tr>
<td>1/11</td>
</tr>
<tr>
<td>Do you have an explicit/defined lower age limit for day case patient? Yes/No</td>
</tr>
<tr>
<td>10/2</td>
</tr>
<tr>
<td>Do you routinely score PONV risk? Yes/No</td>
</tr>
<tr>
<td>7/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response rate, number of answers out of asked and percentages</td>
</tr>
<tr>
<td>Sweden</td>
</tr>
<tr>
<td>n (%)</td>
</tr>
<tr>
<td>12/16 (75)</td>
</tr>
</tbody>
</table>
5. Postoperative pain

Postoperative pain was not routinely assessed by using structured ratings, this was common practice in only 14% of units. Among those who used pain grading scales, 45% used VAS-scale, 43% NRS-scale (numeric rating scale) or in 10% a verbal scale. Twenty-eight out of the 70 (40%) responding units did not have any standardised upper limit before pain treatment started. Routines around analgesics to be used at home after discharged showed a mixed pattern; “tablet packages” was provided by 69% or prescriptions by 80% of centres. Strong opioids at home were routinely used when indicated by 59% of units.

6. Discharge

Most centres had structured discharge criteria with no obvious difference between countries. Written information around the surgical procedure was commonly available but less frequently available around post-discharge pain management. Oral information of pain management at home was commonly provided but the person providing the information varied. Overall twenty five percent of centres were willing to send home patients without escort. The routine demand for an escort varied between countries (36%-100%). The routine to secure someone being at home first night after surgery was in average 81% and varied between two thirds to hundred percent. Routines for follow-up assessment was also variable; phone follow-up practice varied between 10 and 100 percent (mean 56%) and involving the patients’ general practitioner about the procedure and help with follow-up and support differed also considerably 8 to 100 percent (mean 50%).

Pain, bleeding/wound related problems and PONV/social circumstances were all considered more or less similar common causes for unplanned hospital admission, Table 5.

7. Discussion

Day case surgery is today a well established practice and has been shown reassuring safe.1-3 The aim of the present study was to gain insight around common every day routines and practices in conjunction to day surgery. Similar national surveys have been conducted in UK6 as and in Sweden,4-5 however this is the first to our knowledge trying to gain a view of variations between countries. Most centres responding had a separate dedicated day surgical unit suggesting that they had a well-established day surgery practice. We found however a mixed pattern; routines and practices varied between countries but also to some extent within countries. This is somewhat contradictory to our previous studies around routines and practices in Sweden, which showed a remarkable homogenous pattern.4,5 The data collected cannot be considered fully representative of the participating countries. We found similar to Toftgaard5 that data collection is dependent on dedicated professionals having an interest and willingness to respond and report. Our findings are based on volunteer responses and cannot be seen as any national average. It is also of importance to have in mind that our questionnaire did not address or collect any information about volumes or outcomes.

Routines and practices for preoperative assessment varied in many aspects, when, how and whom performed the preoperative assessment differed between and within countries. We found that an anaesthesiologist predominantly made a preoperative assessment and that a separate visit was common practice. A dedicated preoperative assessment visit may not be necessary for the broad group of ASA 1-2 patients scheduled for minor and or intermediate day case surgery. A structured paper questionnaire or phone interview by a nurse may be more than sufficient in order to secure safety especially in the low risk patient population. The possibility using nurse-based preoperative assessment and patient questionnaire are becoming increasingly popular. A recent study about patient’s self-assessment by a computer-assisted questionnaire as an early preoperative triage tool was found to be highly effective in identifying risk factors.6 The importance of proper patient information and preparation should however not be forgotten. Preoperative assessment including a bi-directional exchange of information is of importance. This may to some extent be replaced by paper or web-based information. This form of information is however general and allows not for individual adaptation and possibility to respond and discuss patient specific queries. The general logistic including a preoperative assessment done on a separate day in a separate preoperative assessment unit is consuming an extra hospital visit and should probably be an optimal approach for the patient with more complex comorbidity and or for patients asking for a more dedicated and in depth consultation.6-8

Table 3
Preoperative assessment, number of Yes/number of No answers, (%).

<table>
<thead>
<tr>
<th></th>
<th>SE n = 12</th>
<th>NO n = 7</th>
<th>FI n = 10</th>
<th>DK n = 6</th>
<th>IC n = 10</th>
<th>UK n = 9</th>
<th>NL n = 9</th>
<th>PL n = 7</th>
<th>All n = 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is preoperative assessment done by an anaesthesiologist? Yes/No</td>
<td>11/1</td>
<td>5/2</td>
<td>2/8</td>
<td>4/2</td>
<td>5/5</td>
<td>0/9</td>
<td>5/4</td>
<td>5/2</td>
<td>37/70 (53)</td>
</tr>
<tr>
<td>Is preoperative assessment done by a nurse? Yes/No</td>
<td>0/12</td>
<td>1/6</td>
<td>7/3</td>
<td>0/6</td>
<td>2/8</td>
<td>9/0</td>
<td>2/7</td>
<td>1/6</td>
<td>22/70 (31)</td>
</tr>
<tr>
<td>Is preoperative assessment done by a surgeon? Yes/No</td>
<td>0/12</td>
<td>1/6</td>
<td>1/6/10</td>
<td>0/6</td>
<td>0/10</td>
<td>0/9</td>
<td>0/9</td>
<td>0/7</td>
<td>1/70 (1)</td>
</tr>
<tr>
<td>Is preoperative assessment done by another? Yes/No</td>
<td>11/0/7</td>
<td>1/9</td>
<td>2/4</td>
<td>3/7</td>
<td>0/9</td>
<td>2/7</td>
<td>1/6</td>
<td></td>
<td>10/70 (14)</td>
</tr>
</tbody>
</table>

Table 4
Premedication, drugs prior to anaesthesia; anxiolytics and oral analgesics, (%).

<table>
<thead>
<tr>
<th></th>
<th>SE n = 12</th>
<th>NO n = 7</th>
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<th>NL n = 9</th>
<th>PL n = 7</th>
<th>All n = 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you use anxiolytic premed routinely in adults? Yes/No</td>
<td>1/11</td>
<td>0/7</td>
<td>1/9</td>
<td>0/6</td>
<td>0/10</td>
<td>0/9</td>
<td>0/9</td>
<td>1/6</td>
<td>37/70 (4)</td>
</tr>
<tr>
<td>Do you use anxiolytic premed routinely in children? Yes/No</td>
<td>5/7</td>
<td>3/4</td>
<td>5/5</td>
<td>0/6</td>
<td>3/7</td>
<td>0/8</td>
<td>1/8</td>
<td>1/5</td>
<td>18/68 (26)</td>
</tr>
<tr>
<td>Do you routinely provide preop oral analgesics Yes/No</td>
<td>12/0</td>
<td>7/0</td>
<td>6/4</td>
<td>3/3</td>
<td>9/1</td>
<td>6/3</td>
<td>5/4</td>
<td>1/6</td>
<td>49/70 (70)</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>12/0</td>
<td>7/0</td>
<td>6/4</td>
<td>3/3</td>
<td>9/1</td>
<td>6/3</td>
<td>5/4</td>
<td>1/6</td>
<td>49/70 (70)</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>12/0</td>
<td>7/0</td>
<td>6/4</td>
<td>3/3</td>
<td>9/1</td>
<td>6/3</td>
<td>5/4</td>
<td>1/6</td>
<td>49/70 (70)</td>
</tr>
<tr>
<td>NSAID</td>
<td>9</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3/4 (65)</td>
</tr>
<tr>
<td>None-selective</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>40/80 (50)</td>
</tr>
<tr>
<td>Coxib</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4/22 (18)</td>
</tr>
<tr>
<td>Opioid</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>14/28 (30)</td>
</tr>
</tbody>
</table>
Upper age limit as exclusion criteria was uncommon. Chung et al. found a higher incidence of intraoperative minor adverse events but less postoperative events, in a study comparing elderly and adult patients. The benefits of avoiding hospitalisation of the elderly, reducing the risk for cognitive impairment associated to the change of environment, were suggested already in 2003 by the ISPOCD2 study collaboration. Sultan et al. found however that the age of patients significantly increased the incidence of stay overnight after day surgery, supporting the need for an availability to allow patients when needed the option of admission. Fleisher et al. did a major cohort study find age over 65 years being an individual independent risk factor for unplanned admission. It was considerably more common in this survey to stress an upper BMI limit than an upper age limit for general anaesthesia. Unfortunately, we didn’t ask for the specific figures. There are studies suggesting even high BMI, BMS’s of $>40$ kg/m$^2$ not being associated with any higher rate of unplanned admission.

Propofol was the sole induction agent used but we found a variety of preferred drug combinations for maintenance of anaesthesia. It should be acknowledged that we did not include patient and procedure specific questions thus we can only comment on general preferred techniques. The choice of main anaesthetic has been found of limited value with regard to quality and safety in ambulatory anaesthesia. Gupta et al. concluded in their systematic review that the choice of anaesthetic for maintenance of anaesthesia should be guided by the training and experience of the individual physician, as well as the routines and equipment available in the hospital, because the specific anaesthetic appears to play a minor role in outcome after ambulatory surgery.

Multi modal analgesics, combining local anaesthesia, non-opioid analgesics in order to minimise the need for opioid analgesia has been advocated for day surgery since decades. Classical papers by Eriksson and Michaloliakou have shown the benefits of multimodal or so called balanced analgesia concept. It is somewhat surprising that not all centres adhered to this seemingly simple and safe concept. Oral loading dose of paracetamol were shown to six what is considered analgesic plasma concentration within an hour as compared to the less favourable rectal route. Traditional non-selective NSAIDs were the most commonly used. The potential benefits from the perioperative administration of Coxibs eliminating the concern about impaired platelet function may not be of major importance for minor and or intermediate day surgery but should be recognized having in mind that bleeding and haematoma is a common cause for unplanned admission and/or return to hospital. The benefits of the combination of paracetamol and NSAIDs have been shown in a meta analysis by Ong et al. The use of an opioid preoperatively was found to be a common routine in some Scandinavian countries, especially in Sweden. Jokela et al. has questioned the benefit of premedication slow-release oxycodone. It is important to optimise postoperative pain management, and the subsequent quality of the recovery process. The PROSPECT recommendation provides evidence based guidance for pain management in a number of ambulatory procedures.

It is also surprising that systematic risk scoring for PONV was not more frequently done. PONV, the little big problem, is of huge importance to minimise its negative effect on quality of care, is well acknowledged and is a not uncommon cause for unplanned hospital admission. It may be that in day case surgery centres triple prophylaxis is provided more or less to all patients in order to minimise the occurrence.

The need for an escort and someone being at home the first postoperative night has become a safety feature commonly implemented in day case programs perhaps more in order to eliminate medico legal dispute than from an evidenced based perspective. Correra et al. found that compliance to instructions such as not drive and to have someone at home were not always adhered to. Postoperative instructions are not uncommonly provided by nurse and the reinforcement of these may not be that strong. Patients’ may also have not fully regained cognitive capacity, thus it seems of importance to have at hand explicit and clear written instruction about the demands for a safe recovery.

We found not unexpectedly and in line with previous studies pain, bleeding/haematoma related events and PONV being the most common causes for unplanned hospital admission. We cannot give any explanation to the somewhat different profile for unplanned admission in Portugal. Unplanned hospital admission must of course be put into the perspective of patient population and surgery performed. We did not include questions around most common surgery performed and patient population. The recent huge Danish follow-up survey revealed tonsillectomy to be associated with a high risk of postoperative complications, followed by surgical induced abortion and cholecystectomy, haemorrhage, bleeding, haematoma and infection being the most common causes for return to hospital. It is interesting to see that PONV was given as a common cause in Norway, where all units exclusively used propofol and remifentanil as the main anaesthetic. Social factors for unplanned admission were commonly reported from Finland, probably associated to the rather waste

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**Table 5**

<table>
<thead>
<tr>
<th></th>
<th>SE</th>
<th>NO</th>
<th>FI</th>
<th>DK</th>
<th>IC</th>
<th>UK</th>
<th>NL</th>
<th>PO</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>9</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Bleeding related</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
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<td>4</td>
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**Fig. 1.** Preferred anaesthetic; iso — isoflurane, des — desflurane, sev — sevoflurane prop — propofol, varies no fixed preferred main anaesthetic.

**Fig. 2.** Preferred analgesic intraoperative; mo — morphine, alf — alfentanil, fent — fentanyl, remi — remifentanil, suf — sufentanil, no — no opioid intraoperatively.

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area and low population density and subsequently potential for longer distances to the hospital. One may have expected a similar situation in Iceland.

There are several limitations with our study. Our findings must be seen in the perspective of the relatively low number of centres asked and that all European countries are not included. It is also of importance to have in mind that we did not assess the type of procedures, the patient profile or other surgery and patient factors that may influence the practice. Many of the item asked may indeed be a matter of preferences and it is from this survey not possible to evaluate to what extent the responses truly provide a view of practice. It should also be acknowledged that the survey was constructed with fixed answers. Furthermore no questions around medicolegal or funding of health care aspects were included, factors that may have major influence on practice. We still believe that our results should give a reasonable overview of current practice. The impact of routines and practices on outcome, efficacy and costs are of course not possible to assess from the present study and had to be taken into account.

In summary, we found that day case anaesthesia routines and practices varied both between and within countries. Further research on how to achieve optimal safe and cost-effective logistics and practices for day case anaesthesia is warranted. There seems to be room for further efforts in order to further improve the handling of pain and emesis. The possibility to use hospital connected hotel may also be an option increasing the willingness to perform day surgery in situations of fragile social network or long distance home. A more structure involvement from general practitioners and outpatient facilities may also have implications improving quality of care.

Ethical approval
None declared.

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Author contribution
This paper has been done in close collaboration, all three authors have taken active part in preparation, analysis of data and preparation of the manuscript. Margareta Warren Stomberg has done the web questionnaire.

Conflict of interest
Metha Brattwall has been acting in advisory board for Mundipharma, and Abbott Jan Jakobsson has received grants from and acted in advisory boards for Abbott, Baxter, Linde, Nycomed, Phizer.

References