Theatre Planning with SAP

QUESTIONNAIRE FOR PLANNING EXECUTIVES

This survey is anonymized.

Please return the completed paper by internal mail using the supplied envelope without quoting the sender.

The attached, numbered registration post card should be send separately. It enables us to measure the response rate.

Return adress :
Dr. Dr. C. Engelmann, OE 6760
Pediatric Surgery, MHH, 30625 Hannover
Structural data

Which position do you hold in your department?
- Director/senior chief of staff
- Consultant/senior staff specialist
- Assistant doctor: Resident/Junior Specialist
- Other: ________________________________

How long is your planning experience with the current software (SAP)?
- < 1 year
- 1 - 3 years
- > 3 years

Did you manage the theater list already prior to the introduction of the current software (SAP)?
- Yes
- No

For how many operating rooms do you make the operation plan?

General Data

Only a small part of operation planning takes place in the IT-system. Your task also consists in callbacks concerning registrations, coordinations concerning the operating surgical team, the anesthesiologists or the OR-nurse plus occasionally feedback to patients and relatives in case of rescheduling and change etc. The following questions address the totality of the tasks.

Expenditure of time. How much time you spend on “making” or managing the operation plan (in a 5 day working week)?
- < 2.5 h
- 2.5 to < 5 h
- 5 to < 10 h
- 10 to < 15 h
- 15 to < 20 h
- > 20 h

Please estimate (in percent): How much of this time do you spend with the IT-System (SAP)? __________

First draft. How do you record the initial draft of the plan which you have discussed with colleagues?
- Analogously: paper, white board etc.
- Directly in the SAP planning software
- Other planning software
- Other, please detail ________________________________

How did the software (SAP) change the workload for theatre planning?
- Increased
- Roughly constant
- Decreased
- Do not know

How strongly did the current software change your work sequence?

Little change Strong change Do not know

- - -

- - -
Operation requests in the current planning software (SAP)

10 Who files predominantly the operation requests which you assign? (up to three answers)

- I or other designated planners of my department
- theatre nurses
- doctors of my department
- doctors of other departments
- non-medical/clerical staff of my department
- non-medical staff of other departments
- do not know

11 Which proportion of your operation requests are only assignable after oral recheck with stakeholders (in %) _______

Faulty operation requests. As operation planner you are directly affected by mistakes of colleagues who file operation requests.

12 How many % of the operation requests of your department contain mistakes? (in %) _______

13 Which types of mistake did you detect within the last four weeks?

- Operation request contain contradictory specifications (e.g. requested operation does not match diagnosis; dates/times-limits diverge in different fields of the request mask.)
- Operation requests do not contain all information relevant for planning.
- Operation requests don’t get transferred into the board (program planning) view due to faulty storing („save“) of the request.
- Other mistakes relevant for planning (free text).

Screen view.

14 In which screen/view do you predominantly plan? “theater plan, existing requests” planning board I do not plan in SAP

15 Which proportion of the screen contains information which you need for planning? (in %) _______

Parts of the request. What information from the operation request is most important for your planning? (Please underline up to five items from the following list)

16 Requested Operation Complexity of procedure Diagnosis Necessary equipment Instruments Requesting party

- Expected duration of operation
- First Operating surgeon
- other:__________________________________________

17 Is this information readily identifiable in the screen view? yes no

18 Are some items dispensable for planning? yes, those: _______ no

The integrated IT system offers you the possibility to retrieve medical data which is not referenced in the request (e.g. lab results, x-ray pictures, previous treatments....) when you create the operation plan.

19 Do you use this option when planning? ja nein

20 In how many of the requests you use this additional data (in %) _______

In conclusion please review these statements:

21 The information in the operation requests is sufficient to perform plausibility controls. correct not correct

22 More compulsory fields should be present in the operation request screen of the IT system.
The Operation Planning Process („List-making“)

Priorization

Request. How important is the following information from the operation request in SAP for scheduling of a given procedure?

<table>
<thead>
<tr>
<th>Information</th>
<th>not important</th>
<th>very important</th>
<th>don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requested operation</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>Requested due date</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>First Operating surgeon</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>remarks</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>expected duration</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
</tbody>
</table>

Influential stakeholders. How strong is the influence the following persons exert currently on the priorization decision of any given operation? (please rank the primordial three in descending order, e.g. 1 = highest influence on decision.)

- patient
- party filing the operation request
- Operating surgeon
- department’s theatre planner
- hospital’s central theatre coordinator
- surgical team leader/consultant/senior staff specialist
- director of department/senior chief of staff (if applicable besides being the planner him/herself)

Final decision on priorization. How do you finally decide which time-slot an operation gets? I decide … (please supply the primordial three in descending order, e.g. 1 = most frequent decision mode)

- … alone
- … in discussion with other doctors of my department
- … in discussion with the central theatre manager
- … according to the operating surgeons requests
- … other, _____________________________________________________________

Operator/ first operating surgeon

Request. How important is the following information from the operation request in SAP for the choice of the operator?

<table>
<thead>
<tr>
<th>Information</th>
<th>not at all important</th>
<th>very important</th>
<th>do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>requested operation</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>requested due date/slot</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>expected duration</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>remarks</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>First Operating surgeon</td>
<td>o o o o o</td>
<td></td>
<td>o</td>
</tr>
</tbody>
</table>
Influential stakeholders. How strong is the influence the following persons exert currently on the selection of the first operating surgeon? (please rank the primordial three in descending order, e.g. 1= highest influence on decision.)

- patient
- operating surgeon
- department’s theatre planner
- hospital’s central theatre coordinator
- surgical teamleader/consultant/senior staff specialist
- director of department/senior chief of staff (if applicable besides being the planner him/herself)

Assistants. Which are the most important motives for the choice of assistants for any given operation? The assistant shall...

- … teach a less experienced surgeon
- … learn him/herself from a more experienced surgeon
- … form a productive team with the main operating surgeon
- … control the operating surgeon
- … other: ______________________________________________________

Interesting Operations. Please review the following statement: „Interesting operations are important for career“

- I confirm
- I don’t agree

How much influence do you as a planner have on the assignment of interesting operations? (0=no influence, 10=full autonomy to decide)

Which criteria are important when interesting operations are assigned/awarded according to your experience? (Please tick a maximum of three major and three minor criteria)

- surgical expertise
- research achievements
- operator’s need for skill development
- connections to the planner
- patient-doctor relationship
- Equity/fairness (in assigning operations)
- status of the operator within the department
- connections to leading surgeons within the department
- operator’s speed fits projected time-slot.
- other: ________________________________
- other: ________________________________
Uninteresting Operations. Please examine the following statement:

"Surgeons try to avoid uninteresting operations"

○ I confirm ○ not correct

How much influence do you as a planner have on the assignment of uninteresting operations? (0=no influence at all, 10 =full autonomy to decide)

□

Which criteria are important when uninteresting operations are assigned according to your experience? (Please tick a maximum of three major and three minor criteria)

<table>
<thead>
<tr>
<th>major criteria</th>
<th>minor criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity/fairness (in assigning operations)</td>
<td>□</td>
</tr>
<tr>
<td>connections to the planner</td>
<td>□</td>
</tr>
<tr>
<td>disciplining</td>
<td>□</td>
</tr>
<tr>
<td>Patient-doctor relationship</td>
<td>□</td>
</tr>
<tr>
<td>operator’s speed fits projected time slot.</td>
<td>□</td>
</tr>
<tr>
<td>status of the operator within the department</td>
<td>□</td>
</tr>
<tr>
<td>connections to leading surgeons within the department</td>
<td>□</td>
</tr>
<tr>
<td>other: ________________________________________________________</td>
<td>□</td>
</tr>
<tr>
<td>other: _________________________________________________________</td>
<td>□</td>
</tr>
</tbody>
</table>

New IT-System (SAP). How did the new IT-System change the practice of assigning interesting and uninteresting operations?

Today the assignment appears ... than before the introduction of SAP.

□ more equitable (just) ○ ○ ○ ○ less equitable/more unjust
□ more comprehensible/reproducible for stakeholders ○ ○ ○ ○ less comprehensible/reproducible for stakeholders
□ more comprehensible/reproducible for outsiders ○ ○ ○ ○ less comprehensible/reproducible for outsiders
□ more dependent on department politics ○ ○ ○ ○ less dependent on department politics
□ planner has a higher capacity to influence the list ○ ○ ○ ○ planner has a lesser capacity to influence the list

Planning margins. As a theatre planner you have the overview of awaiting operations and know which problems could arise in the planning process. At the same time you have special expertise in handling the planning module of SAP. By creative use of the software you can defuse possible conflicts in advance, e.g. by planning shorter operation times than expected from surgical judgment in order to achieve the anesthesiologist’s consent for undertaking a procedure or by displaying awaiting operations in the plan only shortly before the target date in order to circumvent conflicts about the staffing.

Do you also make creative use of the IT-system (SAP) in order to defuse conflicts arising from the planning?

○ yes, an example is….

□ no ○ yes, like described above

How did the new IT System change you personal clearance/margins in the planning process? Is it today

○ larger ○ unchanged ○ less large ○ equal in size but different in quality ○ do not know

Please review the following concluding remarks

correct not correct

38 My planning decisions have to be comprehensible for the members of my department.

○ ○

39 A top priority for the planner is an optimal degree of capacity utilization.

○ ○

40 A top priority for the planner is to balance the interests of the stakeholders.

○ ○

41 When planning I exclusively decide according to objective criteria.

○ ○
When planning I am always obliged to respect the department policy.
Changes to the list

Short term changes. A change is defined as „short term“ when it affects the same day’s operation plan.

Please estimate: Which proportion of the daily operation program is subject to short term changes (in %) ____________

Which are the most frequent causes for short term changes?
(please rank the primordial three in descending order, e.g. 1= most frequent cause)

<table>
<thead>
<tr>
<th>since introduction of SAP</th>
<th>before introduction of SAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>medical emergencies</td>
<td></td>
</tr>
<tr>
<td>unplanned prolongation of a foregoing operation</td>
<td></td>
</tr>
<tr>
<td>wrongly registered/saved or overlooked operation requests</td>
<td></td>
</tr>
<tr>
<td>change requests from surgeons of my department</td>
<td></td>
</tr>
<tr>
<td>other: ____________________________</td>
<td></td>
</tr>
<tr>
<td>don’t know</td>
<td></td>
</tr>
</tbody>
</table>

How did the number of short term changes to the plan change due to the introduction of SAP? There are …

☐ more     ☐ approximately equal
☐ less     ☐ numbers of changes
☐ do not know

How do you manage the integration of short term changes into the operation plan? (Please supply only one answer)

☐ I base my decisions on the current plan in the IT-system (SAP).
☐ I base my decisions on a plan which is documented elsewhere.
☐ I keep the day’s plan in my mind
☐ otherwise
☐ don’t know

How do short term changes to the program usually enter into the plan in the IT-system (SAP)?
They are ……
(Please supply only one answer)

☐ directly fed into the SAP IT-system
☐ are fed into the system on occasion (ex post)
☐ an alternative version of the plan is periodically transferred into the IT-system.
☐ other: ____________________________
☐ don’t know

Notification. How do stakeholders learn about changes of the operation plan?
(please supply the primordial two in descending order, e.g. 1= most frequent way)

<table>
<thead>
<tr>
<th>since introduction of SAP</th>
<th>before introduction of SAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>via SAP</td>
<td></td>
</tr>
<tr>
<td>via another software</td>
<td></td>
</tr>
<tr>
<td>via analogous versions of the plan (e.g. board, table calendar)</td>
<td></td>
</tr>
<tr>
<td>orally / by telephone</td>
<td></td>
</tr>
<tr>
<td>other: ____________________________</td>
<td></td>
</tr>
</tbody>
</table>

Rating. SAP made notification of all parties about changes in the operation plan …

☐ easier     ☐ changed it but made it neither easier nor more difficult
☐ more difficult ☐ left it unchanged
☐ don’t know
**Real time functions.** SAP registers changes of planning-relevant factors in „real-time“, i.e. the system reflects the factual events with precise time marks e.g. the progress of ongoing operations is protocolled and laboratory results of a concerned patient are retrievable for all parties immediately after analysis.

Do you explicitly use the system’s real-time properties for your planning?  ○ no  ○ yes, those listed above  ○ yes, those:

<table>
<thead>
<tr>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How often do you change the day’s operation plan</strong> due to on real-time information?</td>
</tr>
<tr>
<td>Very frequently</td>
</tr>
<tr>
<td>○</td>
</tr>
</tbody>
</table>

**User interface.** Is the real-time information in the IT system concerning the operation’s progress …

<table>
<thead>
<tr>
<th>52</th>
</tr>
</thead>
<tbody>
<tr>
<td>…directly cognizable?</td>
</tr>
<tr>
<td>○</td>
</tr>
<tr>
<td>53</td>
</tr>
<tr>
<td>…clearly enough laid out?</td>
</tr>
<tr>
<td>○</td>
</tr>
</tbody>
</table>

**Emergencies.** In emergencies every operation or action (like a trauma CT scan) needs a registration in the IT-system (SAP) prior to it’s start. The handling of a complex IT-system may become problematic even for routinized users under high time pressure and simultaneous task load.

<table>
<thead>
<tr>
<th>54</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you personally ever made mistakes when registering an operation in the IT system under time pressure?</td>
</tr>
<tr>
<td>very frequently</td>
</tr>
<tr>
<td>○</td>
</tr>
<tr>
<td>55</td>
</tr>
<tr>
<td>Have you <strong>witnessed</strong> such mistakes in others?</td>
</tr>
<tr>
<td>○</td>
</tr>
<tr>
<td>56</td>
</tr>
<tr>
<td>Did these mistakes cause <strong>delays</strong> in a time critical process?</td>
</tr>
<tr>
<td>○</td>
</tr>
</tbody>
</table>

**User interface.**

<table>
<thead>
<tr>
<th>57</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are functions which you need to realize changes of the operation plan, <strong>operable in an intuitive way?</strong></td>
</tr>
<tr>
<td>yes</td>
</tr>
<tr>
<td>○</td>
</tr>
<tr>
<td>58</td>
</tr>
<tr>
<td>How adequate is the IT-System (SAP) for use in a high risk environment like an operation theatre <strong>in your opinion?</strong></td>
</tr>
<tr>
<td>good</td>
</tr>
<tr>
<td>○</td>
</tr>
</tbody>
</table>
Organizational disasters

Which organizational disasters have you yet experienced in your department? (You can choose several replies)

Cancellation of an operation...

- … of an already premedicated patient  
- … with loss of perishable products  
  (e.g. blood products, medications)  
- … when the team was already present in the OR  
- … due to incomplete teams  
- … due to lacking equipment  
- empty theatre despite awaiting operations  
- other ________________________________  
  none

Since the introduction of the new IT system the number of organizational disasters in your department ...

- increased  
- decreased  
- neither in- nor decreased  
- don’t know

Please estimate: How high is the proportion of cancelled patients in the operation plan in a weekly mean (in %) _______

Causes. Which are the causes for organizational disasters according to your judgement? (Please supply up to three causes in descending rank order, i.e. 1 = most frequent cause)

since introduction of SAP before introduction of SAP

- erratic operation requests  
- operability of SAP  
- duty personnel roster (schedule)  
- avoidable planning mistakes  
- medical emergencies  
- other: ________________________________  
  don’t know

Responsibility. Who is made responsible by others for organizational disasters? (Please supply up to three causes in descending rank order, i.e. 1 = most frequent nomination)

since introduction of SAP before introduction of SAP

- those who register the operation request in the system  
- IT-system (SAP)  
- person who plans the duty roster  
- theatre planner  
- medical emergencies  
- other: ________________________________  
  don’t know
Coordination of processes and services with SAP

Commencement of duties.

How do surgeons get an overview of the day's operation plan when commencing their duties?
(Please supply up to three media in descending rank order, i.e. 1= most frequent mode)

<table>
<thead>
<tr>
<th>Media</th>
<th>since introduction of SAP</th>
<th>before introduction of SAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>other analogue media (calendar, white-board, …)</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>orally / by phone</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>SAP (on screen)</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>antecedent system to SAP</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>printout of the operation plan</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>other: ________________________________</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

Multiple treatments in one anesthesia. When there is an indication in the same patient for more than one elective treatment under anesthesia it may be beneficial to combine procedures from several different operative disciplines into one session.

How good does such a coordination of multidisciplinary treatments work…

<table>
<thead>
<tr>
<th>Good</th>
<th>Poor</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>… since Introduction of SAP?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>… before Introduction of SAP?</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>

Attunements between different departments. Which is your preferred method to coordinate your activities with other protagonists of the operation process?
(Please tick up to two options per party)

<table>
<thead>
<tr>
<th>Method</th>
<th>wards</th>
<th>anesthesiology</th>
<th>scrub nurses (OR technicians)</th>
</tr>
</thead>
<tbody>
<tr>
<td>analogous means (route cards, notes, …)</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>orally / by phone</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>SAP</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>other software</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>other: ________________________________</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

Please review in conclusion: The current IT-System (SAP) has made information exchange for me ...

〇 easier                                         〇 changed, but made it neither easier nor more difficult 〇 don’t know
〇 more difficult                                 〇 did not change it
Closing remarks in key words

Finally, please supply up to three key words to each question.

Which properties of SAP do you consider especially useful for theatre planning?

Which properties of SAP are especially cumbersome for theatre planning?

What defines a good software for theatre planning?

What defines a good operation plan?

What defines a good planning executive?
(e.g. experienced surgeon, knowledge of the system, networks in the hospital, experienced organizer, political skill).

In the end …

Thank you for sharing your experience with us. If you have further comments concerning the subject of the survey or the survey itself you are invited to state them below as free text.

Thank your for your participation!