Case Record Form

Section I: To be completed during surgery

1.1. Hospital number / patient label: _____

1.2. Patient surname: _____

1.3. Patient first name: _____

1.4. DOB (DD/MM/YY): _ _ / _ _ / _ _

1.5. Gender: M ☐ / F ☐

1.6. PostCode: _ _ _ _ _ _ _ _

1.7. NHS/CHI/HSC number: _____

1.8. Ethnicity (please select one):

White
☐ English / Welsh / Scottish / Northern Irish / British
☐ Irish
☐ Gypsy or Irish Traveller
☐ Any other White background

Mixed / Multiple ethnic groups
☐ White and Black Caribbean
☐ White and Black African
☐ White and Asian
☐ Any other Mixed / Multiple ethnic background

Asian / Asian British
☐ Indian
☐ Pakistani
☐ Bangladeshi
☐ Chinese
☐ Any other Asian background

Black / African / Caribbean / Black British
☐ African
☐ Caribbean
☐ Any other Black / African / Caribbean background

Other ethnic group
☐ Arab
☐ Any other ethnic group, please describe: _____

2.1. Surgery start (incision) date (DD/MM/YY): _ _ / _ _ / _ _

2.2. Surgery start (incision) time (please select one of the following time periods):

08:00 – 11:59hrs ☐	12:00 – 15:59hrs ☐	16:00 – 19:59hrs ☐
20:00 – 23:59hrs ☐	00:00 – 04:00hrs ☐	04:00 – 07:59hrs ☐

2.4. Which of these best describes where the patient has come from for this operation?

Home ☐   Inpatient ☐

2.4a. What level of support was the patient receiving on arrival to the operating theatre/anaesthetic room?

Level 0 ☐   Level 1 ☐   Level 2 ☐   Level 3 ☐

2.5. Date of admission to this hospital (DD/MM/YY): _ _ / _ _ / _ _

Commented [D1]: Enter local hospital ID and not NHS number. If the patient has more than one theatre visit during the study, please append a "-a", "-b", "-c" suffix, etc. for subsequent theatre visits when uploading to the webtool.

Commented [D2]: Enter current gender.

Commented [D3]: Enter outward code in 1st section and inward code in the 2nd section. The postcode is crucial for linking the patient's details to National Registry data, such as HES/ONS for mortality. It also allows us to map the patient's location to the multiple indices of deprivation scale in order to adjust for social deprivation.

Commented [D4]: The NHS number is a 10-digit unique national patient identifier. In Scotland this is known as the CHI number, and in Northern Ireland this is known as the HSC number.

Commented [D5]: Select the option which best describes the patient.

Commented [D6]: There is no Question 2.3, as it has been removed from the study during development.

Commented [D7]: Home: Can be patients' own private residence (either owned or rented), or a care home (residential or nursing home where assisted living is provided). Select this if the patient was admitted on the day of surgery for the operation.
Inpatient: Select this if the patient has been admitted before the day of surgery, and has already stayed at least one night before the operation.
Please also select this if the patient has been admitted before the day of surgery, and has already stayed at least one night before the operation, and was brought to the operating theatre from Critical Care. Do not select this option if the patient was admitted to this hospital from home or another hospital on the same day as the surgery.

Commented [D8]: Level 0: Patients whose needs can be met through normal ward care in an acute hospital.
Level 1: Patients at risk of their condition deteriorating, or those recently relocated from higher levels of care, whose needs can be met on an acute ward with additional advice and support from the Critical Care team.
Level 2: Patients requiring more detailed observation or intervention including support for a single failing organ system or post-operative care and those 'stepping down' from higher levels of care.
Level 3: Patients requiring advanced respiratory support alone, or basic respiratory support together with support of at least two organ systems. This level includes all complex patients requiring support for multi-organ failure.

2.6. Planned operation: (free-text)

_____

2.7. Did the patient have a preoperative assessment before hospital admission?

      Y ☐   N ☐   Not applicable (Non-elective admission) ☐

2.8. Operative urgency: Elective ☐   Expedited ☐   Urgent ☐   Immediate ☐

3.1. ASA-PS: I ☐   II ☐   III ☐   IV ☐   V ☐

3.2. Past Medical History (tick all that apply, alternatively select "None of the above"):

Coronary artery disease	Y ☐	N ☐
Congestive cardiac failure	Y ☐	N ☐
Cancer within last 5 years	Y ☐	N ☐
Metastatic cancer (current)	Y ☐	N ☐
Stroke / TIA	Y ☐	N ☐
Dementia	Y ☐	N ☐
COPD	Y ☐	N ☐
Pulmonary fibrosis	Y ☐	N ☐
Liver Cirrhosis	Y ☐	N ☐
End-stage Renal Disease*	Y ☐	N ☐
*(eGFR <15 or dialysis-dependent)		
Complex polytrauma	Y ☐	N ☐
None of the above	☐	

3.3. Diabetes:

    ☐ Not diabetic   ☐ Type 1
    ☐ Type 2 (on insulin)   ☐ Type 2 (Diet controlled only)
    ☐ Type 2 (Non-insulin glucose lowering medication)

3.4. Drug treatments (that the patient would normally be taking)

Diuretic treatment?	Y ☐	N ☐	Anti-anginal treatment?	Y ☐	N ☐
Digoxin therapy?	Y ☐	N ☐	Any anti-hypertensive treatment?	Y ☐	N ☐
Warfarin?	Y ☐	N ☐	Other treatment-dose anticoagulation? Y ☐	N ☐	

Clinical findings

3.5. Body Mass Index: Don't know ☐   Value if known: _____

3.6. Elevated JVP?   Y ☐   N ☐

3.7. Peripheral oedema?   Y ☐   N ☐

3.8. Glasgow Coma Scale pre-induction of anaesthesia: _____

3.9. Pre-anaesthetic induction systolic BP: _____

3.10. Pre-anaesthetic induction pulse rate: _____

3.11. Dyspnoea?   None ☐   On exertion ☐ limiting activities ☐   At rest ☐

Investigations (within 3 months of surgery)

3.12. Creatinine:	Not done ☐	Value if known:	_____µmol/L
3.13. Urea:	Not done ☐	Value if known:	_____mmol/L
3.14. Hb:	Not done ☐	Value if known:	_____g/L
3.15. Na:	Not done ☐	Value if known:	_____mmol/L

Commented [D9]: Preoperative assessment can be electronic self-assessment, telephone assessment with a nurse or doctor, face-to-face assessment by a nurse or doctor, or cardiopulmonary exercise testing.
For urgent or emergency surgery, where the patient was non-electively admitted to hospital, please select NA.

Commented [D10]: NCEPOD classifications
Elective: Intervention planned or booked in advance of routine admission to hospital. Timing to suit patient, hospital and staff.
Expedited: Patient requiring early treatment where the condition is not an immediate threat to life, limb or organ survival. Normally within days of decision to operate
Urgent: Intervention for acute onset or clinical deterioration of potentially life-threatening conditions, for those conditions that may threaten the survival of limb or organ, for fixation of many fractures and for relief of pain or other distressing symptoms. Normally within hours of decision to operate.
Immediate: Immediate life, limb or organ-saving intervention -- resuscitation simultaneous with intervention. Normally within minutes of decision to operate.

Commented [D11]: ASA-PS (American Society of Anesthesiology Physical Status) grades
Grade I: A normal healthy patient
Grade II: A patient with mild systemic disease
Grade III: A patient with severe systemic disease
Grade IV: A patient with severe systemic disease that is a constant threat to life
Grade V: A moribund patient who is not expected to survive without the operation.

Commented [D12]: Please make the best attempt at obtaining this information from the notes.

Commented [D13]: For Gestational Diabetes, select Type 2 Diabetes.
Examples of non-insulin glucose lowering medication include:
Metformin (a biguanide)
Thiazolidinediones (glitazones)
Insulin releasing medication (secretagogues, e.g. sulphonylureas)
Starch blockers (e.g. acarbose)
Incretin based therapies (enteral or parenteral)
Amylin analogues (parenteral).

Commented [D14]: Please include any chronic drug treatments that the patient would normally have been taking, disregarding changes made to facilitate surgery.

Commented [D15]: If not assessed, select No.

Commented [D16]: If not assessed, select No.

Commented [D17]: Please input the last known reading before induction of anaesthesia, we can accept readings taken in outpatient preassessment clinic, preoperative readings in the admissions lounge or surgical ward prior to surgery, or last reading taken in the anaesthetic room prior to induction.

Commented [D18]: Please input the last known reading before induction of anaesthesia, similar to question 3.9 above.

3.16. K: Not done ☐   Value if known: _____mmol/L
3.17. White cell count: Not done ☐   Value if known: _____x 10^{9}cells/L
3.18. HBA1c *:   Not done ☐   Value if known: _____mmol/mol
         *(IFCC units)

Commented [D19]: Enter most recent result prior to surgery (within the last 3 months of surgery). International Federation of Clinical Chemistry (IFCC) units (mmol/mol) can be calculated from Diabetes Control and Complications Trial (DCCT) units (percentage) using this formula:
IFCC HBA1c (mmol/mol) = [DCCT HBA1c (%) - 2.14] x 10.929

3.19. ECG findings:

☐ Not done   ☐ AF 60-90   ☐ Q waves
☐ >4 ectopics   ☐ ST or T wave changes   ☐ AF >90
☐ Normal ECG   ☐ Any other abnormal rhythm

Commented [D20]: Enter option that best describes most recent preoperative ECG.

3.20. Radiological findings

No chest X-ray or scan done prior to surgery   ☐
Chest X-ray or scan done prior to surgery, and:

Normal appearances seen	Y ☐	N ☐
Consolidation seen	Y ☐	N ☐
Cardiomegaly seen	Y ☐	N ☐
Other abnormality seen	Y ☐	N ☐

Commented [D21]: Enter option that best describes patient's preoperative cardiorespiratory radiological findings. By scan, we accept that to mean ultrasound, CT, MRI or other radiological scan.

3.21. Grade of most senior anaesthetist present:

Consultant	☐	Staff & Associate Specialist	☐
ST3-7 trainee or Trust grade equivalent			☐
Core/Foundation year trainee or Trust grade equivalent			☐

3.22. Grade of most senior surgeon present:

Consultant	☐	Staff & Associate Specialist	☐
ST3-7 trainee or Trust grade equivalent			☐
Core/Foundation trainee or Trust grade equivalent			☐

3.23. What is the estimate of the perioperative team of the risk of death within 30days?

<1% ☐   1-2.5% ☐   2.6-5% ☐   5.1-10% ☐   10.1-50% ☐   >50% ☐

Commented [D22]: Please select best estimate. This should be discussed between the surgical and anaesthetic teams caring for the patient.

3.24. What has this mortality estimate been based on? (tick all that apply)

Clinical judgment	☐
ASA-PS score	☐
Duke / other Activity status Index	☐
Six-minute walk test or incremental shuttle walk test	☐
Cardiopulmonary exercise testing	☐
Formal frailty assessment (e.g. Edmonton Frail Scale)	☐
Surgical Risk Scale	☐
Surgical Outcome Risk Tool (SORT)	☐
EuroSCORE	☐
POSSUM	☐
P-POSSUM	☐
Surgery specific POSSUM (e.g. Vasc-POSSUM)	☐

Other risk scoring system (please state): _____

3.25. Has this patient previously had this surgery cancelled/rescheduled?

         Y ☐   N ☐   Not known ☐

3.25a. If surgery previously cancelled/rescheduled, what was the reason?

         No beds ☐   Clinical reasons ☐   Not known ☐

Commented [D23]: If this is not clear from the patients' history or clinical notes or the operating list booking details, then select "Not known".

Other (please describe) ☐: _____

3.26. Does the perioperative team think that this patient requires critical care after their operation?

Y ☐   N ☐

3.27. Has this patient been referred for postoperative critical care?

Y ☐   N ☐

3.28. For what reason has this patient been referred for postoperative critical care:

Not referred for postoperative critical care	☐
Routine for this type of surgery in this hospital	☐
High risk patient based on preoperative risk stratification	☐
Other: please state	

Commented [D24]: This question should be answered as though you were predicting the patient's outcome before surgery begins.

We want to assess how well the clinical team is able to anticipate the need for postoperative critical care before the patient meets with intraoperative complications.

Commented [D25]: This question should be answered as though you were predicting the patient's outcome before surgery begins.

Commented [D26]: This question should be answered as though you were predicting the patient's outcome before surgery begins.

Section II: To be completed at the end of surgery:

4.1. Surgery end date (DD/MM/YY): _ _ / _ _ / _ _

4.2. Surgery end time (please select one of the following time periods):
08:00 – 11:59hrs ☐   12:00 – 15:59hrs ☐   16:00 – 19:59hrs ☐
20:00 – 23:59hrs ☐   00:00 – 04:00hrs ☐   04:00 – 07:59hrs ☐

4.3. Anaesthetic technique (select all that apply):

General ☐	Sedation (deep) ☐	Sedation (light) ☐
Epidural ☐	Spinal ☐	Combined spinal/epidural ☐
Regional(Non-neuraxial) ☐		Local infiltration ☐

> **Commented [D27]:** Please select the techniques which were used during the surgery. For example, if the surgery started out with Spinal + Sedation (light), but progressed on to General Anaesthetic, please select the corresponding options.

4.4. Have there been any critical / unexpected events perioperatively?
Y ☐   N ☐   If yes – please describe (free-text)

> **Commented [D28]:** If in doubt, describe any events which arose. Examples can include, conversion from Regional Anaesthesia to General Anaesthesia, anaphylaxis, wrong-site surgery, laryngospasm, procedure abandoned due to surgical difficulty, etc.

4.5. In the past 30 days, how many procedures have been performed (including this one)?
1 ☐   2 ☐   >2 ☐

> **Commented [D29]:** This is a variable within the P-POSSUM score and therefore we may use this for risk adjustment to ensure fair comparison of outcomes.

4.6. Estimated total blood loss: 0-100ml ☐   101-500ml ☐   501-999ml ☐   ≥1000ml ☐

> **Commented [D30]:** Please record the best estimate of total blood loss for the procedure.

4.7. Was there peritoneal contamination?

Not applicable	☐	No soiling ☐	Minor soiling ☐
Local pus	☐	Free bowel content, pus or blood	☐

> **Commented [D31]:** For cases where the abdominal cavity was entered. Otherwise, select NA.

4.8. Was the procedure for Malignancy?
Not malignant ☐   Primary Malignancy only ☐
Malignancy + nodal metastases ☐   Malignancy + distal metastases ☐

> **Commented [D32]:** Please include suspected malignancy. This includes:
> solid tumour: local only (exclude if > 5 years from diagnosis)
> solid tumour: metastatic disease (including lymph node)
> Lymphoma (Non-Hodgkin's lymphoma, Hodgkin's lymphoma, Waldenström, multiple myeloma)
> Leukaemia (acute or chronic).

4.9. Actual operation: (free-text)

4.10. Immediate postoperative destination:
      Recovery ☐   ICU/HDU ☐   PACU/OIR ☐

4.11. If critical care admission planned but patient going to recovery, please state reasons why:

N/A (patient not planned for critical care admission)	☐
No bed currently available: planned ICU/HDU/PACU/OIR admission later today	☐
No bed available – will be going to normal ward after recovery	☐
PACU/OIR/ICU/HDU care no longer clinically necessary	☐
The routine pathway in this hospital is theatre → recovery → Critical Care	☐

Other: please state:

> **Commented [D33]:** We understand that there may be many hospitals which are unfamiliar with PACUs/OIRs. If these facilities exist in your hospital they are short-term post-operative critical care beds for surgical patients developed to an acceptable standard appropriate for the management of an artificially ventilated patient overnight.
>
> The PACU or OIR concept is well-described here: http://bja.oxfordjournals.org/content/92/2/164.full.pdf+html

Section III: Day 7 review

5.1. Is the patient still alive and in hospital on postoperative Day 7?　　　Y ☐　　　N ☐

5.2. If No –
What was the date of hospital discharge (DD/MM/YY)?　　　　　_ _ / _ _ / _ _

5.3. If discharged, what was their status at discharge?
　　　Alive ☐　　　　　Dead ☐　　　Not known ☐

5.4. If Alive –
Has the patient returned to their preoperative level of mobility?
　　　Y ☐　　　N ☐　　　Not known ☐

5.5. Is there a non-clinical reason for remaining in hospital? (e.g. awaiting social services, residential placement etc.)　　　　　　　　　　　　　　Y ☐　　　N ☐

Thank you. If the patient remains in hospital, please complete section IV. If they have been discharged from hospital or died before day 7 please put a line through section 4.

Commented [D34]: We should have been a bit clearer about the mobility question. If the patient has been discharged by Day 7, you actually do not need to fill in the answers for mobility. The webtool will not even let you submit a response for that (it becomes greyed out). It's fine to answer "not known" on the paper CRFs, because when it comes to entering it on the webtool, it actually won't be uploaded.

The reason why this question was included was mainly to capture potential reasons for patients who remaining in hospital at Day 7, but did not have any POMS-defined morbidity. If they had not returned to baseline mobility, then that could explain their still remaining in hospital.

Section IV: Day 7 Post-Operative Morbidity Survey

Please tick all that apply. If discharged from hospital before D7, please draw a line through this page.

6.1. Is there a new requirement for:
- O2 therapy?   Y ☐   N ☐
- Ventilatory support?   Y ☐   N ☐

6.2a. Has the patient developed a temperature of >38 in the past 24h?   Y ☐   N ☐

6.2b. Is the patient currently on antibiotics?   Y ☐   N ☐

6.3a. Has the patient passed <500ml urine in the past 24h?   Y ☐   N ☐

6.3b. Does the patient have a raised serum creatinine (>30% from pre-operative level)?
                                                                 Y ☐   N ☐

6.3c. Is a urinary catheter in situ for non-surgical/anatomical reasons?   Y ☐   N ☐

6.4. Has the patient had diagnostic tests and /or treatment for any of the following in the past 24 hours:
- New myocardial infarction or ischaemia   Y ☐   N ☐
- Hypotension (requiring IV fluid >200ml/h or drug therapy)   Y ☐   N ☐
- Atrial or ventricular arrhythmias   Y ☐   N ☐
- Cardiogenic pulmonary oedema   Y ☐   N ☐
- Thrombotic event requiring anticoagulation   Y ☐   N ☐

6.5a. Is the patient unable to tolerate enteral diet (either food or tube feeding) for any non-surgical reason including nausea, vomiting and abdominal distension?   Y ☐   N ☐

6.5b. Has there been administration of an anti-emetic in the past 24h?   Y ☐   N ☐

6.6. Is there a new:
- focal neurological deficit   Y ☐   N ☐
- confusion   Y ☐   N ☐
- delirium   Y ☐   N ☐
- coma (associated with administration of sedation)   Y ☐   N ☐
- coma (not sedation related)   Y ☐   N ☐

6.7. Has there been a requirement for any of the following within the past 24 hours
- Packed erythrocytes   Y ☐   N ☐
- Fresh frozen plasma, platelets or cryoprecipitate   Y ☐   N ☐

6.8. Has there been:
- a wound dehiscence requiring surgical exploration   Y ☐   N ☐
- drainage of pus from the operation wound with/without isolation of organisms
                                                                 Y ☐   N ☐

6.9. Does the patient have post-operative pain significant enough to require:
- parenteral opioids   Y ☐   N ☐
- regional analgesia   Y ☐   N ☐

Commented [D35]: If the patient has been discharged before Day 7, then do not answer any of the questions on this page. We will assume the patient has POMS = 0. If the patient was discharged on Day 7, but before the team have had a chance to follow-up, e.g. they were discharged in the morning by the time the team came to the ward to review in the afternoon, assume that the patient is completely free of any POMS-defined morbidity on Day 7.

Commented [D36]: The POMS is explained in a table below.
(Taken from: The Postoperative Morbidity Survey was validated and used to describe morbidity after major surgery. Grocott, M.P.W. et al.
Journal of Clinical Epidemiology , Volume 60 , Issue 9 , 919 – 928)

Commented [D37]: "New requirement" refers to their current state compared to their baseline (before coming in for surgery). So in this case, you can say there is a new requirement for O2 if they were not on oxygen before the surgery, and answer yes. If they were already an inpatient and receiving supplemental oxygen, then this is now a new requirement, and you can answer no.

If the patient was already receiving Level 3 support and ventilated on arrival to theatre, and is still ventilated at the point of assessment on Day 7, then this is not a "new" requirement which resulted from his surgery/anaesthetic. If the patient was on home CPAP, and is still receiving CPAP postoperatively, this is also likewise not "new". If the patient required postoperative O2/ventilation but this was stopped by the point of assessment on Day 7, then also answer no.

Commented [D38]: For questions asking about the past 24 hours you make the assessment on Day 7, with Day 0 being the day of surgery, and ask about the 24hr period prior to the assessment timepoint. Therefore you will need to know if the patient's situation on Day 6 to answer these questions.

Commented [D39]: If they have had a focal deficit or been in coma or delirious since the surgery, and are still exhibiting this on Day 7, answer yes. If they had a deficit or had been delirious or comatose anytime during the days since the procedure, but are no longer comatose at the moment you are assessing the patient, answer no.

The POMS

Morbidity type	Criteria	Source of data
Pulmonary	Has the patient developed a new requirement for oxygen or respiratory support.	Patient observation / Treatment chart
Infectious	Currently on antibiotics and/or has had a temperature of $>38°C$ in the last 24 hr.	Treatment chart / Observation chart
Renal	Presence of oliguria <500 mL/24 hr; increased serum creatinine ($>30\%$ from preoperative level); urinary catheter in situ.	Fluid balance chart / Biochemistry result / Patient observation
Gastrointestinal	Unable to tolerate an enteral diet for any reason including nausea, vomiting, and abdominal distension (use of antiemetic).	Patient questioning / Fluid balance chart / Treatment chart
Cardiovascular	Diagnostic tests or therapy within the last 24 hr for any of the following: new myocardial infarction or ischemia, hypotension (requiring fluid therapy >200 mL/hr or pharmacological therapy), atrial or ventricular arrhythmias, cardiogenic pulmonary edema, thrombotic event (requiring anticoagulation).	Treatment chart / Note review
Neurological	New focal neurological deficit, confusion, delirium, or coma.	Note review / Patient questioning
Hematological	Requirement for any of the following within the last 24 hr: packed erythrocytes, platelets, fresh-frozen plasma, or cryoprecipitate.	Treatment chart / Fluid balance chart
Wound	Wound dehiscence requiring surgical exploration or drainage of pus from the operation wound with or without isolation of organisms.	Note review / Pathology result
Pain	New postoperative pain significant enough to require parenteral opioids or regional analgesia.	Treatment chart / Patient questioning

SNAP–2
Sprint National Anaesthesia Project

NIAA H S R C
National Institute of Academic Anaesthesia   Health Services Research Centre

RCoA
Royal College of Anaesthetists

THE ASSOCIATION OF ANAESTHETISTS
of Great Britain & Ireland

Section V: To be completed 60 days postoperatively

7.1. Did the patient have a **planned** ICU/HDU/PACU/OIR admission **on** the day of surgery?
Y ☐   N ☐

> **Commented [D40]:** You may be able to answer these questions on the day of surgery without having to wait until Day 60.

7.2. Did the patient have an **unplanned** ICU/HDU/PACU/OIR admission **on** the day of surgery?
Y ☐   N ☐

> **Commented [D41]:** You may be able to answer these questions on the day of surgery without having to wait until Day 60.

7.3. Did the patient have an **unplanned** postoperative ICU/HDU admission **after** day of surgery?
Y ☐   N ☐

7.4. Is the patient still in hospital? (Primary admission after surgery)
Y ☐   N ☐

> **Commented [D42]:** If the patient has been discharged home after surgery, but readmitted before Day 60, then select No.

7.5. If not, what was the date of hospital discharge (DD/MM/YY)?   _ _ / _ _ / _ _

> **Commented [D43]:** Please include both live and dead discharges.

7.6. If discharged, what was their status at discharge?
Alive ☐   Dead ☐   N/A: Remains in-patient at 60d post-op ☐

7.7. Number of days spent in critical care after surgery: _ _ _

Thank you for completing this form.
We are grateful for your support for the SNAP-2: EPICCS study

The online study data entry system can be accessed here:

https://snap2.snapresearch.org.uk/

If you would like updates on the study, please refer to the study website:

http://www.niaa-hsrc.org.uk/SNAP-2