



# Peri-operative Management of Surgical Patients with Diabetes

National Confidential Enquiry into Patient Outcome and Death (NCEPOD)

## Organisational Questionnaire

**CONFIDENTIAL**

Name of Trust/Health Board \_\_\_\_\_

Name of Hospital: \_\_\_\_\_

### Who completed this questionnaire?

Name: \_\_\_\_\_

Position: \_\_\_\_\_

### **What is this study about?**

NCEPOD is undertaking a study to identify and explore remediable factors in the process of care in the peri-operative management of surgical patients with diabetes. This study aims to review the whole patient pathway from referral to surgery (elective or emergency) to discharge from hospital.

Organisational data are being collected from all hospital providers that may provide surgical services to patients with diabetes including acute hospitals, independent hospitals and day surgery units.

### **Who should complete this form?**

This questionnaire should be completed by the Medical Director of the Trust/Health Board or person(s) nominated by them who would have the knowledge to complete it or be able to seek help to complete it accurately.

To ensure confidentiality of the data, completed questionnaires must be returned directly to NCEPOD in the envelope provided.

**A separate questionnaire should be completed for each hospital within a Trust/ Health Board**

### **Questions or help?**

A list of definitions is provided on page 2 of the questionnaire.

If you have any queries about this study or this questionnaire, please contact:

[pd@ncepod.org.uk](mailto:pd@ncepod.org.uk) or telephone: 020 7251 9060

FOR NCEPOD USE ONLY

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## DEFINITIONS

CEPOD score	<p>A scoring system used to describe patients from the perspective of basic risk banding and urgency of surgery:</p> <p>IMMEDIATE – Immediate life, limb or organ-saving intervention – resuscitation simultaneous with intervention. Normally within minutes of decision to operate.</p> <p>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.</p> <p>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.</p> <p>ELECTIVE – Intervention planned or booked in advance of routine admission to hospital. Timing to suit patient, hospital and staff.</p>
Day Surgery Unit (DSU)	A unit that cares for patients coming into hospital for the day to undergo planned, routine operations and investigations; patients are expected to return home on the same day after surgery
Diabetic ketoacidosis (DKA)	Consistently high blood glucose levels can lead to a condition called diabetic ketoacidosis (DKA). This happens when a severe lack of insulin means the body cannot use glucose for energy, and the body starts to break down other body tissue as an alternative energy source. The diagnosis is made with a pH <7.3, bicarbonate concentration <15mmol/l and a glucose of >11 (or a history of diabetes), and ketosis (urine ketones more than ++ and/or blood ketone level >3mmol/l)
Enhanced recovery programme/ERAS	Enhanced recovery after surgery (ERAS) protocols are multimodal perioperative care pathways designed to achieve early recovery after surgical procedures by maintaining preoperative organ function and reducing the profound stress response following surgery. The key elements of ERAS protocols include preoperative counselling, optimisation of nutrition, standardised analgesic and anesthetic regimens and early mobilisation
HbA1c	HbA1c (also referred to as A1c or haemoglobin A1c) refers to glycated haemoglobin. It develops when haemoglobin, a protein within red blood cells that carries oxygen throughout the body, combines with glucose in the blood, becoming 'glycated'. By measuring glycated haemoglobin (HbA1c), clinicians are able to get an overall picture of what the average blood sugar levels have been over a period of weeks/months. For people with diabetes this is important as the higher the HbA1c, the greater the risk of developing diabetes-related complications
High dependency unit (HDU)	Level 2 (HDU) – 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 (NB: When basic respiratory and basic cardiovascular support are provided at the same time during the same critical care spell and no other organ support is required, the care is considered to be Level 2 care)
Hyperosmolar hyperglycemic state (HHS)	HHS is a complication of diabetes mellitus (predominantly type 2) in which high blood sugars cause severe dehydration, increases in osmolarity (relative concentration of solute) and a high risk of complications, coma and death. It is diagnosed with blood tests. A glucose >30mmol/l, an osmolality of >320mOsmol/l with dehydration
Hyperglycaemia	The blood glucose level above which the surgical patient is at increased risk of complications. Most UK authorities define this at 10mmol/l, but simulataeusosly state that up to 12 mmol/l may be acceptable
Hypoglycemia	Hypoglycemia occurs when blood glucose levels fall below 4 mmol/L.
Intensive care unit (ICU)	Level 3 (ICU) – Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least two organs. This levels includes all complex patients requiring support for multi-organ failure. (NB: Basic respiratory and basic cardiovascular do not count as two organs if they occur simultaneously – see above under level 2 care – but will count as level 3 if another organ is supported at the same time)
Pre-operative assessment clinic (POAC)	The pre-operative assessment clinic is a nurse-led clinic that specialises in preparing patients for their planned surgery
Sick day rules	Guidance for the management of diabetes during periods of illness
Variable rate intravenous insulin infusion (VRIII)	The infusion of intravenous insulin at a variable rate according to regular capillary blood glucose measurements with the aim of controlling serum glucose levels within a specified range. The VRIII is usually accompanied by an infusion of fluid containing glucose to prevent insulin-induced hypoglycaemia



## A. THE ORGANISATION

1. Hospital type (please select one of the following):

- |   |   |
|---|---|
| <input type="checkbox"/> District general hospital ≤ 500 beds | <input type="checkbox"/> District general hospital > 500 beds |
| <input type="checkbox"/> University teaching hospital         | <input type="checkbox"/> Independent hospital                 |
| <input type="checkbox"/> Other (please state):                | <input type="checkbox"/> Tertiary specialist centre           |

2. Does this hospital have an emergency department?  Yes  No

## B. OPERATING FACILITIES

3a. How many operating theatres are there?

3b. How many of these are:

i) Dedicated to day surgery     ii) Dedicated emergency (CEPOD) theatres

4a. Does this hospital use a grading system for determining clinical priority in emergency surgery?

Yes  No

4b. If Yes to 4a, which one is used:

CEPOD score\* \*Definitions on page 2

Other (please state):

5a. Are risk scoring systems for patients undergoing surgery routinely used for:

i) Emergency surgery  Yes  No ii) Elective surgery  Yes  No

5b. If Yes to any of the above, which are used:

P-POSSUM  Surgical outcome risk tool (SORT)

American College of Surgeons risk score  Other (please state):

6a. Is there a co-ordinator for the emergency theatre?  Yes  No  Unknown

6b. Does this hospital have a system for confirming that relevant investigations and resuscitation have been completed and the patient is 'fit' for theatre?

Yes  No  Unknown

6c. If Yes to 6b, please provide details:



## C. SERVICES AND FACILITIES

7. What types of surgical facilities are at this hospital?

- i) Stand-alone day surgery  Yes  No      v) Ambulatory care unit  Yes  No  
 ii) Inpatient elective surgery  Yes  No      vi) Emergency surgery  Yes  No  
 iii) Acute surgical unit  Yes  No

iv) Other (please state):

8a. Does this hospital have a day surgery unit\*?  Yes  No

\*Definitions on page 2

8b. If No to 8a, how are patients suitable for day surgery managed?

Dedicated space in surgical ward(s)  No system for day surgery

Other (please specify):

8c. If Yes to 8a, please state the working hours for the day surgery unit:

Monday-Friday:  Working hours (8am-6pm)  Other (please state):

Saturday:  Working hours (8am-6pm)  Other (please state):

Sunday:  Working hours (8am-6pm)  Other (please state):

8d. Is there a dedicated clinical lead or clinical director for the day surgery unit?

Yes  No  N/A (no day surgery unit)

8e. If Yes to 8d, do they have allocated programmed activities for this role?

Yes  No

9. Please state the number of surgical beds available for:

a) Day surgery   N/A (no day surgery unit)

b) In patient surgery

10a. Does this hospital have a critical care unit on site?  Yes  No

10b. If Yes to 10a, what access does your critical care unit have to staff specialising in diabetes? (please mark all that apply)

Diabetes specialist nurse  Diabetes middle grade (registrar)

Diabetes consultant-led ward rounds  Diabetes specialist consultant on-call

Other (please state):



11a. Please complete the table below regarding availability of bedside (point of care) testing:

Ward or department	*Definitions on page 2	Blood ketone	Urine ketone	Blood glucose
ED	<input type="checkbox"/> N/A (no ED)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Surgical ward	<input type="checkbox"/> N/A (no surgical ward)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Medical ward	<input type="checkbox"/> N/A (no medical ward)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Level 2 (HDU)*	<input type="checkbox"/> N/A (no HDU)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Level 3 (ICU)*	<input type="checkbox"/> N/A (no ICU)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Theatres	<input type="checkbox"/> N/A (no theatres)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Day surgery unit	<input type="checkbox"/> N/A (no DSU)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

11b. If Yes to availability of point of care testing for **BLOOD KETONE**, does this hospital have staff trained to do this test out of hours (outside of Monday-Friday, 8am-6pm) in the following wards or departments:

- ED  Yes  No    Surgical ward  Yes  No    Medical ward  Yes  No  
 Level 2 HDU\*  Yes  No    Day surgery unit  Yes  No    Theatres  Yes  No  
 Level 3 ICU\*  Yes  No

12. Is there a pre-operative assessment clinic (POAC)\* dedicated to the day surgery unit? \*Definitions on page 2

- Yes     No     N/A (no day surgery unit)

13a. Does this hospital run general pre-operative assessment clinics?  Yes  No

13b. If No to 13a, what arrangements are there for pre-operative surgical patients?

13c. If Yes to 13a, do these clinics deal with every pre-operative surgical patient?  Yes  No

13d. If No to 13c, which patients are not assessed?

13e. If No to 13c, how are these patients assessed?

14a. Within the POAC, are there arrangements for patients with diabetes to be seen specifically by:

- i) Surgeons  Yes  No    iv) Anaesthetists  Yes  No  
 ii) Physiotherapists  Yes  No    v) Diabetologists  Yes  No  
 iii) Diabetes specialist nurses  Yes  No    vi) Peri-operative physicians  Yes  No

14b. If answered Yes to 14a (iii) **diabetes specialist nurses** are they:  N/A (no POAC at this hospital)

- Attached to the clinic     Accessed when required (not attached to clinic)

15. Is there a hospital policy stating that all relevant investigations should be performed during a single visit to the pre-operative assessment clinic?

- Yes     No     N/A (no POAC at this hospital)



16a. Does your hospital have a policy specifically for the pre-operative assessment of diabetes patients?  Yes  No

16b. If Yes to 16a, does the policy state:

i) Who the patient should be seen by?  Yes  No

ii) If Yes to 16b (i), please briefly describe:

iii) The timing of the pre-operative assessment of diabetes patients?  Yes  No

iv) If Yes to 16b (iii), please briefly describe:

## D. POLICIES AND PROTOCOLS

17a. Is there a hospital policy/ guidance on managing operating lists?  Yes  No

17b. If Yes to 17a, does it state that patients with diabetes should be prioritised to be first on the morning or afternoon list?  Yes  No

17c. If No to 17b, please give details about what the policy states regarding prioritising diabetes patients:

18a. Does this hospital have a policy for selecting patients for day surgery?

Yes  No  N/A (no day surgery unit)

18b. If Yes to 18a, does this policy specify the exclusion of patients with diabetes?  Yes  No

18c. If Yes to 18b, does this include:

All diabetes  Type 1 diabetes  Type 2 diabetes  Other (please state):

19a. Does this hospital have:

i) Protocols for the peri-operative management of diabetes patients?  Yes  No

ii) Protocols for the recognition and management of hypoglycaemia\* and hyperglycaemia\*?  Yes  No \*Definitions on page 2

19b. If Yes to 19a-ii does this include:

Specifying the frequency of testing  Pre-printed prescription of soluble rapid acting insulin  
 Pre-printed prescriptions so that nurses are able to administer rescue therapy (e.g. glucose or glucagon)

20a. Does this hospital have policies/ protocols for assessing the nutritional status of all patients?  Yes  No

20b. If Yes to 20a, does this include the involvement of a dietitian?  Yes  No

21a. Does this hospital have proforma(s) for the management of patients with diabetes undergoing surgery?

Yes  No



21b. If Yes to 21a, does this include: \*Definitions on page 2

- i) Pre-operative control as reflected by HbA1c\* within at least 3 months before surgery  Yes  No
- ii) Pre-assessment timing - cancellation of operations  Yes  No
- iii) The patient seeing a diabetes specialist nurse/ diabetes team at least 24 hours before surgery  Yes  No
- iv) Optimisation of diabetes medications in the months prior to surgery  Yes  No
- v) Optimisation of diabetes medications on the day prior to and day of surgery  Yes  No
- vi) Glucose monitoring  Yes  No
- vii) Escalation of care  Yes  No

22i. Do you have a system of reporting and investigating errors in insulin prescribing and administration?

- Yes  No

22ii. How is insulin prescribed at this hospital:  Paper prescribing  Electronic prescribing

Other (please state):

23a. Is there a hospital protocol/ guideline for variable rate intravenous infusion insulin\* (VRIII) - previously known as sliding scale?  Yes  No

\*Definitions on page 2

23b. If Yes to 23a, does it include separate scales for insulin resistant patients as determined by total daily dose of insulin?  Yes  No

23c. If Yes to 23a, does this include:

- Fluid  Target glucose range  Hourly monitoring of testing for glucose and ketones

Other (please state):

24a. Are the following patients routinely followed up by the hospital diabetes team after hospital discharge:

- i) Patients whose HbA1c is high  Yes  No

If Yes, please provide the threshold level of HbA1c that would trigger a follow-up appointment  .  %

- ii) Patients whose blood glucose is high  Yes  No

If Yes, please provide the threshold level of fasting blood glucose that would trigger a follow-up appointment  .  mmol/L

- iii) Patients who are on a new dose of diabetes medication  Yes  No

- iv) Patients newly started on insulin during their hospital stay  Yes  No

24b. If No to any of the above in 24a, which of the following would be flagged up for early GP follow-up?

- Patients whose HbA1c is high  Patients who are on a new dose of diabetes medication
- Patients whose blood glucose is high  Patients newly started on insulin during their hospital stay
- None of the above

25a. Does this hospital have a protocol on enhanced recovery programme/ ERAS\* (enhanced recovery after surgery)? \*Definitions on page 2  Yes  No

25b. If Yes to 25a, does this protocol provide guidance for patients with diabetes?

- Yes  No



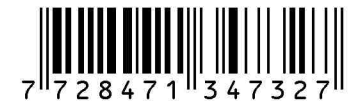
## F. STAFFING

28a. Is there a named lead for peri-operative diabetes at this hospital?  Yes  No

28b. If Yes to 28a, is this a:  Physician  Anaesthetist  Other (please specify):

29a. Please complete the table below regarding the specialist diabetes service in your hospital:

If Yes to a) please answer the following:				
a) Are the following diabetes specialist staff employed at this hospital?	b) Number of WTE staff covering working hours Mon-Fri (8am-6pm)	c) Number of WTE resident on call staff covering out of hours (please put 0 if none available)	d) Number of WTE non-resident on call staff covering out of hours (please put 0 if none available)	e) Please specify the actual hours covered outside of 8am-6pm e.g. extended hours 7pm-9pm
<input type="checkbox"/> Consultant	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input style="width: 300px; height: 30px;" type="text"/>
<input type="checkbox"/> Nurse consultant	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input style="width: 300px; height: 30px;" type="text"/>
<input type="checkbox"/> ST3 or equivalent level	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input style="width: 300px; height: 30px;" type="text"/>
<input type="checkbox"/> Diabetes inpatient specialist nurse (DISN)	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input style="width: 300px; height: 30px;" type="text"/>
<input type="checkbox"/> Diabetes dietitian	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input style="width: 300px; height: 30px;" type="text"/>
<input type="checkbox"/> Specialist diabetes pharmacist	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input style="width: 300px; height: 30px;" type="text"/>
<input type="checkbox"/> Other consultant with special interest in diabetes (please specify specialty):	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	<input style="width: 300px; height: 30px;" type="text"/>
<input style="width: 500px; height: 20px;" type="text"/>				





29b. If 0 for all staff in column C or D (i.e. no diabetes on call rota over night), how are diabetes emergencies managed?

(please select all that apply)

- Acute medical team       Intensive care team       Other (please specify:)

## G. TRAINING AND LOCAL REVIEWS

30. Please complete the selection below regarding mandatory training for the following staff members:

*Definitions on page 2	Doctors	Nurses	Other staff	Bank/ Agency staff
VRIII*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management of DKA*/HHS*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management of hypoglycaemia*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management of hyperglycaemia*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31. Does this hospital have a local audit of peri-operative diabetes management?       Yes       No

32a. Does this hospital submit data to the National Diabetes Inpatient Audit (NaDIA)?       Yes       No

32b. If Yes to 32a, please state which year data was last submitted?

- 2013       2014       2015       2016       2017

33a. Are deaths in peri-operative patients with diabetes specifically discussed at morbidity and mortality (M&M) meetings?

- Yes       No

33b. If Yes to 33a, please indicate in which of the following they are discussed: (answers may be multiple)

- Surgical M&M meetings       Diabetes M&M meetings       Trust/ Health board M&M meetings

34. Is there provision for a joint multidisciplinary meeting between the peri-operative assessment team and the diabetes team that is involved in discharge planning?

- Yes       No

35a. Does this hospital review and report critical incidents relating to operations on patients with diabetes?

- Yes       No

35b. If Yes to 35a, does this include:

- i) Incidents of diabetic ketoacidosis (DKA)       Yes       No  
ii) Other acute complications of diabetes       Yes       No

36. If you have any additional comments please write them clearly in the box below (there is more space available on the next page)



**Thank you for completing this questionnaire**

This study was commissioned by The Healthcare Quality Improvement Partnership (HQIP) as part of the Clinical Outcome Review Programme into medical and surgical care.



**NCEPOD**  
**Ground Floor, Abbey House**  
**74 - 76 St John Street**  
**London**  
**EC1M 4DZ**

