



Peri-operative Management of Surgical Patients with Diabetes

National Confidential Enquiry into Patient Outcome and Death (NCEPOD)

Surgical Questionnaire

CONFIDENTIAL

DETAILS OF THE CLINICIAN COMPLETING THIS QUESTIONNAIRE

Grade: _____ Specialty: _____

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.

Inclusions:

- Patients aged 16 and over:
- who have a diabetes mellitus ICD10 code (E10.0-E11.0 inclusive in any position)
- who were admitted as either an emergency, elective or unplanned admission (e.g. following day surgery)
- who had a hospital stay of at least one night post surgery
- and who had a major surgical procedure between 1st February - 31st March 2017 inclusive

Exclusions:

- Patients undergoing day surgery without an overnight stay
- Obstetric surgery
- Minor procedures - OPCS codes available on our website <http://www.ncepod.org.uk/pd.html>

CPD accreditation:

Consultants completing NCEPOD questionnaires make a valuable contribution to the investigation of patient care. It also provides an opportunity for consultants to review their clinical management and undertake a period of personal reflection. These activities have a continuing medical and professional development value for individual consultants. Consequently, NCEPOD recommends that consultants who complete NCEPOD questionnaires keep a record of this activity which can be included as evidence of internal/self directed Continuous Professional Development in their appraisal portfolio.

Questions or help?

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

pd@ncepod.org.uk or telephone: 020 7251 9060

Thank you for taking the time to complete this questionnaire. The findings of the study will be published in late 2018.

If you (the clinician completing the questionnaire) would like email confirmation of the completion of this questionnaire for your records, please supply your email address clearly below:

FOR NCEPOD USE ONLY

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7 7 2 8 4 6 5 5 6 3 5 7 3

CODES FOR GRADE

01 – Consultant	06 – Basic grade (FY1/ FY2 or equivalent)
02 – Staff grade/Associate specialist	07 – Specialist nurse (nurse consultant, nurse practitioner, clinical nurse specialist)
03 – Trainee with CCT	08 – Senior staff nurse, enrolled nurse
04 – Senior specialist trainee (ST3+ or equivalent)	10 – Non-registered staff (HCA etc.)
05 – Junior specialist trainee (ST1&ST2 or CT equivalent)	

SPECIALTY CODES

SURGICAL SPECIALTIES

100 = General Surgery	110 = Trauma & Orthopaedics	161 = Burns Care
101 = Urology	120 = Ear, Nose & Throat (ENT)	170 = Cardiothoracic Surgery
103 = Breast Surgery	130 = Ophthalmology	172 = Cardiac Surgery
104 = Colorectal Surgery	140 = Oral Surgery	173 = Thoracic Surgery
105 = Hepatobiliary & Pancreatic Surgery	145 = Oral & Maxillo-Facial Surgery	180 = Accident & Emergency
106 = Upper GI Surgery	150 = Neurosurgery	190 = Anaesthetics
107 = Vascular Surgery	160 = Plastic Surgery	192 = Critical/Intensive care medicine

MEDICAL SPECIALTIES

300 = General Medicine	326 = Acute internal medicine	430 = Geriatric Medicine
301 = Gastroenterology	330 = Dermatology	500 = Obstetrics & Gynaecology
302 = Endocrinology	340 = Respiratory Medicine	502 = Gynaecology
303 = Clinical Haematology	350 = Infectious Diseases	800 = Clinical Oncology
306 = Hepatology	360 = Genito-Urinary Medicine	810 = Radiology
307 = Diabetic Medicine	361 = Nephrology	820 = General Pathology
314 = Rehabilitation	370 = Medical Oncology	823 = Haematology
315 = Palliative Medicine	400 = Neurology	
320 = Cardiology	410 = Rheumatology	

DEFINITIONS

Diabetic ketoacidosis (DKA)	Consistently high blood glucose levels can lead to a condition called diabetic ketoacidosis. 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)
Early warning score (EWS)	A simple scoring system in which a score is allocated to physiological measurements already undertaken when patients present to, or are being monitored in hospital. Six simple physiological parameters form the basis of the scoring system: (1) respiratory rate, (2) oxygen saturations, (3) temperature, (4) systolic blood pressure, (5) pulse rate, (6) level of consciousness
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, joins 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 hyperglycaemic state (HSS)	HSS 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 >30 mmol/L, an osmolarity of 320 mOsm/L with dehydration
Hypoglycemia	Hypoglycemia occurs when blood glucose levels fall below 4 mmol/L (72mg/dL)
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)
Malnutrition universal screening tool (MUST)	MUST is a 3 step screening tool to identify adults, who are malnourished, at risk of malnutrition, or obese. It also include management guidelines which can be used to develop a care plan
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



6 7 2 8 4 6 5 5 6 3 6 1 1

A. CASE SUMMARY

1. Please use the box below to provide a brief summary of this case, adding any additional comments or information you feel relevant. Please write clearly for the benefit of the case reviewers. You may also write or type on a separate sheet.

NCEPOD attaches great importance to this summary. Please give as much information as possible about the care of this patient.

B. PATIENT DETAILS

2. Age (at time of procedure) years

3. Gender Male Female

4a. Type of diabetes

Type 1 Type 2 Other (please state):

4b. Type of medication

Insulin Diet Oral hypoglycaemic agents
 Other (please specify): Non-insulin injectable therapy

5. How long ago was diabetes first diagnosed?

0-5 years 6-10 years > 10 years Unknown

6. Who normally looks after this patient's diabetes care? (Please tick all that apply)

General practitioner Community diabetes specialist nurse Consultant diabetologist
 Other (please specify): Hospital diabetes specialist nurse Unknown



7. Was this admission:

- Elective Non-elective

8a. Date of patient's last surgical outpatient review: dd/mm/yyyy N/A

8b. Date the patient was placed on the waiting list: dd/mm/yyyy N/A
(including emergency patients)

If an Elective admission please continue to 9a
If a Non-elective admission please continue to 12

C. ELECTIVE REFERRAL AND OUTPATIENTS

9a. Date of referral: dd/mm/yyyy N/A

9b. Who made the referral?

- General practitioner District general hospital Tertiary centre
 Emergency referral (111/999 call) Managed pathway (e.g. physiotherapist)
 Other (please specify):

10a. Was information on the management of the patient's diabetes in the community available in the referral documentation?

- Yes No

10b. If Yes to 10a, what did it include? (please select all that apply) *Definitions on page 2

- | | |
|--|--|
| <input type="checkbox"/> Evidence of regular blood sugar measurement | <input type="checkbox"/> HbA1c* (within the last 3 months) |
| <input type="checkbox"/> Patient co-morbidities | <input type="checkbox"/> Urgency of referral |
| <input type="checkbox"/> Community diabetes specialist nurse assessment or notes | <input type="checkbox"/> BMI |
| <input type="checkbox"/> List of current medication | <input type="checkbox"/> Blood pressure |
| <input type="checkbox"/> Evidence from primary care about the need to optimise the patient's diabetes before surgery | <input type="checkbox"/> Estimated glomerular filtration rate (eGFR) |

Diabetes related complications (please select all that apply)

- | | | |
|--|--------------------------------------|--|
| <input type="checkbox"/> Cardiovascular | <input type="checkbox"/> Neuropathy | <input type="checkbox"/> Nephropathy |
| <input type="checkbox"/> Skin problems | <input type="checkbox"/> Retinopathy | <input type="checkbox"/> Peripheral vascular disease |
| <input type="checkbox"/> Cerebrovascular (with full recovery) | | |
| <input type="checkbox"/> Cerebrovascular (with minor residual disability) | | |
| <input type="checkbox"/> Cerebrovascular (with major disability affecting day to day life) | | |

11a. Was a recent HbA1c* (3 months prior to surgery) available? *Definitions page 2

- Yes No Unknown

11b. If Yes to 11a, was the HbA1c >8.5% or 69 mmol/L?

- Yes No Unknown



11c. If Yes to 11b, was there an attempt to improve control, before surgery, by referral to:

- Diabetes team Primary care Admitted to secondary care for optimisation
 Dietitian None Unknown
 Other (please state):

11d. If the answer to 11c was 'None', and if the patient's HbA1c was >8.5% or 69mmol/L, was a reason documented as to why not?

- Yes No Unknown

11e. If Yes to 11d, please provide the reason:

D. ADMISSION DETAILS

12. Date and time of arrival to hospital:

dd/mm/yyyy hh:mm

13a. Date and time of decision to admit patient:

dd/mm/yyyy hh:mm N/A elective patient

13b. Please state the grade and specialty of the clinician deciding to admit the patient:

Grade: Specialty: (Grade and specialty codes on page 2)

14. First documented assessment by a healthcare professional (excluding triage):

Date: dd/mm/yyyy Time: hh:mm

Grade: Specialty: (Grade and specialty codes on page 2)

15. Where was the patient first assessed (excluding triage)? *Definitions on page 2

- Emergency department Specialist ward Medical assessment unit
 Level 2 (HDU)* Level 3 (ICU)* Surgical assessment unit
 Other (please state): Pre-operative admissions unit General ward

16. Please specify an admission category:

- Elective A time agreed between the patient and surgical service
 Planned Within 48 hours of referral/ consultation
 Emergency Immediately following referral/ consultation, where admission is unpredictable and at short notice because of clinical need

17. What was the diagnosis for this patient on admission?



18a. Did the patient have a known or newly diagnosed mental health condition on admission?

Yes No Unknown

18b. If Yes to 18a, please state:

19a. Had this patient's admission been cancelled on a previous occasion? Yes No Unknown

19b. If Yes to 19a, on how many occasions?

19c. If Yes to 19a, was it cancelled for any reason other than a clinical one? Yes No Unknown

19d. If Yes to 19c, please give details:

20a. In your opinion, did the time spent waiting for the operation affect the patient's outcome?

Yes No Unknown N/A

20b. If Yes to 20a, please give details:

21. Date and time of arrival to admitting ward:

dd/mm/yyyy hh:mm

22a. To what specialty was the patient first admitted? (Specialty codes on page 2)

22b. In your opinion, was this an appropriate specialty for the patient to be admitted to?

Yes No Unknown

22c. If No to 22b, please state why not:

23a. Was the patient transferred to another specialty? Yes No Unknown

23b. If Yes to 23a, was there a delay in the process of transfer? Yes No Unknown

23c. If Yes to 23a, please state the reason for delay:

E. ASSESSMENT FOLLOWING ADMISSION

24. Please state the grade and specialty of the clinician who first assessed the patient following admission?

Grade: Specialty: (Grade and speciality codes on page 2)

25. What was the presumed diagnosis following the initial assessment?

26. Date and time of first consultant review: dd/mm/yyyy hh:mm

27. If the patient was not expected to survive, was an end of life care pathway initiated?

Yes No Unknown N/A



F. INPATIENT PRE-OPERATIVE CARE

- 28a. Was a referral made to the inpatient diabetes nurse specialist during the current inpatient admission?
 Yes No
- 28b. Was the inpatient diabetes specialist team consulted during the current inpatient admission?
 Yes No N/A
- 29a. Date and time referred to diabetes team:
 dd/mm/yyyy hh:mm N/A
- 29b. Date and time first seen by diabetes team:
 dd/mm/yyyy hh:mm N/A
30. Which diabetes specialist was the patient seen by during the current inpatient admission?
 Consultant diabetologist Diabetes specialist nurse Core trainee in diabetes
 Other (please state):
 None of the above
- 31a. Was the patient discussed at a multi-disciplinary review meeting by the inpatient diabetes service?
 Yes No Unknown N/A
- 31b. If Yes to 31a, who attended this?
 Consultant surgeon Consultant anaesthetist Consultant diabetologist
 Diabetes specialist nurse Consultant in intensive care
32. Was a dietitian consulted during the current inpatient admission? Yes No Unknown
- 33a. Was a MUST* score calculated during the current inpatient admission? Yes No Unknown
*Definitions on page 2
- 33b. If Yes to 33a, what was the score? 0: Low risk 1: Medium risk 2+: High risk
34. What supplementary nutrition did the patient receive during the current inpatient admission?
 Parenteral nutrition Enteral feeding Normal diet
 Other (please state): Unknown Nil by mouth

G. OPERATION

- 35a. Were there any delays caused by poor control of the patient's diabetes between admission and the operation? Yes No
- 35b. If Yes to 35a, how long was surgery delayed by? days hours
- 36a. Were there any other avoidable delays? Yes No
- 36b. If Yes to 36a, please state:



37. What was the patient's ASA grade immediately pre-operatively?

- ASA I A normal healthy patient
- ASA II A patient with mild systemic disease
- ASA III A patient with severe systemic disease
- ASA IV A patient with severe systemic disease that is a constant threat to life
- ASA V A moribund patient who is not expected to survive the operation

38. Please classify urgency of the procedure:

- Immediate Immediate life, limb or organ-saving intervention – resuscitation simultaneous with intervention. Normally within minutes 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.
- 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.
- Elective Intervention planned or booked in advance of routine admission to hospital. Timing to suit patient, hospital and staff.

39. Date and time of arrival to theatre: dd/mm/yyyy hh:mm

40. What operation was undertaken?

41. Please state the diagnosis established at operation (if different from admission)

N/A (same as admission)

42a. Were there any unanticipated intra-operative problems? Yes No Unknown

42b. If Yes to 42a, please specify:

43. What type of theatre was the procedure conducted in?

Dedicated emergency theatre Elective theatre Specialist theatre General theatre

Other (please state):

44. What was the grade of the most senior operating surgeon (as distinct from surgeons present in an assisting or supervisory capacity) at the start of this case?

Grade: (Grade codes on page 2)

45. What level of supervision did the primary operator have if they were not a consultant?

- Consultant supervised scrubbed Consultant unsupervised in theatre
- Unsupervised in hospital N/A

Other (please state):

46a. Did the patient receive a blood transfusion during surgery? Yes No Unknown

46b. If Yes to 46a, how many units were given? units of blood



H - POST-OPERATIVE MANAGEMENT

47. Date and time of arrival to recovery area: dd/mm/yyyy hh:mm

48a. Who managed the patient's diabetes in the post-operative period:

- Patient Diabetes team Diabetes specialist nurse
 Other (please state): Anaesthetic team Surgical team

48b. If the answer to 48a was 'diabetes team', how frequently was the patient reviewed?

- Daily Twice daily On referral
 Other (please state): Before discharge

49a. Was the patient started on variable rate intravenous insulin infusion* (VRIII- previously known as sliding scale) within the first 48 hours post-operatively? *Definitions on page 2

- Yes No

49b. Was the patient's blood glucose measured every hour? Yes No

49c. What was the lowest blood glucose measurement: mmol/L

49d. What was the highest blood glucose measurement: mmol/L

50. Was the patient started on an oral diet as early as possible? Yes No

51. Was the patient started on their usual diabetes medications as early as possible? Yes No

52. Was a nutritional assessment performed post-operatively? Yes No

53. Did the patient see a dietitian post-operatively? Yes No

54a. Was a MUST* score calculated post-operatively? *Definitions on page 2

- Yes No Unknown

54b. If Yes to 54a, what was the score? 0: Low risk 1: Medium risk 2+: High risk

55a. What supplementary nutrition did the patient receive post-operatively?

- Parenteral nutrition Enteral feeding Normal diet
 Other (please state): Unknown Nil by mouth

55b. How long was this given for? N/A (nil by mouth) days

55c. When was nutrition started: N/A (nil by mouth) dd/mm/yyyy

56. Was an early warning score* used post-operatively? Yes No *Definitions on page 2

57. Were areas at risk of pressure sores protected? Yes No



58a. Who reviewed the patient after surgery?

(please tick all that apply)

- Surgeon Diabetes team Diabetes specialist nurse Physiotherapist
- Anaesthetist Occupational therapist Other (please state):

59. Please describe any post-operative complications N/A (no post-operative complications)

60. How were complications identified? N/A

61. How were complications managed? N/A

62a. Did the patient experience any specific diabetes complications post-operatively? *Definitions on page 2

- Diabetic ketoacidosis* Hypoglycaemia* needing treatment
- Other (please specify): Hyperosmolar hyperglycaemic state*

62b. If Yes to 62a, was appropriate action taken? Yes No Unknown

62c. If Yes to 62a, was this avoidable? Yes No Unknown

62d. If Yes to 62c, please give details:

I. DISCHARGE/DEATH

63. Did the patient die during this admission? Yes No

If Yes please complete Q64-Q65 If No please continue to Q66

64. Date of death: dd/mm/yyyy

65. Please state the cause of death as written on the medical certificate of cause of death (MCCD) or as determined by the coroner?

1a. _____

1b. _____

1c. _____

2. _____

Please go to Q71a



66. Who was involved in the patient's discharge planning? (please tick all that apply)

- Patient Surgeon Diabetes specialist nurse
 Diabetes team Physiotherapy Occupational therapy
 Other (please specify): Rehabilitation Dietitian

67. Date of discharge: dd/mm/yyyy

68. Final diagnosis at discharge:

69a. Were arrangements made for the patient's diabetes care post discharge?

- Yes No Unknown

69b. If Yes to 69a, what arrangements were made? (please tick all that apply)

- Diabetes team follow-up Self management General practitioner follow-up
 Other (please specify):

70a. Was the patient re-admitted within 30 days after discharge? Yes No Unknown

70b. If Yes to 70a, what was the reason for the re-admission?

- Unrelated to previous admission
 Diabetes complication (please specify):

- Surgical complication (please specify):

- Other (please specify):

J. AUDIT

71a. Was there a critical incident relating to the patient's diabetes management during this admission?

- Yes No Unknown

71b. If Yes to 71a, please describe:

71c. If Yes to 71a, was this reported using your local hospital reporting system?

- Yes No Unknown

72. Was the incident discussed at a formal multi-disciplinary review/ audit/ mortality and morbidity meeting?

- Yes No Unknown



74. Please provide any further comments relating to this patient's care. With the benefit of hindsight, is there anything, in your opinion, that could have been done differently? Was this related to clinical or organisational aspects of care. Please note that all answers are confidential.

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.



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