

Diabetes Guideline

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The size of the problem

323,000 operations take place in the UK each year in people with diabetes, accounting for 15% of all operative procedures

LOS is an average 3 days longer with a wide variation (GIRFT)

Postoperative complications and readmissions are more frequent

Postoperative Complications



* Composite of hospital complications: wound infection, pneumonia, respiratory failure, acute renal failure, and bacteremia.

The referral

Two fifths do not contain information on diabetes management

Less than 10% contain a recent HbA1c

In only 35% is this checked at pre-assessment

Suboptimal control (>69 mmol/mol (8.5%)) is infrequently acted upon

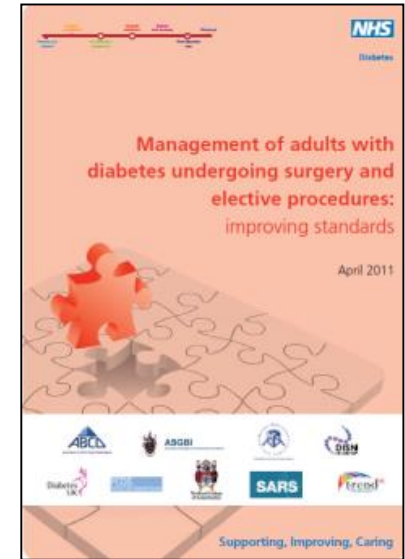
Medication errors commoner on surgical wards



Inpatient drug charts that had one or more:	Medical	Surgical
• Medication error	36.6 *	41.1 *
• Prescription error	19.6 *	25.2 *
• Glucose management error	23.6 *	25.5 *
• Insulin error	22.7	22.9

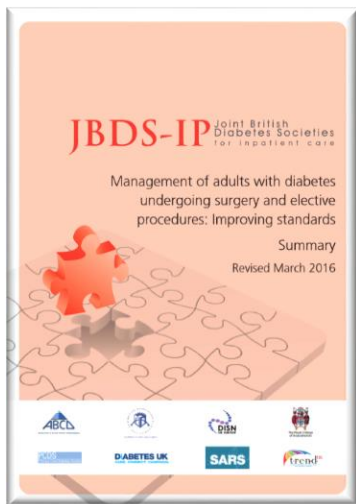
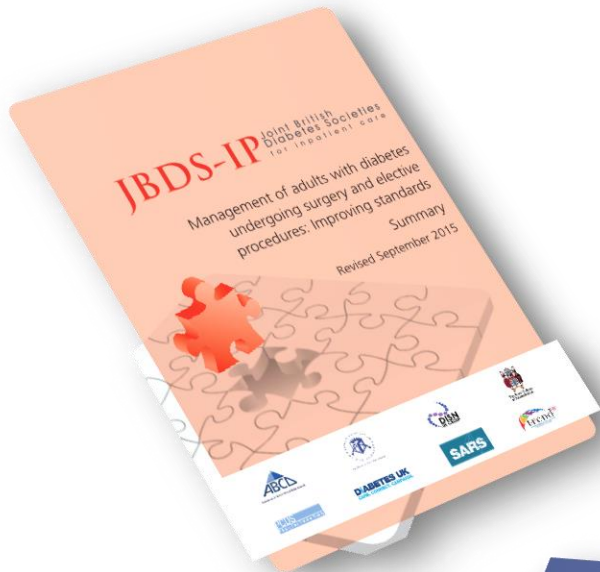
Joint British Diabetes Societies Guidance on Perioperative care

Comprehensive care pathway for peri-operative management of diabetes



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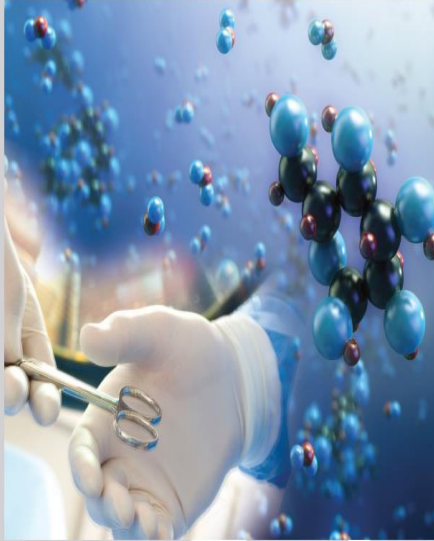
Highs and Lows

A review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure

NCEPOD

Improving the quality
of healthcare

2018



“This study was proposed as clinicians involved with this vulnerable patient group were aware that the guidelines were not always followed and there was not always joint specialty working”

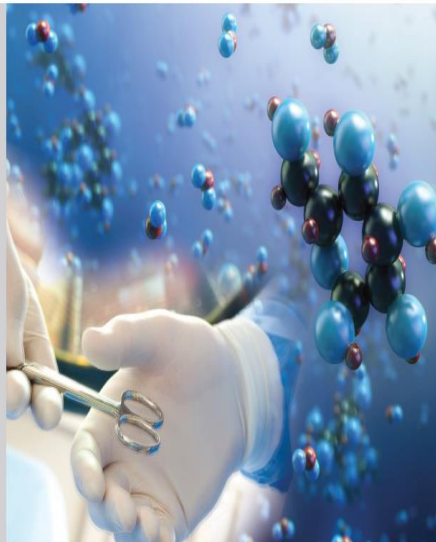
Highs and Lows

A review of the quality of care provided to patients over the age of 16 who had diabetes and underwent a surgical procedure



Improving the quality of healthcare

2018



Information available on referral

	%
Evidence of regular blood sugar measurement	22.0
HbA1c (within last 3 months)	42.4
Patient co-morbidities	76.3
Urgency of referral	21.2
Community diabetes specialist nurse assessment or notes	5.1
BMI	37.3
List of current medications	83.1
Blood pressure	35.6
Evidence from primary care about the need to optimise the patient's diabetes prior to surgery	6.8
eGFR	19.5
Diabetes related complications	26.3
Other	1.7

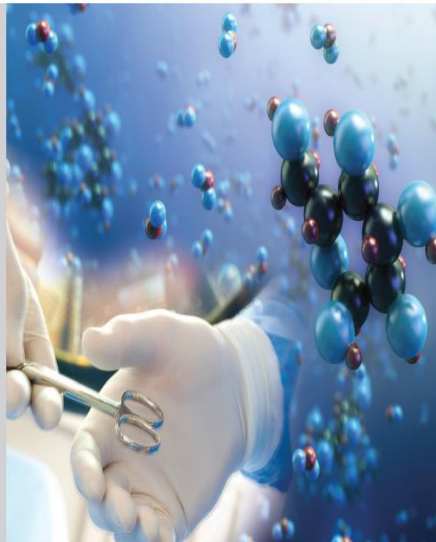
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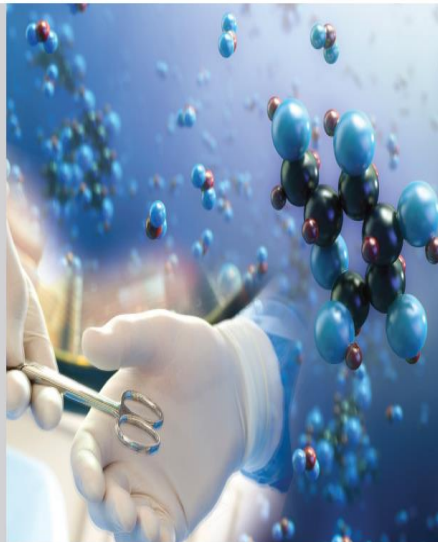
Highs and Lows

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Improving the quality of healthcare

2018



No care planning

No documented evidence

that the patient was given instruction on diabetes management prior to surgery

57%

of a diabetes management plan at pre-assessment

60%

that the patient was included in the diabetes management plan during the admission

70%

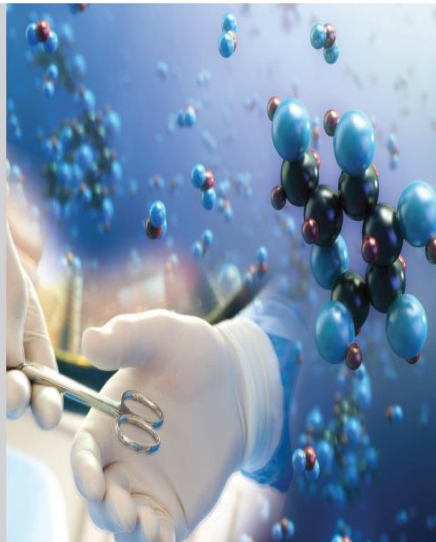
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Improving the quality
of healthcare

2018



Care structures and adherence to protocol

90% have peri-operative guidelines but they are seldom adhered to these and few use JBDS guidance

Only 60% of trusts had clinical leads for perioperative and day case surgery for diabetes

9% of trusts exclude people with diabetes from day case surgery

14% of patients did not have adequate in-theatre CBG monitoring and intraoperative hypoglycaemia occurred in 4.7%.

One sixth of all insulin infusions were discontinued incorrectly

Overall assessment of care

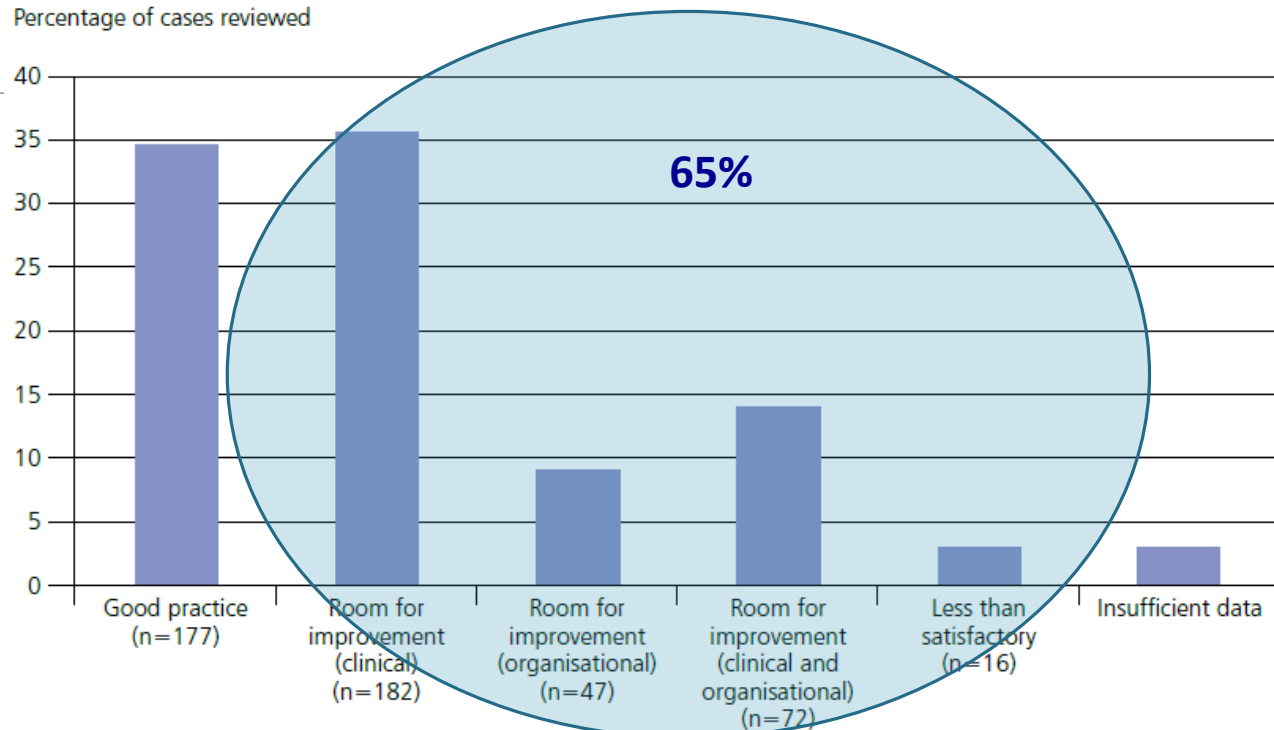


Figure 8.1 Overall quality of care (n=509)

Making hospitals safe for people with diabetes

Every stay for someone with diabetes in hospital should be safe. At the moment it's not. Let's change that.



DIABETES UK
KNOW DIABETES. FIGHT DIABETES.

Recommendations

Who's responsible?

2 Hospitals should also have a perioperative diabetes team with representation from surgery, pre-admission, anaesthetic department, recovery nursing and analytic team. The responsibilities of the team should include:

- Implementing and monitoring the perioperative pathway.
- Meeting monthly to review reports, complaints, plan service improvements and audit the service.

Leadership of acute hospital trust.

Diabetes

GIRFT Programme National Specialty Report

by Professors Gerry Rayman and Partha Kar

November 2020



Trusts should have clear, audited perioperative pathways for people with diabetes, broadly in line with the recommendations in the recent NCEPOD report Highs and Lows.

ACADEMY OF MEDICAL ROYAL COLLEGES _____

Commissioned the CPOC to develop a whole pathway guideline on perioperative care for people with diabetes undergoing elective and emergency surgery



Centre for
Perioperative Care

Guideline for
Perioperative Care
for People with
Diabetes Mellitus
Undergoing Elective
and Emergency
Surgery

February 2021

Multidisciplinary-

Anaesthetics- CPOC & RCoA

Surgery- RCS

Primary Care- PCDS & RCGP

Diabetes- DiabetesUK, JBDS, GIRFT

Diabetes Nursing- RCN

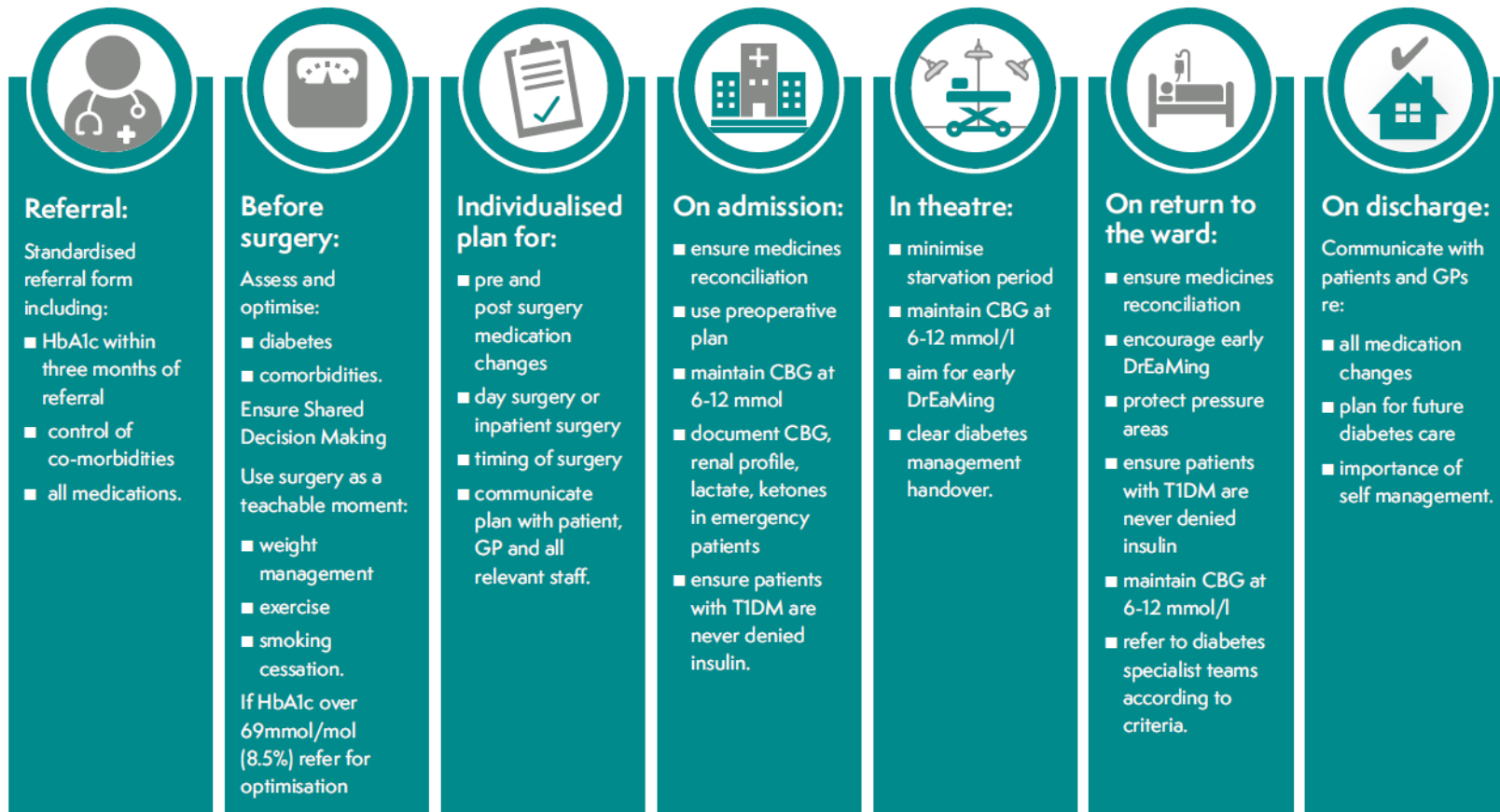
Care of the elderly

Patients and patient organisations

Pharmacists- UK Clinical Pharmacy

Association

Figure 1 The perioperative pathway for people with diabetes undergoing elective and emergency surgery



13 Recommendations for organisations

- Commissioners should work **collaboratively** with 1^o, 2^o, community and social care
- Hospitals, should appoint a **clinical lead for perioperative diabetes** care- developing, implementing, and auditing policies and processes to ensure quality care
- Hospitals appoint a **specific team to co-ordinate individualised perioperative care for people with diabetes** supported by **perioperative DISNs**
- Promote **day surgery** based on British Association of Day Surgery Directory of Procedures
- Promote use of **Enhanced Recovery** programmes
- Invest in technologies so **all** people with **diabetes are identified on PAS**
- Implement **alerts** for out of range glucose levels
- Ensure **training** of all staff involved in perioperative care of patients with diabetes

16 Recommendations for primary care teams



Referral:

Standardised referral form including:

- HbA1c within three months of referral
- control of co-morbidities
- all medications.



Before surgery:

Assess and optimise:

- diabetes
- comorbidities.

Ensure Shared Decision Making

Use surgery as a teachable moment:

- weight management
- exercise
- smoking cessation.

If HbA1c over 69mmol/mol (8.5%) refer for optimisation

- report type of diabetes, HbA1c levels within three months, address or consider referral for diabetes specialist support if > 69mmol/mol (8.5%)
- list current medications and diabetes devices
- recent BMI, BP, eGFR
- list presence of and management of co-morbidities
- advise patients on the importance of general improvements in health: smoking, nutrition, exercise etc



Individualised plan for:

- pre and post surgery medication changes
- day surgery or inpatient surgery
- timing of surgery
- communicate plan with patient, GP and all relevant staff.

9 Recommendations for surgical outpatient staff

- Promote day case surgery
- Identify & manage sub-optimal diabetes control- refer
- Involve preoperative assessment clinic early in the pathway
- Schedule on morning list (ideally first)
- The above as well as perioperative diabetes management (including diabetes medication) to be included in the surgical care pathway document



9 Recommendations for staff working in preoperative assessment services

Individualised plan for:

- pre and post surgery medication changes
- day surgery or inpatient surgery
- timing of surgery
- communicate plan with patient, GP and all relevant staff.

- Document type of diabetes, medications, HbA1c, complications and those at risk of AKI (CKD), hypotension (autonomic neuropathy), pressure ulcer (neuropathy)
- Refer to perioperative DSN if suboptimal control, or using CSII pump
- Be aware and have knowledge of new technologies- CGM/Flash
- Ensure medicines reconciliation prior to admission to reduce medication errors- pre-prescribe medication and rescue treatment for hypo/hyperglycaemia- where possible work with pharmacy technician
- Develop shared care plan including medication changes prior to admission



12 Recommendations for staff admitting for elective surgery

On admission:

- ensure medicines reconciliation
- use preoperative plan
- maintain CBG at 6-12 mmol
- document CBG, renal profile, lactate, ketones in emergency patients
- ensure patients with T1DM are never denied insulin.

- Confirm type of diabetes, medications, HbA1c, complications and risks- AKI, hypotension, pressure ulcer
- Agree plan for those using CSII and/or CGM/Flash
- ensure medicines reconciliation prior to admission to reduce medication errors- pre-prescribe medication and rescue treatment for hypo/hyperglycaemia
- monitor CBG regularly (Appendix 3) and aim keep in the range 6–10 (up to 12mmol/mol is acceptable)



10 Recommendations for staff admitting for emergency surgery

On admission:

- ensure medicines reconciliation
- use preoperative plan
- maintain CBG at 6-12 mmol
- document CBG, renal profile, lactate, ketones in emergency patients
- ensure patients with T1DM are never denied insulin.

- Check glycaemic and metabolic status (excl DKA, HHS, AKI etc)
- Type 1- **check ketones and insulin must be prescribed**
- **Withhold SGLT 2 inhibitors** and check ketones daily
- Refer to diabetes team if glycaemic complications arise
- Use VRIII if to be fasted for more than 1 missed meal
- Follow guidelines for DKA and HHS



9 Recommendations for staff in theatre and recovery

In theatre:

- minimise starvation period
- maintain CBG at 6-12 mmol/l
- aim for early DrEaMing
- clear diabetes management handover.

- All areas must have immediate access to a glucose meter, ketone meter, rapid acting insulin and insulin syringes, and 'hypoboxes' - checked and restocked daily
- Maintain **intraoperative** blood glucose levels between **6–12mmol/mol**
- Check CBG prior to induction of anaesthesia, monitor and record the **CBG at least hourly if on insulin, or insulin secretagogues** (otherwise 2 hrly)
- **Never stop an insulin infusion in Type 1 diabetes unless basal** s.c insulin has been given, the glucose is <10mmol/mol and ketones are <0.6mmol/mol
- Protect heels
- Ensure a safe, documented handover from theatre recovery to the ward



On return to the ward:

- ensure medicines reconciliation
- encourage early DrEaMing
- protect pressure areas
- ensure patients with T1DM are never denied insulin
- maintain CBG at 6-12 mmol/l
- refer to diabetes specialist teams according to criteria.

10 Recommendations for ward teams

- monitor and maintain CBG in target (6–12mmol/mol)
- monitor electrolytes and fluid balance daily and correct accordingly
- never stop an insulin infusion in Type 1 diabetes unless basal subcutaneous insulin has been given and ketones are <0.6mmol/mol. Ideally, in addition, the pre meal glucose levels should be <12mmol/mol
- ensure HCP prescribing and administering insulin are competent in these roles
- support patients to resume diabetes self-management as soon as possible
- inspect patients' feet and pressure areas as a minimum daily- document findings



6 Recommendations for safe discharge and follow up

On discharge:

Communicate with patients and GPs re:

- all medication changes
- plan for future diabetes care
- importance of self management.

- discharge planning should occur from admission and be reviewed throughout
- Early involvement of specialists if possible to prevent diabetes related delays
- Timely communication with services involved in post-discharge care especially in change in diabetes medication and diabetes control with risk of dysglycaemia
- Written discharge documentation of diabetes medication and doses, sick day rules and contact for diabetes management advice

10 Recommendations for patients and their carers and the staff engaging with them

- discuss how they normally manage their diabetes, including usual injection sites, medication timings, susceptibility to hypoglycaemia
- If possible, examine injection sites for lipohypertrophy
- be aware of what is important to them in their life & talk about this to the healthcare team
- prepare for surgery- smoking, exercise, good nutrition good weight management
- prepare physically and psychologically for surgery
- seek information that will help to plan care and support
- be aware that the expected glucose range in hospital may differ from that they are use too

6 Recommendations for research

- does optimisation of diabetes (as measured by HbA1c) improve postoperative outcomes?
- does preoperative short-term glycaemic optimisation improve postoperative outcomes?
- does preventing inpatient hyperglycaemia (CBG>10mmol/l) reduce postop complications?
- does a dedicated diabetes perioperative pathway improve postop outcomes?
- what interventions reduce the incidence of hospital acquired DKA, hypoglycaemia, hyperglycaemia and medication errors
- Does preoperative administration of carbohydrate to people with diabetes make a difference to postoperative outcomes?

Practical resources

- 1 Perioperative management of medications for diabetes 16
 - 1.1 Guideline for perioperative adjustment of insulin 16
 - 1.2 Guideline for perioperative adjustment of non-insulin diabetes medication before surgery 21
- 2 Suggested Scales for Variable rate Intravenous Insulin Infusion 23
- 3 Prevention of hypoglycaemia and treatment for 'looming' hypoglycaemia and hypoglycaemia 26
- 4 Rescue treatment for perioperative hyperglycaemia 28
- 5 A clinical guideline that facilitates the perioperative use of continuous subcutaneous insulin infusion 29

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Roles and responsibilities of clinical lead for perioperative diabetes care in hospitals 35

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Factors to consider in the perioperative management of people with diabetes 37

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Perioperative blood glucose target zones 38

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Indications and use of VRIII 39

APPENDIX 5

Initial diabetes management of the patient admitted as a surgical emergency 40

Conclusion

This is the most comprehensive, multidisciplinary document to have been published on perioperative diabetes care

The most important next step is to ensure that this guidance is implemented and adherence and outcomes are annually audited