

# What Does the Introduction of This Document Mean to Primary Care?

Ketan Dhatariya  
Consultant in Diabetes NNUH

## A Bit of Background

- At the last audit, in November 2010, 13.6% of all adult beds at NNUHFT were occupied by someone with diabetes
- People with diabetes cost more to look after than those without diabetes
- We live and work in an environment where it is all about saving money
- But what if you could do something fairly straight forward that could save money & lives as well?

# Problems Facing Healthcare Providers in Dealing with Patients With Diabetes Undergoing Surgery

- The prevalence of diabetes in surgical inpatients is rising
- Patients with diabetes are often identified late in the admission process and the opportunity to improve glycaemic control in the pre-operative period is missed
- Patients with diabetes often have complex co-morbidities
- Diabetes is associated with a higher morbidity and mortality and a prolonged length of stay on surgical wards
- Post-operative infections are more common in patients with diabetes

# Problems Facing Healthcare Providers in Dealing with Patients With Diabetes Undergoing Surgery

- Patients with diabetes are vulnerable to pressure damage – in particular heel ulcers
- Polypharmacy and insulin misuse puts patients with diabetes at risk
- Not all hospitals have comprehensive guidelines in place for the management of diabetes, including life-threatening conditions such as hypo and hyperglycaemia
- Patient groups are raising awareness of poor standards of inpatient care and are demanding improvement

## Excess Mean Length of Stay in Diabetes Inpatients Aged 18 – 60 Years 269,265 Diabetes Discharges and 4,411,593 Matched Controls

	Mean LOS (days)			Excess LOS (days)			n		
	E10	E11	C	E10	E11	E10	E11	C	
<b>Surg.</b>	5.4 (0.1)	5.1 (0.1)	4.2 (0.2)	1.2	0.9	18,032	32,135	1,501,453	
<b>T &amp; O</b>	4.8 (0.1)	5.3 (0.2)	4.6 (0.1)	0.2	0.7	8,178	12,203	885,606	
<b>GM</b>	4.8 (0.2)	5.4 (0.2)	4.4 (0.1)	0.4	1.0	70,988	82,446	1,709,553	
<b>Card.</b>	4.2 (0.1)	4.2 (0.1)	3.8 (0.1)	0.4	0.4	5,307	15,009	229,784	
<b>MFE</b>	4.8 (0.2)	5.6 (0.2)	4.7 (0.1)	0.1	0.1	2,444	4,549	85,197	

E10 = Type 1 diabetes      E11 = Type 2 diabetes      c = controls

English Hospitals, 4 consecutive years of discharges 2000-2004

Sampson MJ et al Diabetes Research & Clinical Practice 2007;77(1):92-98

# Unpublished Data from the DIPSat Study - Hypoglycaemia

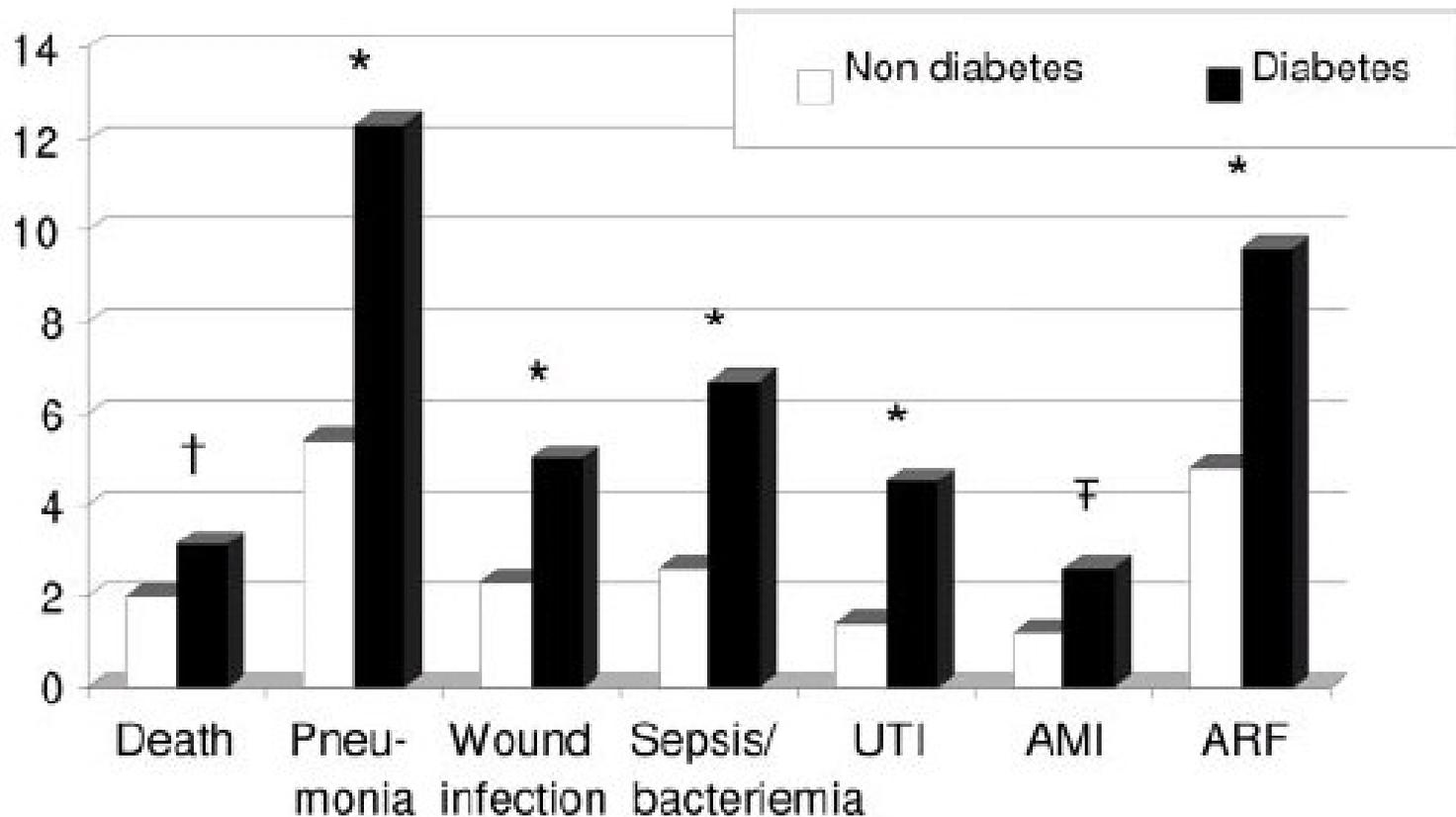
- Approximately 33% of inpatients with diabetes who are due to undergo surgery are on insulin
- Of those, 27.6% had an episode of low blood glucose requiring 3<sup>rd</sup> party help
- This resulted in significantly longer length of stay (and greater dissatisfaction)

# Do High Glucose Levels Cause Harm?

- High pre-operative HbA1c has been related to adverse outcomes following
  - spinal surgery
  - vascular surgery
  - colorectal surgery
  - cardiac surgery

Walid MS et al 2010 Journal of Hospital Medicine 5:E10-E14  
O'Sullivan CJ et al 2006 European Journal of Vascular and Endovascular Surgery 32:188-197  
Gustafsson UO et al 2009 British Journal of Surgery 96:1358-1364  
Halkos ME et al 2008 Annals of Thoracic Surgery 86:1431-1437

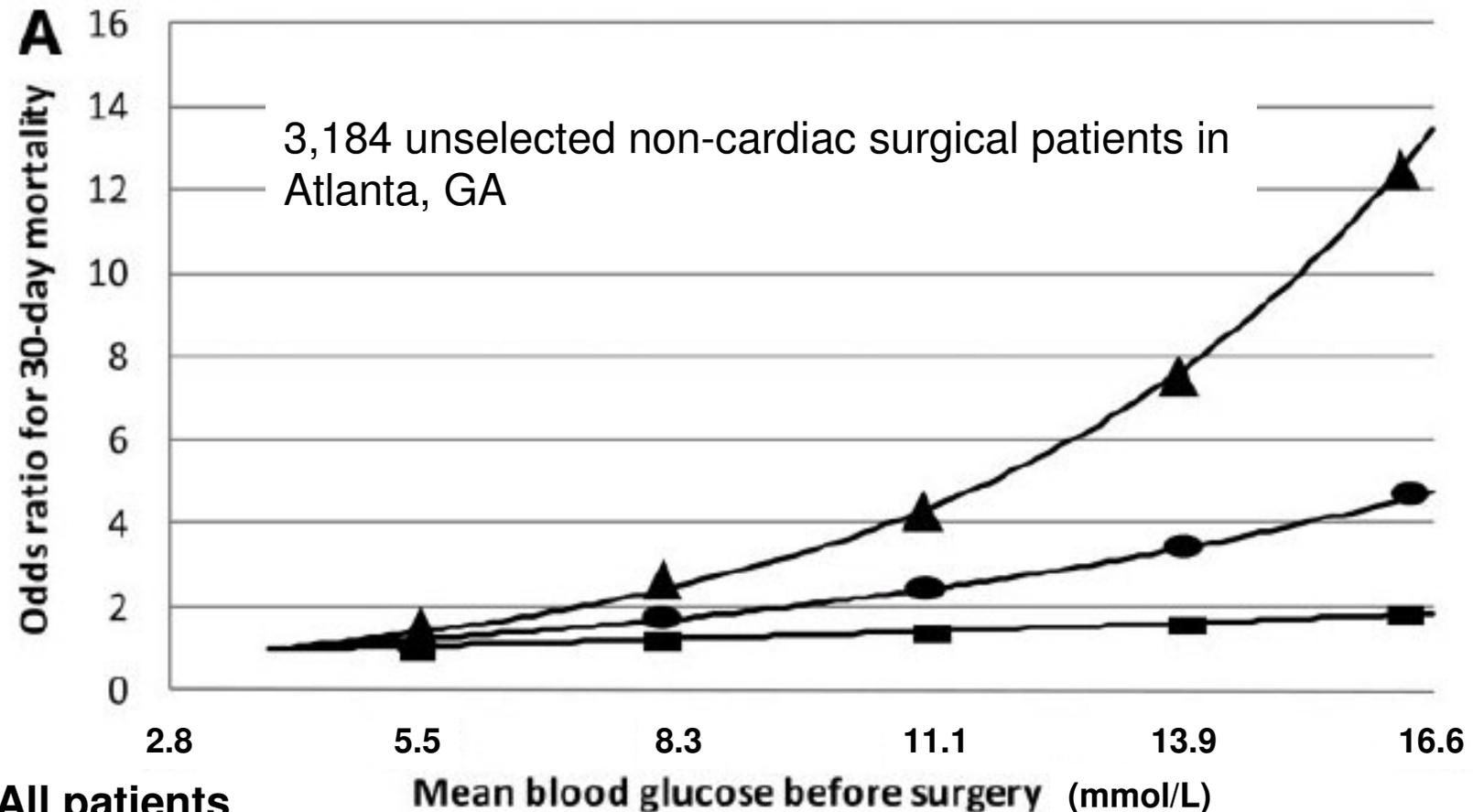
# Do High Glucose Levels Cause Harm?



3,184 unselected non-cardiac surgical patients in Atlanta, GA

Frisch A et al Diabetes Care 2010;33(8):1783-1788

# Do High Glucose Levels Cause Harm?

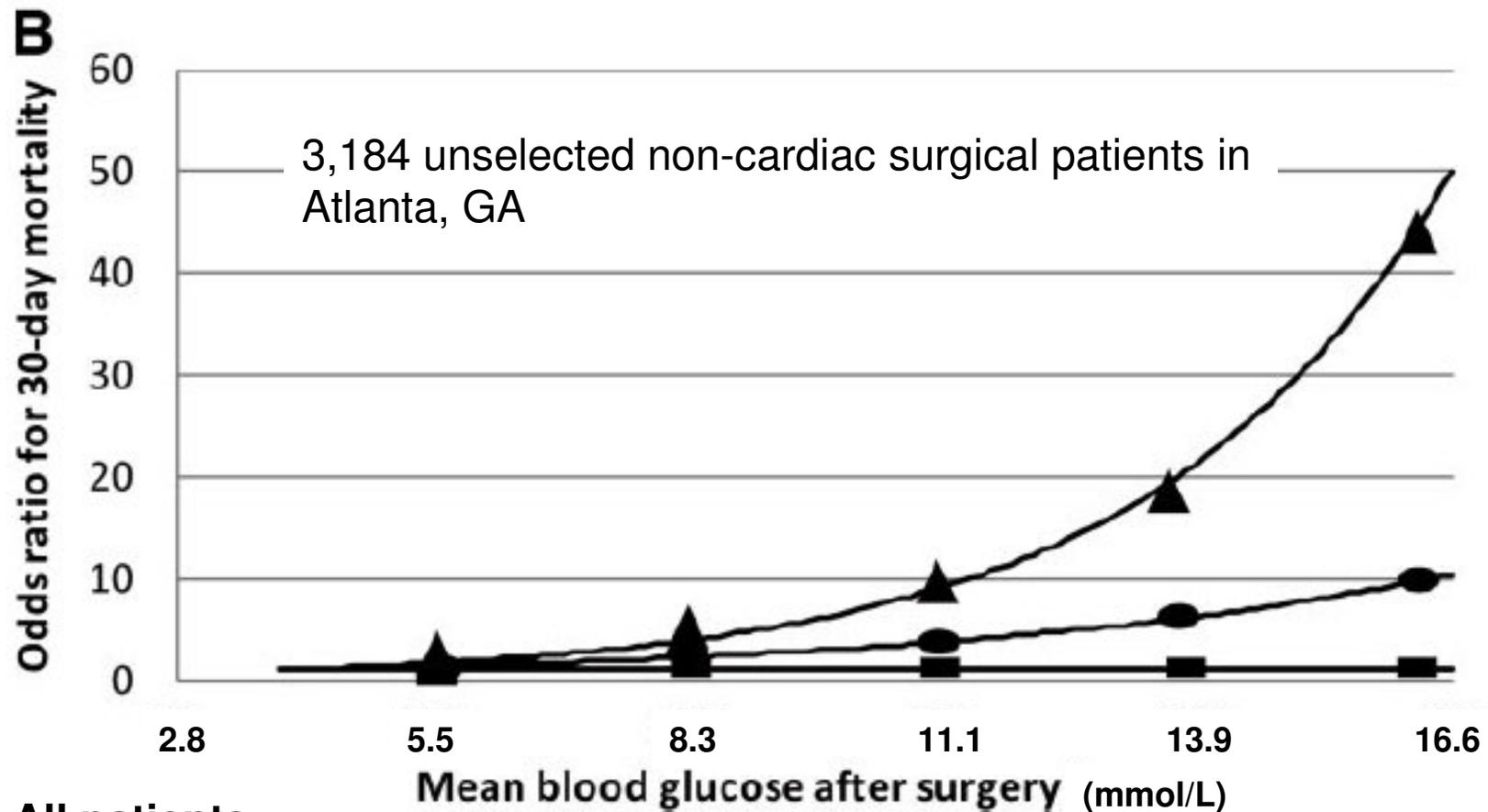


● All patients

■ Patients with diabetes

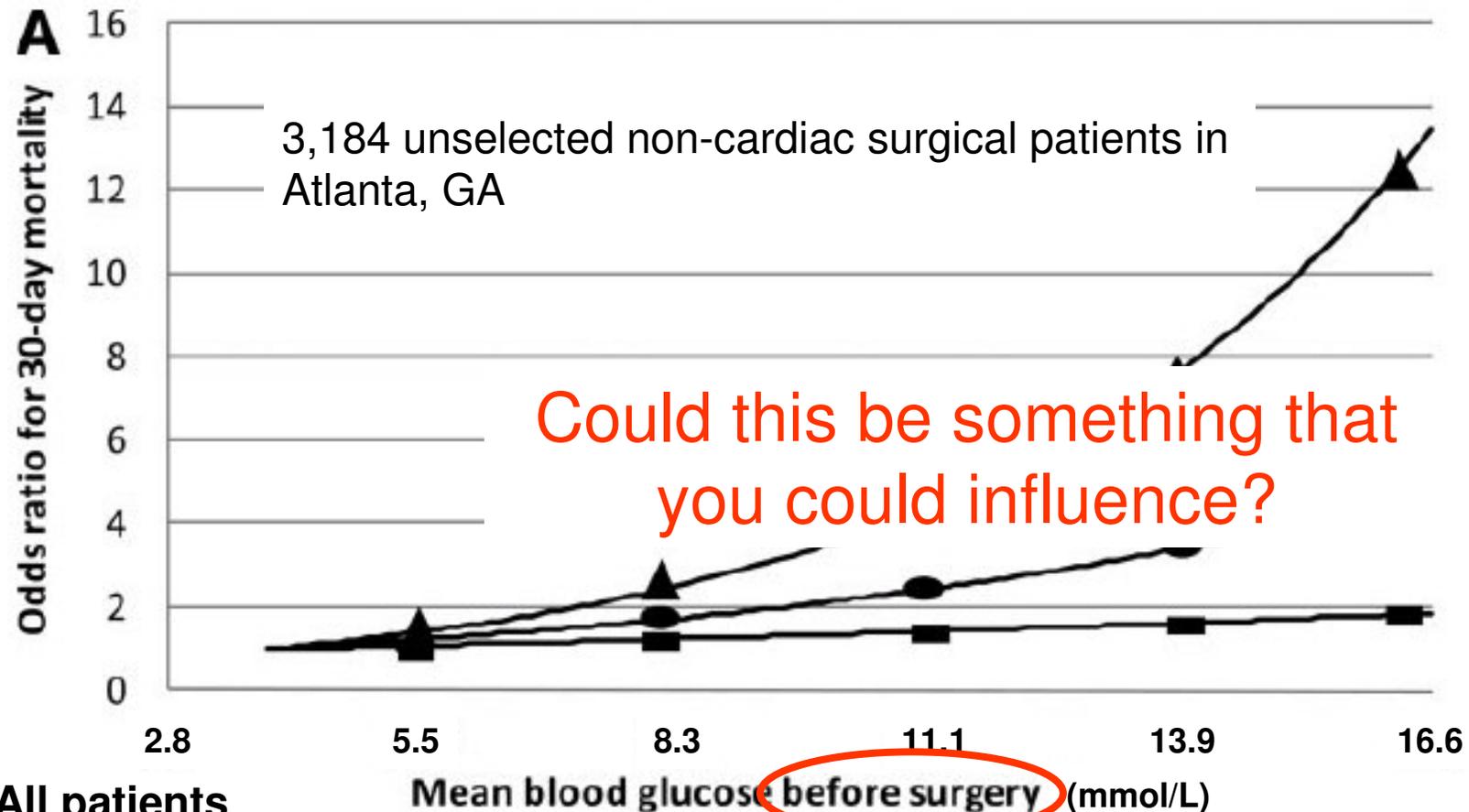
▲ Patients without diabetes

# Do High Glucose Levels Cause Harm?



- All patients
- Patients with diabetes
- ▲ Patients without diabetes

# Lets go Back to the First One Again



- All patients
- Patients with diabetes
- ▲ Patients without diabetes

# I Would Suggest That the Answer is YES!



The patient journey – the pathway of care for elective surgery

# Primary Care - Aims

- Ensure that the potential effects of diabetes and associated co-morbidities on the outcome of surgery are considered before referral for elective procedures
- Ensure that the relevant medical information is communicated fully at the time of referral
- Ensure that diabetes and co-morbidities are optimally managed before the procedure

## Primary Care - Action

- Provide the current HbA1c, BP and BMI measurements with details of relevant complications and medications in the referral letter
- Optimise glycaemic control before referral (if possible and if appropriate)
- Consider referral to the diabetes specialist team for advice if the HbA1c is greater than 8.5% (69 mmol/mol). A high HbA1c is an indication for intensive blood glucose control but it may not be realistic to delay referral until the HbA1c has been repeated

# Primary Care - Action

- Patients with hypoglycaemic unawareness should be referred to the diabetes specialist team irrespective of HbA1c
- Optimise other diabetes related co-morbidities
- Provide written advice to patients undergoing investigative procedures requiring a period of starvation

# Minimum Data Requirement

- Type and duration of diabetes
- Place of usual diabetes care (1<sup>o</sup> or 2<sup>o</sup> care)
- Other significant co-morbidities
- Treatment
  - For diabetes oral agents/ insulin doses and frequency
  - For other co-morbidities
- Complications
  - At risk foot
  - Renal impairment
  - Cardiac disease
- Relevant measures
  - BMI
  - BP
  - HbA1c
  - eGFR

Tablets	Day prior to admission	Day of Surgery	
		Patient for AM surgery	Patient for PM surgery
<b>Acarbose</b>	Take as normal	Omit morning dose if you have been told to fast from midnight	Take your morning dose if eating breakfast. Do not take your lunchtime dose
<b>Meglitinide</b> (repaglinide or nateglinide)	Take as normal	Omit morning dose if you have been told to fast from midnight	Take your morning dose if eating breakfast. Do not take your lunchtime dose
<b>Metformin</b> If you are due to have contrast media this <b>may</b> need to be stopped on the day of the procedure and not taken for a further 48 hours (your doctor should tell you this in advance)	Take as normal	If taken once a day – do not stop If taken twice a day – do not stop If taken three times a day omit your lunchtime dose only	If taken once a day – do not stop If taken twice a day – do not stop If taken three times a day omit your lunchtime dose only
<b>Sulphonylureas</b> (glibenclamide, glipizide, gliclazide/gliclazide MR, glimepiride, gliquidone)	Take as normal	If taken once a day in the morning – omit this dose If taken twice a day, omit the morning dose	If taken once a day in the morning – omit this dose If taken twice a day, omit both doses
<b>Thiazolidinediones</b> (Pioglitazone)	Take as normal	Take as normal	Take as normal
<b>DPP-IV inhibitors</b> (Sitagliptin, saxagliptin, vildagliptin)	Take as normal	Omit your morning dose	Omit your morning dose

**You should resume taking your normal tablets the morning after surgery. However, your blood glucose may be higher than usual for a day or so.**

Insulins	Day prior to admission	Day of Surgery	
		Patient for AM surgery	Patient for PM surgery
<b>Once Daily (evening)</b> (Lantus®/Glargine® or Levemir®/Detemir®, Insulatard® or Humulin®)	No dose change	No dose adjustment necessary*	No dose adjustment necessary*
<b>Once Daily (morning)</b> (Lantus®/Glargine® or Levemir®/Detemir®, Insulatard® or Humulin®)	No dose change	Take your normal dose*. Your blood glucose will be checked on admission	Take your normal dose*. Your blood glucose will be checked on admission
<b>Twice daily</b> (Novomix 30®, Humulin M3®, Humalog Mix 25®, Humalog Mix 50®)	No dose change	Halve the usual dose. Your blood glucose will be checked on admission Resume your normal insulin with your evening meal	Halve the usual dose. Your blood glucose will be checked on admission Resume your normal insulin with your evening meal
<b>3, 4 or 5 injections daily</b>	No dose change	Omit your morning dose of short acting insulin if no breakfast is eaten. If you normally take a long acting basal insulin in the morning you should take your normal dose*. If you normally take a pre-mixed insulin the dose should be halved. Omit your lunchtime dose. Resume your normal insulin with your evening meal.	Take usual morning insulin dose(s). Omit lunchtime dose. Your blood glucose will be checked on admission Resume your normal insulin with your evening meal.

**You should resume taking your normal insulin the morning after surgery (procedure).  
 However, your blood glucose may be higher than usual for a day or so.**

Any Questions?