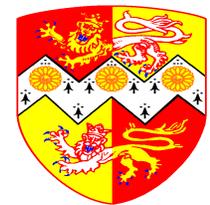




Recent Advances in the Management of Diabetes in Surgical Patients or Peri-operative Glucose Control - Is it Important?

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Recent Data

- People with diabetes are
 - Less likely to be offered day case surgery
 - More likely to have emergency surgery
 - Have a longer LOS following surgery
 - Have higher rates of 28-day readmissions following surgery

Do Peri-Operative High Glucose Levels Cause Harm?

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

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

Kreutziger J et al 2009 J Trauma 67(4):704-8

Excess Mean Length of Stay in Diabetes Inpatients Aged 18 – 60 Years

269,265 Diabetes Discharges and 4,411,593 Matched Controls

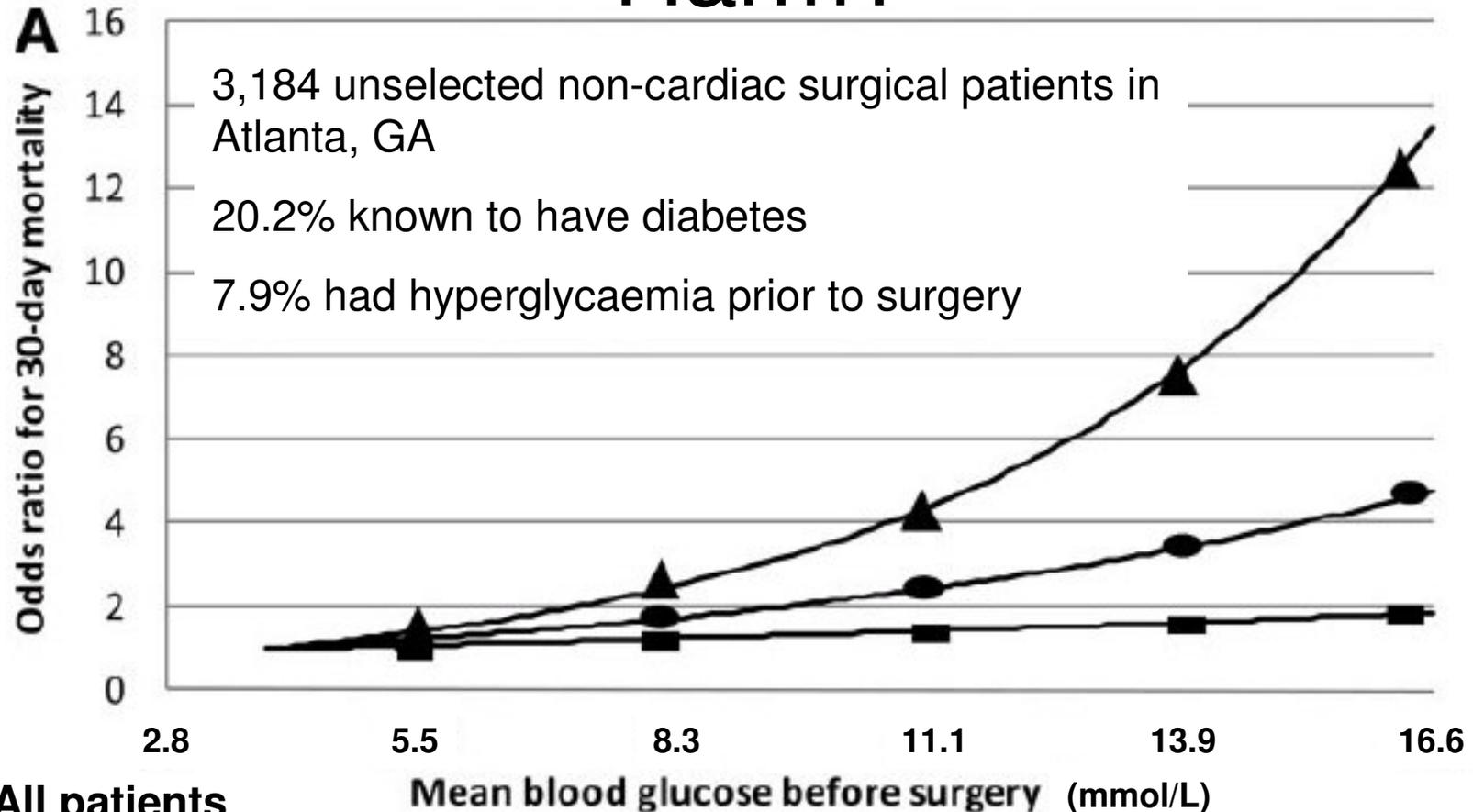
	Mean LOS (days)			Excess LOS (days)			n		
	E10	E11	C	E10	E11	E10	E11	C	
Surg.	5.4 (0.1)	5.1 (0.1)	4.2 (0.2)	1.2	0.9	18,032	32,135	1,501,453	
T & O	4.8 (0.1)	5.3 (0.2)	4.6 (0.1)	0.2	0.7	8,178	12,203	885,606	
GM	4.8 (0.2)	5.4 (0.2)	4.4 (0.1)	0.4	1.0	70,988	82,446	1,709,553	
Card.	4.2 (0.1)	4.2 (0.1)	3.8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

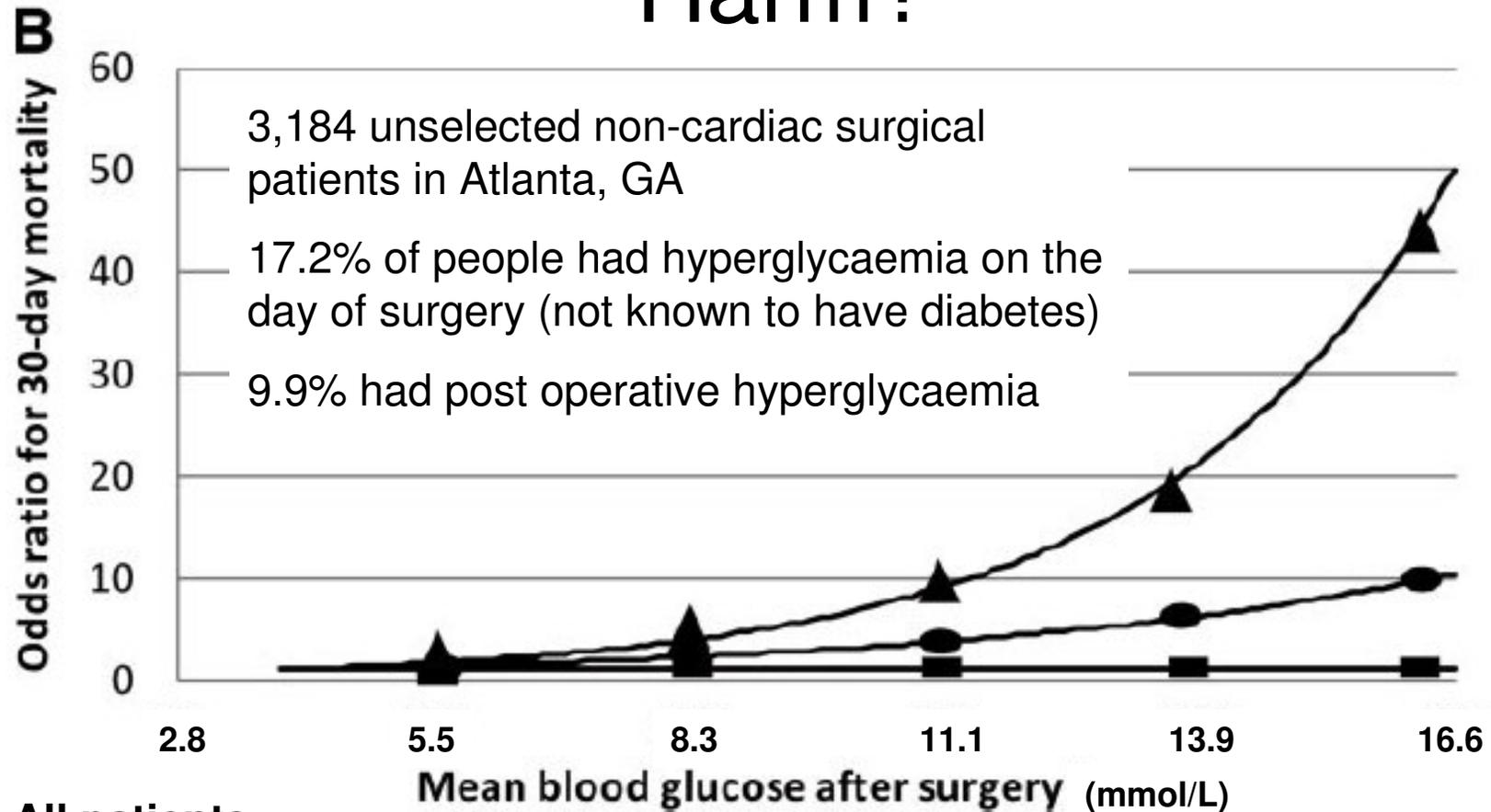
Sampson MJ et al Diabetes Research & Clinical Practice 2007;77(1):92-98

Do High Glucose Levels Cause Harm?



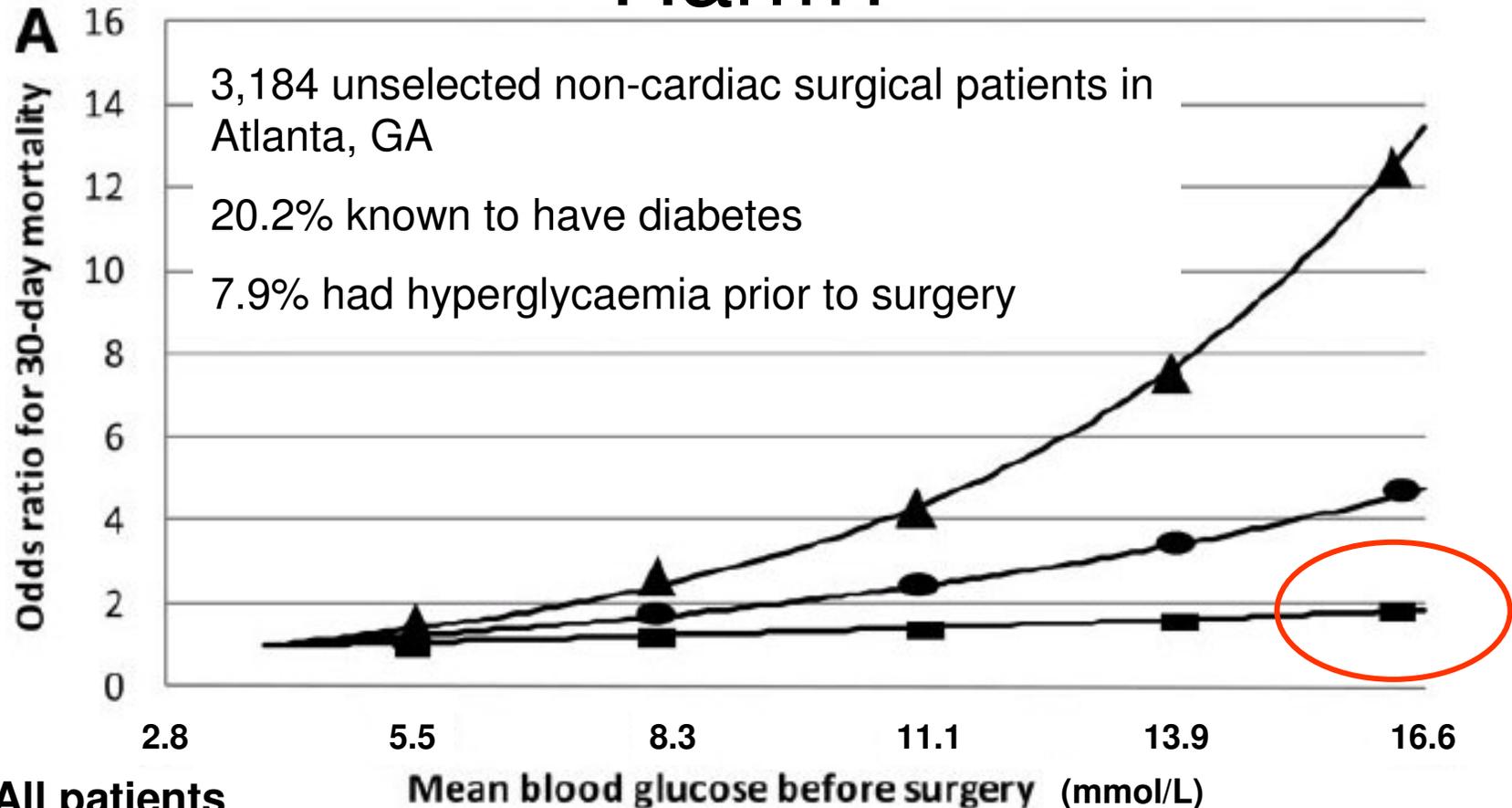
- All patients
- Patients with diabetes
- ▲ Patients without diabetes

Do High Glucose Levels Cause Harm?



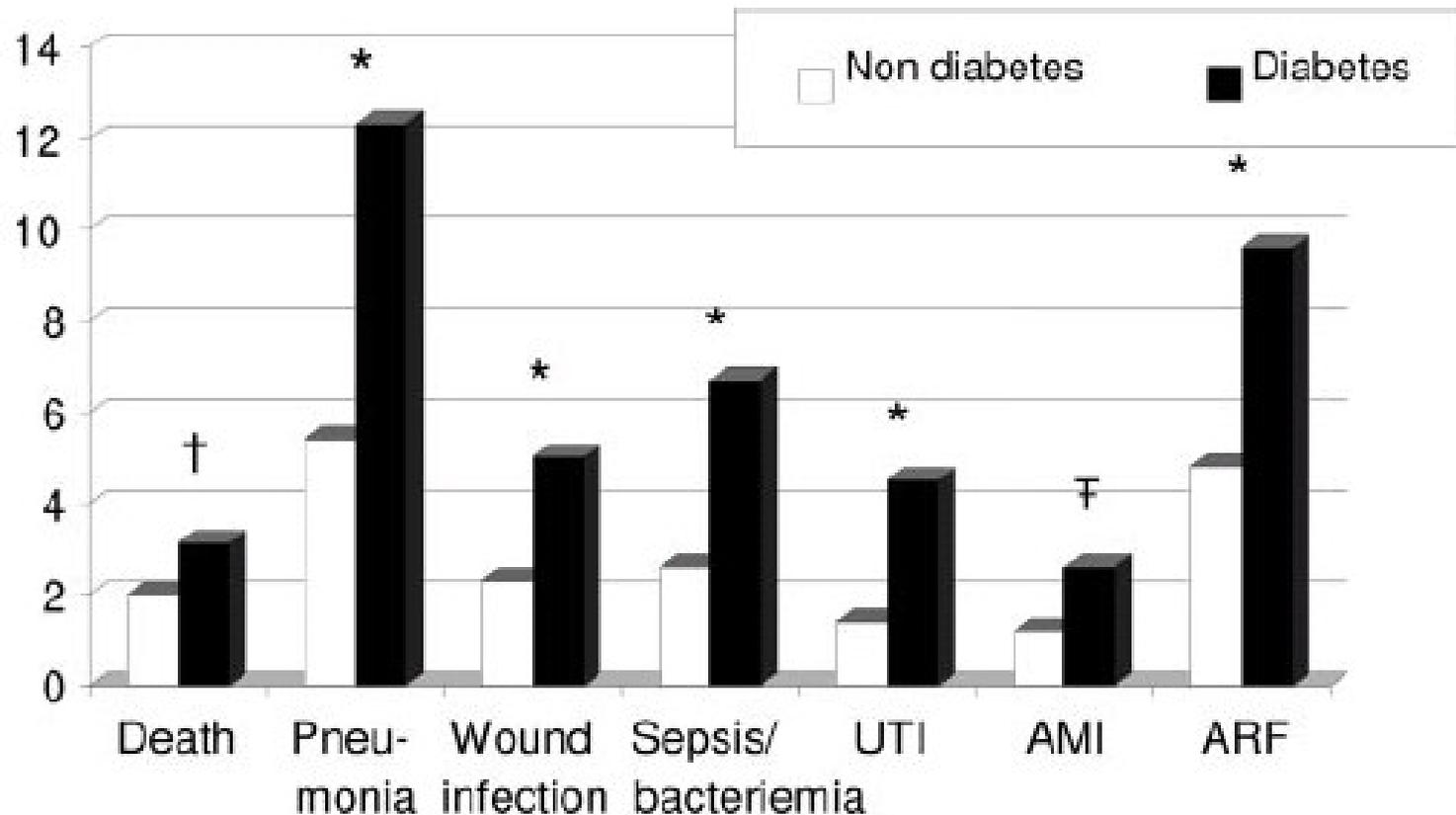
- All patients
- Patients with diabetes
- ▲ Patients without diabetes

Do High Glucose Levels Cause Harm?

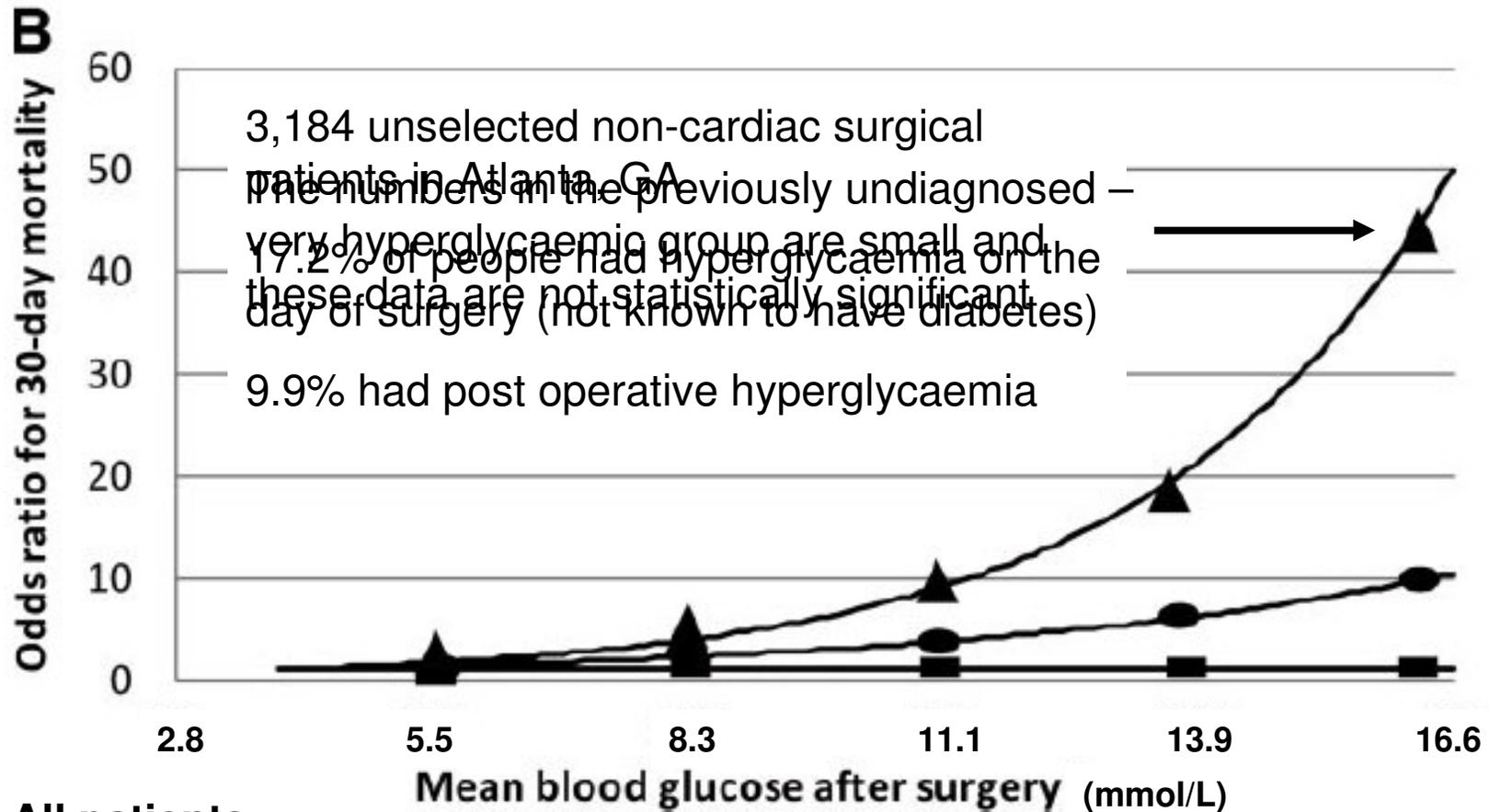


- All patients
- Patients with diabetes
- ▲ Patients without diabetes

Do High Glucose Levels Cause Harm?



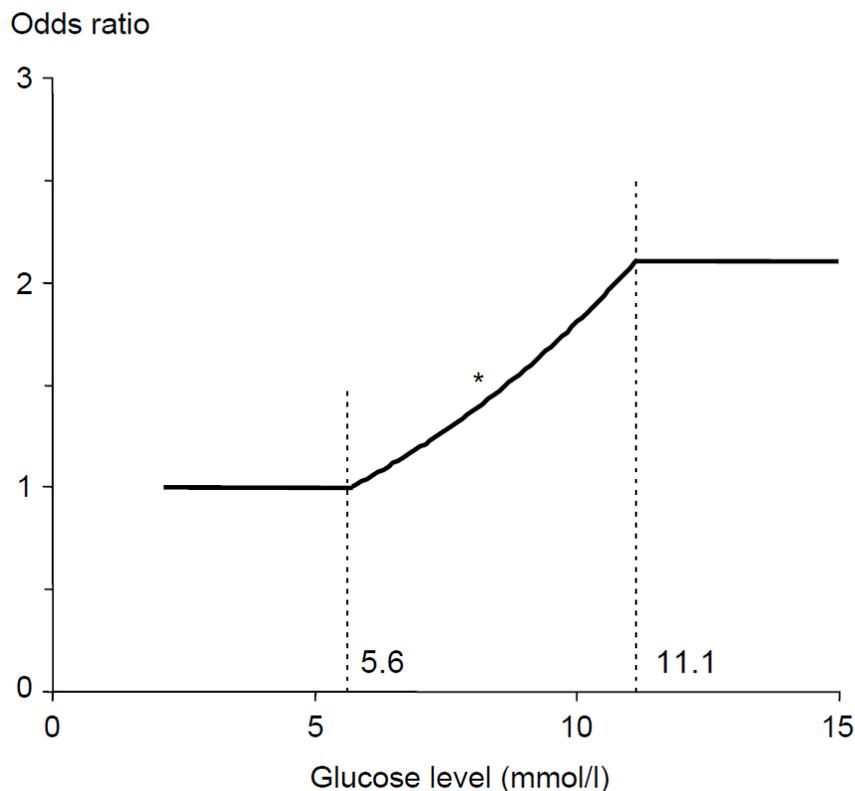
An Admission



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

However.....

- Other data has confirmed the harm of high pre-operative glucose levels in non-cardiac, non vascular surgery



30 day mortality rates for 989 patients with diabetes – for each mmol/L increase in blood glucose, OR for mortality rose by 1.19 (CI 1.1 - 1.3)

Thus....

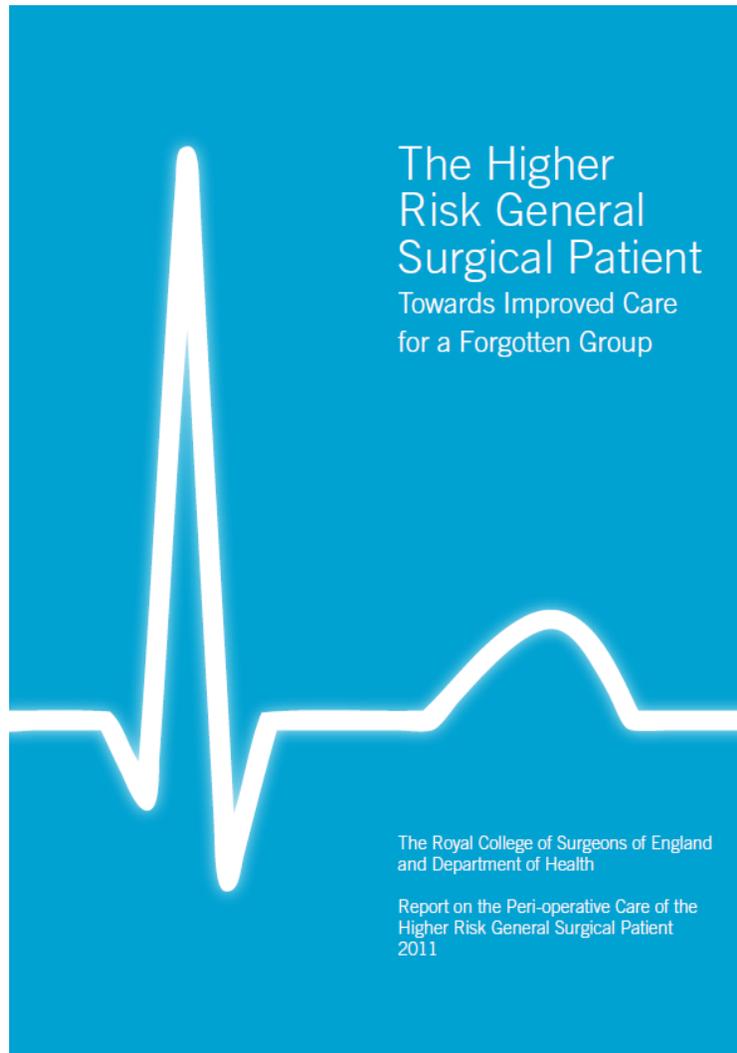
- Whilst there is data to show that poor glycaemic control is associated with poor outcomes
- There is no consistent data to show that improving control also improves outcomes

(A bit like diabetes care in general until the mid 1990's)

The ITU Story

- 2001 Leuven (Surgical) 1548 **Positive**
Van den Berghe G et al NEJM 2001;345:1359-1367
- 2006 Leuven (Medical) 1200 **Neutral / Positive**
Van den Berghe G et al NEJM 2006;354:449-461
- 2008 VISEP (Septic) 537 **Stopped early**
Brunkhorst FM et al NEJM 2008;358:125-139
- 2008 De la Rosa (General) 504 **Neutral**
De La Rosa G et al Critical Care 2008;12:R120
- 2009 GluControl 1078 **Stopped early / Neutral**
Preiser J-C et al Intensive Care Medicine 2009 35:1738-1748
- 2009 Leuven (PICU) 700 **Positive**
Vlasselaers D et al Lancet 2009;373:547-556
- 2009 NICE-SUGAR 6104 **Harmful**
The NICE-SUGAR Study Investigators NEJM 2009;360:1283-1297

Something Some of You May Have Seen



- Disappointingly, the word 'diabetes' appears only once, 'hyperglycaemia' and 'glucose' do not appear at all in this document

Along Came This.....

NHS
Diabetes

Preoperative Care Hospital Admission Theatre and Recovery Post-operative Care Discharge

**Management of adults with diabetes undergoing surgery and elective procedures:
improving standards**

Supporting, Improving, Caring

http://www.diabetes.nhs.uk/areas_of_care/emergency_and_inpatient/perioperative_management

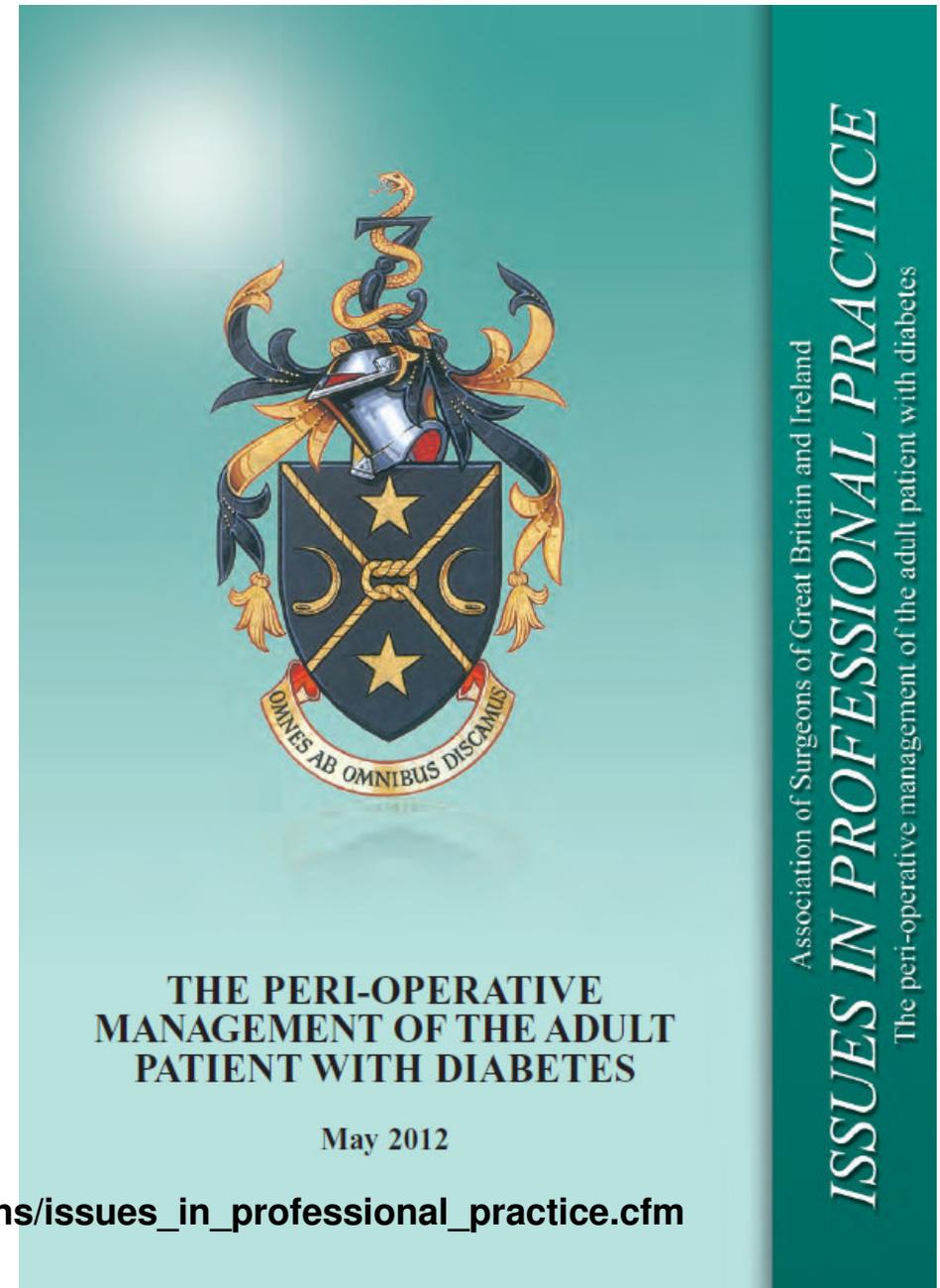
And This.....

Diabetes UK Position Statements and Care Recommendations

NHS Diabetes guideline for the perioperative management of the adult patient with diabetes*

K. Dhatariya¹, N. Levy², A. Kilvert³, B. Watson⁴, D. Cousins⁵, D. Flanagan⁶, L. Hilton⁷, C. Jairam⁸, K. Leyden³, A. Lipp¹, D. Lobo⁹, M. Sinclair-Hammersley¹⁰ and G. Rayman¹¹
for the Joint British Diabetes Societies

And This.....



http://www.asgbi.org.uk/en/publications/issues_in_professional_practice.cfm

National Guidelines

- Document divided into sections:
 - Primary care
 - Surgical outpatients
 - Pre-operative assessment clinic
 - Hospital admission
 - Theatre and recovery
 - Post-operative care
 - Discharge



Aims and Responsibilities

- Each section is divided into these subheadings

Primary Care Responsibilities

- Duration and type of diabetes
- Place of usual diabetes care (primary or secondary)
- Other 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



Does Anyone Use The Guidelines?

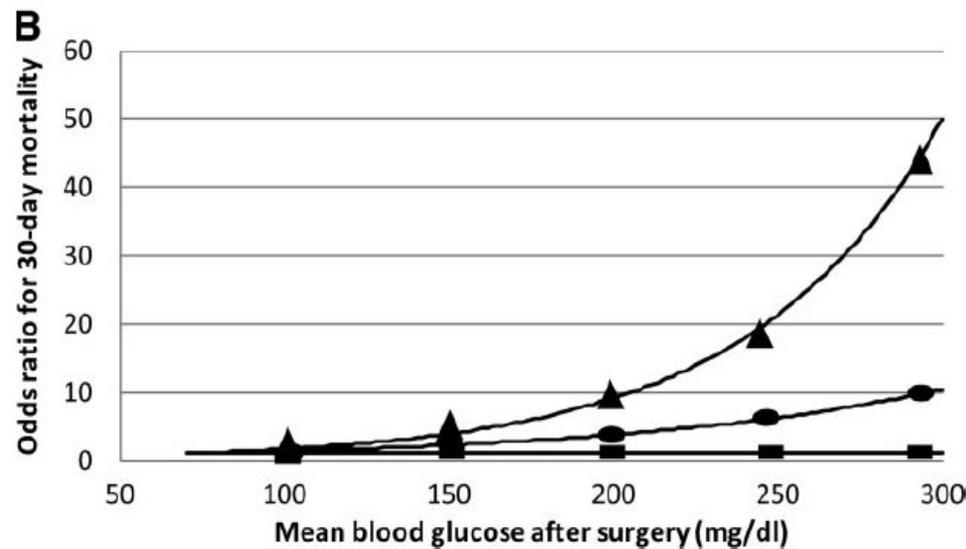
- Recently collected data from 135 out of 180 DSUs across England, Wales and Scotland
- 24% of all DSUs do not routinely manage patients with T1DM
- 44% and 28.8% do not have care pathways for managing T1DM and T2DM respectively
- 41% of all DSUs said that they use VRIII's, but only 13% reported using a GIK regimen if required

Does Anyone Use The Guidelines?

- Most units manage T2DM by minimally modifying the patients' usual regime, and 20% of all units do not alter the patient's diabetic regime at all apart from ensuring that they are scheduled first on the operating list
- 13 units reported having managed T2DM in their DSUs for a longer time period than that for T1DM

It's a Minefield

- Remember, if you knew that without you even TOUCHING the patient you could *potentially* reduce their peri-operative mortality by 40 fold would you do that first?





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www.norfolkdiabetes.com

