

# Diabetes Inpatient Mortality and Morbidity

Dr Julia Platts

National Clinical Lead for Diabetes in Wales

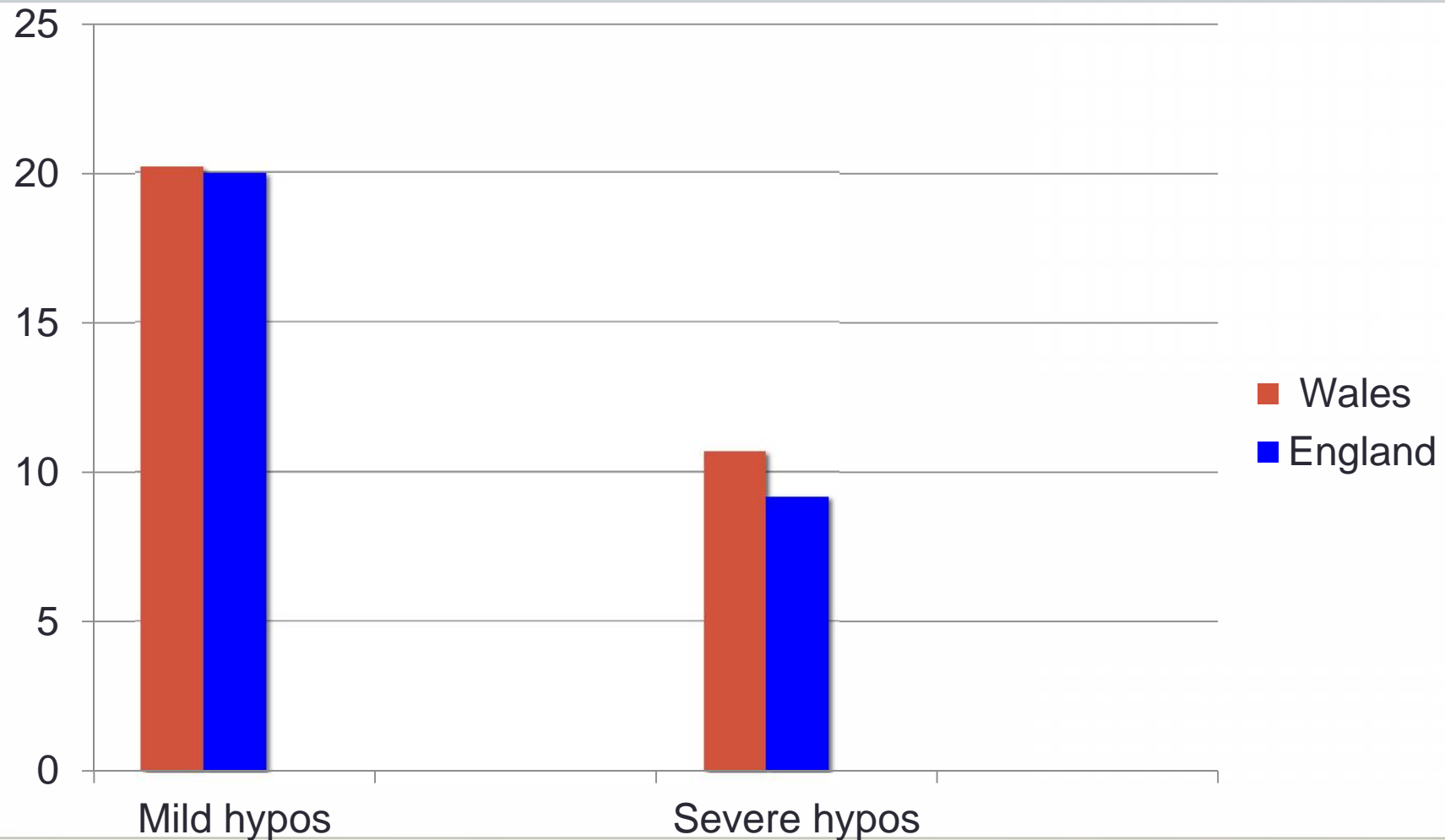
# Background

- Patients with diabetes are at risk of harm in hospital
- 4 years of data from the National Diabetes Inpatient Audit
- Studies demonstrating excess mortality
- Unable to address this problem thoroughly without understanding the causes



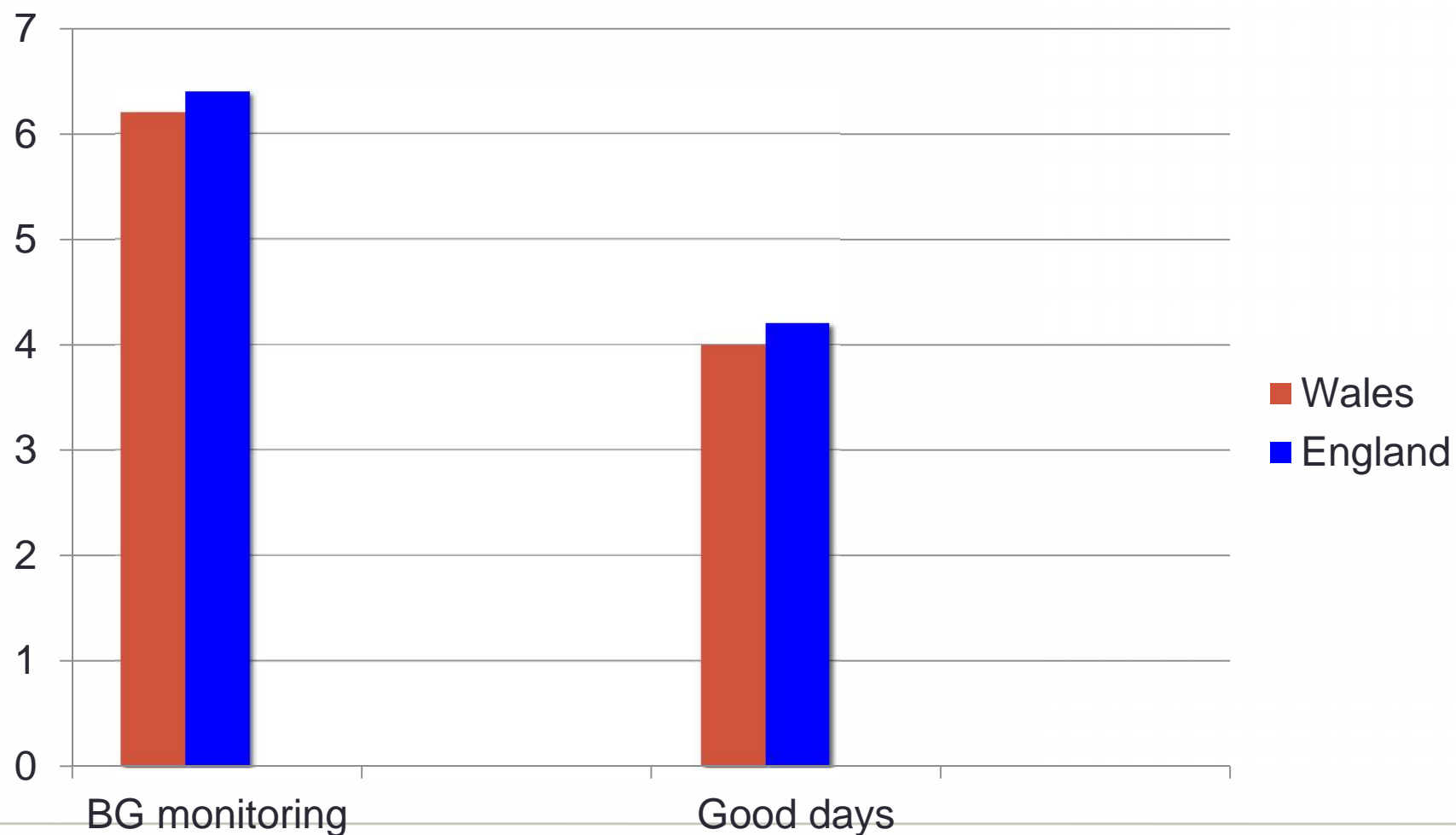
- **Inpatient severe hypoglycaemia – 1 in 50 (static)**
- **Inpatient onset DKA / HHS – 1 in 200 (static)**
- **Inpatient onset heel ulceration – 1 in 70 (improved from 1 in 50)**

# National Diabetes Inpatient Audit 2013- Hypoglycaemia

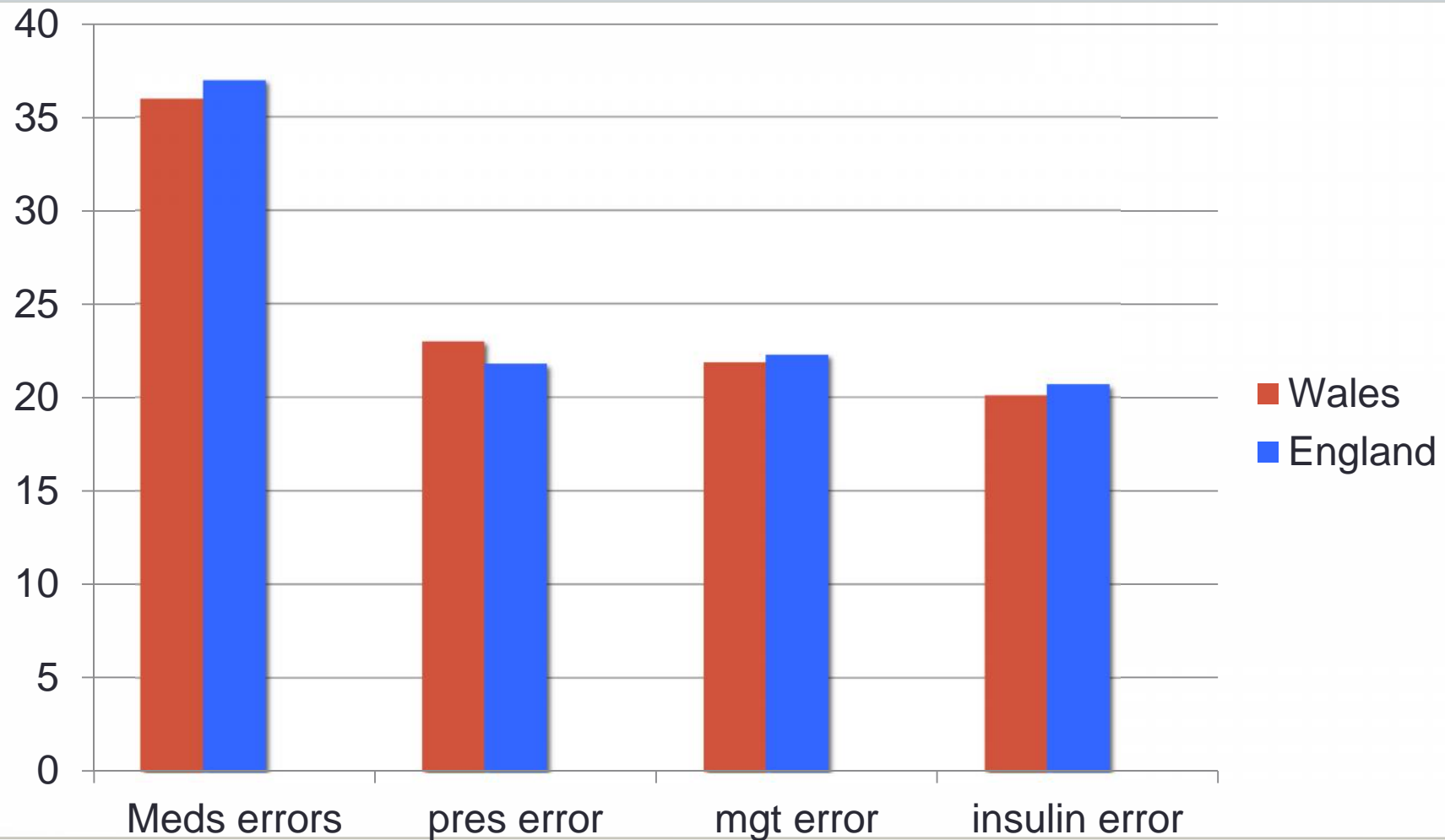


# National Diabetes Inpatient Audit 2013

Appropriate glucose monitoring and good diabetes days



# National Diabetes Inpatient Audit 2013 – Errors in Management



# Inpatient Mortality in Patients with Diabetes

**DIABETIC**Medicine

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## Research: Epidemiology

### Excess mortality during hospital stays among patients with recorded diabetes compared with those without diabetes

N. Holman<sup>1</sup>, R. Hillson<sup>2</sup> and R. J. Young<sup>3</sup>

<sup>1</sup>National Diabetes Information Service, University of York, York, UK, <sup>2</sup>Former National Clinical Director for Diabetes, Department of Health, London, UK and

<sup>3</sup>National Diabetes Information Service, Salford, UK

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Diabet. Med. 30, 1393–1402 (2013)

# Mortality and Morbidity Project

- Launched in September 2014
- Collaboration between Diabetes UK, Association of British Clinical Diabetologists, The National Clinical Director for Diabetes and Obesity in England, The NaDIA National Advisory Group and the Clinical Lead for Diabetes in Wales
- Aim of the project is to find the root causes of the harms which occur to people with diabetes in hospital



# Participating hospitals were asked to:

- Identify a multidisciplinary team who could undertake the mortality and morbidity project
- Identify 6 cases of severe diabetes harms
- Identify the causes of harms using a root cause analysis or case note review approach
- Summarize the findings on the diabetes M & M project summary form and return to the project team

# Participating hospitals were asked to:

- Attend a learning event to review the identified themes
- Identify themes of greatest importance
- Form action plans
- Implement these locally

# Severe Harms

Severe diabetes harms comprised:

- Inpatient severe hypoglycaemia (injectable therapy)
- Inpatient onset DKA / HHS
- Inpatient onset heel ulceration
- Unexpected inpatient death (under 65 / over 65)

# Severe Harms

- If available to include 2 deaths, 1 under 65
- Of the other harms, 2 managed by teams other than the diabetes team
- Prospective / retrospective
- Submission deadline 9<sup>th</sup> January 2015, extended to 26<sup>th</sup> January 2015

# Participation and Events

- 59 hospitals - 46 England and 13 Wales
- Severe hypos 90
- Inpatient DKA/ HHS 114
- Inpatient heel ulceration 27
- Death < 65 12
- Death > 65 22
- Other 6

# First Learning Event London

## 13<sup>th</sup> February 2015

Aims of the learning event:

- Share learning and experiences from the Diabetes M&M project
- Identify key themes emerging from the Diabetes M&M project
- Identify recommendations for local and national actions

# Key Themes 1

- Compromised ability to self manage e.g. dementia
- Type 1 diabetes
- Inappropriate insulin administration and adjustment
- Infrequent or missed blood glucose monitoring
- Missing treatment documentation

# Key Themes 2

- Insufficient ward staffing levels and competencies
- Slow or delayed response to a critical situation
- Deaths were mainly linked to severe diabetes harms



# Hypoglycaemia 1 (insulin)

- Unawareness of the interaction between food and insulin
- Lack of knowledge of different insulin types and insulin pumps
- Lack of awareness of importance of timing of insulin
- Errors in dosage, prescription and administration
- Inappropriate use of insulin infusions
- Lack of knowledge of insulin adjustments on NG feed
- Inappropriate tight control in elderly patients

# Hypoglycaemia 2 (BG monitoring)

- Poor knowledge on the importance of monitoring
- Lack of re-testing / reviewing post hypo
- Variation in practice between wards
- Lack of availability of BG monitors

# Hypoglycaemia 3 (documentation)

- Missing information on insulin type, dosage, timings from before admission
- Lack of records on change to insulin since admission
- Failure of documentation when patient transferred between areas
- Insulin charts not easy to understand in terms of what treatment given and what treatment is scheduled

# Hypoglycaemia 4 (staff)

- Low staffing levels, especially specialist staff at night and weekends
- Poor knowledge of diabetes (nurses and junior doctors) especially on non-specialist wards
- Reluctance to seek specialist advice
- Protocols not used / followed

# Hypoglycaemia 5 (patients)

- Misjudging the patient's ability to self-manage their condition
- No assessment procedure for self-monitoring or self-administration
- Severe mental and physical co-morbidities affecting compliance and oral intake

# DKA 1 (insulin)

- Missed or delayed insulin. Treated as type 2 diabetes
- Lack of knowledge on insulin types, dosage and food
- Basal insulin stopped when on IV insulin

# DKA 2 (slow response)

- Underestimating severity of DKA / HHS
- Failure to correct insulin omission
- Lack of DKA protocol or not followed
- Slow to involve diabetes team
- Poor communication between HCPs and departments
- Lack of BG and ketone monitors

# DKA 3 (staff issues)

- Infrequent monitoring and not responding to high levels
- Unawareness of importance of ketones
- Placement in areas with poor knowledge of diabetes
- Lack of knowledge of effect of steroids, enteral feeding, pregnancy, stopping IV insulin



# DKA 4 (patient)

- Patient difficulty in self-management
- Lack of patient autonomy to manage their diabetes
- Co-morbidities affecting self-management such as dementia or CVAs

# Heel Ulceration

- Lack of foot assessment
- Focus on backs and bottoms
- When high risk identified, failure to protect heels
- Failure to refer to specialist team
- Failure to follow specialist advice
- General lack of knowledge of importance of heel protection
- Lack of MDFT
- Poor patient compliance e.g. dementia

# Death

- Failure to appreciate the risks of severe hypos in a sick patient
- Primary focus on other conditions
- Delay in involving specialist teams
- Transfer of patients at night-time particularly when staffing low
- Lack of specialist cover at weekends

# Recommendations 1

Mandatory education on diabetes for ALL staff, particularly focused on:

- Basic information on differences between Type 1 and Type 2 diabetes
- Knowledge of hypoglycaemia
- Safe insulin administration and types
- Information on insulin pumps to better deal with patients using them
- Relation between variable food consumption and insulin administration
- Importance of regular glucose testing and knowing safe range of blood glucose levels
- Ketones knowledge and testing

# Recommendations 2

- Raise awareness of staffing issues, particularly lack of diabetes specialists out of hours
- Avoid delays in taking action and / or referral when a problem is identified
- Awareness of heel protection techniques, and close relationship with foot MDT
- Need for detailed documentation for patients, especially highlighting any changes in diabetes care

# Recommendations 3

- Integration of technology in the management of diabetes and patient information
- Improve communication between staff, handovers particularly critical
- Awareness of difficulties in dementia / mental health cases, vulnerable populations and co-morbidities

# Next Steps of M & M Project

- Very positive feedback from first learning event
- Key recommendations
- Departments encouraged to continue M and M meetings
- To test out service improvements based on recommendations
- Learning based on the service tests followed by a learning event

# Next Steps of M & M Project

- Ultimately improvements in the NaDIA results with a reduction in inpatient harms will be proof of the success of the project



# Thanks to

- Jonathan Valabhji
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