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Introduction

- Approximately 1.2 million (6%) Australians have diagnosed diabetes¹ with a further 500 000 estimated to have undiagnosed diabetes.²
- Individuals with diabetes are hospitalised more frequently than those without diabetes.³
- Based on coded data, 10% of all hospital admissions include diabetes as a principle or additional diagnosis.¹
- Uncontrolled hyperglycaemia in hospitalised patients is associated with prolonged length of stay and increased risk of adverse outcomes.⁴⁻⁵
- Insulin is frequently used to manage hyperglycaemia during acute illness and is one of the top five high-risk medications used in hospitals.⁶
- Hospital-wide inpatient diabetes point prevalence surveys were conducted at St Vincent's Hospital Sydney on single days in November 2013, 2014 and 2016.

Survey Aims

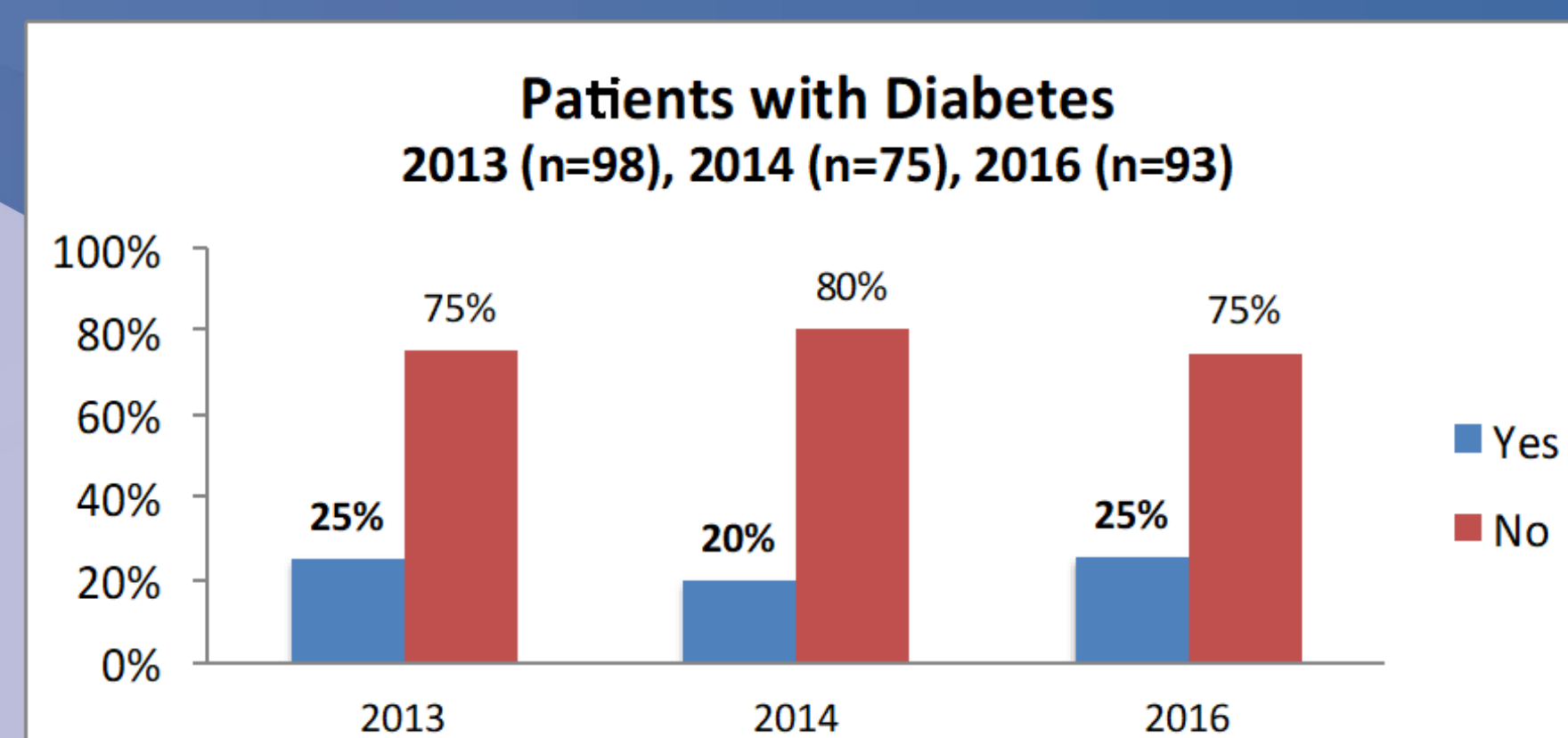
1. To determine the prevalence of diabetes at a Sydney Teaching Hospital in 2013, 2014 and 2016.
2. To provide diabetes management practice data to inform service planning and to document effect of improvement initiatives

Methods

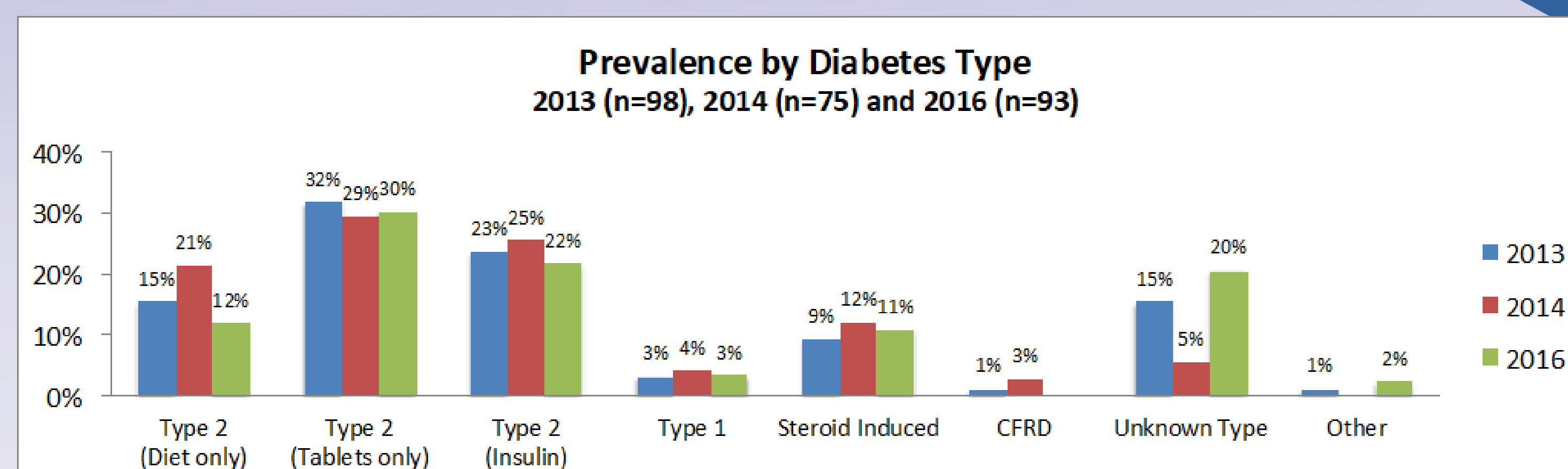
- Healthcare records of all inpatients on 3 single-days were surveyed.
- An 18-item Inpatient Diabetes Survey form (adapted from the UK NaDIA Audit)⁷ was completed at the bedside.
- Twelve surveying teams, comprising two members each, completed the surveys.
- Teams consisted of a diabetes clinician and a ward-based clinical staff member.
- All surveyors attended a training session one week prior to the survey.
- All received a 'tool-kit' documenting the survey aims & methodology, the survey protocol and survey explanatory notes.
- Diabetes diagnosis was made if diabetes was documented in the healthcare record or if the patient was taking diabetes medication or if fasting blood glucose (BG) was $\geq 7\text{mmol/L}$ and/or if random BG was $\geq 11.1\text{mmol/L}$ and/or if HbA1c was $\geq 6.5\%$ (48mmol/mol).

Results

- All available inpatient records were surveyed in 2013 (n = 394), 2014 (n = 381) and 2016 (n = 368).
- **The prevalence of diabetes was 19.7-25.3%.**



- Of those, 12-23% were newly diagnosed with diabetes in hospital.
- The majority (63-76%) had type 2 diabetes.
- Prevalence was highest amongst patients admitted under the heart/lung transplant (59%) and heart failure (50%) services.



- The majority of patients were male 57-66% and the average age was 61-67 years (range 18-93).
- The majority of patients were admitted for reasons not directly related to diabetes (97-98%).
- Mean BG was 9.4mmol/L in 2013 and 9.3mmol/L in 2014 & 2016 respectively.
- Between 42-52% of patients with diabetes were prescribed insulin during their admission.

In the 7-days preceding the survey:

- 29-42% of insulin charts revealed more than one prescription or administration error.
- Prescription errors included: unclearly written doses, incorrect/incomplete documentation of insulin name or unsigned prescriptions.
- Administration errors included: insulin omission or insulin administered at the incorrect time.
- 11-15% of patients experienced hypoglycaemia (BG < 4mmol/L).
- 61-63% of patients experienced hyperglycaemia (BG > 11mmol/L).

Discussion and Conclusions

- Results of our surveys show that diabetes prevalence amongst inpatients is significantly higher than coded data suggests.
- One quarter of inpatients had diabetes, with almost half requiring insulin during their admission.
- Hospital admission is an opportune time for detecting undiagnosed diabetes and optimising management.
- Insulin is a high risk medication commonly used to treat hyperglycaemia in hospitals and prescription and administration error is common.
- Up to 15% of patients with diabetes experience hypoglycaemia during admission (less than those surveyed in the UK (20% in 2016)).⁶
- Our data provides a basis for planning workforce, education and quality improvement activity in hospitals.



From Left: Jane Ludington – Senior Pharmacist, Joanne Taylor – Nurse Manager Clinical Practice & Innovation, Prof. Jerry Greenfield – Director Diabetes Centre and Head Department of Endocrinology.

Acknowledgements

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