ABCD
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ABSTRACTS

1. **Insight into life with Diabetes Mellitus improves consultation skills in diabetes trainees.**
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   (1) Trafford General Hospital; (2) North Western Deanery.

In addition to medical treatment, successful management of diabetes mellitus (DM) relies on patient engagement. Challenges of carbohydrate counting (CHOC), capillary blood glucose monitoring (CBGM) and insulin dose adjustments need to be appreciated by medical practitioners to establish good rapport during consultation.

To raise the awareness of the challenges of life with diabetes, we asked 10 specialist trainees (3StRs, 7 SpRs) from the North Western Deanery to pretend to have type 1 DM for a week of their every-day life and to reflect on the experience by filling in a structured questionnaire. Results were presented as medians (ranges) or means±SD where appropriate.

Participants missed 1 (0-3) CBGM, 9/10 found it to be harder than expected and 8/10 felt that their attitude in clinic had been changed by the experience. They did not record CHOC of their meals 1 (0-6) times, 7/10 found it harder than expected and 8/10 consequently changed their practice. Mock rapid-acting insulin and long–acting insulin was missed 1 (0-3) and 0 (0-7) times, respectively, with one participant having no long-acting insulin for a week. Injection routine was perceived as harder than expected in 7/10 and it led to attitude modification in 9/10 trainees. Five out of 10 trainees did not carry hypo kit at all. All participants regarded this study as useful with a score of 8±1/10 on visual analogue scale.

This study increased the awareness of difficulties of life with diabetes amongst diabetes trainees in the region and led them to change their attitudes in clinical practice. Incorporation of this virtual diabetes experience would be a useful part of the early years of the diabetes specialist training.

2. **Availability of glucose free beverages in retail outlets for people with type 1 diabetes.**
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Sugar-free drinks are an important adjunct for the dietary management of diabetes, but their availability in different locations is reputed to vary considerably. To investigate this, an observational field study was undertaken to record the availability of sugar-free/low-sugar drinks in different retail outlets and venues, including supermarkets, coffee shops and fast food outlets. To ascertain the difficulties encountered by people with type 1 diabetes in obtaining sugar-free or low-sugar drinks, 131 unselected outpatients with type 1 diabetes (median (range) age: 45, 14-89 years; duration of diabetes: 15, 0-60 years) were asked to use a Likert scale to rate the difficulty they had experienced individually in obtaining sugar-free drinks in the above retail outlets and also in small local stores, large department stores, hospital cafes, cinemas/theatres, pubs and wine-bars.
The field study demonstrated that supermarkets provided the greatest availability and range of sugar-free drinks, though this varied considerably between retailers, while coffee shops and fast food outlets offered little or no choice. These findings were confirmed by the participants' experiences, with >75% reporting no difficulty in supermarkets, although large container sizes were impractical for use away from home, while 40-50% described availability of suitable beverages in coffee shops, wine bars and cinemas as being very limited.
In conclusion, many people with type 1 diabetes experience difficulty in obtaining sugar-free drinks in retail outlets other than supermarkets. Greater provision and availability of sugar-free drinks in retail outlets and social venues would improve quality of life and benefit glycaemic control.

3. **Is In-patient management of diabetes suboptimal? - an evaluation of inpatient care for people with diabetes at the largest tertiary hospital in Wales.**
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(1) Endocrine Dept, Watford General Hospital, (2) Centre for Endocrine and Diabetes Studies, niversity Hospital of Wales, Cardiff.

Aims: To evaluate adherence to standards of care for inpatients with Diabetes at acute general medical wards of the University Hospital of Wales.

Objectives: To identify and evaluate factors that result in increased LOS of diabetic in-patients at acute general medical wards, comparing Diabetes care at short-stay wards that have significant input from Diabetes specialist teams verses the general medical wards under the care of other specialist teams. Effectiveness of the use of insulin sliding scale (ISS) in people with Diabetes will also be assessed and influence of its use on LOS and glycaemic control will be examined. Thirdly, the service currently provided by the Diabetes Inpatient Specialist nurses (DISN) at the trust will be analysed.

Methods: 85 adult patients with Diabetes as a co-morbid condition admitted consecutively to the acute general medical wards were prospectively studied. We compared in-patient Diabetes care in short-stay wards that have significant input from Diabetes specialist teams versus medical wards under other specialist teams. Length of in-patient stay, rates of hypoglycaemia and hyperglycaemia, use and duration of ISS therapy and appropriate Diabetes-related discharge planning and follow-up were assessed using a standardised proforma. 80 non-diabetic adult patients who presented consecutively to the Medical Admissions Unit were used as a control group.

Results: There was a point prevalence of 18.5% diabetic in-patients at UHW. Diabetes inpatients had a mean LOS of 10.5 days as opposed to 6.5 days in the control group ($p<0.05$). A highly significant linear relationship was found between LOS and the number of hyperglycaemic ($p<0.001$) and hypoglycaemic events ($p<0.05$) in hospital. In addition, a significantly lower LOS and fewer hyperglycaemic events were seen in the acute wards led by Diabetes specialist teams versus other specialist-team led wards ($p<0.05$). When used alone, ISS regimens were associated with a 1.6 fold higher risk of hyperglycaemic episodes compared to no pharmacological regimen ($p<0.05$). 25% of those inpatients referred to the DISNs in the month of November were not reviewed due to staff shortage and time constraints.

Conclusions: Management of Diabetes and hyperglycaemia showed several deficiencies in process and outcome. Poor glycaemic control in hospital leads to longer LOS - clinical and financial outcomes are at stake. A structured proactive specialist in-patient Diabetes outreach team may provide improvements in diabetes in-patient care and significantly reduce LOS.

4. **UK findings on hypoglycaemia and quality of life from PANORAMA, a pan-European cross-sectional study of patients with type 2 diabetes**
   Prof Azhar Farooqi OBE
   East Leicester Medical Practice

Aims and objectives
PANORAMA is a large cross-sectional study of people being treated for type 2 diabetes in the UK and eight other countries within Europe. It aims to assess treatment satisfaction, quality of life, and glycaemic control. Previous analysis established a correlation between hypoglycaemia and patient reported outcomes for the European data.1

Methods
Patients were randomly or consecutively selected, from the records of 38 UK GPs between June and November 2009. All patients were receiving lifestyle advice, and most were on oral antidiabetes drugs (OADs), or injectable treatment + OADs. Quality of life was measured using the validated ADDQoL questionnaire, and past hypoglycaemic episodes were recorded.

Results
Of the 501 UK patients studied, 40.3 per cent failed to achieve an HbA1c of 7.0 per cent or less. This was attributed by GPs to: poor patient adherence to diet and exercise; therapeutic failure of antiglycaemic drug regimens; reluctance of the patient to intensify medication; and fear of hypoglycaemia.
The UK patients had on average 1.1 episodes of non-severe hypoglycaemia per month in the past year, and a mean of 0.1 episode of severe hypoglycaemia in the past year. In the UK, 68.2 per cent of patients said their quality of life would be better without diabetes.

Conclusions
Many people with type 2 diabetes in the UK continue to have uncontrolled glycaemia and report an impact of diabetes on their quality of life.

1. Bradley C et al The PANORAMA Pan-European Study: impact of Severe and Non-severe Hypoglycaemia on Quality of Life and Other Patient-reported Outcomes in Patients with Type 2 Diabetes, Poster 580-P presented at the European Association for the Study of Diabetes, 22 September 2010.

5. **Aspirin use in diabetes: Survey of a cross-section of health care professionals**
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Background:
Aspirin is recommended in secondary prevention (SP) in diabetes and macrovascular disease. Recommendation in primary prevention (PP) remains controversial as does the dose of aspirin prescribed. To ascertain whether these controversies are reflected in clinical practice, we conducted a survey of healthcare professionals' views on aspirin prescribing in diabetes

Methods:
An anonymous online survey consisting of 26 questions (Likert scale) covering demographic characteristics and aspirin prescribing habits in primary prevention and secondary prevention was circulated via email.

Results:
152 people responded with variable response rates: Primary care (96/152, 63%) - mixture of doctors/DSNs; Secondary care were predominantly diabetes specialists (56/152, 37%).
Primary prevention: 39/103(37%) did not routinely prescribe aspirin whilst 16/121(13.2%) would consider using aspirin in all diabetes patients as primary prevention.
Secondary prevention: Despite no contraindications 8/125(6.4%) would not give aspirin. 75mg/day or 300mg/day preferred doses in various settings.
In patients with history of peptic ulceration respondents recommended a) use of PPI cover in PP-37/103(35.9%) and SP-60/103(58.3%), b) enteric coated aspirin PP-13/103(12.6%) and SP-11/103(10.7%), c) not use any anti-platelet agents in PP-53/103(51.5%) and SP-8/103(7.8%).

Enteric coated aspirin recommended always by 8/109(7.3%), sometimes (16.5%), occasionally (37.6%), and never (35.8%).
89/103(86.5%) had stated their patients had raised issues with them regards aspirin use. 27/103(26.2%) would definitely take aspirin themselves if they had diabetes.

Conclusions:
This survey confirmed that the controversy in current aspirin guidance was reflected in a heterogeneous prescribing of aspirin in patients with diabetes. Further clarification and guidance on the optimum dose of aspirin in diabetes is required.

6. **In-patient prescribing of oral hypoglycaemic agents and insulin on non-diabetes specialist wards**
L Stradling, T Pasvol, MH Cummings
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Background:
Correct prescription of dose and administration time in relation to meals is important for the safety and efficacy of insulin and oral hypoglycaemic medication use. We conducted an audit of the in-patient prescriptions of diabetes related medications on specialty medical wards other than diabetes to ascertain accuracy of prescribing habits.

Methods:
We reviewed the drug charts of all diabetic patients on the medical wards on two occasions approximately one month apart. 46 patients were identified with a total of 64 separate prescriptions.

Results:
Of 64 prescriptions for insulin and oral hypoglycaemic agents, 20 (31.5%) contained an error. Of 40 prescriptions for oral agents, 9 (22.5%) were prescribed at the wrong time in relation to mealtimes and 1 (2.5%) was prescribed at an incorrect dose. Of 24 prescriptions of insulin 5 (20.8%) were incorrect with either “U” written instead of “units” (the preferred nomenclature) or the wrong type of insulin prescribed, for example ‘Novorapid’ in place of ‘Novomix. 30’. 5 (20.8%) of insulin prescriptions were assigned to the incorrect time of the day, in particular 20% of short acting and 40% of mixture insulins were prescribed incorrectly in relation to meal time. In a subgroup analysis of the last dose of insulin administered, 66.5% of nurse administered insulin was given at the wrong time compared with 44.5% of self administered insulin.

Conclusions:
Insulin and oral hypoglycaemic agents are frequently incorrectly prescribed on inpatient drug charts. The prescribing and administration of the different preparations of insulin in relation to meals is a particular area of concern and could be improved through .the use of diabetes specific drug charts, enhanced professional education programmes, self administration of glucose lowering therapy and by the provision of daily prospective diabetes specialist care.

7. **Liraglutide withdrawal rates - post marketing compared to registration trial data.**
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Background
With the recent concerns regarding postmarketing side-effect profile and clinical hazard in established classes of drugs for type 2 diabetes, systematic phase 4 post marketing data in the early use of newer drugs may have a role in informing drug choice and pharmacoeconomics. The GLP-1 agonists have been recently marketed in the UK and Europe with clear benefits on glycaemic control and weight reduction but with marginally higher acquisition costs compared to older drugs. Registration trial data often gives an information on drug withdrawal and may reflect 'idealised' trial populations with exclusions of 'typical' clinic patients. There is scant systematic data on drug withdrawals of newer drugs in early clinical use compared to registration trial data.

Methods
Review of the prevalence of drug withdrawals from Liraglutide registration trial data, compared to a systematic prospective case note audit of all new liraglutide prescriptions from a specialist diabetes clinic over the first 12months of drug introduction.

Results
The marketing authorisation application for Liraglutide reported withdrawal rate of 7.0%, with equal numbers experiencing mild, moderate and severe side-effects. By contrast systematic data from a new liraglutide group (n=174) group had 11.5% withdrawals; comprising 25% GI symptoms, 55% other /non-specific adverse effects, Lack of effect [n=2], post gastric banding [n=1] and moved from clinic [n=1].

Conclusions
Systematic observations of withdrawals in early use of new drugs in current clinical practice appear to be higher than registration trial data. The one in nine withdrawal highlights that postmarketing surveillance should inform guideline recommendations and pharmacoeconomic evaluations

8. **An audit on management and outcomes of hypoglycaemia presentations to A&E in a district general hospital**
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New Cross Hospital, Wolverhampton

Aims: This retrospective audit aimed to assess the immediate management and follow-on care of adults with diabetes presenting to the A&E with hypoglycaemia and assesses impact of specialist diabetes team input.

Methods: All presentations to A&E with a diagnostic code of hypoglycaemia, over 12 months, were identified (n=211). Excluding people incorrectly coded for hypoglycaemia (n=3), those age <18years (n=10) and individuals without diabetes (n=36), left with n=162, the cohort of this study. Adherence to local hypoglycaemia care pathway was assessed.

Results: The demographics details of the cohort: age 68±18years; males 52%; type 2 diabetes 78%; diabetes duration 19±11years, diabetes therapy (sulfonylurea 23%, insulin 75%, SU+insulin 1% and 1 Metformin+Exenatide). Majority (92%) arrived by ambulance. 9% had immediate treatment before arrival to A&E, 26% oral treatment alone, 29% IM glucagon and 36% IV glucose.

50 (31%) were admitted (mean age 75years), 88% of whom had specialist diabetes input in hospital. Half of hospitalised patients had hypoglycaemia preventative treatment changes compared to 36% who were discharged from A&E. Early follow-up post-discharge was organised in 15% of those discharged from A&E and 63% of those admitted. 17 patients had recurrent presentation to A&E with hypoglycaemia within 4 months of index episode, risk of recurrence being 9%vs.17% in those with early specialist diabetes input vs. without early specialist input after the hypoglycaemia episode.

Conclusions: Hypoglycaemia presenting to A&E is common with a third requiring hospitalisation. Majority are reviewed by diabetes specialist team. There was a 12% overall risk of re-attendance to A&E within 4 months and this risk was greater amongst those that did not have early access to the specialist teams.

9. **Glycaemic control in patients with Myocardial Infarction - Regional re-audit of the current practice**

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Aim: To investigate the current management of glycemic control in patients with diabetes suffering from acute myocardial infarction (AMI)

Methods:
3 out of 8 hospitals in the Northern Deanery who took part in the original audit in 2000 participated in this re-audit in 2008. Over a 6 month period all centres prospectively identified patients suffering from AMI with known diabetes or with an admitting blood glucose >11.0 mmol/l.

Results:
83 patients were identified from three centres in the specified period. 61.4% were males. 88.0% of the patients were known to have diabetes prior to admission and 12.0% were newly diagnosed during their admission. 37.3% of the patients suffered STEMI. 38.7% of patients underwent PCA as the primary treatment for STEMI. In the original audit, intravenous insulin was used in majority of patients (68%) during the peri-infarct period

however only 45.8% of the patients received intravenous insulin in 2008. 6.1% were on subcutaneous insulin in 2000 however this rose to about 19.3% in 2008. The number of capillary glucose levels > 7 mmol/l within 24hrs of AMI in patients receiving and not receiving iv insulin was 58.2% and 37.4%, respectively compared to 63% and 70.8% in 2000. Mean HbA1C on admission and 3 month follow up were 7.8% and 7.4% respectively and 8.0% and 7.8% in 2000.

Conclusions: Intravenous insulin use in the peri-infarct period has significantly decreased compared to practice in year 2000 however glycaemic control in the peri-infarct period and HbA1C at 3 months appear to have improved, although still remains poor.

10. **Plasma glucose testing after Myocardial Infarction, a lost opportunity**

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Methods:

We conducted a retrospective analysis of the MINAP (Myocardial Infarction National Audit Project) database in a university teaching hospital over a 12 month period. Demographic data, diabetes status, type and severity of myocardial infarction, co-morbidities and inpatient mortality data were collected. We audited the adherence to the JBS2 guideline during the inpatient episode. We also assessed trends in clinical outcomes with reference to blood sugar levels.

Results:

425 patients were entered into the MINAP database during April 2009-March 2010. 414 patients had a confirmed final diagnosis of MI (39% STEMI, 61% NSTEMI). Of these 59% were male (n=244) and 25% (n=105) had preexisting diabetes.

Blood sugar levels were tested at least once in 327 patients (79%). Of the remaining 87 patients, 68 were not known to have pre-existing diabetes.

The rates of cardiac arrest (8.8 vs 4.4%) and in patient all cause mortality (11.8 vs 2.2%) were higher in this group compared to normoglycaemic patients. They were more likely to have larger infarcts (median TnT levels 0.32 vs 0.20 micrograms/L, p=ns) and less likely to receive revascularisation therapy (12.6 vs 23.1%).

These differences were not explained by other factors such as age, renal function or anaemia.

Conclusions:

One in five patients admitted with a primary diagnosis of myocardial infarction did not have their blood sugar checked during the hospital admission. This subgroup of patients tended to fare worse in comparison to normoglycaemic patients in terms of the higher mortality and lower revascularisation rates.

11. **ABCD CDC YDF National community diabetes training survey: trainee results**

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Aims:

Community diabetes is the cornerstone of diabetes care. The care of the patient with diabetes transcends the boundaries of primary and secondary care and the diabetologist has increasing input at this interface, a change reflected in the addition of community diabetes to the 2010 national diabetes and endocrinology training curriculum for diabetes specialty registrars. Although community diabetes is recognised as an important area of diabetes care, it is not clear whether training opportunities are readily available. The Association of British Clinical Diabetologists (ABCD), Community Diabetes Consultants (CDC) and the Young Diabetologists Forum (YDF) aimed to establish currently available training opportunities in community diabetes throughout the UK.

Methods:

The ABCD, CDC and YDF jointly agreed on a 16 question online survey aimed at addressing the main aspects of community diabetes: attachments with different disciplines within the community setting, interactions with various members of community based staff, opportunities to attend meetings in primary care and involvement in the development of primary care guidelines. The survey link was emailed to 792 members of the YDF on three occasions. The survey is available at www.communitydiabetes.org

Results:

104 specialty registrars participated in the survey, the majority of which were based in England, 9 in Scotland and 2 in Wales. Although half (n=46) had experience of advising and working with primary care professionals in some capacity, few had experienced training with a Community Diabetologist (n=7), General Practitioners with a Specialist Interest (n=10) or community based Diabetes Specialist Nurses (n=22). Less than one third had worked with secondary care consultants in community based diabetes clinics (n=32). Most of the trainees who had not had an attachment with a community based diabetes specialist stated that this opportunity was not available to them (community diabetologist n=90, secondary care diabetologist performing diabetes clinics in the primary care setting n=61, GPwSI n=76). Some had participated in education in the primary care setting: health professional education (n=26); group education for patients with Type 2 diabetes (n=37). Some had had input at PCT meetings to discuss diabetes care planning (n=19) or guideline development (n=15). Few had provided speciality advice in multi-disciplinary case discussions (n=13) or virtual clinics (n=7). 9 had previously attended the YDF community diabetes course.

Conclusions:

Few UK diabetes trainees have exposure of any of the multiple facets of community diabetes. If trainees are to meet the requirements of the 2010 training curriculum, local and national efforts will be required to ensure community training opportunities are readily available.