RPS Wales, Bangor University & Health and Care Research Wales welcome you to the Welsh

MEDICINES RESEARCH SYMPOSIUM

Tuesday 17 July 2018,
Radisson Blu Hotel, Cardiff

ROYAL CYMDEITHAS PHARMACEUTICAL FFERYLLOL SOCIETY FRENHINOL
Wales Cymru

PRIFYSGOL BANGOR UNIVERSITY

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

MEDICINES RESEARCH SYMPOSIUM

PROGRAMME

6.00	*Buffet and poster viewing*
6.35	**Welcome** *Professor Dyfrig Hughes, Bangor University*
6.40	**Keynote presentation: Innovation in medicines - what can we expect next?** *Dr Claire Thompson, RPS Deputy Chief Scientist*
7.20	Reducing insulin degludec around regular exercise improves time spent in euglycaemia in people with type 1 diabetes: a randomised cross-over trial *Dr. Othmar Moser, Diabetes Research Group & A-STEM, Swansea University*
7.40	Comparison of observed and estimated costs for medicines recommended by the All Wales Medicines Strategy Group *Stuart Keeping, AWTTC, Academic Centre, Llandough Hospital, Cardiff*
8.00	Cost-effectiveness of point of care C-reactive protein testing in primary care *Emily Holmes, CHEME, Bangor University*
8.20	Evaluation of pharmacists in primary care clusters *Lloyd Hambridge, Aneurin Bevan University Health Board*
8.40	The implementation of a pharmacy-led metastatic breast cancer clinic *Sophie Harding, Velindre Cancer Centre, Cardiff*
9.00	*Close and depart*

Mae'r Gymdeithas Fferyllol Frenhinol yng Nghymru, Prifysgol Bangor ac Ymchwil Iechyd a Gofal Cymru

SYMPOSIWM YMCHWIL MEDDYGINIAETHAU

17fed Gorffennaf 2017, Gwesty'r Radisson Blu, Caerdydd

RHAGLEN

6.00	***Bwffe & Darllen posteri***
6.35	**Croeso** *Yr Athro Dyfrig Hughes, Prifysgol Bangor*
6.40	**Cyflwyniad allweddol: Innovation in medicines - what can we expect next?** *Dr Claire Thompson, Diprwy brif wyddonydd CFfF*
7.20	Reducing insulin degludec around regular exercise improves time spent in euglycaemia in people with type 1 diabetes: a randomised cross-over trial *Dr. Othmar Moser, Diabetes Research Group & A-STEM, Swansea University*
7.40	Comparison of observed and estimated costs for medicines recommended by the All Wales Medicines Strategy Group *Stuart Keeping, AWTTC, Academic Centre, Llandough Hospital, Cardiff*
8.00	Cost-effectiveness of point of care C-reactive protein testing in primary care *Emily Holmes, CHEME, Bangor University*
8.20	Evaluation of pharmacists in primary care clusters *Lloyd Hambridge, Aneurin Bevan University Health Board*
8.40	The implementation of a pharmacy-led metastatic breast cancer clinic *Sophie Harding, Velindre Cancer Centre, Cardiff*
9.00	***Diwedd ac ymadael***

MEDICINES RESEARCH SYMPOSIUM

Our Keynote Speaker - Dr Claire Thompson

Claire is an award-winning scientist, strategist and innovator with more than 15 years' experience in the Pharmaceutical Industry spanning the large multi-nationals GlaxoSmithKline and Pfizer, virtual and Contract Research Organisations. She is Deputy Chief Scientist of the Royal Pharmaceutical Society.

She is also CEO of Agility Health Tech, a consulting and communications firm which works with organisations across the healthcare space to advance their products and raise their profile.

Having taken a range of therapeutic products through clinical Phases 1 to 3, she thrives on translating innovative technologies into healthcare products and shaping technical and organisational strategies. She was honoured with the Royal Pharmaceutical Society's Pharmaceutical Science Award in 2015, and the Academy of Pharmaceutical Sciences' Medal in 2016.

Before founding Agility Health Tech, she was Head of R&D with Oxford PharmaScience, an AIM-listed virtual Pharmaceutical company identified as one of the "Top 10 Emerging Technology Companies 2012". Prior to this, Claire was Associate Director at Molecular Profiles (now Juniper Pharmaceuticals) and spent 7½ years at GlaxoSmithKline and Pfizer developing novel molecules and formulations for therapeutic areas such as asthma, cancer, HIV, insomnia, malaria and pain.

Oral Presentations

Reducing insulin degludec doses around regular exercise improves time spent in euglycaemia in people with type 1 diabetes: a randomised cross-over trial

Authors: Othmar Moser, Max L Eckstein, Alexander Mueller, Philipp Birnbaumer, Felix Aberer, Gerd Koehler, Caren Sourij, Harald Kojzar, Peter Holler, Helmut Simi, Peter Pferschy, Pavel Dietz, Richard M Bracken, Peter Hofmann, Harald Sourij

Affiliations: Swansea University

Background and aim: Insulin degludec (IDeg) is associated with a similar risk of exercise-induced hypoglycaemia compared to insulin glargine. No research has explored the impact of IDeg dose reduction in patients exercising regularly. We aimed to compare the time spent in euglycaemia in people with type 1 diabetes (T1D) during 5 consecutive days of moderate-intensity exercise, on either 100% or 75% of their usual IDeg dose.

Methods: 9 participants with T1D (HbA1c 55±7 mmol/mol) were recruited, a flash glucose monitoring sensor was inserted, and participants were switched to IDeg. 3 days before the first exercise period participants were randomised to either 100% or 75%IDeg. Participants exercised on a cycle ergometer for 55 min at a moderate intensity for 5 consecutive days at the clinical research facility. After a wash-out period of 4 weeks, participants performed the second exercise period. Time spent in glucose ranges, numbers of hypoglycaemic events and insulin as well as carbohydrate intake were compared for the 5 days. Data were compared between groups by paired t-test and Wilcoxon matched-pairs signed rank test, $p<0.05$.

Results: A 25% reduction in IDeg dose achieved a longer time spent in euglycaemia ($p=0.04$) with no effect on numbers of hypoglycaemic events ($p=0.91$) or time spent in hypo- ($p=0.07$) or hyperglycaemia ($p=0.38$). The amount of carbohydrates and dose of bolus insulin injections were similar between the two dosing regimens ($p>0.05$).

Discussion: This is the first study demonstrating that people with T1D should be encouraged to reduce IDeg dose when performing regular exercise on consecutive days.

MEDICINES RESEARCH SYMPOSIUM

Oral Presentations

Comparison of observed and estimated costs for medicines recommended by the All Wales Medicines Strategy Group

Authors: Stuart Keeping, Paul N Deslandes, Kath Haines, Philip Routledge

Affiliations: All Wales Therapeutics and Toxicology Centre, University Hospital Llandough, CF64 2XX

Background and aim: Two previous studies by other authors based on analysis of medicines prescribed in the USA have shown a tendency of companies to overestimate costs. The aim of this study was to compare the observed costs of selected medicines recommended for use by All Wales Medicines Strategy Group (AWMSG), with the acquisition costs estimated by companies in their submissions.

Methods: Observed medicine costs in each of the three years following AWMSG recommendation were obtained from prescribing databases in Wales. Estimated costs were obtained from pharmaceutical companies' submissions to AWMSG. Associations between observed and estimated costs were assessed using Spearman's correlation analysis. Mean observed and estimated costs were compared using Wilcoxon Matched-pairs signed rank test.

Results: Between May 2005 and December 2013, 163 medicines were recommended by AWMSG; 49 of these were included in the analysis. Spearman R values for observed and estimated costs were 0.61, 0.69 and 0.71 for the first, second and third years respectively (all $p<0.0001$). Median observed and estimated costs were £47,300 and £86,400 for year one ($p=0.04$); £73,200 and £175,500 for year two ($p=0.005$); and £78,900 and £204,800 for year three ($p=0.002$).

Discussion: Observed expenditure was significantly but not closely correlated to estimated expenditure in each of the three years following AWMSG recommendation. On average, company estimates of expenditure were significantly higher than the observed expenditure.

SYMPOSIWM YMCHWIL MEDDYGINIAETHAU

Cost-effectiveness of point of care C-reactive protein testing in primary care

Authors: Emily AF Holmes(1), Sharman Harris(2), Alison Hughes(2), Noel Craine(3), Dyfrig A Hughes(1)

Affiliations: (1) Centre for Health Economics and Medicine Evaluation (CHEME), Bangor University, LL57 2PZ.

(2) Betsi Cadwaladr University Health Board (BCUHB), Bangor, LL57 2PW.

(3) Public Health Wales, Bangor, Bangor, LL57 2PW.

Background and aim: The National Institute for Health and Care Excellence (NICE) advises considering point of care (POC) C-reactive protein (CRP) testing in primary care for patients presenting with symptoms of lower respiratory tract infection (LRTI), when clinical assessment is inconclusive. The aim was to estimate the cost-effectiveness of POC CRP testing in primary care for adults with symptoms of LRTI for >12 hours, in Wales.

Methods: A short-term decision tree was used to estimate the cost-utility (cost per quality-adjusted life-year, QALY) and cost-effectiveness (cost per antibiotic prescription avoided) of a POC CRP testing strategy versus standard care, over a 28-day time horizon. The testing protocol was based on the Welsh Scientific Advisory Committee Policy on the Management of POC testing, including support costs. The model was parameterised using local data from a pilot study and purposive reviews of the literature. Analyses was both intention to treat and according to protocol.

Results: The incremental cost-effectiveness ratio was £21,691 per QALY intention to treat, and £5,154 per QALY per protocol. The cost-effectiveness of CRP testing was £12.39 per antibiotic prescription avoided in the intention to treat analysis and £7.65 per antibiotic prescription avoided per protocol.

Discussion: POC CRP testing for adults with LRTI is likely to be a cost-effective strategy, at present in Wales. Protocol deviation e.g. inclusion of patients presenting with upper respiratory tract infection reduces the cost-effectiveness of the POC CRP testing strategy. Being based on a pilot study, the results of this economic evaluation are subject to uncertainty.

MEDICINES RESEARCH SYMPOSIUM

Oral Presentations

Evaluation of Pharmacists in Primary Care Clusters

Authors: Lloyd Hambridge

Affiliations: Aneurin Bevan University Health Board

Background and aim: Over 60 Primary Care Clusters across Wales have appointed pharmacists; the integration of pharmacists into primary care clusters has the potential to provide a solution to recruitment pressures and improve the safe, effective and prudent use of medicines in Wales. This study aimed to explore the range of roles currently undertaken by cluster pharmacists in Wales and determine cluster lead general practitioner (GP) opinions on the impact of these roles.

Methods: The project was of a mixed method design split into two distinct cross-sectional descriptive studies acting as a service evaluation. Quantitative data was collected through an online questionnaire directed at current cluster pharmacists. Qualitative data was obtained through interviews with cluster lead GPs within Aneurin Bevan University Health Board (ABUHB).

Results: Thirty roles were identified and divided into four broad themes: medication review, clinical activity, audit/process work and strategic activities. GP opinion on the impact of these roles was positive with benefits described to: patient care/safety, clinical outcomes, access and GP time/workload. Progression of the role was deemed reliant on the future of primary care clusters and additional concerns were raised in respect to training requirements, workload demands and "burn-out" risk.

Discussion: Pharmacists within primary care clusters are undertaking a vast array of roles within practices and across clusters. The impact of these roles has been deemed beneficial to patient care, access to services and GP workload. A robust strategy for evaluating the impact of cluster pharmacist work across clusters should be developed.

SYMPOSIWM YMCHWIL MEDDYGINIAETHAU

The implementation of a pharmacy led metastatic breast cancer clinic

Authors: Sophie Harding, Annabel Borley, Sarah Goman, Bethan Tranter

Affiliations: Velindre Cancer Centre, Cardiff

Background and aim: A metastatic breast cancer pharmacy led clinic (PLC) was set up within Velindre Cancer Centre. The PLC consisted of pharmacy technicians educating patients on new cancer treatments, and a pharmacist non-medical prescriber (NMP) reviewing/assessing patients prior to their next cycle of cancer treatment. Each treatment was pre-prescribed, dispensed and issued within the clinic. No published research is available within this area. Aim: to explore patients' views on the PLC and to determine patients' length of clinic visit pre and post implementation of the PLC.

Methods: Patients were asked to complete an electronic patient survey on their clinic experience pre (n=14) and post (n=9) PLC implementation. Time data was recorded manually by clinic staff, from patients' arrival to the time they left the hospital within two clinics pre and post PLC implementation (both n=13). Data analysed using Microsoft® Excel.

Results: Pre-PLC, the mean patient clinic visit length was 139 mins, compared to 78 mins post PLC, 61 mins shorter when attending the PLC. Within the PLC, 100% of patients were aware they were reviewed by the pharmacist NMP, 100% were satisfied with their review and 89% believed they could ask questions about any problems. Finally, 56% of patient believed their hospital visit was faster within the PLC. The overall patient experience rating of the PLC was 100% between good/excellent. Many patients gave comments such as "excellent consultation".

Discussion: Patients were satisfied, and many gave positive feedback on the PLC. The PLC also shortened the length of the patients' clinic visit.

MEDICINES RESEARCH SYMPOSIUM

Poster Presentations

The Medical Prescribers' and Senior Managers' views of current Non-medical prescribers' practice within Oncology

Authors: Sophie Harding(1,2), Annabel Borley (1), David Terry (2), Bethan Tranter (1), Keith Wilson (2)

Affiliations: (1) Velindre Cancer Centre (2) Aston University

Background and aim: At Velindre Cancer Centre, 29 non-medical prescribers (NMP)(pharmacists/ nurses) work in outpatient clinics with medical staff pre-assessing patients prior to treatment. Aims: to understand opinions/ beliefs concerning NMP roles within oncology and the perceived barriers/benefits of NMP practice; to identify opinions on pharmacist/nurse NMP collaborative working and oncology training.

Method: A consultant focus-group (n=5) and a registrar semi-structured interview (SSI)(n=1) were undertaken. Themes raised were discussed within 3 further senior hospital managers SSIs (n=3). Data collected by audio-recording and thematically analysed using NVivo® software.

Results: All participants believed NMPs were relied upon to run the oncology service. The main benefits of the NMP service agreed by all consultants was 'freeing up' consultant time and utilising varied NMP professional skills .A lack of backfill of NMPs and challenges with current variations in clinic design were described by all senior managers and one suggested producing more 'generic' NMPs. Other barriers were a lack of NMP skills compared to medical colleagues, and how pharmacists are drug-focussed and nurses support-focussed. The 'dual role' of the nurse NMP was discussed and stated that patients' holistic needs should be met within separate nurse-led clinics. The pharmacist/nurse NMP collaboration was viewed as unrealistic and more guidance needed for current NMP training post-qualifying.

Discussion: Service needs to be determined by key stakeholders in order to address the barriers to NMP practice. Actions identified for development and overcoming barriers include: developing a standardised NMP training framework addressing lack of NMP skills, standardising clinic design by setting-up separate nurse-led clinics.

SYMPOSIWM YMCHWIL MEDDYGINIAETHAU

Non-medical prescribers' opinions and beliefs concerning non-medical prescribing current practice within oncology

Authors: Sophie Harding, Annabel Borley, David Terry, Bethan Tranter, Keith Wilson

Affiliations: Velindre Cancer Centre

Background and aim: At Velindre Cancer Centre (VCC), 29 non-medical prescribers (NMP) (pharmacists/nurses) work in outpatient clinics with medical staff assessing patients prior to treatment. Aims: To understand prescribers' opinions and beliefs concerning the NMP role including the perceived barriers/benefits of oncology NMP practice; identifying NMP opinions on oncology NMP collaborative working and determining opinions of the NMP training post qualifying.

Methods: NMPs were invited to one-of-two separate professional focus-groups (pharmacists n=5, nurses n=5). Data was collected by audio recording and analysed by thematic analysis using NVivo® software.

Results: Pharmacists found the NMP role rewarding but stressful due to high level responsibility. Nurses found the NMP role difficult to incorporate into their nursing practice and described a "dual-role". Most participants perceived the benefits of NMP practice as: patients' viewing NMPs as "more approachable" than medical-colleagues and utilising NMPs varied professional skill. All pharmacists agreed that NMP practice 'freed up' consultant time and offered career benefits. Variations in clinic design regarding medical support were viewed as challenging and pharmacists agreed that variation within clinic setup arrangements were also a barrier. Participants viewed collaboration between pharmacists/nurse NMPs as a benefit, but many practised alone. All participants identified the need for post-qualifying training guidance.

Discussion: Pharmacists viewed NMP practice more positively. Nurses focussed on their own practice whereas pharmacists discussed all NMP practice. Clinic collaboration could be beneficial in clinics with a lack of medical support. Other specialties have identified the requirement for post qualifying NMP training guidance and similar benefits of NMP practice.

MEDICINES RESEARCH SYMPOSIUM

Poster Presentations

Increasing patient understanding and control of their asthma in the community

Authors: Lowri H Puw, William LI Hughes, Ceri Williams

Affiliations: Betsi Cadwaladr University Health board, Bangor, LL57 2PW;R J Jones Pharmacy, Nefyn, LL53 6HD

Introduction: There are currently 314,000 people in Wales receiving treatment for asthma. Two-thirds of deaths due to an asthma attack are preventable through the management and treatment of the condition. Patient education and understanding is a vital component for the self-management of their condition. Good inhaler technique aids in asthma management, reducing the likelihood of asthma attacks.

Methods: Patients were identified by using stickers; these were attached to prescriptions for an opportunistic consultation. Bilingual sheets containing questions and points to cover during consultations were designed containing the red flag symptoms to prompt referral. Data was collected from completed forms after 8 weeks.

Results: 14 patients had consultations in 3 community pharmacies. Follow-up consultations were completed with 4 participants. The Asthma Control Test score for all patients that received a follow-up consultation with the pharmacist improved. Patients were educated on their condition and inhaler technique.

Discussion: 7 participants had not received an asthma review in the last 12 months. This highlighted the current pressures on primary care services, to ensure all asthmatics received an annual review. Collaborative working and communication, between primary care and community pharmacy could be a useful tool in improving patient education, and promote the self-management of asthma. Limitations include the small sample size and that patients were lost to follow up.

SYMPOSIWM YMCHWIL MEDDYGINIAETHAU

Implementation of a New Repeat Ordering System for Caerphilly East NCN

Authors: Simone Kemp

Affiliations: Aneurin Bevan University Health Board

Background and aim: Significant medicines safety/waste associated with pharmacy repeat ordering systems were identified within the Caerphilly East Neighbourhood Care Network (NCN). Through the Clinical Effectiveness Prescribing Programme set out by Aneurin Bevan University Health Board the Caerphilly East NCN implemented a new system preventing pharmacies ordering routine repeat medication on behalf of patients. The aim of the new system was to increase patient understanding as well as control of their medication regimes, promote responsibility and prudent prescribing within the NCN.

Method: Patients were informed of changes to the system 2 months prior to implementation through letters attached to repeat prescriptions. The letter included information on how the patient could order their medication and what to do if they had any concerns. A list of exemptions for each practice/pharmacy was generated taking into account vulnerable patients who may not be able to take responsibility for ordering their medication.

Results: A dramatic shift to ordering through My Health Online was seen throughout all practices, with one practice increasing to 32% of prescriptions ordered via this method. Five complaints were received across a population of 38,000, 3 were resolved with clarification of the system and 2 continued as pharmacy managed. Patients exempt from the system, remaining pharmacy managed, is <4% across the NCN.

Discussion: The new system has shown a vast change in the method of ordering medication. The system has been well received by practices, pharmacies and patients. Opportunities for further improvement were identified including: active participation in waste reduction schemes within pharmacies.

MEDICINES RESEARCH SYMPOSIUM

Poster Presentations

Trends in Opioid Prescribing by Deprivation in a Primary Care Population

Authors: Emma Davies, Ceri Phillips, Berni Sewell, Jaynie Rance, Mari Jones

Affiliations: Swansea University

Background and aim: Chronic non-cancer pain affects up to 48% of the United Kingdom population. Pain prevalence is shown to be higher in areas of greatest socio-economic deprivation. The aim of this study was to examine trends in opioid prescribing by deprivation (Welsh Index of Multiple Deprivation, WIMD) across Wales, between 2005 and 2015.

Methods: Data for all opioid prescriptions issued between 2005 and 2015, to people over 18 years and without a recorded diagnosis of cancer, were extracted from the Secure Anonymised Information Linkage databank (SAIL). Annual number of prescriptions and people were measured in repeated cross-sections, adjusted for population (*per 1000 population), stratified by WIMD and analysed using one-way ANOVA.

Results: Overall, 75% more people in WIMD1 (most deprived) areas received prescriptions for opioids than in WIMD5 (least deprived) areas of Wales, (WIMD1 mean 183.6*, SD=11.1, WIMD5 mean 105.1*, SD=8.2*, $F(4,50)=109.6$, $p=.000$, $\square 2=0.90$). Twenty-nine percent of all opioid prescriptions issued within WIMD1 areas (13436.5*, n=46280.4* between 2005-2015). There was 347% increase in the number of strong opioid prescriptions issued in WIMD1 areas. Significantly more strong opioid prescriptions issued in the WIMD1 compared to WIMD5 (1338.7* cf 587.0* respectively – 178% difference) ($F(5, 40)=4.3$, $p=.004$, $\square 2=0.26$).

Discussion: The substantial increase in opioid prescribing across Wales, with greatest numbers of prescriptions issued in the most deprived areas, is in line with previous UK studies. Reasons for disproportionate prescribing patterns are not well understood although postulation of prescribing acting as a substitute for access to pain services may be particularly relevant in socio-economically deprived areas.

SYMPOSIWM YMCHWIL MEDDYGINIAETHAU

Early discontinuation of P2Y12 antagonists and adverse clinical events post Percutaneous Coronary Intervention – A hospital & Primary care linked cohort

Authors: D Harris, A. Lacey, A.Akbari, M.Gravenor, J.Halcox

Affiliations: Abertawe Bro Morgannwg University Health Board, Swansea University College of Medicine

Background and aim: Our objectives were (i) to analyse the rate of early discontinuation (attrition) of P2Y12 antagonists following discharge from hospital for a PCI (ii) explore potential factors associated with attrition in prescribing (iii) analyse the risk of death and major cardiovascular events associated with attrition from a pre-specified prescribing duration of one year.

Method: We studied 2,070 patients (2011-15) who were recommended for clopidogrel for 12m (+aspirin) post-PCI within a retrospective observational population cohort using linked anonymised health record data. Other antiplatelet regimens/durations were excluded. Relationships between attrition of clopidogrel prescribing and major adverse events (death, acute coronary syndrome, revascularisation or stroke) were evaluated over 18m follow up.

Results: Attrition of clopidogrel prescription in the first four quarters was low at 1.1%, 2.6%, 3.7% and 6.1% respectively. Prior revascularisation, prior ischaemic stroke and age >80years were independent predictors of attrition. In a time-dependent multiple regression, age <49 and 60+ compared to those aged 50-59, hypertension, CKD stage 4+, prior revascularisation, ischaemic stroke, thromboembolism, clopidogrel attrition and bleeding (HR=1.82, p=0.047 and HR=5.20, p<0.001 respectively were independent predictors of major adverse events.

Discussion: Attrition of clopidogrel is low in the first year post-PCI, where a clear discharge instruction to treat for 1 year is provided. While this is reassuring from the population level, at an individual level discontinuation earlier than the intended duration is associated with an increased rate of adverse events.

Enjoyed the Research Symposium? Join us this November for RPS Wales annual flagship event...

ROYAL CYMDEITHAS PHARMACEUTICAL FFERYLLOL SOCIETY FRENHINOL
Wales Cymru

MEDICINES SAFETY CONFERENCE

Thursday 22 November

Radisson Blu Hotel, Cardiff

Book today to secure your chance to hear from a line-up of world-class speakers! At our 2018 conference we'll be getting back to the heart of medicines safety issues in practice, with a diverse programme of inspirational speakers from across the healthcare spectrum.

Find out more & book your place at **rpharms.com/medsafety**

Join in the conversation online using **#MedSafetyConf**

Exhibition and sponsorship opportunities available. Contact us for more info at Wales@rpharms.com or call us on 02920 730310.