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OC009—An Assessment Of The Accuracy Of Horizon Scanning Predictions Of Medicine Use In The Scottish National Health Service

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clinical and preclinical) and skills needed to perform adequately during the following 18 month internship that is required to obtain the medical license. CP contents, results, and student perceptions from the first 3 occasions are presented.

Patients (or Materials) and Methods: The examination takes place in the last semester of the 5.5-year training program. The 6 stations are equally weighted in the total result. The students can pass the exam if they fail at 1 station, as long as their average score is sufficient. The CP station has consisted of a computer-presented patient case with questions, aimed at assessing prescribing skills and has also included preclinical aspects. Students have been allowed to use the Internet to search for information but not to interact with other persons. The cases so far have included the evaluation of possible side effects in an elderly patient with polypharmacy admitted after falling, drug prescribing to a pregnant woman with a urinary tract infection and migraine, and the reasoning about terminating or continuing treatment with several medicines initiated by another prescriber. Students' perceptions of the exam were collected through group interviews or questionnaires in direct connection to examination.

Results: Five percent of students failed the exam as a whole, whereas the failure rate at the CP station was somewhat higher; 7% to 14%. The failure rate was higher at the stations with more theoretical content such as CP, compared with stations assessing skills in communication and physical examination or procedures. Within the CP station, preclinical questions had a higher failure rate than the more clinically oriented. Also, only 16% of prescription forms were filled out correctly. Students' comments have included that it is essential that the scenarios are perceived as authentic and that it is difficult to go from practical stations, like a cardiac resuscitation scenario, to "computer patients." A few technical problems with the computers were perceived as very disturbing.

Conclusion: A clinical pharmacology station can be a valuable part of an integrated final exam and is well suited for the assessment of practical prescribing performances, as well as students' abilities to integrate preclinical knowledge and clinical reasoning. Scenarios must be perceived as authentic, and access to the Internet can thus be a natural part of the setting.

Disclosure of Interest: None declared.

OC008—THE EFFECT OF A STRUCTURED MEDICAL RECORD ON THE RECORDING OF THERAPEUTIC INFORMATION AND COMMUNICATION BETWEEN DOCTORS

R. Van Unen^{1,2*}, J. Tichelaar^{1,2}, M. Richir^{1,2}, and T. de Vries^{1,2}

¹RECIPE (Research and Expertise Center In Pharmacotherapy Education); and ²Department of Internal Medicine, Section Clinical Pharmacology and Pharmacotherapy, VU University Medical Center, Amsterdam, the Netherlands

Introduction: In contrast to the diagnostic part of the medical record (MR), the therapeutic section of the MR is currently unstructured and does not provide guidelines on which items of the (pharmaco) therapy are essential to note in the MR. The omission of this information could result in prescribing errors and miscommunication between doctors. A previous study showed that both junior doctors and clinical consultants believe it is important to note extensive information in the MR about the selected (pharmaco) therapy. This study investigated the effect of a structured MR on the completeness of therapeutic information in the MR and the extent to which doctors felt informed about the treatment (as an indicator of communication between doctors).

Patients (or Materials) and Methods: Fifteen junior doctors working in the outpatient department of internal medicine in 7 Dutch

teaching hospitals recorded therapeutic information for 2 weeks in regular, unstructured MRs. Subsequently after receiving a short training, they had to record their therapeutic information for 4 weeks in a structured MR. The structure contained 21 therapeutic items that should be recorded. The recording of these therapeutic items was then evaluated in 223 unstructured MRs and 197 structured MRs. After this evaluation, independent clinical consultants in internal medicine were asked to score, on a 5-point scale, the extent to which they felt informed about the treatment.

Results: Seven of the 21 (33%) therapeutic items were recorded in significantly ($P < 0.05$) greater detail in the structured MRs. Clinical consultants did not feel significantly more informed about treatment (score 3.9 with unstructured MRs and 4.0 with structured MRs; $P = 0.25$).

Conclusion: Structuring the therapeutic part of the MR improves the documentation of therapeutic information, but doctors did not feel more informed about the treatment.

Disclosure of Interest: None declared.

OC009—AN ASSESSMENT OF THE ACCURACY OF HORIZON SCANNING PREDICTIONS OF MEDICINE USE IN THE SCOTTISH NATIONAL HEALTH SERVICE

M. Bennie¹; J. Dear²; E. Dunlop Corcoran¹; S. Hems^{3*}; S. McTaggart³; R. Newham¹; and C. Waugh³

¹Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow; ²Edinburgh University/BHF Centre for Cardiovascular Science, Queen's Medical Research Institute; and ³Information Services Division, NHS National Services Scotland, Edinburgh, United Kingdom

Introduction: The Scottish Medicines Consortium (SMC) provides advice about the clinical and cost-effectiveness of newly licensed medicines to the National Health Service (NHS) in Scotland, and since 2005, SMC has also provided early intelligence on medicines still in development through publication of "Forward Look" reports. Forward Look predictions are helpful in supporting resource planning by NHS Boards, but there are challenges in accurately estimating the uptake of a medicine that is still in development. This study examined how actual medicine use compared with predictions provided in Forward Look Reports and SMC advice.

Patients (or Materials) and Methods: Twenty-eight medicines were selected in line with specified criteria. Data on the predicted uptake of these medicines at year 1 were extracted from Forward Look reports and SMC advice and compared with actual medicine use data from national primary and secondary care datasets. The data were summarized in medicine profiles and reviewed by clinicians to identify factors that may have impacted on the accuracy of predictions provided in Forward Look reports and SMC advice.

Results: Of 28 medicines selected for evaluation, the actual acquisition cost per patient per annum was consistent with Forward Look predictions for 11 medicines, higher for 14 medicines, and lower for 3 medicines. Of 22 medicines in the sample that were accepted for use or restricted use by SMC, the actual uptake at year 1 was consistent with Forward Look predictions for 4 medicines and with predictions in SMC advice for 3 medicines. Forward Look was more likely to overestimate the uptake than the SMC advice. Review of the medicine profiles identified 7 factors that may explain the variation between predicted and actual medicines uptake

- SMC "not recommended" advice
- Accuracy of the predicted acquisition cost and number of patients (uptake being the product of these)
- Availability of alternative treatment
- Comparative costs and service implications

- Adverse effects
- Prescribing within clinical trials and availability of unlicensed medicines
- License extension

Conclusion: This investigation found variation between actual uptake of new medicines and the predictions provided in Forward Look reports and SMC advice. The 7 factors identified assist in explaining the variations observed, are useful in understanding the challenges in making accurate predictions, and provide some areas in which action could be taken to further develop and potentially improve predictions in Forward Look reports and SMC advice.

Disclosure of Interest: None declared.

OC011—PATENTED DRUG EXTENSION STRATEGIES ON HEALTH CARE SPENDING: A COST-EVALUATION ANALYSIS

N. Vernaz^{1*}; G. Haller²; F. Girardin³; B. Huttner⁴; C. Combescure⁵; P. Dayer⁶; D. Muscionico⁷; J.-L. Salomon⁷; and P. Bonnabry¹

¹Pharmacy, Geneva University Hospitals and School of Pharmaceutical Sciences, University of Geneva, University of Lausanne, Geneva University Hospitals; ²Department of Anesthesiology, Pharmacology, Intensive Care, Division of Clinical Epidemiology, Department of Epidemiology & Preventive Medicine, Health Services Management and Research Unit, University of Geneva, Geneva University Hospitals, Monash University; ³Psychopharmacology Unit, Service of Clinical Pharmacy and Toxicology, Geneva University Hospitals; ⁴Infection Control Program, Geneva University Hospitals and Faculty of Medicine; ⁵CRC & Division of Clinical-Epidemiology, Department of Health and Community Medicine, University of Geneva, Geneva University Hospitals; ⁶Clinical Psychopharmacology Unit, Service of Clinical Pharmacy and Toxicology, Geneva University Hospitals; and ⁷OFAC, Geneva, Switzerland

Introduction: Drug manufacturers developed “evergreening strategies” to compete with generic medication after patent termination. These include marketing of slightly modified follow-on drugs. We identified 8 follow-on drugs available in the canton of Geneva during the study period: 3 drugs for which an isomer had been marketed (levocetirizine as follow-on drug of cetirizine; escitalopram/citalopram; esomeprazole/omeprazole); 1 active metabolite (desloratidine – loratidine); 2 combination formulations of the originally patented drug (alendronic acid alone – alendronic acid combined with colecalciferol; simvastatin alone – simvastatin with ezetimib); 1 slow-release formulation (zolpidem extended release); and 1 structural analogue (pregabalin – gabapentin). We aimed to estimate the financial impact of these drugs on overall health care costs.

Patients (or Materials) and Methods: The impact of evergreening strategies on health care spending was analyzed in the community database that includes >73% of the total of insured patients. Costs were analyzed under 3 scenarios, assuming a replacement with the corresponding generic when available of: (1) all brand drug prescriptions; (2) all follow-on; and (3) both follow-on and brand prescriptions. The “extra-cost” was assessed by the difference between the total cost based on the observed data and the total cost estimated in the 3 scenarios.

Results: Based on our scenario 1 (no brand) and 2 (no follow-on) of “extra-costs,” the health care system could have saved over the entire study period €15.9 (95% CI, 15.5–16.2) million and €14.4 (95% CI, 14.1–14.7) million if brand or follow-on drug prescriptions, respectively, had replaced. This amounted to €30.3 (95% CI, 29.8–30.8)

million over the entire study period if brand and follow-on drug prescriptions were replaced at their corresponding community generic selling price equivalents when available (scenario 3).

Conclusion: Evergreening strategies have been successful in maintaining market share in Geneva, offsetting competition by generics and cost-containment policies. Therefore, health care providers and policy makers should be aware of the impact of evergreening strategies.

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OC013—A SIMPLIFIED METHOD FOR BUSULFAN THERAPEUTIC DRUG MONITORING USING DRIED BLOOD SPOT SAMPLING IN PEDIATRIC PATIENT UNDERGOING STEM CELL TRANSPLANTATION

C.R.S. Uppugunduri^{1*}; M. Ansari²; Y. Théorêt³; J. Déglon⁴; F. Versace⁵; F. Gumy-Pause²; P. Dayer⁶; J. Desmeules⁶; and Y. Daali⁶

¹Department of Pediatrics, Hemato-oncology unit, University of Geneva; ²Department of Pediatrics, Hemato-oncology Unit, University of Geneva, Geneva, Switzerland; ³Department of Pharmacology, CHU Sainte Justine, University of Montreal, Montreal, Quebec, Canada; ⁴Unit of Toxicology, University Center of Legal Medicine, University of Geneva; ⁵Unit of Toxicology, University Center of Legal Medicine, University of Geneva; and ⁶Department of Clinical Pharmacology, University Geneva Hospital, Geneva, Switzerland

Introduction: Intravenously administered Busulfan (Bu) in children undergoing hematopoietic stem cell transplantation (HSCT) exhibits therapeutic window phenomenon requiring therapeutic drug monitoring. The dosage of Bu is adjusted based on the first dose pharmacokinetic parameters. Existing methods for the analysis of Bu require long turnaround times with relatively large amounts of blood collection for plasma separation.

Objective: To evaluate the utility of dried blood sampling (DBS) and dried plasma sampling (DPS) using only 5 µL of whole blood or plasma for therapeutic monitoring of Bu levels.

Patients (or Materials) and Methods: Venous blood samples were collected from 2 children after the infusion of Bu at doses 1, 2, 3, 5, and 9 (n = 34). Then, 5 µL each of whole blood and plasma were spotted onto Whatman 903 DBS cards and dried at room temperature for 30 minutes. The entire spots were cut and then analyzed by a validated LC-MS/MS method. Bu was also measured by established gas chromatography coupled to mass spectrometry (GC-MS) method using plasma (n = 13) to compare both the methods.

Results: A good correlation was observed between the levels measured by DBS and DPS ($r_2 = 0.95$; slope = 0.84). The Bu levels measured by DPS ($r_2 = 0.92$; slope = 0.95) and DBS ($r_2 = 0.91$; slope = 0.80) were correlated with those measured by GC-MS method. The levels estimated by DBS were less than those obtained by DPS and GC-MS methods. The hematocrit (Hct) values of 2 children were in the range of 25.6% to 30.3%, indicating the direct influence of Hct on the measured Bu levels measured by DBS sampling. Therefore, these 2 sampling methods can be used interchangeably with due consideration of the Hct value when whole blood sample is used. The plasma levels can be obtained from DBS levels using the formula “Plasma levels (analyte) = DBS levels analyte / (1 – hematocrit).” The plasma levels of Bu estimated using this formula were higher than