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Oral Abstracts

Development of the medicines optimisation assessment tool (MOAT)

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Medicines optimisation is a key role for hospital clinical pharmacists[1], but with increasing demands on services there is a need to increase efficiency whilst maintaining patient safety. Clinical prioritisation has been proposed as a way to permit pharmacy services to focus on where the need is greatest[2]. The aim of this study was to develop and test a prediction tool, the Medicines Optimisation Assessment Tool (MOAT^{TM}), to target patients at highest risk of medication related problems (MRPs) while in hospital. The objectives were to develop a decision aid to allocate patients to risk groups, and to assess its predictive performance and clinical usefulness.

Consecutive admissions (n = 1652) from adult medical wards at two UK hospitals were prospectively included into this cohort study between April and November 2016. Elective admissions were excluded, as were patients not prescribed medication, and/or whose prescribing records were not reviewed by a pharmacist. Data on MRPs were collected by pharmacists as part of their routine daily clinical assessments. Data on potential risk factors, such as number of comorbidities and use of "high-risk" medicines, were collected retrospectively. A prognostic model was developed using multivariable logistic regression to determine the relationship between potential risk factors and the study outcome: patients with at least one moderate or severe preventable MRP, and a simplified electronic scoring system (the MOAT) was developed. Three risk groups were created to guide prioritisation. Predictive performance was assessed using discrimination (concordance index) and calibration. Sensitivity and specificity were calculated, and clinical usefulness assessed using decision curve analysis. Ethical approval was obtained from the proportionate review service sub-committee of the National Health Service Research Ethics Committee, Wales REC 7 (16/WA/0016).

Among 1503 eligible patient admissions, 610 (40.6%) experienced the study outcome. Eleven variables were retained in the final model: number of comorbidities, number of medicines, white cell count, renal function, previous allergy, aminoglycosides/glycopeptides, other antimicrobials, epilepsy medicines, and 3 primary diagnoses (nervous system/mental disorders, respiratory and gastrointestinal). The MOAT demonstrated fair predictive performance: (concordance index 0.66) and good calibration. The decision thresholds between risk groups had sensitivities of 90% and 66% (specificity 30% and 61% respectively). The MOAT has potential to increase the efficiency of hospital pharmacy services by identifying the 22% of patients least likely to experience a moderate or severe preventable MRP. Decision curve analysis suggests the MOAT has the potential to be clinically useful at the thresholds selected to categorise patients as low, medium and high-risk.

The MOAT is the first evidence-based clinical prioritisation tool to identify patients most in need of pharmacists' input in terms of their risk of moderate or severe preventable MRPs, experienced by 41% of admissions. Results suggest acceptable predictive accuracy, with decision curve analysis demonstrating potential clinical usefulness. A strength of this research is adherence with recommendations of the PROGnosis RESearch Strategy (PROGRESS) partnership. Limitations include the observational nature of the study, meaning residual confounding cannot be excluded.

The next step is to assess the MOAT's clinical credibility. Extensive external validation, involving prospective validation in a new cohort, will also be required, together with studies to assess the impact of the MOAT in clinical practice.

Keywords: Patient safety; Pharmacy; Prioritisation tool.

1. The Royal Pharmaceutical Society: Professional Standards for Hospital Pharmacy Services, Version 3, 2017.

2. NHS England: Transformation of seven day clinical pharmacy services in acute hospitals, September 2016.

Evaluation of the NHS England Phase 1 pilot: clinical pharmacists in general practice

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The General Practice Forward View (GPFV) outlined the NHS England strategy for general practice in England.[1] The GPFV outlined an investment of £31 million to pilot 470 clinical pharmacists in over 700 practices. This work was commissioned to evaluate the Phase 1 pilot.[2] Amongst a number of outcomes the evaluation

was tasked to investigate the impact the initiative had on the pharmacists' general practices and patients.

A mix of quantitative and qualitative approaches were used. An online questionnaire was developed and piloted prior to distribution to pharmacists employed as part of the NHS England pilot. The survey explored a wide range of areas from recruitment and skills, to work practices and outcomes of the programme. Two reminders were sent to non-responders. Analysis consisted of descriptive statistics and thematic review of free-text responses. Sites were also explored in depth using an ethnographic case study approach. Case studies included interviews with pharmacists, site leads and general practitioners along with patient focus groups. Topic guides for these were open-ended, focussing on capturing descriptions and experiences of the pharmacists' role. This work was service evaluation and did not therefore need ethical review.

Survey responses were received from 159 pharmacists out of the 379 pharmacists with known email addresses (42% response rate). 89% (142/159) reported enjoying working in their role with the same number reporting that they could work autonomously and are accepted by other members of the practice team. Pharmacists reported impacting significantly on medicines optimisation, especially safety, through becoming responsible for the management of repeat medicines, including a number of reports of notable deprescribing. In-depth case studies were conducted in three sites with additional interviews conducted in a further five. All sites reported that once established, the pharmacists increased capacity in the practice with more GP appointments available to patients, in addition to new pharmacist appointments. Patients reported significant improvements in their understanding of their medicines.

"I sat with her and gave all the dietary advice and made her fill in a food diary and exercise diary and it was quite unique because she'd never done those sort of things before. I spoke to her about her medication because she was very non-compliant" Pharmacist Site C

"... I have only seen [pharmacist] the once but she spent a lot of time with me, I was in there for 20 minutes. I was impressed with that. I have never had that level of service in this surgery." Patient Site C

The data gathered suggests that the clinical pharmacists in the phase 1 pilot had significant impact on the pharmacists, the general practice and patients. With pharmacists feeling valued as professionals, practices with increased capacity for GP appointments through task transfer and patients satisfied through increased understanding of their medicines. This evaluation looked only at the NHS England Phase 1 pharmacists and was constrained in the time available, meaning a comprehensive review was not possible and it may therefore not reflect wider practice. Further evaluation is necessary to quantify benefit.

Keywords: Pharmacist; General Practice.

1. NHS England (2016) General Practice Forward View https://www.england.nhs.uk/publication/general-practice-forward-view-gpfv/ Accessed 31 January 2018.

2. NHS England Clinical Pharmacists in General Practice (2016) https://www.england.nhs.uk/gp/gpfv/workforce/building-the-general-practice-workforce/cp-gp/ Accessed 31 January 2018.