and evaluation processes identified that a simple interface with a clear indication of progress were preferred.

A blended intervention combining a tablet-based digital tool and structured interaction was developed. The interface was designed to maximise use of patient and healthcare professional time, and mapped to the 5As approach (which is underpinned by principles of motivational interviewing, shared-decision making, and readiness to change frameworks). The HealthEir digital tool enables patients to self-complete the Ask, Advise, and Assess phases of a brief intervention using a tablet device while waiting to see their pharmacist/GP. The pharmacist or GP then review the patient's responses, risk level, and importance confidence and readiness scores. They complete the Assist and Arrange elements during the consultation, supported by a directory of local/national patient support services before printing information tickets for the patient to keep. The HealthEir intervention has been successfully rolled out at eight pilot pharmacy sites nationally, with a mix of urban/rural sites, and independent/chain pharmacies.

Conclusions: Adopting an interdisciplinary approach based on human-centred design principles led to the development of a blended brief intervention that has been successfully introduced in pilot sites across Ireland. While the implementation has been smooth despite COVID-19 challenges, and initial feedback has been very positive, the impact cannot yet be fully evaluated as research is ongoing. Future work will involve extending the intervention to include other healthcare professionals.

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TECHNOLOGY

THE USE OF FACEBOOK IN A COMMUNITY PHARMACIST-LED WEIGHT MANAGEMENT PROGRAMME – A LONDON-BASED PROOF OF CONCEPT STUDY

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Introduction: In the United Kingdom (UK), 63% of adults are overweight,(1) costing the NHS £6.1 billion/year. With the public using digital technology over healthcare professionals (HCPs) for health advice, this warrants an investigation of technology use in community pharmacy, given its previous successful use.(2)

Aim: To determine the feasibility and perceptions of a community pharmacist (CP)-led weight management programme (WMP), enhanced by a Facebook support group (FSG).

Methods: A proof of concept study was conducted between January-March 2020. Recruitment was via a pharmacy, the university and a community Facebook group. Inclusion criteria: over 18 years; overweight; no medical conditions. Participants attended face-to-face meetings (ftf) with a CP and final year pharmacy student (PS) on two occasions (0 (baseline) and 4 weeks). At baseline, participants were given the NHS weight loss programme and set weight loss goals. During ftf, participants had height, weight, and waist circumference (WC) measurements by a CP/PS and discussed eating habits, exercise and alcohol. In between ftf, participants accessed the FSG (created (December 2019) and moderated by a CP). Here, they received posts about diet, exercise and motivation. Participants were to have their measurements taken ftf at 8-weeks, however, COVID-19 meant participants had to self-declare these via video call. Following the 8-week programme, participants completed a 4-section survey about their experience (signing up to the service; comparison to previous weight loss attempts; the FSG and overall perceptions). Question types included multiple choice, Likert scale and free text comments. Data were analysed in Excel (Microsoft Corporation 2016) with changes in height, weight, waist circumference, alcohol and exercise being calculated.

Results: Fifty-five participants were recruited. 18 were lost to follow-up, most (n=12/18) citing COVID-19. Of the 37 participants remaining (70.3% female, mean age=37 years), 22 were obese, the rest overweight. Mean weight loss, mean percentage weight loss and mean WC reduction at 4-weeks was 1.6 kg (SD+/- 1.7 kg), 1.8% (SD+/- 1.9%) and 2 cm (SD+/- 1.96 cm) respectively. At week 8 measurements were self-declared. Mean weight loss at 8-weeks from baseline was 2.7 kg (SD +/- 2.6 kg) and mean percentage weight loss was 3% (SD+/- 3%). Only five participants' self-declared WC measurements at 8-weeks with mean reduction being 3.6 cm. Five participants moved to healthier BMI classifications by week 8. All participants accessed the FSG at least weekly with 13 accessing it daily. Diet posts were the most popular (n=20/37). Participants learned about portion control and increasing fruits/vegetables intake. All participants would recommend the programme to their friends/family.

Conclusion: An 8-week CPWMP, enhanced with FSG, supported participants to lose a mean of 3% body weight. Participants accessed the page regularly and were positive about its usefulness. One limitation was that the COVID-19 lockdown prevented the 8-week ftf, therefore, self-declared measurements were used. The pandemic has highlighted the importance of pharmacy embracing technology for service delivery, particularly when in-person contact is limited. The implication of this study is that it provides proof that the concept of digital service delivery could work in practice.

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PREDICTING INFECTION AND SEPSIS; WHAT PREDICTORS HAVE BEEN USED TO TRAIN MACHINE LEARNING ALGORITHMS? A SYSTEMATIC REVIEW.

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Introduction: Sepsis is a life-threatening condition that is associated with increased mortality. Artificial intelligence tools can inform clinical decision making by flagging patients who may be at risk of developing infection and subsequent sepsis and assist clinicians with their care management.

Aim: To identify the optimal set of predictors used to train machine learning algorithms to predict the likelihood of an infection and subsequent sepsis and inform clinical decision making.

Methods: This systematic review was registered in PROSPERO database (CRD42020158685). We searched 3 large databases: Medline, Cumulative Index of Nursing and Allied Health Literature, and Embase, using appropriate search terms. We included quantitative primary research studies that focused on sepsis prediction associated with bacterial infection in adult population (>18 years) in all care settings, which included data on predictors to develop machine learning algorithms. The timeframe of the search was 1st January 2000 till the 25th November 2019. Data extraction was performed using a data extraction sheet, and a narrative synthesis of eligible studies was undertaken. Narrative analysis was used to arrange the data into key areas, and compare and contrast between the content of included studies. Quality assessment was performed using Newcastle-Ottawa Quality Assessment scale, which was used to evaluate the quality of non-randomized studies. Bias was not assessed due to the non-randomised nature of the included studies.

Results: Fifteen articles met our inclusion criteria (Figure 1). We identified 194 predictors that were used to train machine learning algorithms to predict infection and subsequent sepsis, with 13 predictors used on average across all included studies. The most significant predictors included age, gender, smoking, alcohol intake, heart rate, blood pressure, lactate level, cardiovascular disease, endocrine disease, cancer, chronic kidney disease (eGFR<60ml/min), white blood cell count, liver dysfunction, surgical approach (open or minimally invasive), and pre-operative haematocrit < 30%. These predictors were used for the development of all the algorithms in the fifteen articles. All included studies used artificial intelligence techniques to predict the likelihood of sepsis, with average sensitivity 77.5±19.27, and average specificity 69.45±21.25.

Conclusion: The type of predictors used were found to influence the predictive power and predictive timeframe of the developed machine learning algorithm. Two strengths of our review were that we included studies published since the first definition of sepsis was published in 2001, and identified factors that can improve the predictive ability of algorithms. However, we note that the included studies had some limitations, with three studies not validating the models that they developed, and many tools limited by either their reduced specificity or sensitivity or both. This work has important implications for practice, as predicting the likelihood of sepsis can help inform the management of patients and concentrate finite resources to those patients who are most at risk. Producing a set of predictors can also guide future studies in developing more sensitive and specific algorithms with increased predictive time window to allow for preventive clinical measures.
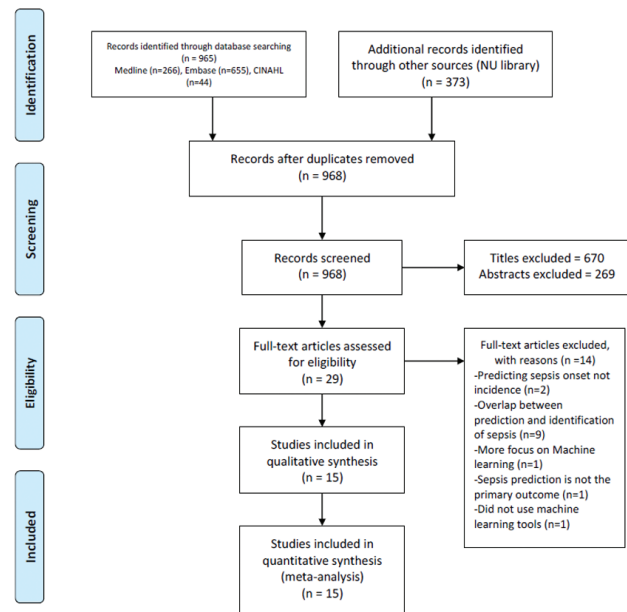

Figure 1: PRISMA diagram.

DESIGNING A CONTINUOUS DATA-DRIVEN FEEDBACK AND LEARNING INITIATIVE TO IMPROVE ELECTRONIC PRESCRIBING: AN INTERDISCIPLINARY QUALITY IMPROVEMENT STUDY

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Introduction: The WHO Global Patient Safety Challenge aims to reduce severe avoidable medication-related harm by 50% by 2023[1]. Research suggests that providing timely, trusted feedback that incorporates relevant action can improve practice. However, a key barrier is lack of prescribing