

support (PBS) practitioners, activities coordinators, and nursing home managers.

**Methods.** The inclusion criteria for STOMP are 1. Diagnosis of learning disability, autism, or both, 2. Currently taking psychotropic medication primarily for behaviour that challenges and 3. No diagnosis of severe and enduring mental illness. Five patients were eligible for STOMP.

Outpatient letters and medication prescriptions from the time of admission were compared with the most recent outpatient letters and medication prescriptions.

**Results.** The five residents were on a range of psychotropic medications including antipsychotics, antidepressants, benzodiazepines, and antihistamines. Following STOMP implementation there was a reduction in psychotropic medication for 80% of the residents.

Patient 1: Reduction in antipsychotic from 75% BNF max daily dose to 40%.

Patient 2: Previously on two antipsychotics with combined use of 75% BNF max daily dose – both medications now discontinued.

Patient 3: Reduction in antipsychotic from 69% max daily BNF dose to 50%, PRN antihistamine discontinued.

Patient 4: PRN antipsychotic discontinued from 15% max daily BNF dose, benzodiazepine use reduced by 5%.

Patient 5: Antipsychotic use increased from 25% max daily BNF dose to 33%.

**Conclusion.** There was a reduction in psychotropic medication in 80% of the residents. This is an encouraging finding and shows that the STOMP initiative can be expanded to include residential nursing homes. Despite relatively limited resources for STOMP implementation in our local service, we have shown that by keeping the STOMP ethos at the centre of our thinking during monthly MDT meetings involving nursing home management, PBS practitioners, psychiatry, and activities coordinators, we can make sustained reductions in psychotropic prescribing.

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## Medical Emergency Equipment Medication (MEEM) Training: A Quality Improvement Project Focusing on Transforming the Emergency Response to Inpatient Psychiatric Medical Emergencies

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**Aims.** All medical staff working within NHS psychiatric hospitals in the UK are required to complete mandatory life support training. However, there is no such mandatory requirement for associated training around the effective use of the emergency medical equipment used during medical emergencies on inpatient psychiatric wards. This quality improvement project focused on developing a sustainable educational intervention aimed at all staff types within one London inpatient psychiatric hospital. Staff of all grades and roles encountered frequent difficulties and delays in relation to the emergency medical bags and equipment, including issues around skill and confidence.

**Methods.** A survey was initially sent to medical and nursing staff working on an inpatient psychiatric unit, which highlighted participants' lack of confidence in using the equipment. It emerged that staff exclusively handled the emergency medical equipment during relatively rare emergencies. This resulted in unfamiliarity with the equipment and consequent difficulties in using it competently. A novel educational intervention dedicated to upskilling staff with emergency medical equipment was created, focusing on contents and use of individual equipment within the medical emergency bag. Pre- and post-intervention quantitative feedback regarding confidence and familiarity was obtained using feedback forms containing Likert scales. Qualitative feedback was also obtained.

**Results.** More than six training cycles, each consisting of at least five training sessions, have now been completed with both qualitative and quantitative measures of improvement captured. Individuals noted on average a 31.62% ( $\pm 3.605\%$ ) improvement in self-reported confidence and familiarity with equipment. The most frequently identified positive themes were that the intervention familiarised staff with equipment and was educational, whilst the most frequent suggestion for improvement were requests for additional sessions. From single idea to sustainable quality improvement, the team broadened and gained stakeholder support including clinical and nursing directors, pharmacy, junior doctors, nurses, and matrons.

**Conclusion.** The intervention has achieved sustainability and is being explored in other partnership psychiatric hospitals. Despite reported increased confidence in handling the emergency equipment, there is ongoing need to develop, maintain and practice these skills, across both the nursing and medical staff, to achieve better outcomes for psychiatric inpatients. Trainee psychiatrists intend to develop the project further, and the training will be incorporated as a mandatory requirement. The project links to the quality standards for mental health point 12 of the Resuscitation council UK. Next stage developments of the project include linking to feedback from emergencies as well as incorporating into existing simulation training.

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## Substance Misuse History Documentation at Admission to Secure Rehabilitation Ward Audit

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**Aims.** To audit compliance with electronic admission documentation relating to substance use.

**Methods.** The initial admission forms in the electronic records of all current patients on the male ward were reviewed ( $n = 12$ ). The information in core admission document was compared with other substance abuse history information on records.

**Results.** Seven of the twelve patients were asked about substance misuse during their admission review. 5 patients were not asked. One of these patients had no history of substance use but his alcohol use history was also unclear in other records. 9 patients had at the very least met the ICD-10 criteria of harmful use of alcohol. 11 patients had at the very least met the ICD 10 criteria for

harmful use of illegal substances. Two patients had excessive amount of alcohol use to the point of dependence since teenage. Mean age of onset of both substance and alcohol use was 11, with range of 0 to 20. The most commonly misused substances were alcohol and cannabis (11 out of 12 patients). Eight patients had abused drugs other than cannabis. All but one of these then progressed to using other substances. The reasons for using substances and attitudes to substance and alcohol use were not explored in admission assessment in most cases.

**Conclusion.** Admission assessment to a rehabilitation ward is also an opportunity to screen for any barriers to recovery as well to use brief motivational interviewing intervention if appropriate clinically. There is a need to improve the quality of our admission assessment in relation to substance use history.

Most of our patients had a very early onset of alcohol and substance use, as young as age 8. Apart from one outlier, all had started using substances and alcohol by age 15. This raises concerns regarding missed early prevention and safeguarding opportunities.

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### Statistical Machine Learning Methods to Handle Missing PHQ-8 Score – Assuming Missing at Random

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**Aims.** Missing data is a challenge that most researchers encounter. It is a concern that continues to be analyzed and addressed for solutions. Missing data occurs when there is no data stored for certain variables relating to participants. In health surveys, when participants answer in the form of “I don’t know” or “I’d prefer not to answer”, these responses can, in many cases, be categorized as missing data responses from a participant in a specific category or question.

The eight-item Patient Health Questionnaire (PHQ-8) is an essential tool in healthcare and clinical settings to assess an individual’s mental health, specifically related to symptoms of depression. The items are scored on a scale from 0 to 3 with the total score obtained by summing the scores for each item. Higher PHQ-8 scores indicate the presence of depressive symptoms.

We used empirical data from a previous study on depression symptoms in patients with coronary heart disease to study the effect of considering the answers “I do not know” and “I prefer not to answer” as missing values when estimating the percentage of depression using PHQ-8. Moreover, we studied the effect of the complete case analysis and multiple imputation on parameter estimates and confidence intervals. The outcome of this study aims to shed light on the development of missing data procedural knowledge and provide methodological support for public health decision-making when data with missing values are collected.

Furthermore, this study aims to prevent the exclusion of missing data rather than to generate data.

**Methods.** A simulation study with 1000 replicates was performed. Four common statistical machine learning methods for handling

missing values were included in this study. These are K-Nearest Neighbor (KNN), K-Means, Classification and Regression Trees (CART), and Random Forest (RF) imputations. Five clusters were used for KNN and K-mean. Likewise, five multiple imputations were used for the CART and RF methods. The simulation was based on publicly available data with available PHQ-8 data for 1096 subjects. In the simulation study and for each replication, multivariate missing values were generated using the missing-at-random (MAR) assumption with 10%, 20%, 30%, 40%, and 50% proportions of missingness. The percent of depression was calculated using the PHQ-8 questionnaire and a comparison was made between estimated actual depression, complete-case analysis, KNN, Kmean, RF, and CART, respectively.

**Results.** The Median age of the subjects was 69 (interquartile range: 61–67) and more males (72.9%) than females were included in the data. The estimated actual depression was 16.8, whereas the estimated percentage of depression varies between 6.9–13.5, 16.2–16.7, 16.3–16.7, 16.6–16.7 and 16.7–16.8 for the complete case, KNN, Kmean, RF and CART respectively.

**Conclusion.** The results of this simulation study show that missing PHQ-8 data are best handled by applying multiple imputations based on CART or RF. However, using K-Means or KNN leads to a good estimate of the true percentage of depression. Furthermore, the results of this simulation study show that complete-case analysis leads to biased estimates of the true percentage of depression. Nevertheless, further investigation is needed to address the problem of missing PHQ-8 data under the assumption of missing not at random.

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### Inpatient Psychiatry Placement Quality Improvement Project for Medical Students at University College London

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**Aims.** UCL 5th year medical students undertake 3-week North London Mental Health Partnership inpatient psychiatric wards placements.

Before this project the management of these placements was at the discretion of individual ward teams. A varied, and potentially unsatisfactory, medical student experience resulted.

This project sought to implement a structured approach to placements.

Ward teaching best practice was, for the purposes of this project, considered to be (i) sending students a welcome email prior to placement, (ii) issuing placement timetable, (iii) using tutorial materials for onward tuition.

Project aims: 75% of wards sending welcome email, 75% issuing timetables, 75% using tutorial materials, 75% of students stating placement exceeded expectations.

**Methods.** This project consists of 1 PDSA cycle.