

# Development of a Multi-Professional Simulation Workshop to Reduce Serious Complications of Psychiatric Medication

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## Introduction

As part of a partnership between Sussex Partnership NHS Foundation Trust, Brighton & Sussex Medical School & Health Education England a fellowship position was created for a higher specialty trainee in psychiatry to develop and take leadership of a simulation-based educational project with complete autonomy and independence in the project from genesis of ideas to workshop development, facilitation and subsequent analysis. The project allowed enhancement of leadership skills not usually available during specialty training including management of a large project which involved liaison with multiple stakeholders up to executive trust level.

Psychotropic medications were chosen as the subject for the pilot workshop, with an initial focus on Clozapine, due to the fact that they can cause serious morbidity and mortality in patients vulnerable to the impact of adverse effects. Simulation-based education provides a unique opportunity to learn the vital pharmacological principles of these medications alongside the advanced communication skills required to ensure compliance and reduce the risk of complications. Current training in these areas is unprofessional and didactic in nature. It was agreed that the training would be useful for doctors, nurses and pharmacists alike who would attend the co-operatively to share knowledge, learn together and gain insight into each others roles.

## Methodology

A mixed-methodological approach was utilised to design the workshop, including the following:

### Literature Review of Clozapine Complications

A literature review of the morbidity and mortality associated with Clozapine use was undertaken.

### Statistical Analysis Of Trust Data

Data collection was challenging due to problems accessing sensitive data, however, incident data reports that were made available for the final quarter of 2022/2023 were scrutinised.

### Case Study Review

A review of multiple cases whereby adverse complications had occurred within the trust was conducted with root-cause-analysis.

### Qualitative Analysis Of Staff Surveys

Surveys were sent to each professional staff group requesting information about their current continued professional development opportunities, confidence with Clozapine use and what further training they would like.

### Patient Consultations

A range of patients who were taking Clozapine were approached and asked for their input as to what they would like the clinicians that they work with to know about Clozapine and how best it could be communicated with them.

## Literature Review

Schizophrenia is associated with premature mortality (15 years earlier than the general population) and currently Clozapine is the only licensed treatment for treatment-resistant Schizophrenia which affects 1/3 of patients. However, as a medication it is marred with controversy due to its association with preventable deaths. These incidents may be acute through arrhythmias, seizures, myocarditis, agranulocytosis and bowel obstruction or chronic due to the long-term consequences of metabolic syndrome caused by Clozapine.<sup>(1)</sup>



Agranulocytosis is a well-recognised complication and can occur in 0.8% of patients.<sup>(2)</sup> Mandatory weekly blood count testing is already in place for the first 18 weeks of treatment, fortnightly for the rest of the first year and then monthly thereafter. If these are not adhered to or demonstrate reduced white cells or neutrophils the medication is not issued by the manufacturer.<sup>(3)</sup>

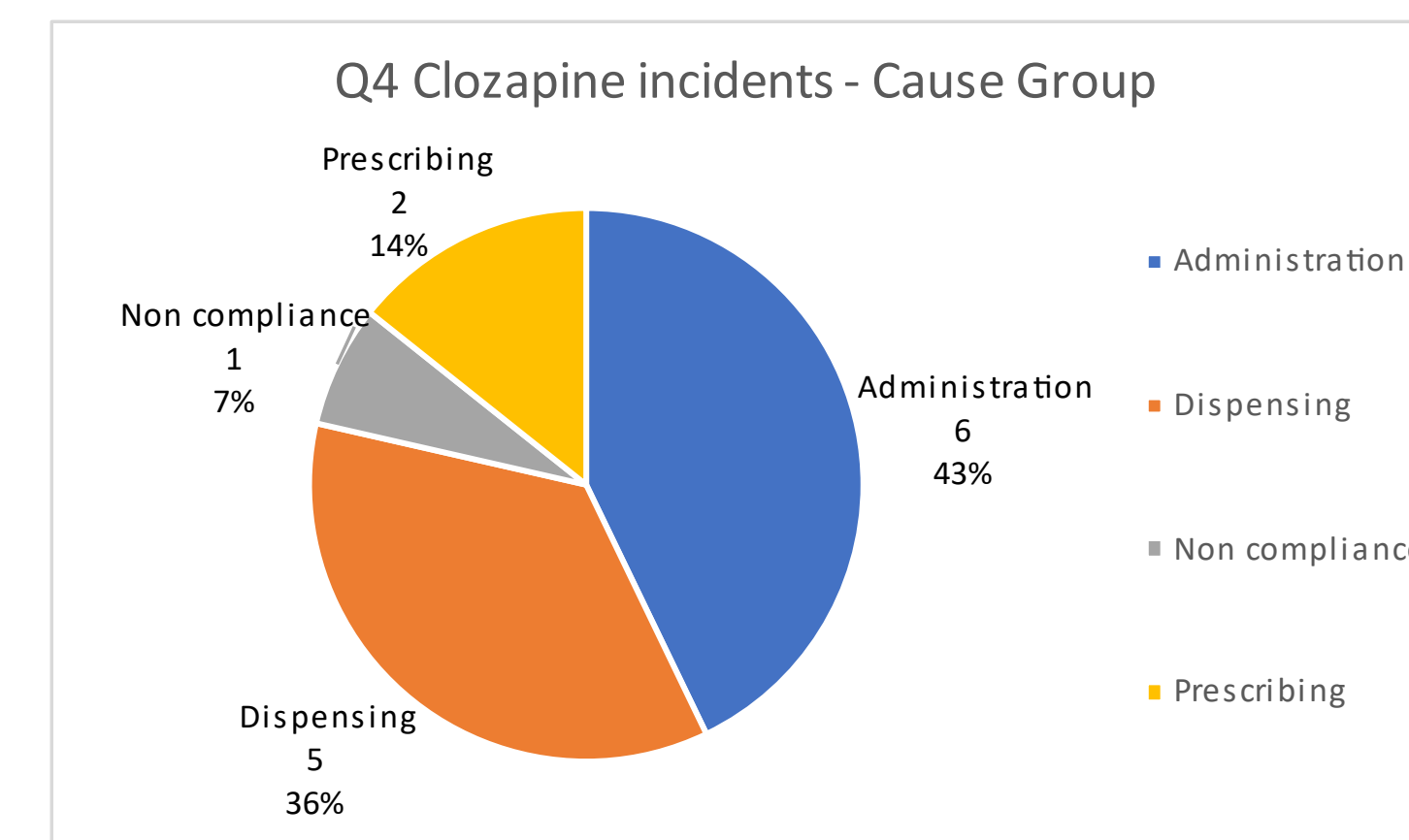


This extreme focus on agranulocytosis, although clearly important, is perhaps misplaced. The incidence of other potentially life-threatening complications may be higher:

- Myocarditis 3%<sup>(4)</sup>
- Constipation 31.2% and Ileus 1%<sup>(5)</sup>
- ECG abnormalities 31%<sup>(6)</sup>
- Tachycardia 25%<sup>(7)</sup>

## Results

### Trust Data



Trust safety data was difficult to obtain due to its sensitive nature and the complexities of incident reporting and subsequent filtering of information. However from January – April 2023 there were 14 safety incidents as shown. The medication safety leadership team believe underreporting of problems is likely.

The majority of the problems were relating to dispensing and administration issues. Particular problematic events involved patients having inadequate supply or becoming temporarily non-compliant with medication and then restarted at their usual dose. If a patient has not taken their Clozapine in over 48 hours they must be re-titrated from lower, loading doses otherwise their plasma level can be too high and they can be at high risk of complications such as seizures and arrhythmias.<sup>(8)</sup>

### Case Studies

1. **Patient A** had their mandatory annual physical health assessment using the trust tool which does not include bowel monitoring in January 2023. In March 2023 they completed a “Glasgow Antipsychotic Side-Effect Scale” in which they admitted to experiencing constipation “every few days”. No further action was taken and they were not prescribed any laxatives. In April 2023 they were experiencing chest pain and then feculent vomiting and a CT scan showed **Small Bowel Obstruction (SBO)** caused by constipation. Fortunately they were safely managed conservatively but shortly after their discharge they required re-admission with sepsis and a DVT related to the original admission and are currently receiving treatment for and remain critically unwell.

2. **Patient B** had a history of poor compliance with medication and whilst admitted to an acute inpatient ward was not adequately monitored taking his oral medication which he had been spitting out. He was not re-titrated on Clozapine when the ward team became aware but continued to be given the same dose. This resulted in him having a very high Clozapine level and **collapsing due to severe tachycardia and hypotension and required several days treatment on ITU.**

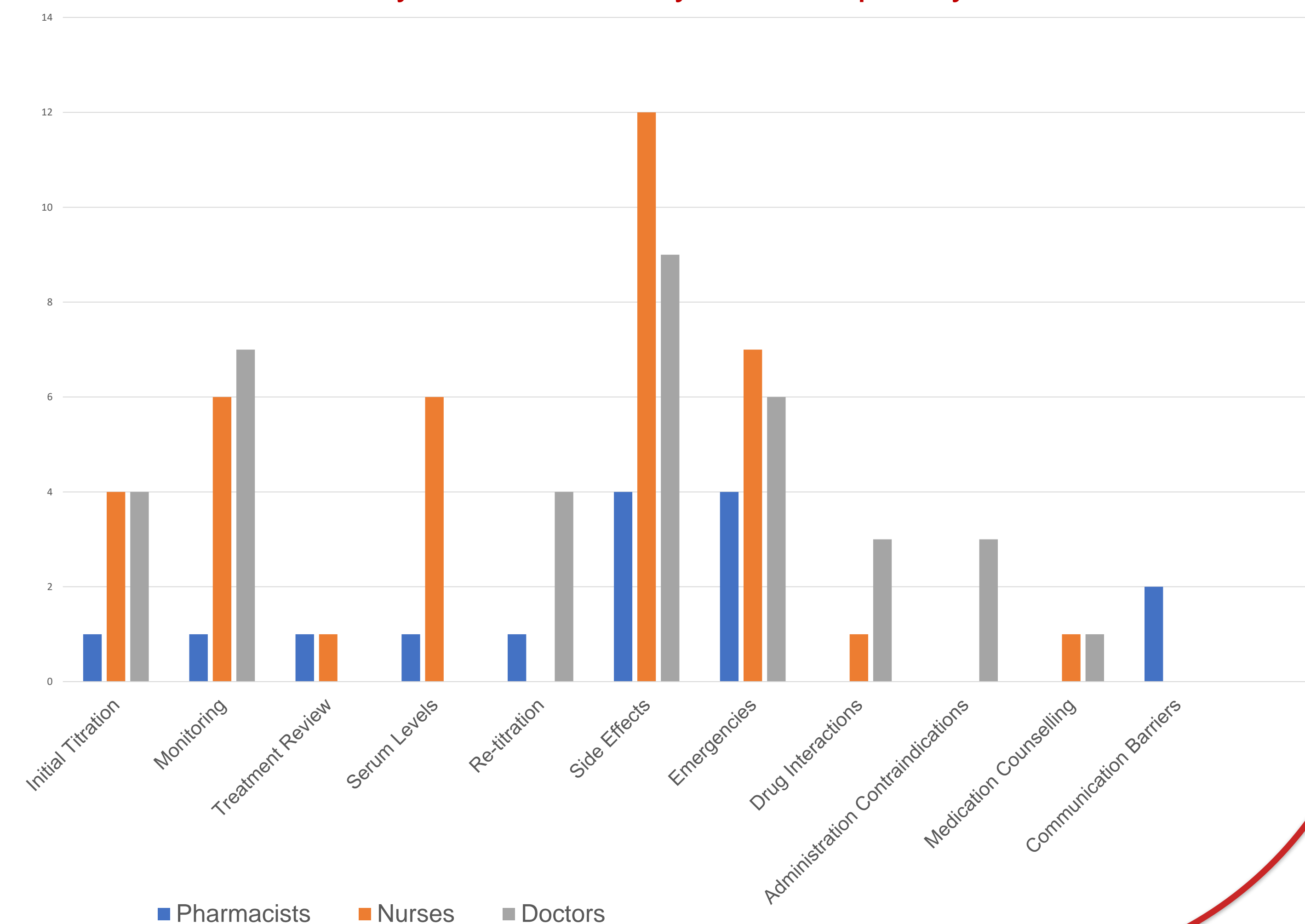
3. **Patient C** was on an inpatient unit and had a history of fever and malaise. Only full blood count monitoring was initially conducted which was satisfactory and it was only after he started to become more unwell that further investigations showed T wave inversion on an ECG and a raised troponin and inflammatory markers. He was then admitted for a week to an acute hospital for treatment of **Myocarditis** and fortunately made a good recovery but his Clozapine had to be stopped.

### Staff Surveys

A review of trust processed revealed that out of the three professional groups the workshop is intended for, only nurses received any mandatory training which was a single online session on “medication safety” after they first qualify whilst doctors and pharmacists attended regular, but non-specific, academic sessions. Out of a total of **36 respondents (8 pharmacists, 16 nurses, 12 junior doctors)** to the survey **100% said they would want to attend the workshop and that it would be valuable to their practice.**

The survey asked clinicians to describe what they think needed to be included in this training to benefit them, their team and their patients. Qualitative analysis of the results was then completed and identified 10 themes – initial titration, monitoring, treatment review and dose adjustment, serum levels, side effects, life-threatening emergencies, drug interactions, administration contraindications, medication counselling and communication barriers with external care providers.

### Staff Survey Thematic Analysis – Frequency of Themes



### Patient Voice



“I wish people had told me more about the side effects and how Clozapine makes you feel everyday. It's a horrible drug and makes you sedated, fat, constipated and impotent. It's a torture medication.”

“People need more training on the monitoring I have to have and the side effects as I have suffered from some that no one told me about.”

### Workshop Design

Taking into consideration all the aforementioned information two pilot workshops have been developed and are currently being delivered. The workshop uses three simulated scenarios interspersed with more traditional didactic teaching to consolidate learning occurring during simulation. After the third scenario there is a group task where the attendees are separated into mini MDTs and have to identify and suggest management strategies for multiple problematic elements of the simulated patients community treatment with psychiatric medication.

The simulated scenarios in the workshop are:

1. Initiating Clozapine for the first time including consenting and explaining the logistics of treatment to an acutely unwell patient.
2. An unplanned treatment break leading to a high Clozapine level with the subsequent development of Clozapine-induced myocarditis.
3. Community management of common side effects of Clozapine medication with an emphasis on constipation.

### Acknowledgements

**Dr Jackie Knight (BSMS-HEESE):** director of multi-professional fellowship and academic sponsor.  
**Dr Michele Travers (SPFT):** simulation lead for SPFT.  
**Senior Pharmacy Team (SPFT):** Fergus Inglis, Jules Haste, Gus Fernandez

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