

Developing Child-Friendly Antiemetic Medicines for Patients with Chronic Conditions

Laidlaw Scholar: **Diya Asawa**

Supervisors: **Dr Karolina Dziemidowicz, Dr Catherine Tuleu**



Research Objectives

Cancer chemotherapy can trigger adverse effects in children such as **Chemotherapy-Induced Nausea & Vomiting**. However, issues with the taste, dosage form, and administration method reduce how willing and able children are to take **antiemetic** (anti-sickness) medications. The aim of this study is to study the impact of nausea and vomiting, current coping strategies, treatment experiences, and dosage form preferences from the perspective of parents of children with chronic conditions like cancer at the Great Ormond Street Hospital, London. The long-term goal of this study is to inform ongoing research at the UCL School of Pharmacy, assisting research into more child-friendly dosage forms such as **orodispersible films**, which are thin, polymeric sheets (similar in size to postage stamps) designed to disintegrate easily on the tongue and be quickly absorbed by the bloodstream.

Methodology

1. A framework of questions was designed using insights from existing literature.
2. 9 semi-structured interviews were organised with the parent(s) of paediatric patients at the Great Ormond Street Hospital.
3. All interviews were recorded and transcribed.
4. An inductive (data-driven) coding approach was used to conduct qualitative analysis.

Patient & Public Engagement

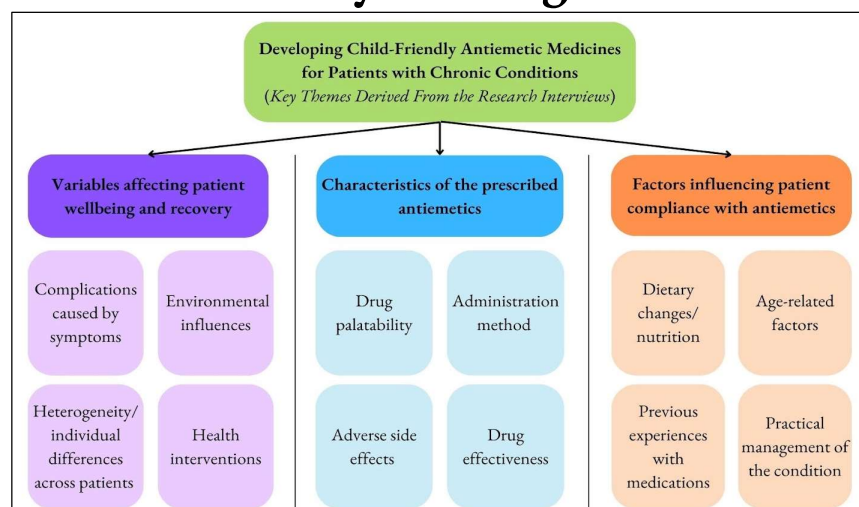


Alongside the interviews, I organised a 2-day outreach initiative at the Great Ormond Street Hospital targeted at paediatric patients and their families (funded by a UCL Grand Challenge grant of £400).



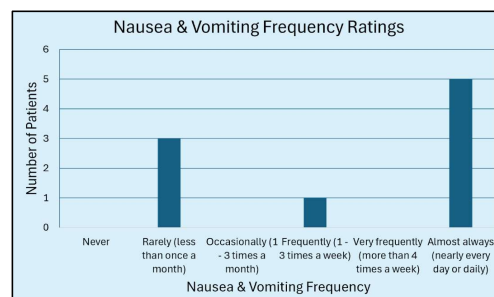
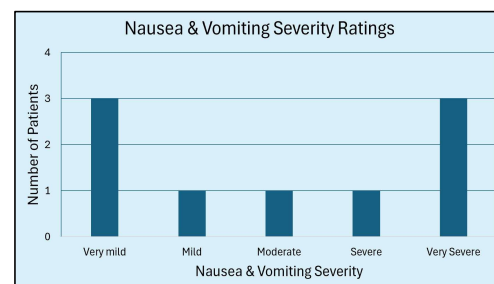
- The aim was to visually demonstrate differences between orodispersible films and other antiemetic forms using interactive, child-friendly activities like capsule-making (using sucrose and glitter) and dissolution experiments with placebo films (electrospun using a PVP polymer solution in ethanol along with synthetic dyes and glitter).
- I also worked with a team of students and researchers to produce educational material for the patients (comic books, posters, and videos) about the research being conducted at the UCL School of Pharmacy.

Key Findings



- Chemotherapy drugs like methotrexate induced nausea and vomiting in children, diminishing **quality of life** and causing **disruptions to school education**.
- Antiemetic medicines (e.g. ondansetron, cyclizine, levomepromazine) had **adverse side effects** including dizziness, constipation, diarrhoea, and dehydration.
- Oral administration of **bitter-tasting antiemetics** led to increased anxiety and even vomiting in children.
- For younger children, clinicians often switched to using the **nasogastric, enteral, or parenteral** route to administer medicines.
- Several parents were unfamiliar with **orodispersible films** and had concerns about their dissolution speed and flavour. However, **7 out of 9 parents** stated that they would be willing for their children to try orodispersible films.

Sickness Severity & Frequency



Implications



The findings from this Laidlaw research project illustrate that modifications to physical/pharmacological characteristics of antiemetics, improved monitoring of sickness symptoms, and increased familiarity with orodispersible films could help improve patient compliance and treatment outcomes in paediatric populations.