

DML Excellence Awards 2016 Report

Project No: 73 – Transforming the way we manage opioid benzodiazepine withdrawal in children post discharge from PICU

Address: Temple Street Children’s University Hospital, Temple Street, Dublin 1

Location: Children’s Hospital Group

Brief Description (up to 200 words)

The administration of agents such as opioids, benzodiazepines, chloral hydrate and alpha-2 adrenoceptor agonists are routine practice in the pediatric intensive care unit (PICU) as they reduce pain, anxiety, agitation and stress responses while also facilitate ventilation and retention of monitoring devices. However these agents are implicated in the development of withdrawal syndrome, which leads to increased morbidity, costs of hospitalisation and psychological distress (Birchley 2009). Fernández-Carrión (2013) reported that up to 50% of children developed withdrawal syndrome following continuous infusion of opioid and benzodiazepines.

It was agreed in Temple Street Children’s University Hospital (TSCUH), that a patient-centred approach was required to reduced the incidence of withdrawal in these patients. This approach involved the introduction of regular assessment using the Opioid and Benzodiazepine Withdrawal Scale (a 21-item checklist) which evaluates the frequency and severity of withdrawal symptoms along with creating individualised sedation weaning plans which are drawn up by the PICU clinical pharmacist and complement withdrawal scoring. The pharmacy team and pain control service jointly follow-up these patients at ward level ensuring that they are appropriately managed and any withdrawal issues or concerns of parents or staff are promptly addressed.

Main goal(s) and aims of the Project

Identify infants and children at risk of opioid and benzodiazepine withdrawal in PICU and implement appropriate strategies for prevention and management of withdrawal, including the development of individualised sedation weaning plans which complement Opioid and Benzodiazepine Withdrawal Scoring.

Outline of Approach – main steps taken to implement the Project

TSCUH cares for some of Ireland’s sickest children and major specialities include neonatal and paediatric surgery, neurology, neurosurgery, nephrology, orthopaedics, ENT and plastic surgery. As well as being the national centre for paediatric ophthalmology, craniofacial surgery & renal transplantation and more recently TSCUH is responsible for all neurosurgery on children up to the age of 6 in Ireland. As a result of this, there are increasing numbers of complex patients who have being transferred from PICU to the wards including those with post traumatic brain injury.

In 2010 an audit of opioid and benzodiazepine weaning practices in PICU over a 9 month period was carries out by the CNS in Children’s Pain and the Clinical Education Facilitator PICU. It was observed that some patients who had been on continuous opioid and/or benzodiazepines for a number of

days had these medications abruptly stopped. Some of these patients subsequently developed withdrawal symptoms as a result. These symptoms included poor sleep pattern, increased irritability, hallucinations, vomiting and diarrhoea, fever and sweating. While these symptoms could indicate other clinical conditions it was decided to standardise withdrawal scoring throughout the hospital by setting out clear guidelines on the use of Opioid and Benzodiazepine Withdrawal Scale.

Furthermore in 2011 a clinical pharmacy service in PICU was commenced. As a result the pharmacist identified patients at risk of withdrawal and began drawing up individualised sedation weaning plans to complement the withdrawal observation chart used by the nurses. At this stage, the pharmacist liaised with the pain control service to ensure that these patients were followed up at ward level.

In 2014 a retrospective review of all sedation weaning plans implemented for patients on discharge from PICU over a six month period was carried out by the PICU Pharmacist where the results highlighted that the age of patients ranged from 2 weeks to 13 years old, with a median age of 10 months. It also established that weaning plans varied in duration from 4 to 16 days; the median duration was 6 days while the number of drugs on the weaning plans was between one and three. Feedback from nursing and medical staff suggested that daily review of these patients at ward level was been invaluable. As a result, it was decided that a joint review by a pharmacist and a CNS in Children's Pain was required, where these patients and their sedation and analgesia withdrawal plans are reviewed daily to ensure that patients are appropriately managed, and any withdrawal issues or concerns of either parents or staff are promptly addressed.