Background
Procedural sedation and analgesia (PSA) is primary used to lessen patient discomfort and anxiety⁴ thereby improving procedural tolerance and patient satisfaction⁵.

Westmead Cardiac Catheter Laboratory (CCL) is a center with a caseload favoring electrophysiology (EP) procedures. Nurse-administered PSA in CCL originated in 1991 based on the departmental research⁶. Patients under 16 years or with severe chronic obstructive airways disease (peak expiratory flow rate <50% of predicted) were excluded.

Training and credentialing:
The Clinical Nurse Specialist involved in the research became the trainer. Registered Nurses needed proven competency of advanced life support and airway management prior to undertaking training as a sedation nurse.

The Problem
Issues of medication and patient safety were identified through incidences reported in the Incident Information Management System (IIMS) when EP procedure became lengthy and complex due to the introduction of 3D mapping systems, advance technology and patients co-morbidities.

Analysis of the causes
A risk assessment was led by the nurse unit manager in 2010. Primary nursing concerns related to PSA administration include:

- Inappropriate patient selection for PSA
- Potential for inadvertent administration of deep sedation requiring external airway management
- Delayed patient recovery time due to prolonged sedation administration and/or development of deep sedation
- Nurse/patient ratio in ward is insufficient to ensure patient safety
- Absence of nursing guidelines and standardised scope of practice for nurses administering PSA
- Inaccurate proceduralist and patient expectation on PSA

Intervention and strategy for changes
A framework for safe PSA administration was initiated:

- Development of pre-procedural PSA screening to identify patients unsuitable for PSA administration
- Implementation of a quality project to review the effect of pre-procedural PSA screening
- Development of a hospital endorsed post intravenous sedation transfer policy
- Development of a hospital endorsed PSA learning package and competency based assessment tool in accordance with Australian and New Zealand College of Anaesthetists (ANZCA) PSA
- Implementing PSA nurse training and a credentialing process in accordance with ANZCA PSA
- Nurse initiation of a sedation protocol regarding PSA effects to gain their consent, cooperation and compliance for PSA administration
- Liaise with the head of Cardiology and Anaesthetics to create patient selection criteria for PSA administration
- Development of a hospital endorsed PSA nursing practice procedure
- PSA Screening
  - Respiratory assessment using Berlin Questionnaire for obstructive sleep apnoea (OSA) during pre-procedure clinic interview
  - Identification of neuro-muscular disorders, respiratory conditions and/or co-morbidities contra-indicated for PSA
  - Nursing escalation of identified issues to proceduralist and nursing administration so that patients are referred to an anaesthetist

Quality project
Aim
The aim of the project was to review and evaluate the patient safety outcomes and effects of a pre-procedure patient sedation risk assessments between 2007 and 2012.

Method
Retrospective retrieval from a procedural database of patients undergoing an EP procedure (n=3080) under PSA or general anaesthesia (GA) form 2007. Procedures were categorised by type and sedation method (PSA or GA). Major patient incidents were then analysed within each category.

Measurement of Improvement
From 2007 the procedure case distribution had altered with an overall increase in case complexity and length (Figure 1). Since implementing the PSA screening tool, there was a trend towards GA resulting in significantly diminished PSA use over time (Figure 2). In determining the safety of nurse-administered PSA, significant PSA complications were defined as hypoaemic secondary to airway obstruction⁵, apnoea requiring intervention⁶ and unplanned conversion from PSA to GA. The incidence of PSA-related complication fell from 1.1% in 2007 (n=4465) to 0% (n=0/363) (figure 3).

Contraindications:
- Contraindicate to Midazolam/Fentanyl administration

The benefits of change:
- Appropriate patient selection can reduce events or morbidity related to PSA administration.
- Patients at high risk of PSA related complications can be referred to an anaesthetist and avoid late referral or cancellations on the day of procedure.
- Endorsed nurse education and credential process for PSA administration will safeguard medication safety and provide high quality patient care.
- It reflects the legitimacy of the nursing practice and empowers nurses to promote patient-centred safe practice.

Next Steps
Share the experience within the hospital:
Participate in the procedural sedation committee to collaboratively monitor and evaluate implementation of facility wide initiatives and provide recommendations for fine tuning of education and practice issues in accordance with safe procedural sedation.

Share the experience with other CCLs:
The hospital endorsed procedure of nurse-administered PSA in CCL is the first of its kind within the Local Health District (LHD). The experience is to be shared with CCLs from other LHDs.

References
- IIMS. PSA-related incidents reported in the IIMS.
- Logistic regression analysis was used to compare procedure type and sedation method (PSA or GA) undergoing an EP procedure (n=3080) under PSA or general anaesthesia (GA) form 2007.
- Procedures were categorised by type and sedation method (PSA or GA). Major patient incidents were then analysed within each category.
- Monitoring of Improvement
- From 2007 the procedure case distribution had altered with an overall increase in case complexity and length (Figure 1). Since implementing the PSA screening tool, there was a trend towards GA resulting in significantly diminished PSA use over time (Figure 2). In determining the safety of nurse-administered PSA, significant PSA complications were defined as hypoaemic secondary to airway obstruction⁵, apnoea requiring intervention⁶ and unplanned conversion from PSA to GA. The incidence of PSA-related complication fell from 1.1% in 2007 (n=4465) to 0% (n=0/363) (figure 3).

Conclusion
The review supported the implementation of a sedation screening tool to identify patients at risk of a PSA-related complication.

Effects of Changes
Patient selection criteria for PSA administration (table 1) and nurse-administered PSA procedure are endorsed by head of Cardiology and Anaesthetics.

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Tips for template use

This template is 118cm in width and 67cm in height, this approximates to A0 landscape sized but has been adjusted to 16:9 ration for electronic viewing.

- This is extra large text so is it is visible on screen.
- To review the size of your poster set the magnification is 100% and that will give you an indication of how your poster will look printed. Do remember to do test prints.
- Margins cannot be created in PowerPoint so when designing your poster leave a margin for printing, text at the very edge may disappear when printed.
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- You can arrange your text boxes to best fit your content, balance is good eg using three or five columns of the same width. Take into consideration your eye reading across the page if it becomes too long it is easy to get confused as to where to read next.
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- Get the content as close to final as possible before spending time and adjusting the layout – small changes in content can mean a lot of repositioning.