CIHR Team in Children's Pain

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Background

Although we know…

- Hospitalized children undergo multiple painful procedures for diagnostic and treatment purposes
- Well-managed acute pain is associated with faster recoveries, fewer complications and decreased use of health resources
- Evidence-based pain management has been acknowledged by professional, quality care and patient safety initiatives
- There has been exponential growth in paediatric pain research, pain guidelines and clinical decision-making models

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Background

- …Research on acute pain in children is not effectively translated into practice and pain management in clinical settings is sub-optimal

- This may be due to the inefficiency with which evidence has been translated into practice

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Conceptual Framework

- Evidence-Based Practice Identification and Change (EPIC) (Lee, 2002)
  - Multifaceted knowledge translation (KT) strategy that integrates local and research evidence for practice change
- Promoting Action on Research Implementation in Health Services (PARiHS) model (Rycroft-Malone, 2004)
  - Focuses on interplay of evidence, context and facilitation to enhance clinical and process outcomes

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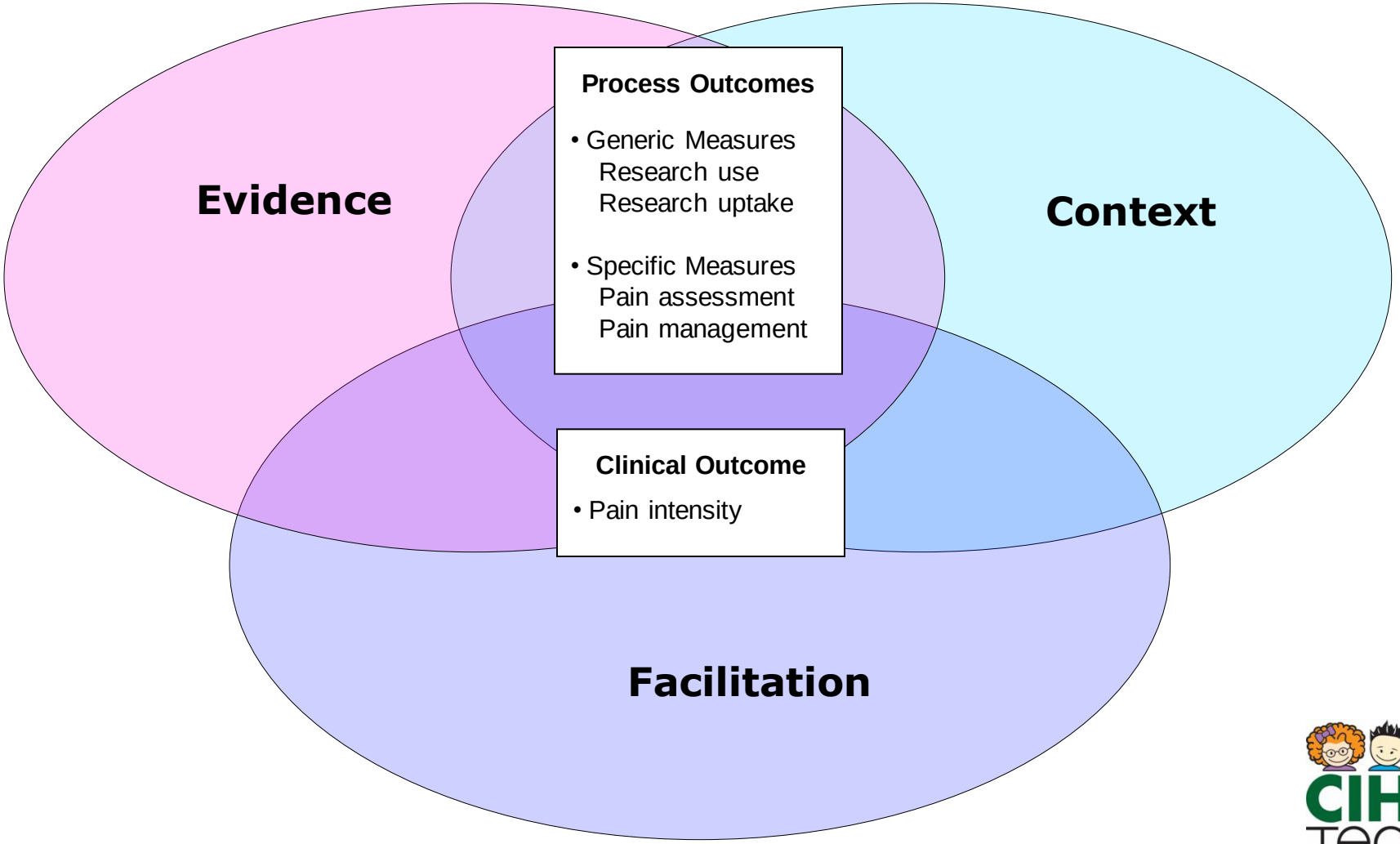
PARiHS Model



Adapted from Kitson et al., 2002 – Promoting Action on Research Implementation in Health Services (PARiHS) Model

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EPIC/EPIQ

- Evidence-Based Practice Identification & Change (EPIC), also known as Evidence-Based Practice for Improving Quality (EPIQ), is an interactive, multifaceted continuous quality improvement (CQI) strategy that:
  - merges *evidence* and systematic reviews of the literature
  - identifies potential practice changes using outcomes and practice data (i.e., baseline data from Project 1)
  - involves a collaborative of credible, interdisciplinary health professionals (the RPC), who participate in developing and implementing tailored *knowledge translation* strategies to improve patient care using *quality improvement* techniques (Lee et al., 2007)
- 2 Phases: Preparation & Implementation

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What is unique about EPIC/EPIQ?

- EPIC/EPIQ differs from traditional CQI methods as:
  - Practice strategies are not adopted as "packages" of practice changes identified from benchmarked hospitals that report good outcomes (Lee *et al*., 2007)
  - Specific *tailored* strategies are developed for individual participating units based on practice data from these units and from current literature (Lee *et al*., 2007)

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TROPIC Study

Objectives

- Evaluate effects of Evidence-Based Practice Identification and Change (EPIC) on acute pediatric pain practice outcomes (i.e., pain assessment and management)
  - Data on 30 children per unit will be collected using the CPPR database at the end of EPIC intervention (projected: August-September 2010)
- Explore effects of EPIC on clinical outcome (i.e., pain intensity)
  - Pain intensity ratings at 6-months post-intervention will be collected from 20 children per unit
- Examine implementation of EPIC (e.g., process evaluation)
  - Determine effectiveness of KT strategies
  - Assess KT strategies in different contexts

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TROPIC Study

Methodology

- Prospective cohort comparative design with repeated measures and process evaluation component on intervention units
- Units were assigned to receive either the intervention or standard care based on the baseline data collected during Project 1 relating to pain assessment and pain management practices on the unit
- Standard care group will continue with their usual pain management practices with no interference from the study investigators; a log will be kept by the research nurse to document the nature and frequency of any pain initiatives (hospital- or unit-directed) that take place

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Phase 1: Preparation

- Timeline: Summer 2008 – Feb 2009 (6-8 months)
  - Establish & train Research Practice Council (RPC)
    - 4-6 key individuals on the unit to lead the EPIC intervention
      - Included: physicians, fellows, managers, NPs, CNSs, educators, staff nurses, pharmacists, OTs, PTs, RTs, QI specialists
    - 1-day training session to review sources of evidence, knowledge translation strategies and quality improvement methods
  - Review baseline data & identify potentially useful practices
    - Review pain assessment and management data collected during Project 1 to determine potential practices to target for change
  - Review existing evidence
    - Examine relevant literature, clinical guidelines, etc.
  - Identify critical practice changes
    - Decide on practice changes to implement

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Baseline Results from Project 1

Painful Procedures

- 78% of children had at least one painful procedure
  - Mean: 5.0 painful procedures per child per day (range: 1-50)

Pain Management

- 31% of the charts contained documentation of a pain management strategy specifically used for a painful procedure

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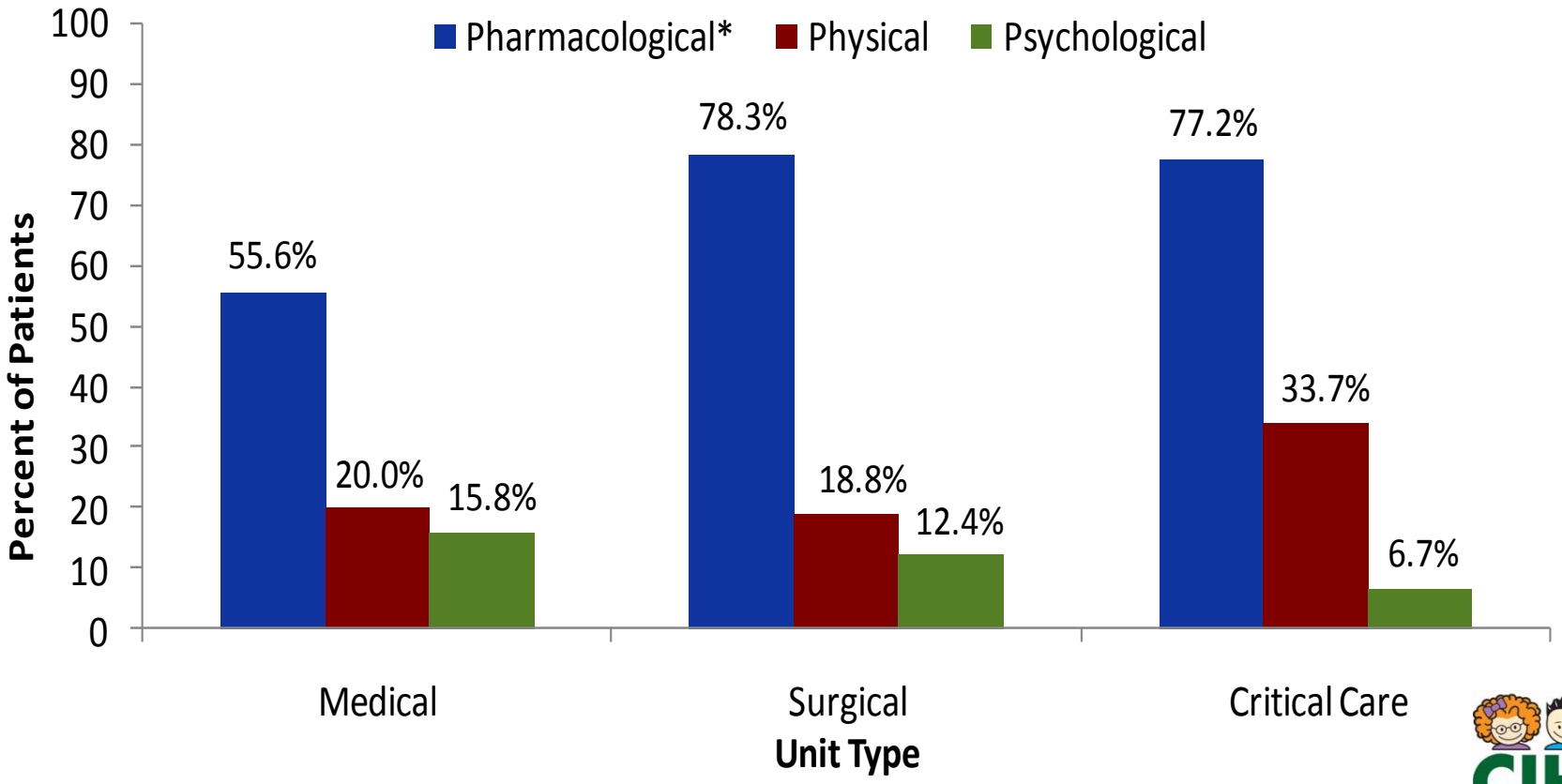
Baseline Results – Pain Management



* X^2 (2)= 13.65, p=0.001

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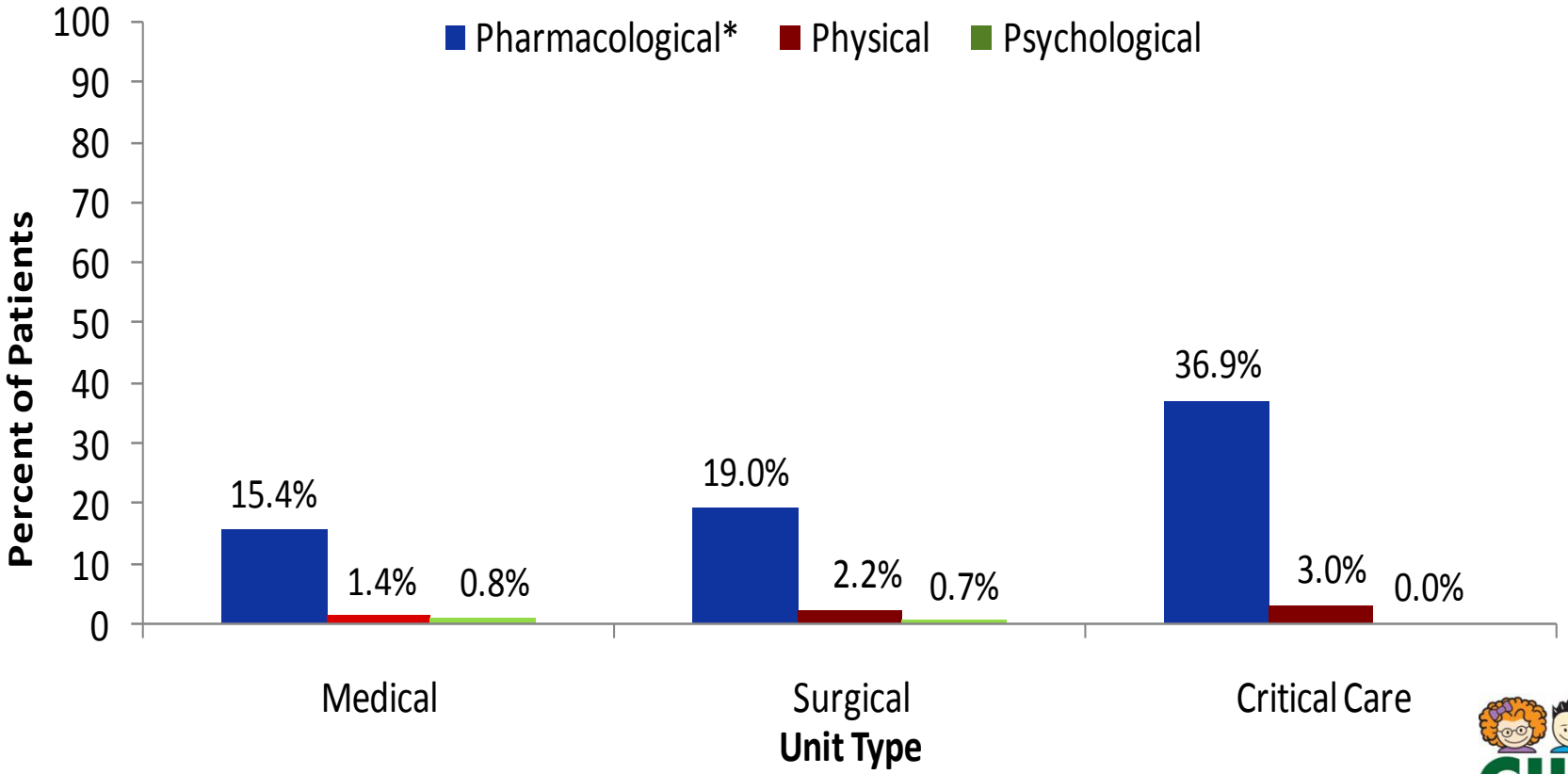
Baseline Results – Pain Management

Specific to a Procedure



* X^2 (2)= 26.19, p<0.001

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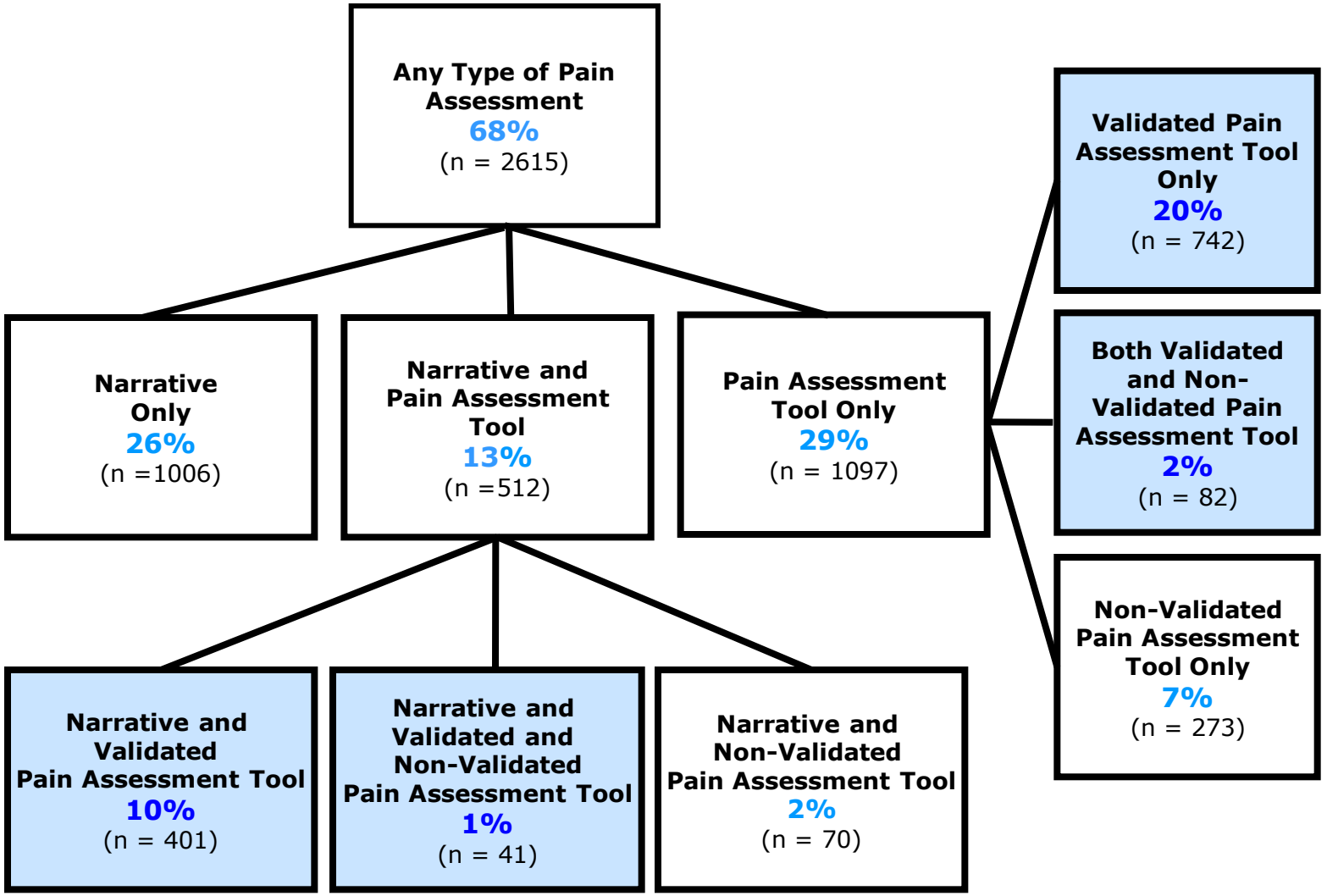
Baseline Results – Pain Assessment



Most frequently used validated pain assessment tools:

- NRS
- FLACC Scale
- SUN

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Phase 2: Implementation

- Timeline: March 2009 – August 2010 (18 months)
  - Plan a test of practice change
    - KT strategies: reminders, educational interventions, audit & feedback
  - Implement the change
    - 3-month rapid cycles x 4
  - Evaluate the change
    - 50 audits per rapid cycle over 1 month

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Tailored Interventions

- We are tailoring the interventions by virtue of the design of the study

- What is 'tailored'?
  - Area of paediatric pain clinical practice being targeted
  - AIM statements
  - KT strategies used

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Process Elements Assessed

Component	Definition	Data collection
Context	Environment/setting where EPIC intervention is occurring	ACT survey
Reach (of KT interventions)	Proportion of professionals that participates in each KT intervention.	PEC
Dose delivered	Amount of intervention delivered	PEC
Dose received	Extent participants engaged with the KT interventions	PEC
Fidelity	Extent to which the interventions were delivered as planned	PEC
Implementation/ uptake of the desired change	Extent to which the intervention has been implemented and adopted	Rapid cycle data – every 3-4 months Type of data extracted depends on aim statement

* Further comment on any of the above components may also be found in the Research Nurse study log

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EXAMPLE OF ONE UNIT

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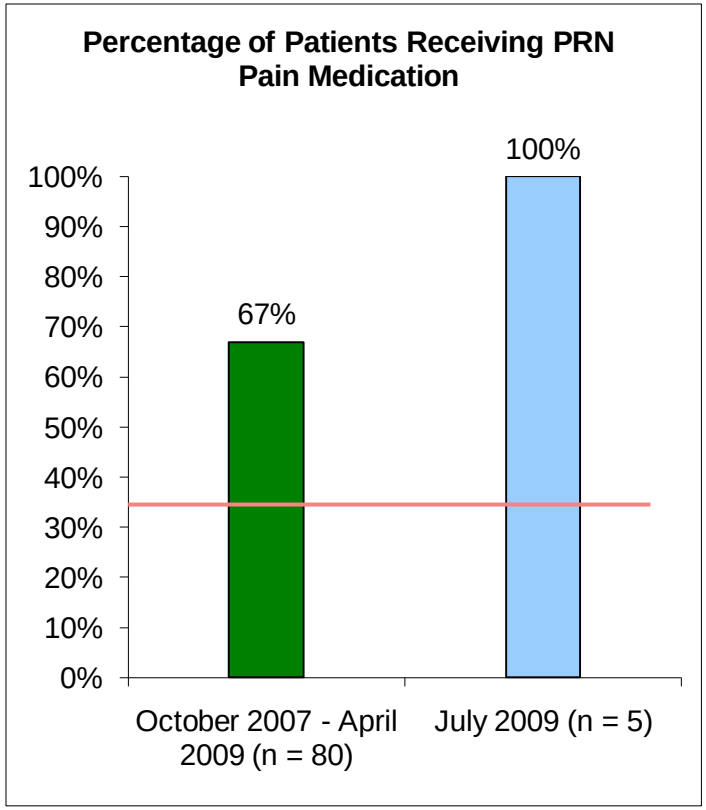
Aim Statements: Unit A

- Cycle 1:
- By July 2009, thirty five percent of post surgical patients* will receive nighttime prn pain medications routinely, during the first 24-48 hours post-surgery, as evidenced by the documentation of these medications in the MAR.

Cycle 1 Results: Unit A

- Baseline data collected in Project 1 showed **67%** of children received one of the following pain medications: non-opioid, opioid, NSAID. The baseline data does not indicate how medication was scheduled or when it was given.
- **100%** of the eligible patients reviewed in the Cycle 1 audit were offered and administered a pharmacological pain management intervention. These interventions were offered 34 times, accepted 33 times and administered 33 times.



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Cycle 1 Results: Unit A

- *Although the preliminary results suggest we have already accomplished our goal, the sample only contained 5 eligible patients. We should be cautious about drawing conclusions from such a small sample size, but your efforts and commitment to the study have been tremendous! The use of one-on-one roving education sessions with RPC members paired with glow-in the-dark-themed raffles, posters, t-shirts, stickers, jewelry and toys, and miniature calendars as KT strategies have all been very successful in this cycle. Let's keep up the great work and momentum as we head into Cycle 2!*

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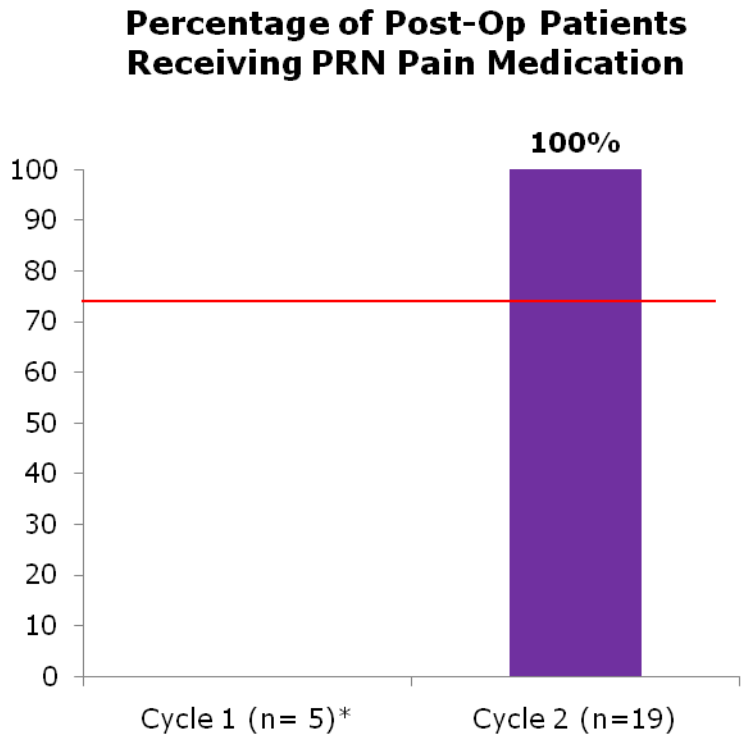
Aim Statements: Unit A

- Cycle 2:
- By December 2009, 65% of post-surgical patients* will receive nighttime prn pain medication routinely, as ordered, during the first 48 hours post-surgery as evidenced by the documentation of the medications in the MAR.

Cycle 2 Results: Unit A

- **100%** of the eligible patients were offered and administered a night-time PRN pain management intervention within the first 48 hours post-surgery. PRN pain medications were administered a total of 69 times.
- On average, post-op patients received approximately 4 night-time PRN pain medications within the first 48 hours post-surgery.
- Intervention effectiveness was documented for **42%** of patients a total of 11 times.



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Cycle 2 Results: Unit A

- *Congratulations! We have seen a great improvement in this cycle! 100% of eligible patients received night-time PRN pain medication within the first 48 hours post-op! In the next cycle, we may want to consider assessing and documenting the effectiveness of PRN pain medication more often with the aid of validated pain assessment tools while sustaining our aim. Let's keep up the great work as we head into Cycle 3!*

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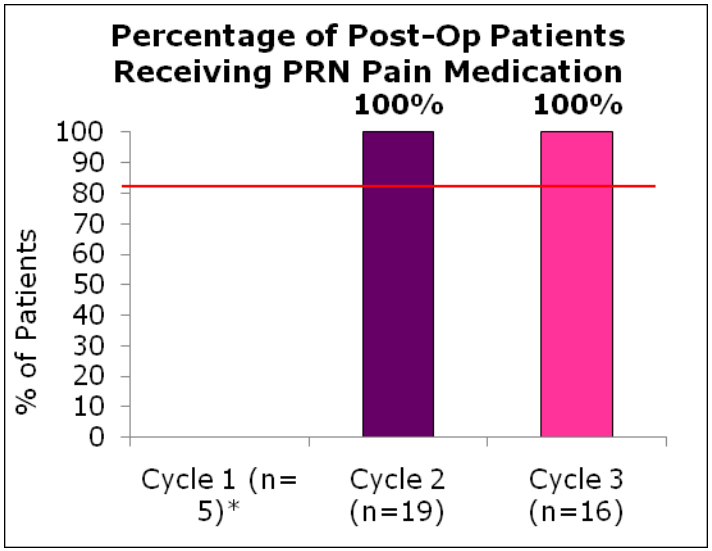
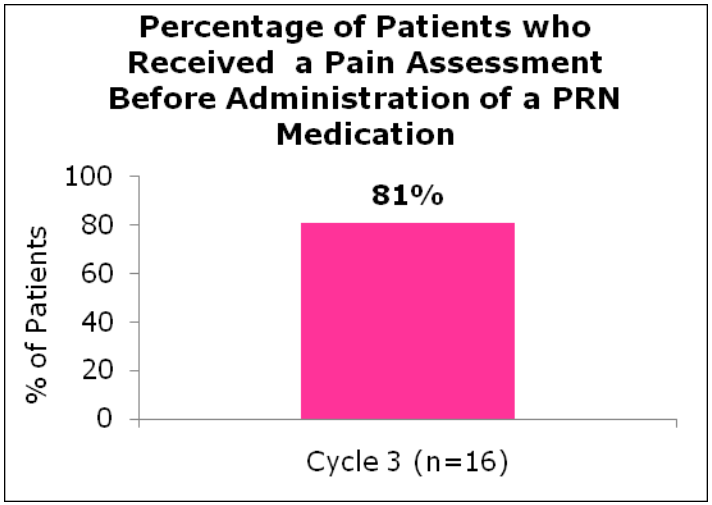
Aim Statements: Unit A

- Cycle 3:
- By the end of Cycle 3, 80% of post-surgical patients will receive night time prn pain medication during the first 48 hours when indicated as appropriate according to q4h assessment, which will be recorded on the vital sign sheet or nursing notes along with documentation of the medication's effectiveness.

Cycle 3 Results: Unit A





- **100%** of the eligible patients reviewed were offered and administered PRN pain medication.
  - Offered 71 times
  - Administered 69 times
- **81%** of patients had documentation of a pain assessment performed prior to receiving PRN pain medication. A total of 48 pain assessments were recorded. There were 21 times when PRN medication was given without documentation of a pain assessment beforehand.
- Intervention effectiveness was documented for **56%** patients a total of 21 times.

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Cycle 3 Results: Unit A

- *We have done an excellent job with giving PRN medication within the first 48 hours post surgery! We have also done a great job with assessing pain before PRN administration. Unfortunately, we have not been documenting the use of pain assessments after PRN administration; perhaps next cycle we can focus on documenting the effectiveness of pain medicine as needed. In Cycle 4, let's keep the momentum going and keep up the great work!*

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KT Strategies

- Stickers
- MAR dividers
- Privacy covers for patient charts
- Posters
- Contests
- Laminated parent information sheets
- Audit/feedback
- Lanyard cards
- Laminated bedside info sheets

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Acknowledgements

SickKids

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Health Sciences Centre
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IWK Health Centre

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CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

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McGill University Health Centre

Alberta Health Services

STOLLERY CHILDREN'S HOSPITAL

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