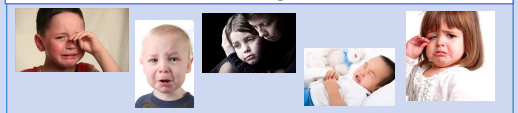
Using the TyMed© Toolkit for Postoperative Pediatric Pain Management at Home



S: Situation Suboptimal pain management[1]

The treatment of pediatric postoperative pain is suboptimal.

- Children often do not (or cannot) express a need for pain relief.
- Caregivers lack of knowledge of pain management can lead to:
  - Underuse (less frequently, overuse) of medications;
  - Confusion about postoperative dosing instructions;
  - Misconceptions about side effects and impact of pain;
  - Confusion over multiple meds and dosing schedules.
- There is a lack of consistent, valid guidelines for providers.
- Cultural, health literacy, and financial barriers exist.

Suboptimal pain treatment has adverse effects

- Short tem: tachycardia, hypertension, decreased ventilation, insomnia, poor wound healing, suffering;
- Long term: chronic pain, changes to central neural functioning, heightened pain intensity, anxiety, higher rate of postop complications, lower quality of life.[1]

B: Background Shorter inpatient stays[2]

Complex surgeries require complex pain management involving:

- Narcotic pain medications (oxycodone, Percocet, Vicodin)
- Antispasmotics (Valium, Vistaril)
- Multiple dosing schedules
- Challenge of weaning off meds while maintaining pain control

Children are discharged on these complex pain management schedules[3] and….

parents/caregivers are increasingly responsible for managing pain at home.[4]

However, studies report that parents routinely give less than the therapeutic analgesic dose 70% of the time.[2]

1 Vadivelu, N., Mitra, S., & Narayan, D. (2010). Recent advances in postoperative pain management. *Yale Journal of Biology and Medicine, 83*, 11-25. Retrieved from PubMed.
2 Rony, R. Y., Fortier, M. A., Chorney, J. M., Perret, D., & Kain, Z. N. (2010). *Parental postoperative pain management: Attitudes, assessment, and management. Pediatrics: Official Journal of the American Academy of Pediatrics, 125*(e1272), 1372-1378. doi: 10.1542/peds.2009-2662
3 Chorney, J., Twycross, A., Mittha, K., & Archibald, K. (2014). Can we improve parents' management of their children's postoperative pain at home? *Pain, Research, & Management, 19*(4), e115-123. Retrieved from www.hindawi.com
4 Sutters, K. A., Holdridge-Zenzen, D., Waite, S., Paul, S., Sawdra, M. C., Lanier, R., Mahoney, K., & Miodownski, C. (2012). A descriptive feasibility study to evaluate scheduled oral analgesic dosing at home for the management of postoperative pain in preschool children following tonsillectomy. *Pain Medicine, 13*(3), 472-783. doi:10.1111/j.1526-4637.2011.01324.x

A: Assessment

Research Studies on TyMed© Toolkit

QI Study (Spring 2012)

- **Purpose:** Determine preferred design
- **Study Design:** Survey and interview
- **Sample:** 13 nurses and 18 families
- **Key Findings:** Double wheel option too complex for some families. Combined 3 versions into 1 simplified wheel. Altered instructions to have only 1 med planned at a time.

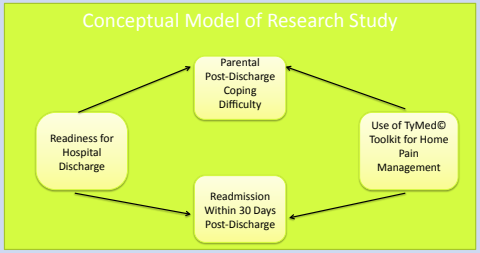
Usability Study (Fall 2014)

- **Purpose:** Validate ease and prevalence of home use
- **Design:** Survey and interview
- **Sample:** 23 nurses and 21 families
- **Key Findings:** Of the 18 families that agreed to a follow-up call, 16 (89%) used all or part of the toolkit at least one full day. Of these, 14 (88%) felt it contributed to the safety and comfort of the patient and would use it again.

Research Study (Fall 2015)

- **Purpose:** Examine post-discharge pediatric pain management, the impact of the TyMed© Toolkit on post-discharge outcomes including coping difficulty and hospital readmissions
- **Design:** Survey and EMR review
- **Sample:** 75 families
- **Anticipated Findings:** Satisfactory management of pain at home, increased satisfaction in parental coping, and decreased readmissions when using the TyMed© Toolkit.

Conceptual Model of Research Study



The relationship between hospital discharge readiness and post-discharge coping difficulty has been established.[1,2]

1 Lerret, S.M., Weiss, M.E., Chapman, S., Neighbors, K., Arnsden, K.,…Alonso, E.M. (2014). Transition from hospital to home following pediatric solid organ transplant: Qualitative findings of parent experience. *Pediatric Transplantation, 18*(6), 527-537. doi:10.1111/petr.12269.
2 Lerret, S.M., Weiss, M.E., Standahl, G.L., Chapman, S., Menedez, J., Williams, L.,…Simpson, P. (2015). Pediatric solid organ transplant recipients: transition to home and chronic illness care. *Pediatric Transplantation, 19*(1):118-26. doi: 10.1111/petr.12397.

R: Recommendation

Use the TyMed© Toolkit for patients discharged on oral pain medications

Home pain management by parent/caregiver

Toolkit consists of:

- 1-TyMed© Wheel
- 10-Daily Medication Worksheets
- 1-dry erase marker
- 1-folder

How does it work?

- Expected dose intervals for pain meds are established
- Parent/caregiver creates a 24 hour plan for pain medication(s) using the TyMed© Wheel
- Plan is written on the med sheet
- When med is given, dose, pain level, and activity are noted

Benefits:

- Helps parents plan for pain relief on a consistent basis and around potentially painful events (like bathing)
- Records meds, doses given, pain levels, and side effects
- Minimizes duplicate and omitted dosing
- Assists in tapering med(s) over time
- Can be used with one or multiple meds
- Minimal cost
- Can be used with patients of all ages, not only pediatric

Display wheel and worksheets here

Stop needless suffering in children.

Teach parents proper administration and timing of home pain medications.

Gillette Children's Specialty Healthcare

TyMed©Wheel is patent pending.