Developing a Pediatric Pain Program – A Workshop

Sabine Kost-Byerly, M.D.
Director
Pediatric Pain Service
Johns Hopkins  Charlotte R. Bloomberg Children’s Center
Baltimore, MD

Giovanni Cucchiaro, MD, MPP
Medical Director
Pain Management and Palliative Care
L.A. Children’s Hospital
Los Angeles, CA

Alexandra Szabova, MD
Staff Physician
Pain Management Service
Cincinnati Children’s Hospital
Cincinnati, OH
Objectives

At the end of this workshop, the participant will be able to:

- Describe institutional needs and potential stakeholders.

- Present appropriate staffing and clinical care solutions.

- Identify components of a successful QA/QI program.
The Ideal Pediatric Pain Service

Clinical Service Provision

- Availability
- Contactability
- Regular patient review
- Continuity of Care
The Ideal Pediatric Pain Service

Charting, prescription and documentation

- Pain and sedation scores
- Prescription charts
- Treatment plan
- Discharge advice and follow-up
Education

- Nursing
- Medical staff
- Trainees, senior staff
- Allied health providers
- Parents and children
- General public
Quality Improvement and Research

Periodic assessment
- Strength and weaknesses
- Identification of key performance indicators
- Chart reviews and surveys
- Adverse events and complaints

- Research
Establishing Scope of Practice and Clinical Responsibilities

Evaluate current pain management practices

- Assessment of pain: When? How? By whom?
- Treatment of pain:
  - Responsibility of order/prescription writing
    - Variability in practice between providers
    - Chains of communication
- Prioritize desired changes – implement changes
Business Plan

- Setting goals
- Defining how to reach these goals

External Stakeholders:
- Patients (customers)
- Administration (financier/investors)

Financial plan with budget
- Expenses…Staff, location, equipment
- Income….billing, grants, foundation support
Establishing the Scope of Practice

- Acute Postoperative Pain Service
  - Primarily regional analgesia
    - *Part-time anesthesiologist with/wo nurses*

- Comprehensive Inpatient Pain Service
  - *Anesthesiologist with NPs, resident, fellow*

- Outpatient Pain Clinic - interdisciplinary
  - *Anesthesiologist, PT, Psychologist, NP/resident/fellow, nurse, coordinator*
Acute Postoperative Pain Service
Staffing Model I (average census <20 patients)

- 1 anesthesiologist (part-time) and 1 nurse/PA/NP
  - Coverage Mo – Fri; cross-cover from OR on weekends and nights

- **Anesthesiologist** (income: $320 K / yr)
  - Mo - Fri 1/2 days for 52 wks/yr (260 days/year ÷ 2 = 130 days)
  - 1 anesthesiologist works 188 days/yr (4 days/wk for 47 wks)
  - You will need 0.7 FTE = $ 224 k / year

- **Nurse/PA/NP** (income 60 – 100 K / year)
  - Mo – Fri for 8 hrs/d x 52 wks: 2,080 hrs/yr
  - 1 Nurse works 1,880 hrs/yr (minus vacation, educational time, etc)
  - You will need 1.1 FTE = $ 66 – 110 K / year

- Combined cost: between $ 290 to 350 K / year
Acute Postoperative Pain Service Staffing Model II (average census < 30 patients)

- 1 anesthesiologist and 2 nurse/PA/NP (2-4 h overlap in shift)
  - Coverage 7 days/wk; weekend rounds plus call from home

- **Anesthesiologist** (income: $320 K / yr) (188 days/yr)
  - Mo - Fri for 52 wks/yr (260 days/year )
  - Sa – Sun for 52 weeks (104 call /days; 3 hrs in-house for rounds)
  - You need ~1.9 FTE : $ 600 k+ / yr plus call

- **2 Nurse/PA/NP’s** (income 80 K / year ) (1,880 hrs/yr)
  - Mo – Fri for 8 hrs/d x 2 x 52 wks: 4,160 hrs/yr
  - Sa –Sun 1 nurse for 8 hrs/d x 104 days : 832 hrs/yr
  - You need to cover 4,992 hrs/year and 2.7 FTE = $ 220 k/yr

- Combined cost: $ 800 k to 1 Mill / year
How many physicians do I need? - I

- You need 1 anesthesiologist 7 d/wk (260 weekdays and 104 weekend days)

- Your clinical commitment: 4 d/wk. You work 188 days/year
- 4 physicians will work 1 wk/mo (really 13 wks/yr) on service

- Each will be 65 weekdays on service, leaving 123 days or 3.2 days/ non-service weeks for clinical activities. Call: 24 weekend days.

- Your group will be short 1.4 people for weekday coverage. You also need replacement for 96 weekend call days.
How many physicians do I need? - II

- Your colleagues only want to spend 6 (8) weeks on pain service.
- You will do 12 weeks/year
- You need at least 7 (5) other people to join you.
Interdisciplinary Pain Clinic Staffing Model

- 1 anesthesiologist; 1 nurse, 1 NP, 1 psychologist; 1 PT, 1 office assistant
- Clinic open 1 – 4 days/week x 52 wks/yr (52 – 208 days/year)
  - 8 – 32 hrs/wk x 52 wks/yr (416 – 1664 hrs/yr)

<table>
<thead>
<tr>
<th>Clinic Staff for 1-4 days/week</th>
<th>FTE</th>
<th>Salary $1k/year</th>
<th>Your costs $1K/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthesiologist</td>
<td>0.3-1.1</td>
<td>320</td>
<td>96-352</td>
</tr>
<tr>
<td>Nurse</td>
<td>0.2-0.9</td>
<td>60</td>
<td>15-54</td>
</tr>
<tr>
<td>NP</td>
<td>0.2-0.9</td>
<td>100</td>
<td>20-90</td>
</tr>
<tr>
<td>PT</td>
<td>0.2-0.9</td>
<td>80</td>
<td>16-72</td>
</tr>
<tr>
<td>Psychologist</td>
<td>0.3-1.1</td>
<td>70</td>
<td>21-77</td>
</tr>
<tr>
<td>Office Assistant</td>
<td>0.2-0.9</td>
<td>35</td>
<td>7-32</td>
</tr>
<tr>
<td><strong>All</strong></td>
<td></td>
<td><strong>175-677</strong></td>
<td></td>
</tr>
</tbody>
</table>

Data based on national averages in 2013
How many patients can I see?

- **New Patient Evaluation** (in the morning)
  - 3 - 4 Providers (anesthesiologist/NP, psychologist, PT)
  - Each patient is seen by MD, PT, Psych - 30-60 min/provider
  - 3-4 simultaneous evaluations within 3+ hours

- **F/u Established Patient** (in the afternoon)
  - Patient seen by 1-3 providers based on need – 30-45 min
  - 3-6 serial and/or simultaneous evaluations

- **Requirement**: 3 evaluation rooms
  - Potentially plus treatment room and recovery room
Pain Clinic Census

- Daily clinic census: 6 - 10 patients /day
- Projected yearly census > 300 (150 new) patients /clinic day
- More realistic: > 200 (100 new) patients /clinic day

Things to ponder:

- New Evaluations: level 4 or 5 consult *(comprehensive / time-based 60 min)*
  - Significant medical record review required prior to patient visit
  - Consultation vs. Management and Care Coordination
  - “Needy” patients and families

- How many patients can one MD see, treat and follow?
### Income – Billing – Collecting

#### Inpatient Pain Service

<table>
<thead>
<tr>
<th>Codes</th>
<th>Collections $</th>
<th>% of Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management/drug administration</td>
<td>120</td>
<td>52</td>
</tr>
<tr>
<td>Subsequent hospital care I -III</td>
<td>40 - 120</td>
<td>36 - 52</td>
</tr>
<tr>
<td>New/Established patient consult I - V</td>
<td>50 - 280</td>
<td>33 - 56</td>
</tr>
</tbody>
</table>

Last year you saw 1000 new patients – about 33% with regional techniques

<table>
<thead>
<tr>
<th>Charges $</th>
<th>Collections $</th>
<th>Gross collection</th>
<th>Net collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>800 K</td>
<td><strong>380 K</strong></td>
<td>49%</td>
<td>99%</td>
</tr>
</tbody>
</table>

You feel you need to grow your service now
Growing your service

- You like to go from a PT physician with 1 NP for 8h/d to:
- FT physician with 1 NP for 12 hrs/d and 8 hrs/d on weekends. Call: cross-cover from OR

  - Physician 1.4 FTE @ 320K/yr = 442 K/yr
  - NP 2.2 FTE @ 95 K/yr = 209K/yr

- Increase in cost: $325K/yr to $651K/yr leaving you with a projected deficit of $317K /yr

- How are you going to solve this problem?
I need more staff - nobody seems to be listening to me…

- We have increased our patient census by ...% but still have the same number of staff taking care of them...

VS

- Based on data from the last 2 years we are projecting an increase in the number of patients by ...% per year. Current staffing will not allow us to take care of these patients. We may be losing business…
The image contains two tables, each representing a different year of Pain Service Daily Census. The tables are laid out in a calendar format, with each row corresponding to a month and each column to a day of the week. The numbers in the cells seem to represent census data for each day.

The tables are arranged side by side, with the left table labeled 'Pain Service Daily Census 2005' and the right table labeled 'Pain Service Daily Census 2010'. Between the two tables, the text 'Use Visual Aids' is highlighted, suggesting that the visual layout aids in understanding the data presented.
Identify Risks

- **Quantity over quality:**
  - Large daily patient census - limited time available for each individual patient - less than optimal care.
  - High acuity patients with rapid throughput

- **Timeliness of services:**
  - Time required to respond to calls – complains

- **Loss of revenue:**
  - Limited staff does not have the time to document sufficient details in each patient’s consult and daily notes to assure billing at higher level.

- **Increased liability:**
  - Diminished time available to provide care for each patient as well as limited documentation may result in increased risk in case of adverse events.
Finally: The Happy Meal

Parents don’t go to a Fast Food Place to buy a hamburger patty, they ask for the “Happy Meal”.

Pain Management may be equivalent to the bun or the ketchup but it is part of the deal.

*(Liberally quoted: Eric Jackson, Jr, M.D. MBA)*
Helpful References


PAIN SERVICE

THINK OF MOUNTAIN CLIMBING
Where is the money?

Hospital? Your boss?

Remember:
1) Pain Services do not make money
2) A Pain Service can be expensive
3) Without proper support you will fail
Where are the people?

*Is anybody already working there?*
*or*
*Nobody is actually there...*

You will need:
1) Nurse practitioners
2) Physicians
to begin with.......
WELCOME TO OUR INSTITUTION.....

I am ready to quit....
However, you are a......

"Pragmatist" and will start looking for partners...........

remember: "partners" !!! because...

You will need a lot of friends....

1. anesthesiologists
2. NP's and not RN's!
3. physicians within the institution
Try to be...

"Conservative"

Do not rock the boat....

How will you survive?
The golden rules:

1) Make the surgeons happy
2) Shorten the patients' LOS (if possible)
3) Do not, I repeat, Do not prolong the patients' LOS
4) Bring in some money
5) Stay away as much as possible from the: "patients relationship office!"

and finally:
6) make you patients and families happy
Do not be discouraged: there will always be .........

Laggards

"Skeptics"

WE DON'T NEED NO EDUCATION
PAIN SERVICE

THINK OF MOUNTAIN CLIMBING
Alexandra Szabova, MD
Assistant Professor, Chronic Pain Center, Cincinnati Children’s Hospital Medical Center
SPPM/SPA Annual Meeting
March 6, 2014

EVOLUTION OF QUALITY IMPROVEMENT INITIATIVES IN A PEDIATRIC CHRONIC PAIN CENTER
How Did It All Start?

• Manufacturing → Service sectors (Healthcare)

• 1966 Avedis Donabedian - Evaluating the Quality of Medical Care

• Institute of Medicine
  – 1999 “To Err Is Human”
  – 2001 Crossing the Quality Chasm – 6 Aims for improvement in healthcare
    • Safe/Effective/Patient-centered/Timely/Efficient/Equitable
Quality

• The Institute of Medicine (IOM) defines quality as "The extent to which health services increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (evidence-based medicine)
Quality Management

- **Control** - a system for **verifying and maintaining** a desired level of quality

- **Assurance** - the planned or systematic actions for **evaluating** the delivery of services or the quality of products necessary to provide enough confidence that a product or service will satisfy the given requirements

- **Improvement** - the purposeful **change of a process** to improve the reliability of achieving an outcome
Crossing the Quality Chasm

- 10 rules for redesigning Health Care
  - Care is based on continues healing relationship
  - Care is customized to needs and values
  - Patient is the source of control
  - Knowledge is shared, information flows freely
  - Evidence-based decision making
  - **Safety is a system property**
  - Transparency
  - Needs are anticipated
  - **Waste is decreased**
  - Cooperation amongst clinicians is a priority
Changing the Environment

• Applying evidence to health care delivery
  – Average time 17 years
• Using information technology
• Aligning payment policies with quality improvement
• Preparing the workforce
  – 6 aims part of training, accreditation, and accountability
Methodologies (= techniques)

- 6 sigma
- Lean Methodology
- PDSA

➤ CHOOSE THE RIGHT ONE

- Quality Culture (= human factor)
  - Leadership
  - Education, knowledge
P-D-S-A

- Plan – a change or a test, identify objectives
- Do – carry out improvement plan, starting on a small scale
- Study – analyze the results, extract the findings, summarize the new knowledge
- Act – take the steps to adopt the change, or abandon the idea, or do additional cycles to correct problems

Run in repeated cycles
FIGURE 2. The approach most commonly used for rapid cycle improvement in health care is the plan-do-study-act method in which 4 repetitive steps are carried out over the course of small cycles. Adapted from Langley et al,\textsuperscript{13} with permission from Jossey-Bass.
Ask Three Fundamental Questions To Gather Testable Ideas

Model for Improvement

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make that will result in improvement?
Selecting QI Measures for Pediatric Chronic Pain

• What is important to you or your organization
  – Clinical – FDI
  – Operational
    • Access, flow, patient safety, satisfaction, value

• Collect, interpret, display data
## CPC QI in Real Life - Measures

<table>
<thead>
<tr>
<th>Domain</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>Third Next Available Appointment</td>
</tr>
<tr>
<td>Flow</td>
<td>- No Show Rate (no shows+cancellations w/in 24hr)</td>
</tr>
<tr>
<td></td>
<td>- No Shows Only</td>
</tr>
<tr>
<td>Patient Safety</td>
<td>Serious Adverse Event Rate (&gt;= Level 5) MPS</td>
</tr>
<tr>
<td>Family Centered Care</td>
<td>- % Parent satisfaction MPS ratings 9-10</td>
</tr>
<tr>
<td></td>
<td>- % Parent satisfaction MPS ratings 0-6</td>
</tr>
<tr>
<td>Value</td>
<td>- Work RVUs CPC</td>
</tr>
<tr>
<td></td>
<td>- Work RVUs MPS</td>
</tr>
</tbody>
</table>
## CPC QI In Real Life - Dashboard

### Care Delivery System Dashboard
- **Division of Pain Management**
- **Chronic Pain Clinic and Medical Pain Service**
- **FY14 - Q1**

<table>
<thead>
<tr>
<th>DOMAIN</th>
<th>Measures*</th>
<th>Project Leader</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14 - Qtr 1</th>
<th>FY14-Qtr 2</th>
<th>FY14-Qtr 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access</strong></td>
<td>Third Next Available Appointment (CPC)</td>
<td>A. Ayers</td>
<td>20.4</td>
<td>16.4</td>
<td>19.9</td>
<td>19.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No-Show Rate (CPC) (no shows plus cancellations within 24hrs)</td>
<td>J. Rose</td>
<td>12.10%</td>
<td>17.60%</td>
<td>11.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No-Show Rate (CPC) (no shows only)</td>
<td>J. Rose</td>
<td>6.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flow</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patient Safety</strong></td>
<td>Serious Adverse Event Rate (&gt;= Level 5) (Medical Pain Service)</td>
<td>V. Chidambaran</td>
<td>0/1000</td>
<td>0/1000</td>
<td>0/1000</td>
<td>0/1000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Family Centered Care</strong></td>
<td>Parent Satisfaction Medical Pain Service (% rating us the highest 9-10)</td>
<td>A. Ayers</td>
<td>65.9%</td>
<td>54.3%</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parent Satisfaction Medical Pain Service (% rating us the lowest 0-6)</td>
<td>A. Ayers</td>
<td>2.4%</td>
<td>15.6%</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>Work RVU's/CPC</td>
<td>L. Minera/K. Goldschneider</td>
<td>1,783</td>
<td>2,064</td>
<td>2,829</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No-Show Rate (CPC) (no shows plus cancellations within 24hrs)</td>
<td>L. Minera/K. Goldschneider</td>
<td>1,224</td>
<td>1,349</td>
<td>1,243</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. **IP** - Improvement priority; **SP** - Spread; **SU** - Sustain (short term); **MO** - Monitor (long term); **FW** - Future work
2. Reporting frequency: monthly (M), quarterly (Q), yearly (Y)

The Mission: Achieve the Best Outcomes, Experience, and Value
Big Picture

- Role of Formal, Institutional Quality Improvement Initiatives
  - Strategic plan
  - Education - Basic, Intermediate, Advanced
- QI Processes Can Be Directly Linked to Care Coordination and Clinical Outcomes
  - Identifying interventions
  - Implementing interventions and measuring their clinical effects
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety</strong></td>
<td>Currrent Date</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Productivity</strong></td>
<td>Clinic No-show (I2S2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td>CCO Wave 2: Idiopathic Back and Abdominal Pain</td>
<td>Idiopathic Back and Abdominal Pain Outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Experience</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>QI Infrastructure</td>
<td>Holly Stahlman I2S2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Green**: Active Project
- **Yellow**: Planned/scheduled project
- **Red**: Projects on hold or at risk
Results of the Endpoint Scenarios

Endpoint Scenario Assessment for Anesthesia - Pain Management

Monitoring and Measuring your system performance

Community Health

Leadership & Improvement Capability

Patient and Family Experience

HealthCare Value

Productivity

Care Coordination and Outcomes (CCO)

Safety
Medication administration
Handoffs
Transition from MPS to CC (chronic care?)
Huddles in outpatient clinic – direct care
Huddles in outpatient clinic – phone care
Assessment/reassessment for opiates and antidepressants
Setting Priorities: Process Quality & Strategic Importance Diagram: Productivity

- Accurate and timely billing practices for outpatient clinic
- Accurate and timely billing practices for Medical Pain Service (MPS)
- Consistent start and end times for multi-disciplinary clinic
- Remove scheduling barriers
- Effective allocation of space

New scheduling software currently in implementation
Organization-wide space plan in process
QI vs Research

- Most QI projects include data collection in small samples, frequent changes in protocols and interventions, discarding poor ideas, and pursuing ideas that work - **constantly changing** baseline makes it problematic to think of QI as traditional research.
- Research seeks to provide more generalizable answers.
- QI project can be considered research if (1) the tested intervention involves a deviation from established practices, (2) individual patients are the subjects, (3) randomization or blinding is conducted, and (4) participants are subjected to additional risks or burdens beyond usual clinical practice to make results generalizable.
- RCTs, controlled studies, preintervention and postintervention studies, and time series are commonly used methods in QI research.
QI & Research In Real Life – FDI By Pain Psychologists

Figure 2. Run chart of FDI administration across 26 weeks.
References

1. The Milbank Quarterly, Vol. 83, No. 4, 2005 (pp. 691–729)