Utilization of ED for Pediatric Fevers

Krista L. Bilger BSN, RN
Lehigh Valley Health Network, Krista_L.Bilger@lvhn.org

Kathy Baker MPH, RN
Lehigh Valley Health Network, Kathy.Baker@lvhn.org

Follow this and additional works at: http://scholarlyworks.lvhn.org/patient-care-services-nursing

Part of the Nursing Commons

Published In/Presented At

This Presentation is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact LibraryServices@lvhn.org.
PEDIATRIC PATIENTS WITH FEVER AND THE USE OF THE EMERGENCY DEPARTMENT (ED) AT 17TH STREET

Kathy Baker RN MPH
Krista Bilger RN BSN
Andrew Martin RN MSN
Deborah Swavely RN DNP
David Zimmerman, MPH
ER Nursing staff noticed, what appeared to be, an inordinate number of patients (infant & young child) using the 17th ER with a primary complaint of fever.

The staff felt, given their experience with these patients, this could be a case of inappropriate use of ER resources.

The following is the initial process undertaken to identify the patients characteristic of this observation.
Purpose

The purpose of this study was to describe the determinants of adult parents, grandparents, and legal guardians that lead to their decision to use the emergency department for evaluation and treatment of non-urgent fevers in young children at LVHN’s 17th and Chew site.
Population

- For fiscal year 2011, it was identified that there was a cohort of patient’s under the age of 4 with a primary diagnosis of fever.
- 884 patient charts were reviewed retrospectively.
EBP – 17th ER Fever Study

- Location – LVHN ER @ 17th & Chew Sts.
  - Patient Population – ER Visits
  - FY 2011
  - Age <4
  - Primary Diagnosis of Fever at Admission
  - “n” = 884
  - ESI > 3, excludes inpatient admissions.

- Principal Investigator(s) – Kathy Baker RN, MPH. Krista Bilger RN, Andrew Martin, RN
<table>
<thead>
<tr>
<th></th>
<th>&quot;n&quot;</th>
<th>Total PSNM</th>
<th>Avg PSNM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non Clinic Patients</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>16</td>
<td>$ 1,462.57</td>
<td>$ 91.41</td>
</tr>
<tr>
<td>COM</td>
<td>1</td>
<td>$ 406.14</td>
<td>$ 406.14</td>
</tr>
<tr>
<td>DIR_CTR</td>
<td>10</td>
<td>$ 3,223.14</td>
<td>$ 322.31</td>
</tr>
<tr>
<td>MA</td>
<td>180</td>
<td>$(13,824.24)</td>
<td>$(76.80)</td>
</tr>
<tr>
<td>SELF</td>
<td>25</td>
<td>$(3,835.11)</td>
<td>$(153.40)</td>
</tr>
<tr>
<td><strong>Clinic Patients</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>13</td>
<td>$(4,246.48)</td>
<td>$(326.65)</td>
</tr>
<tr>
<td>DIR_CTR</td>
<td>14</td>
<td>$ 4,596.47</td>
<td>$ 328.32</td>
</tr>
<tr>
<td>MA</td>
<td>588</td>
<td>$(47,236.61)</td>
<td>$(80.33)</td>
</tr>
<tr>
<td>SELF</td>
<td>37</td>
<td>$(6,382.42)</td>
<td>$(172.50)</td>
</tr>
<tr>
<td><strong>All Patients</strong></td>
<td>884</td>
<td>$(65,836.54)</td>
<td>$(74.48)</td>
</tr>
</tbody>
</table>

Unless stated "n" = 884
17 ER Fever 0-3 FY11 - Top Ten Home Zip / City Designation

Source: LVHN HPM

18102 ALLENTOWN - 496
18103 ALLENTOWN - 144
18109 ALLENTOWN - 60
18052 WHITEHALL - 49
18104 ALLENTOWN - 42
18101 ALLENTOWN - 24
18032 CATASAUQUA
18017 BETHLEHEM - 5
18105 ALLENTOWN - 5
18067 NORTHAMPTON - 4

835 / 884
95% of Total

Unless stated “H” = 884

Technical Report 101 v3.0 - April 11, 2012:
David F. Zimmerman MPH - Data Analyst
Race

17 ER Fever Pts Age 0-3 FY11 by Race

Source: LVHN HPM

Not show is American Indian or Alaska Native - 0.11%
Ethnicity

17 ER Fever Pts
Age 0-3 FY11
by Ethnicity

Source: LVHN HPM
PCP/Clinic Affiliation

17 ER Fever 0-3 FY11 Distribution by Clinic Affiliation

Source: LVHN HPM

Children's Clinic: 652

No Clinic: 232

74%

26%
Insurance

17 ER Fever 0-3 FY11 - Primary Payor (SFFC)
Source: LVHN HPM

SFFC = Source System Financial Class

<table>
<thead>
<tr>
<th></th>
<th>MA</th>
<th>SELF</th>
<th>BC</th>
<th>DIR_CTR</th>
<th>COM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>768</td>
<td>62</td>
<td>29</td>
<td>24</td>
<td>1</td>
</tr>
</tbody>
</table>
## Barton Schmitt Triage Tool

### RESOURCES USED

<table>
<thead>
<tr>
<th>Laboratory Tests</th>
<th>Medications</th>
<th>Radiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBC</td>
<td>Ondansetron</td>
<td>Chest X-Ray</td>
</tr>
<tr>
<td>CMP</td>
<td>Albuterol</td>
<td>Soft tissue X-Ray</td>
</tr>
<tr>
<td>BMP</td>
<td>Duoneb</td>
<td>Ultrasound</td>
</tr>
<tr>
<td>Blood Cultures</td>
<td>Decadron</td>
<td>Abdominal Ultrasound</td>
</tr>
<tr>
<td>Urinalysis</td>
<td>Solumedrol</td>
<td></td>
</tr>
<tr>
<td>Urine Culture</td>
<td>Acetaminophen</td>
<td></td>
</tr>
<tr>
<td>Cerebral Spinal Fluid</td>
<td>Ibuprofen</td>
<td></td>
</tr>
<tr>
<td>Flu Culture</td>
<td>IV Fluid</td>
<td></td>
</tr>
<tr>
<td>RSV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid Strep Culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strep Culture</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BARTON SCHMITT

#### FEVER:

**Call 911**

- Limp, weak, or not moving
- Unresponsive or difficult to awaken
- Bluish lips, tongue or face
- Severe difficulty breathing
- Rash with purple spots or dots
- Sounds like a life-threatening emergency to triager

**ED Now**

- Newborn (<1 month) who acts sick
- Age <12 weeks with fever >100.4
- Fever >105
- Shaking chills present >1 hour
- Very irritable
- Child is confused with fever <103 or present >1 hour
- Stiff neck or bulging soft spot
- Won't more arm or leg normally
- Had a febrile seizure
- Signs of dehydration
- Buring or pain with urination
- Child sounds weak or sick to triager
- Chronic disease that causes decrease immunity

**See in 24 hours**

- Age 3-6 months with fever <102 (Exception: Follows DTaP shot)
- Age 3-24 months with fever present >24 hours but no other symptoms

**Home Care**

- Fever with no signs of serious infection AND no localizing symptoms for:

#### EAR, PULLING AT OR ITCHY:

**ED Now**

- Newborn <4 weeks with fever >100.4 rectally
- Age 4-12 weeks with fever >100.4 rectally

**ED Now (or to Office with PCP Approval)**

- Constant digging in 1 ear canal for >2 hr
- Fever is present

**See Today in Office**

- Seems to be in pain
- Crying without an obvious reason

**See Within 3 Days in Office**

- Recent onset of awakening from sleep
- Sign of a cold
- Pulling at ear continues >3 days
ER as appropriate treatment locale?

17 ER Fever 0-3 FY 11 Barton Schmitt - Appropriateness

Source: LVHN Chart Review 3/12

- Homecare: 398
- Parent: 214
- Next Day: 191
- Immediate: 75
- Eloped: 6

Unless stated, all data is for 2011.
17 ER Fever 0-3 FY 11 Barton Schmitt - Appropriateness

Source: LVHN Chart Review 3/12

- Home care: 396
- See today or tomorrow in office: 214
- See in 24 hours: 92
- See today in office: 60
- ED now: 35
- See today in office-parent: 29
- Go to office now: 26
- See in office today: 10
- Elopeds: 6
- See today or tomorrow in office: 4
- See within 3 days in office: 4
- See today in the office: 3
- Strep test only visit today: 1
- Call back by PCP today: 1
- Go to office today: 1
- See within 2 weeks in office: 1
- See in office within 3 days: 1
The next step ....
Interviews

- October, 2012 thru March 2013
- Four ED RN’s & three other team members
- Interpreters made available by Sue Jones for Spanish speaking subjects
- Peak hours/days were determined based on previous evidence and a schedule was made.
- 23 interviews were completed.
- 13/23 (56%) agreed to audio recording as well.
DATA COLLECTION SHEET

Demographic Data:

1. Relationship to child: ☐ Mother ☐ Father ☐ Grandmother ☐ Grandfather ☐ Legal Guardian
2. What language is spoken at home? ☐ English ☐ Spanish
3. What is your age? _______

4. What is your educational status? Circle appropriate complete year of schooling.
   0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

5. How old is the patient (in months)? _______

6. How many children does the mother have? _______

7. What birth order is this child? 1 2 3 4 5 6 7 8 9 10+

8. Where do you take the child for routine medical care? _______________________

9. Did you call the doctor's office to have the child seen for today's problem?
   ☐ Yes ☐ No, Reason: ______________________________
   a. Who did you talk to? ______________________________
   b. What was your experience with the call? ______________________________
   c. What advice did you receive? ______________________________
   d. Did you follow the advice? ______________________________
   ☐ Yes ☐ No, Reason: ______________________________

10. Did your child see a doctor anywhere else today?
    ☐ No ☐ Yes, location: ______________________________

Interview Questions: To be Recorded

1. How do you know your child has a fever?
   a. Do you have a thermometer at home? ☐ Yes ☐ No
   b. How is the temperature taken?
      ☐ Oral ☐ Tympanic ☐ Strip on forehead ☐ Touch forehead ☐ Rectally ☐ Arm pit ☐ N/A
   c. Have you taken the child's temperature today? ☐ Yes ☐ No
   d. What temperature prompted you to come to the ED today? ______/____
   e. Have you given your child anything for the fever?
      ☐ Yes ☐ No, Reason: ______________________________
   f. What did you give? ______________________________
   g. How much did you give? ______________________________
   h. What time did you last give it? ______/____

2. What made you decide to bring your child to the ED instead of their pediatrician or PCP?

3. Who made the decision to bring the child here today? ______________________________
Results of Interviews

- Mother present for 21 of the 23 interviews
- Majority were clinic patients
- Only 6 of the 23 called the PCP first
  - Five of those six say they did follow the advice given them, yet still came to ED eventually.
  - There was mixed reports of how their experience was with the phone call, good, bad, indifferent.
“Sensemaking involves the retrospective development of plausible images that rationalize what people are doing.” Weick 2005

**What is going on?**

- **Flux** – Chaos. Always aware that situations can change. Draw on past experiences
- **Noticing and Bracketing** – Variance to normal
- **Labeling** – Categorizing to stabilize the streaming experience
- **Retrospective** – Looking back and adding up events
- **Presumption** – Connects the abstract with the concrete

**What do I do next?**

- **Action** – Action or decide no action
Presumptions made by caregiver

- Child needs to be seen
- Clinic has no appointments
- Calling PCP only for appointments
- ED faster
- ED takes fever more serious
- Rather see PCP
- Seek proper treatment
- Severity may increase w/o intervention
- Satisfy others in family
Themes

Barriers in access to care

- Subjects unaware of dates and times PCP office is open.
- Subjects perceived that no appointment would be available even during PCP open hours.
- Most subjects did not call PCP office to report illness. Those who called did not follow advice or the experience was reported to be negative.
- Subjects hours of work influenced decision
- Subjects access to transportation a factor in accessing care.
Themes

- **Perceived urgency of fever**
  - Subjects' touch of child seems to be the single most common factor in determining illness.
  - All subjects reported having a thermometer.
  - Subjects reported temperature did not influence their view on the urgency of the illness.
  - Subjects that provided treatments such as antipyretics or home remedies continued to see illness as requiring emergent attention even when temperature decreased after treatment.
  - Family members' advice was factored into perceived severity of illness.
**Themes**

- Gap between reported relationship with PCP and action taken to go to ED.

- Subjects were asked: “If you had the choice to either go to the child’s PCP right now or bring them to the ED, which would you have preferred?”

  - Most subjects reported that if access where equal between PCP and ED, they would have preferred taking the child to the PCP.
  - Subjects valued the history and relationship with their PCP.
  - Very few subjects actually called PCP to report illness.
  - Subjects who called PCP found the experience to be negative.
  - Subjects who called PCP did not follow advice.
  - Subjects did not receive reassurance needed via the phone interaction with PCP.
Fever has a long history of being viewed as an indicator of illness. Health literacy surrounding this physiologic phenomena is lacking in this population.

Review of current education provided by family member and all who influence the subjects may be a good first step in uncovering why this exists.

Development of proactive programs to address this gap should be explored.
Accompanying adults acted in the best interest of the children. They perceived that the child’s condition required immediate attention.

The adult required immediate assurance that the child was safe from further illness or complications. Even though no medical intervention occurred at the ED, the face to face interaction did provide reassurance.

From the responses, it can be induced that a face to face interaction with the PCP may have provided the same reassurance.

The experiences reported with the interaction with the PCP via the phone did not provide assurance and should be a focus for future investigation.
Discussion/Suggestions

- Utilizing the sensemaking framework allowed for the analysis of the factors of the adults accompanying children with fever to the ED. This framework should also be used to evaluate the factors that the organization utilized to determine their access processes, fever information/education and the off hour interactions between subjects and PCP office.
My personal perspective

- A new experience and opportunity to learn.
- My first collaborative quality improvement study.
- Not often that I’ve seen bedside nurses involved in this type of study.
- Did not know how involved I would become
  - Time frame from the first meeting when the question was first presented to now – still not done!
- Article was submitted to be published in a Journal.
- An overall good experience for me.
- Eager to see what changes may be able to come from learning the results of this study.
Questions

Contact Information:
Kathy Baker RN MPH
610-969-2545