NORTHWEST HEALTHCARE Response Network

PREPARE.

RESPOND.

# Pediatric Disaster Preparedness

RECOVER.

Vicki L. Sakata, MD, FAAEM, FAAP
Senior Medical Advisor, NWHRN
WA-1 DMAT
MAC-T Medical Officer
University of Washington Clinical Associate Professor

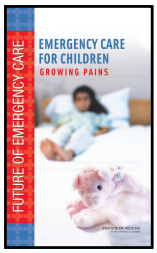
## OBJECTIVES

- Who?
- Where?
- How?
- Why?

2

## WHO?

**2006**



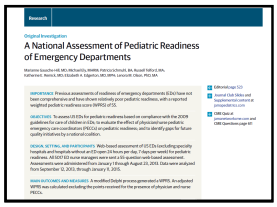

**2006**

- 25% population age<18
- 29 million ped ED visits
- 20% make more than one visit per year
- 18% ED visits Children's Hospitals
- 82% ED visits General, non-pediatric ED's
- Limited Pediatric training and supplies

3 3

## WHO?

**2015**



Research

Original Investigation

A National Assessment of Pediatric Readiness of Emergency Departments

Marianne Gausche-Hill, MD; Michael Ely, MHPM; Patricia Schmuhl, BA; Russell Telford, MA; Nathaniel E. Beckmann, MD; Elizabeth A. Edgerton, MD, MPH; Lenworth Jacobs, MD, MA

IMPORTANCE Previous assessments of readiness of emergency departments (ED) have not been comprehensive and have shown relatively poor pediatric readiness, with a reported weighted pediatric readiness score (WPRS) of 75.

OBJECTIVES To assess US EDs for pediatric readiness based on compliance with the 2009 guidelines for care of children in EDs, to evaluate the effect of physician/nurse pediatric emergency care coordinator (PECC) on pediatric readiness, and to identify gaps for future quality initiatives by a national coalition.

DESIGN, SETTING, AND PARTICIPANTS Web-based assessment of 173 EDs (excluding specialty hospitals and hospitals without an ED open 24 hours per day, 7 days per week) for pediatric readiness. All 3007 ED nurse managers were sent a 55-question web-based assessment. Assessments were administered from January 1 through August 21, 2014. Data were analyzed from September 12, 2013, through January 9, 2015.

MAIN OUTCOMES AND MEASURES A modified Delphi process generated a WPRS. An adjusted WPRS was calculated excluding the points received for the presence of physician and nurse PECCs.

**2015**

- 25% US population <18 yo
- ~30 million Ped ER visits
- Improved readiness
- 8% "Pediatric" hospitals

*JAMA Pediatr. 2015;169(6):527-534. doi:10.1001/jamapediatrics.2015.138 Published online April 13, 2015.*

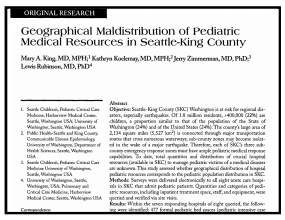
4 4

## WHO?

92% of all Pediatric ED visits are made to non-pediatric hospitals.

5 5

## WHERE?



ORIGINAL RESEARCH

Geographical Maldistribution of Pediatric Medical Resources in Seattle-King County

Mary A. King, MD, MPH;[1] Kathryn Kooleray, MD, MPH;[2] Jerry Zimmerman, MD, PhD;[3] Lewis Robinson, MD, PhD[4]

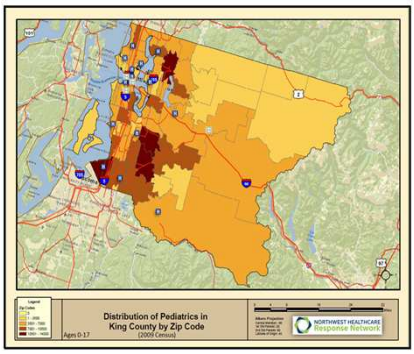
Abstract

Objective: Seattle-King County (SKC) Washington is at risk for regional disasters. Although SKC's population of 1.9 million includes 25% (0.5 million) children, it proportion similar to that of the population of the State of Washington (24%) and of the United States (24%). The county's large area of 2,134 square miles (5,527 km²) is connected through major transportation routes that cross numerous waterways; sub-county zones may become isolated in the wake of a major earthquake. Therefore, each of SKC's three subcounty emergency response zones must have ample pediatric medical response resources. The goal of this study was to determine if pediatric medical resources (available in SKC) to manage pediatric victims of a medical disaster are unknown. This study assessed whether geographical distribution of hospital pediatric resources corresponds to the pediatric population distribution in SKC.

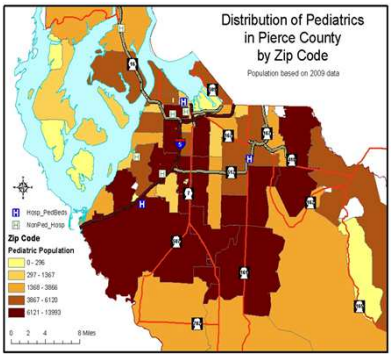
Methods: Surveys were delivered electronically to all eight acute care hospitals in SKC that admit pediatric patients. Quantities and categories of pediatric resources, including inpatient treatment space, staff, and equipment, were collected and analyzed.

Results: Within the zones responding hospitals of eight queried, the following were identified: 477 formal pediatric bed zones (pediatric intensive care

6 6




7




8

## Where: got kids?
### US Census QuickFacts 2013 est

| Location | Pop | <18yo | <5yo |
|---|---|---|---|
| WA STATE | 6,971,406 | 23.2% | 6.5% |
| King | 2,044,449 | 21.3% | 6.2% |
| Pierce | 819,743 | 24.6% | 7.0% |
| Snohomish | 745,913 | 24.0% | 6.5% |
| Spokane | 479,398 | 23.2% | 6.3% |
| Clark | 443,817 | 26.1% | 6.7% |
| Okanagan | 41,120 | 23.5% | 6.8% |
| Lincoln | 10,570 | 22.5% | 5.2% |
| Ferry | 7,551 | 19.5% | 5.1% |

*Resource: http://factfinder2.census.gov*

9

## BOTTOM LINE:

- *Any* healthcare professional *can* resuscitate and stabilize children
- All healthcare professionals *will be expected* to care for children
- Pediatric Emergency Preparedness should be an *every day routine.*

10

## HOW?
## PEDIATRIC RESOURCES

NORTHWEST HEALTHCARE Response Network

11

## FIND PEDIATRIC CHAMPIONS

Table 4. Having All Responses of Yes in a Scored Section Given the Presence of at Least 1 PECC[a]

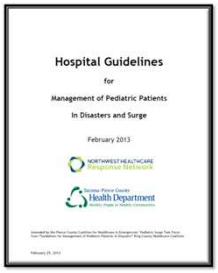
| Section of Guidelines | ARR (95% CI) |
|---|---|
| Physicians, nurses, and other health care practitioners who staff the ED | 1.54 (1.40-1.69) |
| Guidelines | |
| QI or PI in the ED | 4.11 (3.37-5.02) |
| Improving pediatric patient safety in the ED | 1.30 (1.18-1.45) |
| Policies, procedures, and protocols for the ED | 2.33 (1.81-3.01) |
| Equipment, supplies, and medications for the care of pediatric patients in the ED | 1.44 (1.23-1.69) |

Abbreviations: ARR, adjusted relative risk; ED, emergency department; PECC, pediatric emergency care coordinator; PI, performance improvement; QI, quality improvement.

*JAMA Pediatr. 2015;169(6):527-534.*
*doi:10.1001/jamapediatrics.2015.138*
*Published online April 13, 2015.*

12

## STEAL (and modify)


Hospital Guidelines
for
Management of Pediatric Patients
In Disasters and Surge
February 2013

- www.NWHRN.org
- LA: Children's Hospital LA (Bridget Berg)
- New York: NY City Pediatric Disaster Coalition (Dr. Frogel
- DC: Jeffrey Steifel: Pediatric Disaster Resiliency Call
- AAP: Disaster Ready Listserv
- Ped Surge Network: Pat Frost
- EMS-C
- National Ped Readiness Project

13

## NWHRN Pediatric Toolkit Guidelines

- Identify in-house pediatric expertise
- Create pediatric leadership positions: "Pediatric Champions"
- Increase pediatric specific training
- Plan for appropriate equipment, pharmaceuticals and nutrition
- Plan for special security needs
- Plan for special transport issues
- Include Pediatrics needs in all disaster planning (i.e. Decontamination Plan, Evacuation Plan, Disaster Triage Plans)

14
14

## BARRIERS:

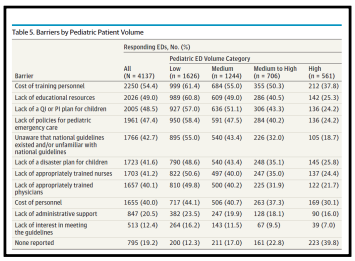


Table 5. Barriers by Pediatric Patient Volume

| | Responding EDs, No. (%) | | | | |
|---|---|---|---|---|---|
| | | Pediatric ED Volume Category | | | |
| Barrier | All (N = 4137) | Low (n = 1626) | Medium (n = 1244) | Medium to High (n = 706) | High (n = 561) |
| Cost of training personnel | 2250 (54.4) | 999 (61.4) | 684 (55.0) | 355 (50.3) | 212 (37.8) |
| Lack of educational resources | 2026 (49.0) | 989 (60.8) | 609 (49.0) | 286 (40.5) | 142 (25.3) |
| Lack of a QI or PI plan for children | 2005 (48.5) | 927 (57.0) | 636 (51.1) | 306 (43.3) | 136 (24.2) |
| Lack of policies for pediatric emergency care | 1961 (47.4) | 950 (58.4) | 591 (47.5) | 284 (40.2) | 136 (24.2) |
| Unaware that national guidelines existed and/or unfamiliar with national guidelines | 1766 (42.7) | 895 (55.0) | 540 (43.4) | 226 (32.0) | 105 (18.7) |
| Lack of a disaster plan for children | 1723 (41.6) | 790 (48.6) | 540 (43.4) | 248 (35.1) | 145 (25.8) |
| Lack of appropriately trained nurses | 1703 (41.2) | 822 (50.6) | 497 (40.0) | 247 (35.0) | 137 (24.4) |
| Lack of appropriately trained physicians | 1657 (40.1) | 810 (49.8) | 500 (40.2) | 225 (31.9) | 122 (21.7) |
| Cost of personnel | 1655 (40.0) | 717 (44.1) | 506 (40.7) | 263 (37.3) | 169 (30.1) |
| Lack of administrative support | 847 (20.5) | 382 (23.5) | 247 (19.9) | 128 (18.1) | 90 (16.0) |
| Lack of interest in meeting the guidelines | 513 (12.4) | 264 (16.2) | 143 (11.5) | 67 (9.5) | 39 (7.0) |
| None reported | 795 (19.2) | 200 (12.3) | 211 (17.0) | 161 (22.8) | 223 (39.8) |

15
15

# Pediatric Training for Non-Pediatric Hospitals

NORTHWEST HEALTHCARE Response Network

16

## Hands on Training

Pediatric Workshop Breakout Session Options

NORTHWEST HEALTHCARE Response Network

| TITLE | DESCRIPTION | SUPPLIES |
|---|---|---|
| A. MCI Triage and Bivalve Liners | First half of the session is spent triaging a multi-victim MCI.<br>Second half is practicing through 1 case scenario using a laminated card. Bivalves liner | • 10-20 field impressions with corresponding MCI triage tags<br>• Bivalve child mannequin<br>• Bivalve liner and other examples of child sized length based medication charts<br>• 1 lead instructor, 2 facilitators |
| B. You All Pumped? Six Problems! | This session teaches the use of the Broselow/Luten Kitchen Sink to calculate safe IV pediatric fluids<br>• Participants receive a short introduction to the Broselow/Luten system<br>• Participants are given each a short case<br>• Participants are required to figure out drug, dose and then set up an IV fluid system with Buretrol® and run the drip as per lab<br>• Participants will then present their case and solution to the class with feedback | • IV pump<br>• IV fluid<br>• IV and IO kit (Household)<br>• Data cards as prop<br>• Handouts<br>• 1 lead instructor (2-3 if workshop) |
| C. Simulation MCI | Participants are given warning scenario (i.e. ED, Helicopter, EMS)<br>• Triage tags introduced in synchronization<br>• Participants will be figure out what their roles are in a large MCI situation | • Mannequins<br>• Treatment scenarios if desired (i.e. IO's, Airway, Trauma, Crashed in Place use of EP or others)<br>• 3 lead (2-3 assistants) |
| D. Pediatric Anatomy | • Participants divide into teams<br>• Slide shows with questions in the form of scavenger game | • Questions and answers<br>• 1 Lead |
| E. PICU Simulation | • Participants simulate only Evacuation teams<br>• Participants will be given a scenario with considerations, should be PICU or pre-admit<br>• Don't leave anything preparing "normal" to be done in the PICU, or pre-admit unit<br>• Participants are creating necessary equipment and patient packaging techniques are demonstrated once on live actors<br>• Documentation and transfer paperwork discussed | • Toddler mannequin<br>• Bivalve liner<br>• IV pumps<br>• Overhead lines, IV strips, arm lines, minor wound simulation kits, etc.<br>• Handouts<br>• Stairwell (at least 2 flights)<br>• Other evacuation equipment<br>• 2-3 instructors |

| | | |
|---|---|---|
| F. Pediatric Orthopaedic | • Demonstration of common pediatric orthopedic injuries and how to stabilize them<br>• Participants practice splinting on a child | • Plaster<br>• Bivalve<br>• Blankets<br>• Splinting kit<br>• Table and floor canal rigs<br>• Cast removers<br>• 1 lead, 2 assistants |
| G. Pediatric Medicine | • Participants are given random scenarios, then have to work up and treat child<br>• Cases are presented and they are paired by "cases like" with what they have to treat the issue at hand | • Varies depending on the expertise of the pool members, but examples include: Labels for the stations, flashcards to aid in drug diagnosis, etc<br>• 1 lead |
| H. EMS, ED and Staff Adults | • Skills for safe pediatric and adult cases<br>• Participants will be given a short medication treatment and dissection | • IPPT<br>• 1-2 instructors |
| I. Pediatric Pain Management | • Introducing interview ways of managing pain and anxiety in children<br>• Direct distraction<br>• Oral and intranasal options<br>• IV in children | • IPPT<br>• 1-2 instructors |
| J. Pediatric Resources | Review all the resources that will be made available to the participants in case of recreating their pediatric readiness | • IPPT<br>• 1-2 instructors |
| K. Safe Practices for Pediatric Medication Delivery Beyond Bivalve | • The number one cause of medication errors in pediatrics is dosing calculation, which includes not only finding the right dose, but also figuring out the right drug, the right concentration, and making up the right dose<br>• This session is purely pediatric cases, where participants will be given a dose, dilution and actually draw up and administer (or can simulate the correct dose<br>• Will also include safe practices and retrieval from a protocol | • IPPT<br>• 1 med pillow, 2-4 appliance<br>• Table and chairs<br>• Sharps containers<br>• Bivalve liner<br>• Assorted types of other length based color coded med sheets<br>• Charges |

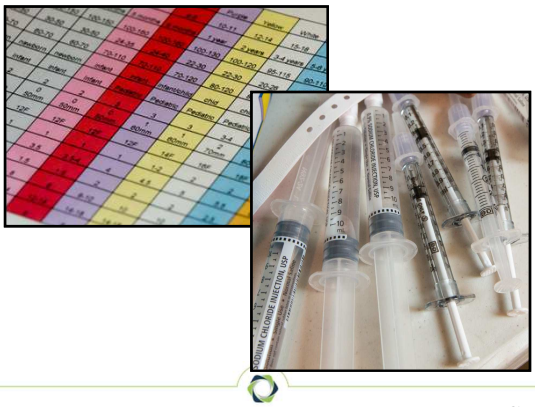
Development of these materials was made possible by NWHRN member contributions. © 2015, Northwest Healthcare Response Network. Copying and adaptations permitted for non-commercial, educational use only.

17

18

19

20



21

22

## Harborview Medical Center

**Template**

**Application**

23

24

25

26

27

28

29

30

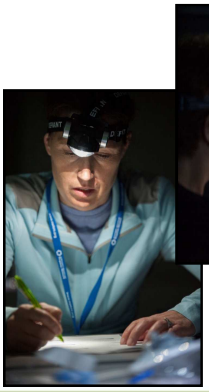
# Mythbusters:

"No Pain, No Gain"

Managing Painful Pediatric Procedures

Vicki L. Sakata, MD

## No IV pumps No Problem



## Kids ARE just Small Adults

3 day old

80 yo

34

## Kids ARE just Small Adults

5 yo

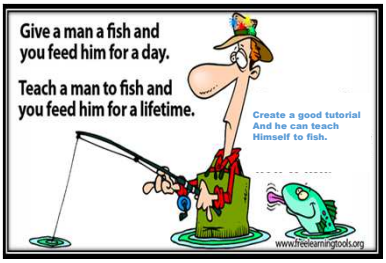
60 yo

35

## Train the Trainer: Portland, OR

36

## Train the Trainer




37

38

## WHY?

"Hope is not a plan."

39
39

Thank you
Questions?

CONTACT US:

Vicki L. Sakata, MD
vicki.sakata@nwhrn.org

www.nwhrn.org
www.facebook.com/nwhrn
@TheNetworkNWHRN

PREPARE. RESPOND. RECOVER.

NORTHWEST HEALTHCARE Response Network

40