



2019 NWHRN High Consequence Infectious Disease Workshop

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Measles at Seattle Children's

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Disclosures

- No financial disclosures
- No conflict of interest

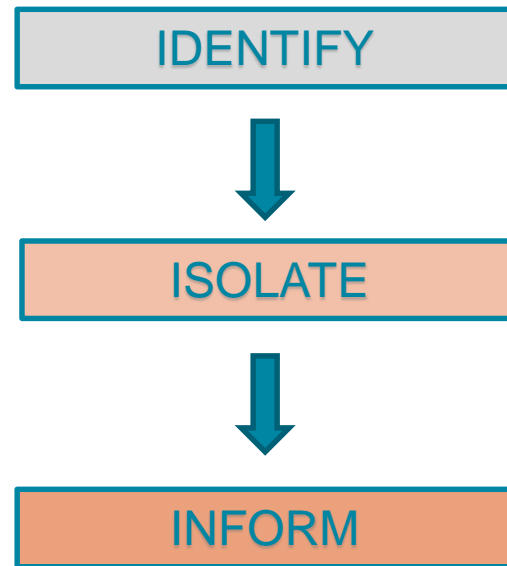


Learning Objectives

- Share recent measles outbreak at Seattle Children's
- Discuss the benefits of utilizing Hospital Incident Command System (HICS) for measles and other infectious outbreaks
- Pediatric patients in isolation for HCID, lessons learned

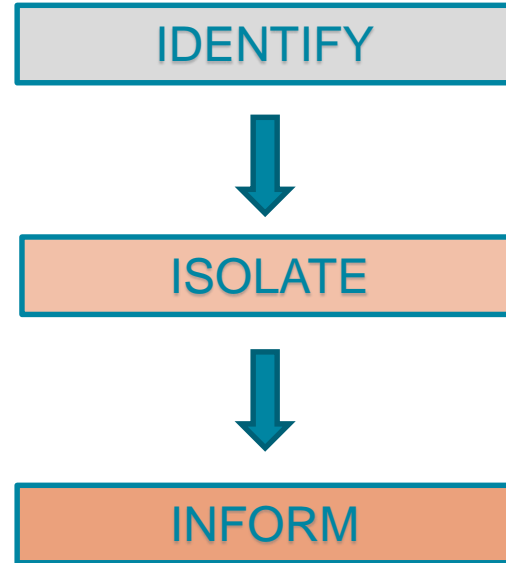
Children and HCID - Identify

- The initial management is the same
 - Same travel and symptom screening as adults



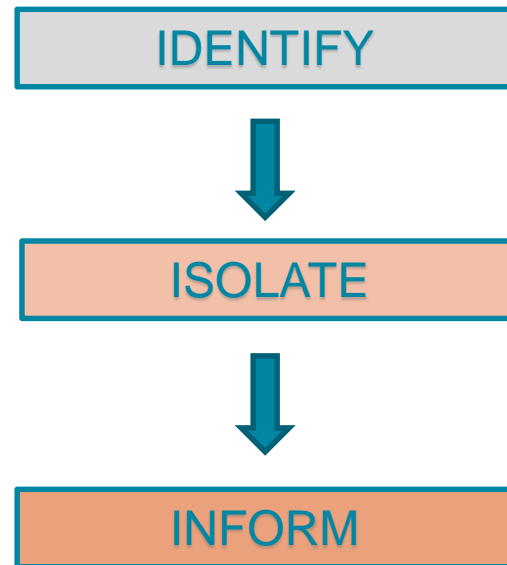
Children and HCID - Isolate

- Isolate initially = isolate everyone that came with them
- We do not recommend separating from families during initial evaluation



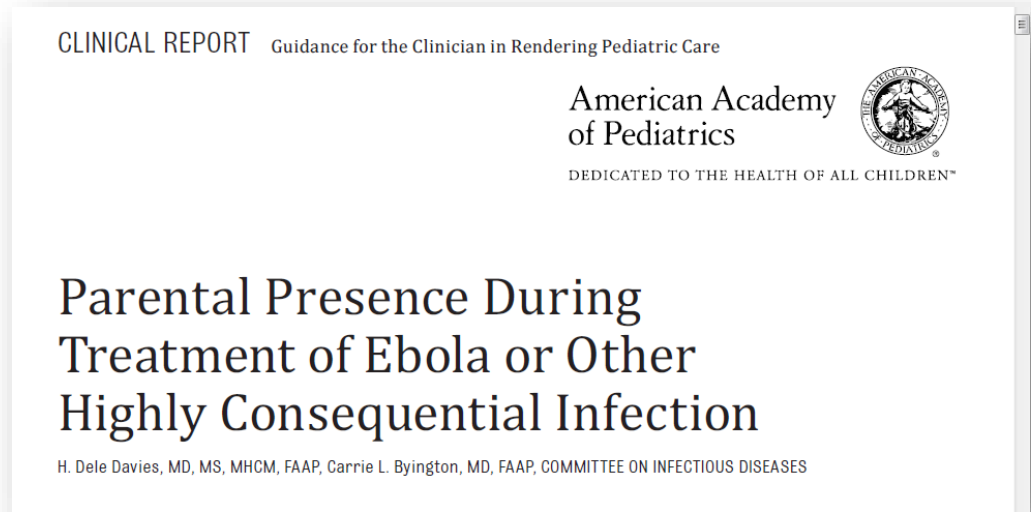
Children and HCID - Inform

- Inform = Public Health
- Transport of a child with concern for HCID is a major process
- Needs careful orchestration with receiving hospital



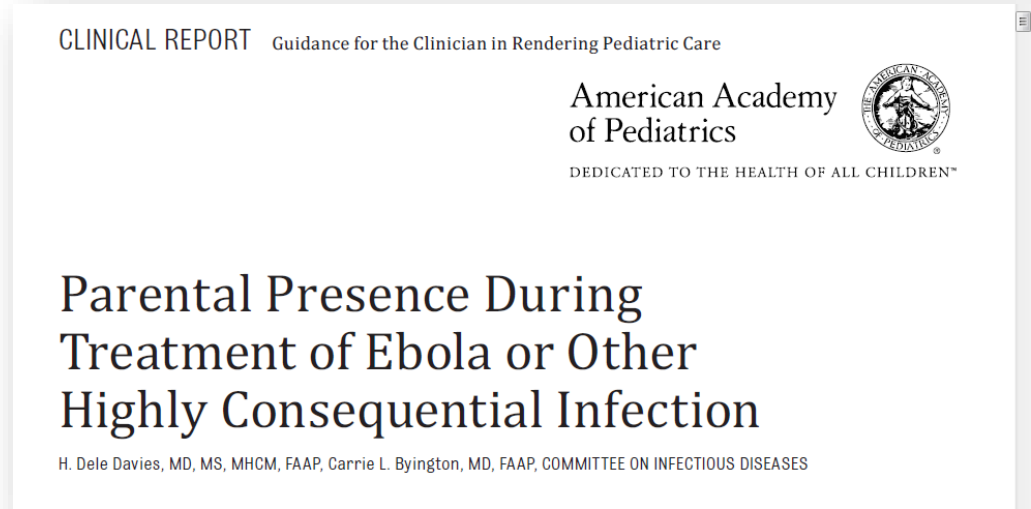
Isolation of the PUI or confirmed case

- Pediatrics is different
- Ongoing discussion and debate in pediatrics
- 2016 AAP: 3 options



Isolation of the PUI or confirmed case

- 1. Parent available by video
- 2. Parent demonstrates ability to don and doff safely can be at bedside
- 3. Combo of 1 & 2



2019 NETEC Pediatric Workgroup

PERSPECTIVES ON THE MANAGEMENT OF CHILDREN IN A BIOCONTAINMENT UNIT: REPORT OF THE NETEC PEDIATRIC WORKGROUP

Theodore J. Cieslak, Laura Evans, Mark G. Kortepeter, Amanda Grindle, Lemuel Aigbivbalu, Kate Boulter, Ryan W. Carroll, Sylvia Cumplido, Alison G. Danforth, Cecilia Fry, James Gaensbauer, Janet R. Hume, Amyna Husain, Arlene Kelleher, Christopher J. Kratochvil, Claudia Kunrath, Jill S. Morgan, Michelle M. Schwedhelm, Andi L. Shane, Patricia Tennill, Phoebe H. Yager, and H. Dele Davies

- “Many of our working group members agreed that the risk posed by the presence of a parent in the room of a child with EVD outweighed the very real benefits”

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- Extended this to other severe viral hemorrhagic fevers
- Ongoing discussion about airborne diseases of high consequence (SARS, MERS)

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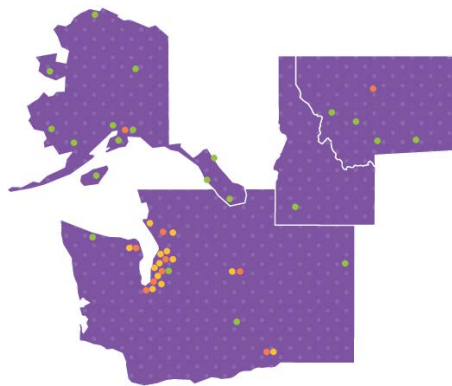
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Parental Presence

- Complex issue that will continue to evolve
- The addition of a vaccination – does that change the risk calculus?
- This will never be an easy discussion. Our experience with measles demonstrated some of these difficulties

Seattle Children's by the numbers

- 407 licensed beds
- 105,899 patient days
- 33,618 admissions
- 16,084 surgeries
- 99,931 ED and UC visits
- 361,754 ambulatory visits



11 Regional Clinics
from Olympia to the Seattle
area to Wenatchee



21 Outreach Sites
and Clinics
in Washington, Alaska, Idaho,
and Montana



14 Affiliates/Partners
from the Seattle area to Alaska

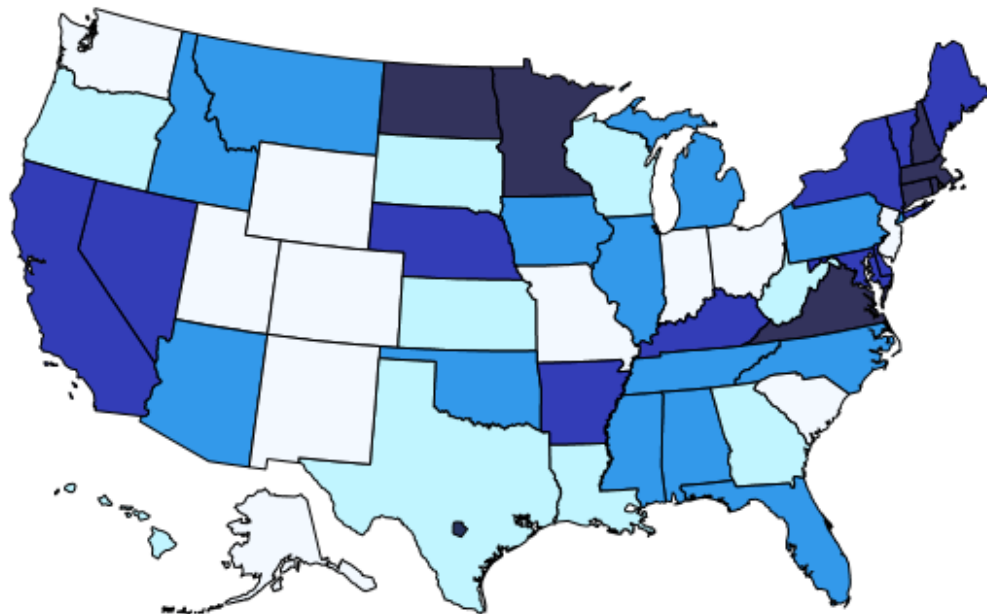
Seattle Children's - Special Pathogen's

- State designated Ebola Assessment and Treatment Center
- Special Pathogens Team
- Manage evaluation of patients with suspected Ebola, Mers-CoV, and Measles

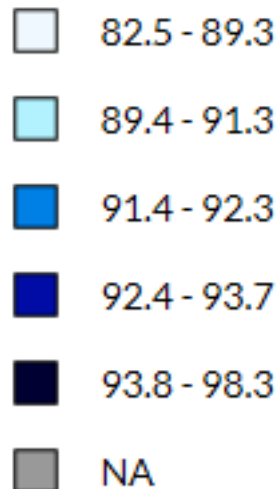


Washington at risk...

Currently Viewing: ≥ 1 dose MMR Vaccination >> Age >> 19-35 Months >> Coverage for 2017



Legend (%)



Hot off the press

The New York Times

Measles Makes Your Immune System's Memory Forget Defenses Against Other Illnesses

New research shows the virus can have devastating effects on the immune system that persist much longer than the illness itself.

Being prepared...

- Automated page to IP pager when measles testing is ordered
- Daily notifications listing any patient that was placed in Airborne Precautions in the previous 24 hours

[REDACTED] 18 y [REDACTED]		Isolation type	Airborne respirator "Blue Sign"	09/12 16:10
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- Continued work with our Special Pathogens Program
 - Standard work documents
 - Role and task delineation

Interesting Spring

April/May

- Vancouver WA Measles outbreak
 - No cases diagnosed at SCH
- Increased awareness at SCH
 - Entrances with sandwich signs
 - Measles based questions as part of screening by registration
 - Report out at DSB to maintain situational awareness

Outbreak ended Mid- May.

We were lucky

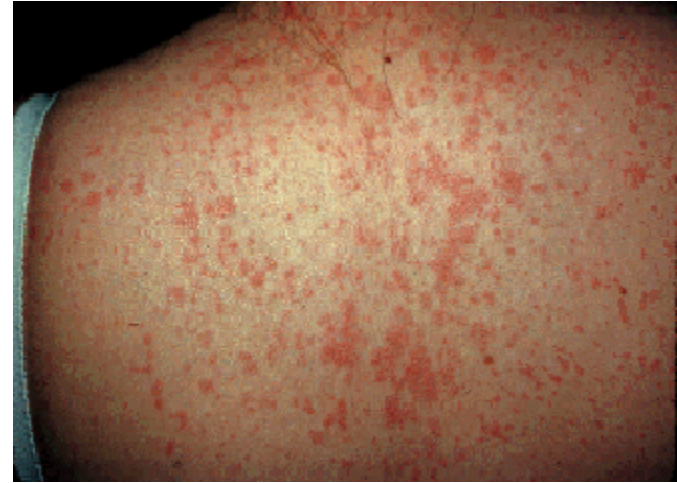


And then came June

- Adolescent patient well known to SCH
 - Chronic nephrology patient; immune compromised; not fully vaccinated d/t diagnosis and immune status
 - 3 presentations to Seattle Children's Emergency Department
 - 6/25 no measles symptoms
 - 6/26 fever, placed in appropriate isolation but discontinued as providers felt symptoms did not meet criteria for concern
 - 6/28 fever, descending rash, determined to be patient under investigation for measles.

Rapid Measles Reminder

- HIGHLY CONTAGIOUS – 90% attack rate
- Aerosolized with broad distribution
- Room is considered infectious for 2 hours post occupancy



Here is the path our patient took

LOBBY

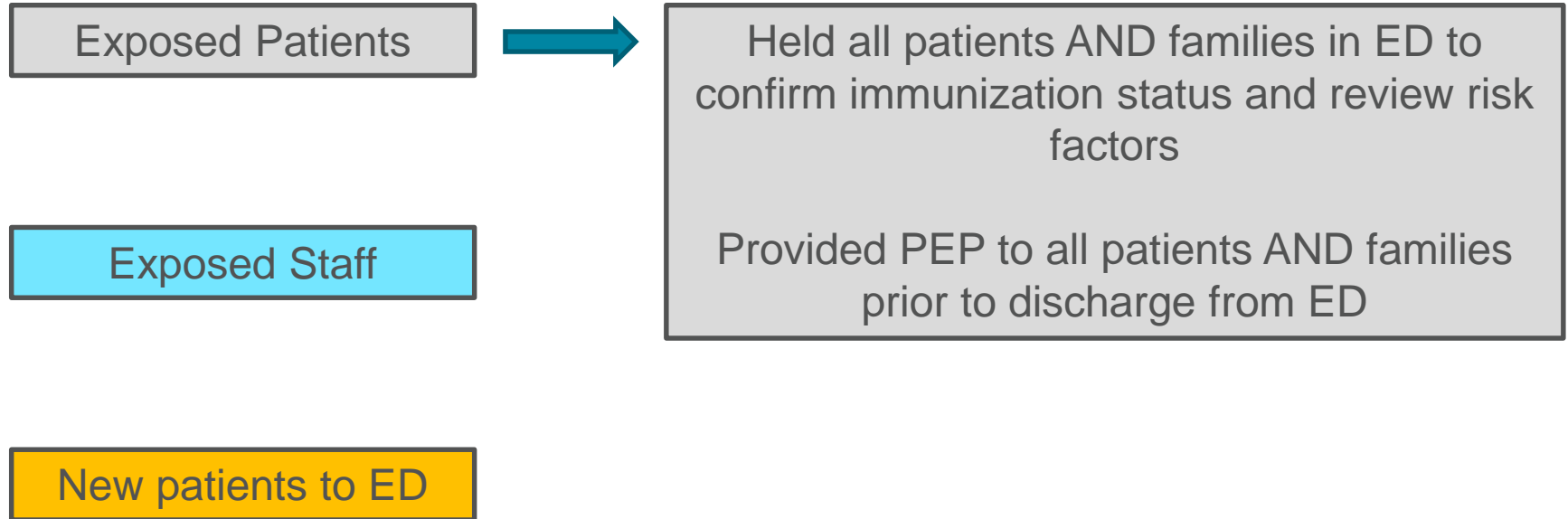


All negative
pressure
rooms

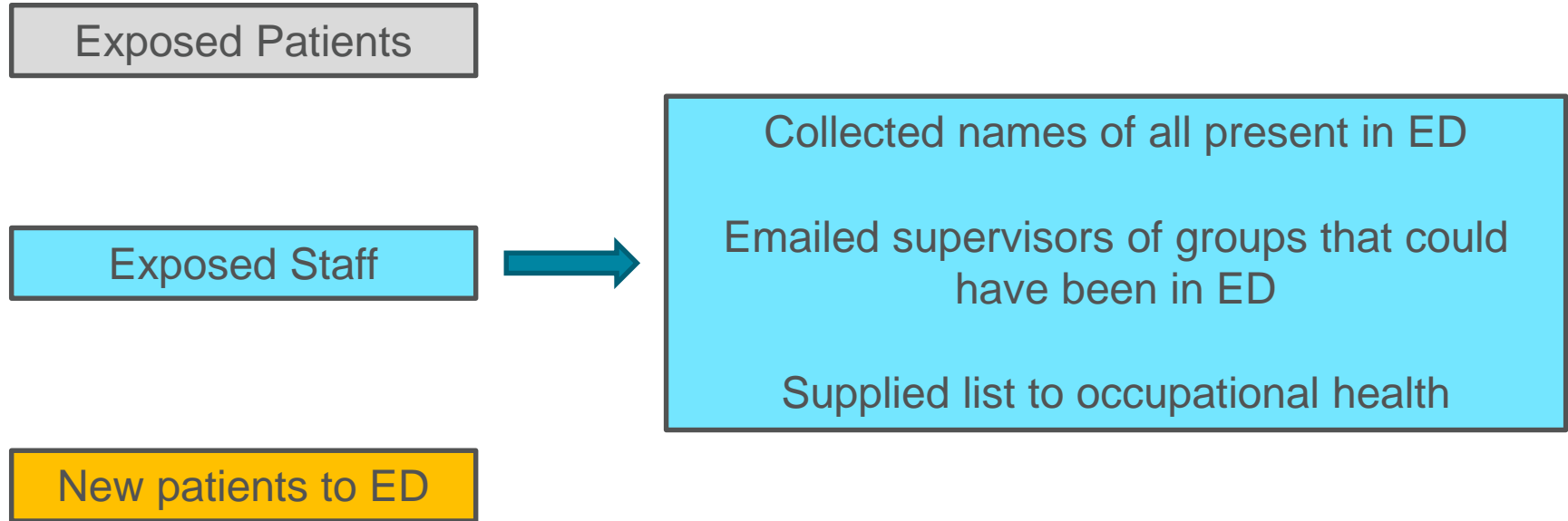
Immediate response

- Upon determination of PUI :
 - ED incident declared
 - Called EOC (open for OR incident)
 - Emergency Management and Infection Prevention reported to the ED
 - Infectious Disease Physician paged to ED

Immediate Response – 3 main groups



Immediate Response – 3 main groups



Immediate Response – 3 main groups

Exposed Patients

Exposed Staff

New patients to ED



Closed Lobby

Opened alternate Lobby/Triage space

Held patients there until main ED space
clear

Had one code that was brought to
resuscitation with mask

Other immediate tasks

- Manned all entrances to take names and keep new staff from entering
- Security video of lobby reviewed
- Post-exposure calls
- Needed talking points for families in ED and those who were sent home
- Staff education – little understanding of exposure vs infectious

The aftermath

- We have one inpatient with measles
- We have many exposed patients either inpatient or needing follow up
- We have a race to get PEP to those that need it

Exposure

- Three exposure periods of patients, families, and staff
 - # of Patients Exposed: 60, 134, 50
- Following notification and flagging of charts clarification from PH
 - Anyone who received IV/IMIG required isolation through D28
- Now six exposure periods.....

How did we handle it?

- Incident Command Center
 - IP/ID as Expert Resource/Technical Expert
- Call Center - KEY
- Developing standard work
 - Improving scripts for families
 - JIT training for staff manning the call center
 - Communication to primary care providers to anyone we gave PEP to
 - Communication to our organization at large

- ED RN stationed outside with valet screening patients as they arrive
- Contracted with security company to man all entrances for screening
- Ambulatory process for exposed patients requiring isolation
- Process for immunity status for parents/caregivers of exposed patients

Issues

- Standard work not as robust as needed
- IP bandwidth
 - 2 hospital wide command centers open
- Two computer systems
 - EPIC Cerner
- Equity and Diversity group concerned r/t isolation practices
- A few patients with significant medical needs requiring access during isolation period

Joy of July

- Staff person diagnosed on July 15th
 - Worked on a surgical unit (SOT and cardiac)
 - Shifts on July 8,9,10
 - 7/11 woke with rash & fever
 - Went to Urgent Care
 - Tested
 - Due to multiple lab issues no results until 7/15

Difficulty of July Case

- Delay in diagnosis:
 - 7/11: PUI; testing sent:
 - 7/12: state lab notified NP swab not properly collected
 - 7/13: PH RN obtained testing and delivered to state lab
 - 7/15: confirmation results available
- We had an exposure of @50 patients on 2 units
 - Patient population high risk:
 - SOT transplant
 - Cardiac patients
 - NICU stepdown unit

PEP

- Increased concern r/t window for PEP
 - By date of concern we were at D 4 since first exposure
 - By date of confirmatory testing we were at D 7 since first exposure and D 5 from last exposure
- Decision to treat high risk patients with PEP prior to results of confirmatory testing
 - Most still inpatient

How did we handle it?

- Incident Command Center
 - IP/ID as Expert
Resource/Technical Expert
- Call Center
- Continued refinement of standard work
- Communications department involved due to media attention


 KING5.com

Seattle Children's nurse is 10th measles case in King County

A Seattle Children's nurse is the 10th case of measles in King County since the beginning of May. The nurse, a woman in her 20s, was exposed ...

Jul 15, 2019



 Seattle Times

10th confirmed measles case in Puget Sound outbreak, exposure at Seattle Children's

The child was at a Fred Meyer in Kent last week and at Seattle Children's twice this week before being diagnosed, according to Public Health.

Jun 28, 2019



- Continued with contracted security at all entrances
- Continued with RN at ED valet for screening
- Continued work r/t caregiver immunity
- Significant work with ambulatory department and period as many of these patients required care during their isolation period

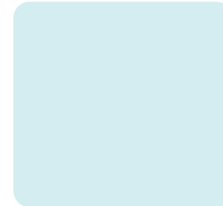
Discharge...A New Wrinkle

- Developed Discharge Measles Huddle
 - For anyone discharged while still in isolation
 - Occurs @ least 24 hours pre discharge
 - Checklist format
 - Contact PH about discharge
 - Validate with primary team the necessity of any return visits while still in isolation
 - Validate that family could abide by the process required for ambulatory visits
 - Meet and educate family and give educational sheet

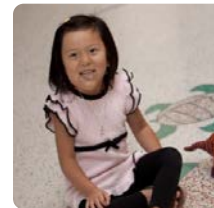
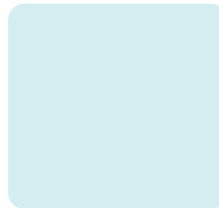
Issues

- All the previous issues continued...
- Facilities:
 - Found issue with All anteroom
- Resource of All rooms stretched
- State lab
 - Running tests M-F
 - No guarantee for same day result
- Timeline mismatches with PH

- Multiple patients requiring surgery which could not be postponed
- Significant issues related to the fact that this was a staff member
 - Multiple staff forums
 - Daily Central Broadcasts
 - Rounding
 - Staff Support Services engaged



Learnings and Work in Progress



Pediatric Specific Issues

- Caregivers do not want to leave
- Most exposure cases included caregivers and siblings
- Making determinations which affect flow and process:
 - Patient UTD but only having 1 MMR was isolated when at the hospital
 - Would we place exposed patients needing isolation in All rooms on high risk units (Cancer, ICU)

- High risk patient populations affected
 - Multiple, frequent follow ups
 - Multiple services covering one patient
- High volume of patients requiring IVIG and IMIG
- Care of children in prolonged isolation difficult

Incident Command Structure is a MUST!

HICS-excellent resource

- ❖ Brings attention at all levels to the depth of an exposure
- ❖ Allows experts to focus on their work

Our Special Pathogen Everbridge notification for measles admit works

- ❖ Eases the access to necessary partners:

Finance	Communications
Risk	Regulatory
Security	Data Analytics

We did not have a Special Pathogens Exposure Huddle developed-*we do now!*

Standard Work is KEY and must be available to all!



Home

Measles Emergency Operations Center

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Site Contents

Recycle Bin

6/22/2019	6/26/2019	7/8/2019	7/12/2019	7/15/2019					END DATES	
PATIENT 1 - SX	DIAGNOSED								7/13	7/20
		PATIENT 2 - SX	SUSPECTED	DIAGNOSED					7/31	8/7

Documents

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✓	Name	Modified	Modified By
	Incident Management - Measles	... July 29	Enriquez, Brianna
	Communications	... July 29	Enriquez, Brianna
	Finance	... July 18	Enriquez, Brianna
	Operations	... July 18	Enriquez, Brianna
	Logistics	... July 18	Enriquez, Brianna
	Minutes	... June 28	Randall, Christine
	Planning	... June 28	Smith, Petra

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Operations [3]

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✓	Name	Modified	Modified By
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Phone Numbers

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	ED Communications	... 206-987-8899
	Boots (Matt Kronman) - Infection Prevention	... 206-930-1334
	Tee Mirisola - Infection Prevention	... 207-671-9464
	Call Center	... 71061 9am-7pm
	Michael Stonerock SharePoint SME	... 253-632-8479
	Bri Enriquez - Emergency Management	... 206-491-8842
	Kate Lindsey - Emergency Management	... 2066192456

Scripts

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	Drafts	... July 29	Enriquez, Brianna
	Entrance and Security Scripts	... June 28	Pytte, Danica
	Patient Exposure Scripts	... June 28	Pytte, Danica

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