

2021 National Assessment of Pediatric Readiness of US EDs in the COVID-19 Pandemic

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2023 ALL-GRANTEE MEETING

CULTIVATING COMMUNITY GROWING COLLABORATION

ACKNOWLEDGEMENTS AND DISCLOSURES

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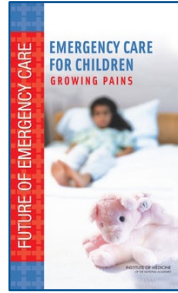
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#EMSC23



1. EMSC Performance Measures (2006, 2009)
2. Expand our team (ENA)
3. Educational resources
4. Enhance communication efforts



*If there were one word to describe the state of emergency care for children, it is **“uneven.”***



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Pediatric Preparedness of US Emergency Departments: A 2003 Survey
Marianne Gausche-Hill, MD^{1,2}, Charles Schmidt, MD^{3,4,5}, Roger J. Lewis, MD, PhD^{6,7}

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The authors have indicated their own financial relationships relevant to this article to disclose.

ABSTRACT

OBJECTIVE: Our goal was to assess the degree of pediatric preparedness of emergency departments in the United States.

METHODS: A closed-response survey based on the American Academy of Pediatrics/American College of Emergency Physicians joint policy statement, “Care of Children in the Emergency Department: Guidelines for Preparedness,” was mailed to 314 emergency department medical and nursing directors. A weighted preparedness score (scale of 0–100) was calculated for each emergency department.

RESULTS: A total of 1489 useable surveys (29%) were received, with 62% completed by emergency department medical directors. Eighty-nine percent of pediatric (age: 0–14 years) emergency department visits occur in non-child’s hospitals, 26% of visits occur in rural or remote facilities, and 73% of responding emergency departments see <7000 children per year. The vast majority of visits (93%) occur in emergency department areas shared with adult patients; 6% occur in a separate pediatric emergency department. Only 6% of emergency departments had all recommended equipment and supplies. Emergency departments frequently lacked laryngeal mask airways for children (50%) and neonatal or infant equipment. In contrast, recommended medications were more uniformly available, as were transfer policies for medical or surgical intensive care. Fifty-two percent of emergency departments reported having a quality improvement/performance improvement plan for pediatric emergency patients, and 53% of respondents were aware of the American Academy of Pediatrics/American College of Emergency Physicians guidelines. The median pediatric-preparedness score for all emergency departments was 55. Pediatric-preparedness scores were higher for facilities with higher pediatric volume, facilities with physician and nursing coordinators for pediatrics, and facilities with respondents who reported awareness of the guidelines.

CONCLUSION: Pediatric preparedness of hospital emergency departments demonstrates opportunities for improvement.

2001: Joint Policy Statement “Care of Children in the Emergency Department: Guidelines for Preparedness” (AAP, ACEP)
2003: Baseline assessment based on 2001 Joint Policy Statement

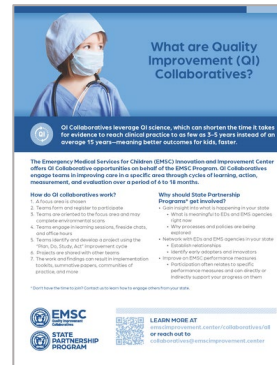


#EMSC



1. EMSC Performance Measures Revised (2017)
2. QI collaboratives
3. Toolkits and reference guides
4. Expanding evidence
5. Enhanced communications
6. Education Kits

Pediatric Readiness in the Emergency Department	
<p>Administration and Coordination of the ED for the Care of Children</p> <ul style="list-style-type: none"> 1. The ED is staffed for Pediatric Emergency Care (PEC) 24/7. 2. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 3. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. <p>Medical, Advanced Practice Provider (APP), Nursing, and Other ED Department Services</p> <ul style="list-style-type: none"> 1. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 2. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 3. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. <p>Conditions for EDs to the ED</p> <ul style="list-style-type: none"> 1. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 2. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 3. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 	<p>ED Policies, Procedures, and Protocols</p> <ul style="list-style-type: none"> 1. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 2. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 3. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. <p>EMSC (Emergency Medical Services) Preparedness</p> <ul style="list-style-type: none"> 1. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 2. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7. 3. The ED is staffed with pediatric-trained personnel to provide Pediatric Emergency Care (PEC) 24/7.



What are Quality Improvement (QI) Collaboratives?

QI Collaboratives leverage QI science, which can shorten the time it takes for evidence to reach clinical practice by as little as 5-6 years instead of an average 15-year timeline. Better outcomes for kids, faster.

The Emergency Medical Services for Children (EMSC) Innovation and Improvement Center offers QI Collaborative opportunities on behalf of the EMSC Program. QI Collaboratives engage teams in improving care in a specific area through cycles of learning, action, measurement, and evaluation over a period of 6 to 18 months.

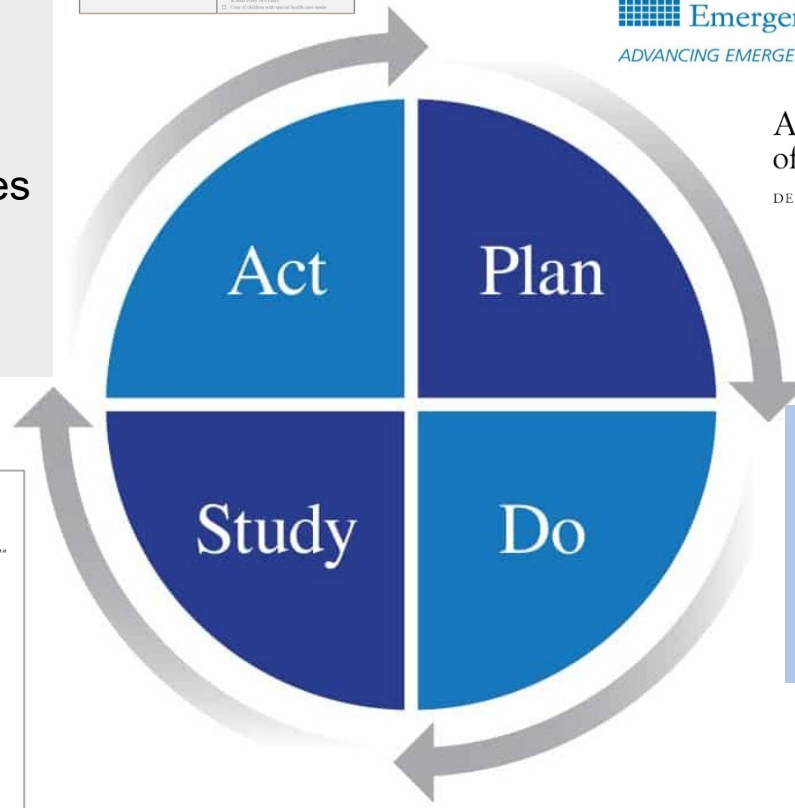
How do QI collaboratives work?

1. Define a problem.
2. Develop a plan.
3. Implement the plan.
4. Measure the results.
5. Analyze the results.
6. Report the results.
7. Celebrate the success.
8. Disseminate the results.
9. Evaluate the process.
10. Repeat the cycle.

Why should State Partnership Programs get involved?

- Can improve the state's response to pediatric emergencies.
- Can improve the state's response to pediatric emergencies.
- Can improve the state's response to pediatric emergencies.

LEARN MORE AT
www.emsc.gov




American College of Emergency Physicians
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American Academy of Pediatrics
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EMERGENCY NURSES ASSOCIATION
SAFE PRACTICE, SAFE CARE

2009: Joint Policy Statement
2012: "National Pediatric Readiness Project" formalized
2013: Re-Assessment based on 2009 Joint Policy Statement (AAP, ACEP, ENA)

A National Assessment of Pediatric Readiness of Emergency Departments

OBJECTIVES: To assess US EDs for pediatric readiness based on compliance with the 2009 guideline for care of children in EDs. To evaluate the effect of physician-led pediatric emergency care coordination (PECC) on pediatric readiness, and to identify gaps for future quality improvement by individual centers.

DESIGN, SETTING, AND PARTICIPANTS: Web-based assessment of US EDs (excluding specialty hospitals and hospitals without an ED) from 2009 to 2011. Data were analyzed for pediatric readiness from September 12, 2011, through August 20, 2013. Data were analyzed from September 12, 2011, through January 11, 2016.

MEASUREMENTS AND MAIN RESULTS: A modified Delphi process generated a PECC. An adjusted PECC score was calculated excluding two points received for the presence of physician and PECC.

CONCLUSIONS AND RELEVANCE: These data demonstrate improvement in pediatric readiness of EDs compared with previous reports. The physician and nurse PECC play an important role in pediatric readiness of EDs, and that presence is associated with improved compliance with published guidelines. Efforts to implement or improve guidelines may be targeted for future studies by individual centers to ensure they are able to provide care to all children.

Author Affiliations: Author affiliations are listed at the end of this article.

Competing Interests: None reported.

Section Editors: Michael J. Brennan, MD, MPH, American Academy of Pediatrics; David G. Asch, MD, MPH, American College of Emergency Physicians; Nancy A. Minicopio, MD, MPH, American College of Emergency Physicians; and David G. Asch, MD, MPH, American College of Emergency Physicians.

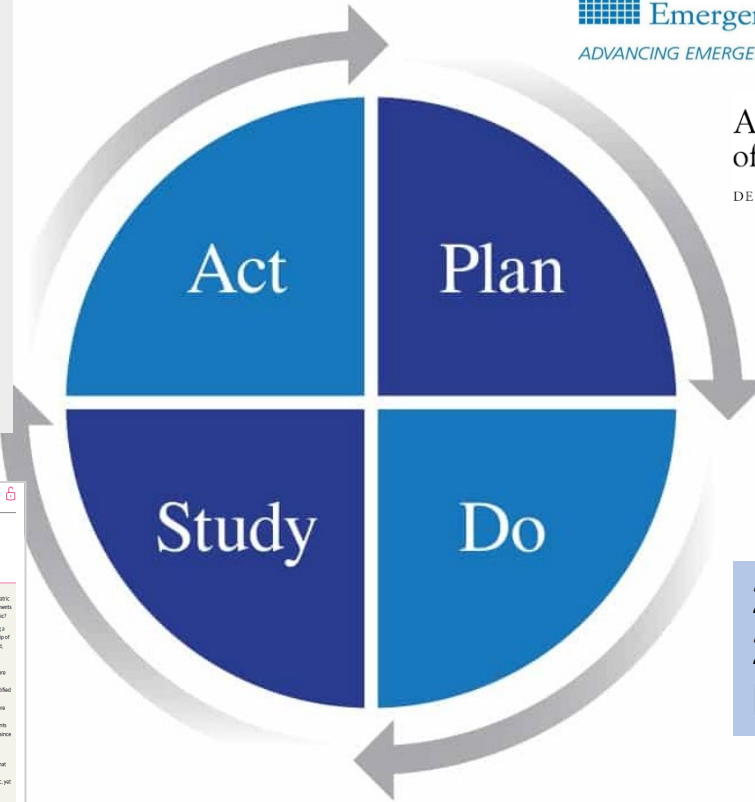
Published Online: April 1, 2016.



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1. EMSC Performance Measures Revised (2023)
2. Expand our team (PPN, ACS-COT)
3. Expanding evidence
4. Leverage new technologies
5. QI collaboratives
6. New policies (ACS trauma centers)
7. ... New Regulations?



THE COMMITTEE ON TRAUMA

2018: Joint Policy Statement
 2021: Re-Assessment based on 2018 Joint Policy Statement (AAP, ACEP, ENA)

JAMA Network | Open

Original Investigation | Pediatrics
 National Assessment of Pediatric Readiness of US Emergency Departments During the COVID-19 Pandemic

Abstract
IMPORTANCE: The National Pediatric Readiness Project assessment provides a comprehensive evaluation of the readiness of US emergency departments (EDs) to care for children. Increased pediatric readiness has been shown to improve survival for children with critical illness and injury.

OBJECTIVES: To compare a third assessment of pediatric readiness of US EDs during the COVID-19 pandemic, to examine changes in pediatric readiness from 2018 to 2021, and to evaluate factors associated with current pediatric readiness.

DESIGN, SETTING, AND PARTICIPANTS: In this survey study, a 52-question web-based survey assessment of ED readiness in 15 hospitals (including EDs not open to general public) was sent via email. Data were collected from May to August 2021.

MAIN RESULTS AND MEASURES: Weighted pediatric readiness scores (PRRS) (range, 0-100, with higher scores indicating higher readiness, adjusted PRRS) for nontrauma EDs (n=10) and trauma EDs (n=5) were calculated including points received for presence of a pediatric emergency care coordinator (PECC) and quality improvement (QI) plan.

RESULTS: Of the 15 ED assessments sent to ED leadership, 1647 (70.8%) responded, representing 147 million annual pediatric ED visits. A total of 2027 responses (92.3%) contained all desired items and were included in the analysis. The majority of EDs (2495 [81.4%]) treated fewer than 10 children per day. The median (IQR) PRRS was 65 (55-84.5). Comparing current data elements from the 2018 and 2021 PRRP assessment, demonstrated a reduction in median PRRS (72) to 70.5, yet improvements across all domains of readiness were noted except in the administration and coordination domain (ie, PECCs), which significantly decreased. The presence of both PECCs was associated with higher adjusted median (IQR) PRRS (93.2 [84.1-94.4]) compared with no PECC (74.2 [66.2-81.2]) across all pediatric volume categories (P<.005). Other factors associated with higher pediatric readiness included a full pediatric QI plan (vs no plan [adjusted median (IQR) PRRS: 88.2 (84.9-91.6) vs 65.1 (57.7-81.4), P<.001) and staffing with board-certified emergency medicine and/or pediatric emergency medicine physicians vs none (median (IQR) PRRS: 71.5 (63.0-85.5) vs 62.0 (54.7-70.4), P<.001).

CONCLUSIONS AND RELEVANCE: These data demonstrate improvements in key domains of pediatric readiness despite losses in the health care workforce, including PECCs, during the COVID-19 pandemic, and suggest organizational changes in EDs to maintain pediatric readiness.

JAMA Network Open. 2022;5(7):e220707. doi:10.1001/jamanetworkopen.2022.0707



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Original Investigation | Pediatrics

National Assessment of Pediatric Readiness of US Emergency Departments During the COVID-19 Pandemic

Katherine E. Remick, MD; Hilary A. Hewes, MD; Michael Ely, MHRM; Patricia Schmuhl, BA; Rachel Crady, MS; Lawrence J. Cook, MStat, PhD; Lorah Ludwig, MA; Marianne Gausche-Hill, MD

Abstract

IMPORTANCE The National Pediatric Readiness Project assessment provides a comprehensive evaluation of the readiness of US emergency departments (EDs) to care for children. Increased pediatric readiness has been shown to improve survival for children with critical illness and injury.

OBJECTIVES To complete a third assessment of pediatric readiness of US EDs during the COVID-19 pandemic, to examine changes in pediatric readiness from 2013 to 2021, and to evaluate factors associated with current pediatric readiness.

DESIGN, SETTING, AND PARTICIPANTS In this survey study, a 92-question web-based open assessment of ED leadership in US hospitals (excluding EDs not open 24 h/d and 7 d/wk) was sent via email. Data were collected from May to August 2021.

MAIN OUTCOMES AND MEASURES Weighted pediatric readiness score (WPRS) (range, 0-100, with higher scores indicating higher readiness); adjusted WPRS (ie, normalized to 100 points), calculated excluding points received for presence of a pediatric emergency care coordinator (PECC) and quality improvement (QI) plan.

RESULTS Of the 5150 assessments sent to ED leadership, 3647 (70.8%) responded, representing 14.1 million annual pediatric ED visits. A total of 3557 responses (97.5%) contained all scored items and were included in the analysis. The majority of EDs (2895 [81.4%]) treated fewer than 10 children per day. The median (IQR) WPRS was 69.5 (59.0-84.0). Comparing common data elements from the 2013 and 2021 NPRP assessments demonstrated a reduction in median WPRS (72.1 vs 70.5), yet improvements across all domains of readiness were noted except in the administration and coordination domain (ie, PECCs), which significantly decreased. The presence of both PECCs was associated with a higher adjusted median (IQR) WPRS (90.5 [81.4-96.4]) compared with no PECC (74.2 [66.2-82.5]) across all pediatric volume categories ($P < .001$). Other factors associated with higher pediatric readiness included a full pediatric QI plan vs no plan (adjusted median [IQR] WPRS: 89.8 [76.9-96.7] vs 65.1 [57.7-72.8]; $P < .001$) and staffing with board-certified emergency medicine and/or pediatric emergency medicine physicians vs none (median [IQR] WPRS: 71.5 [61.0-85.1] vs 62.0 [54.3-76.0]; $P < .001$).

CONCLUSIONS AND RELEVANCE These data demonstrate improvements in key domains of pediatric readiness despite losses in the health care workforce, including PECCs, during the COVID-19 pandemic, and suggest organizational changes in EDs to maintain pediatric readiness.

JAMA Network Open. 2023;6(7):e2321707. doi:10.1001/jamanetworkopen.2023.21707

Key Points

Question What is the state of pediatric readiness in US emergency departments (EDs) during the COVID-19 pandemic?

Findings In this survey study using a web-based assessment of leadership of 5150 EDs, 3647 (70.8%) responded, with a median weighted pediatric readiness score of 69.5 of 100. The presence of pediatric emergency care coordinators (PECCs), quality improvement plans, and board-certified emergency medicine or pediatric emergency medicine physicians were associated with better pediatric readiness; additionally, improvements have occurred in multiple domains since 2013 despite a reduction in the proportion of PECCs.

Meaning These findings suggest that pediatric readiness of US EDs was affected by the COVID-19 pandemic, yet engagement in these efforts remains strong.

+ Supplemental content

Author affiliations and article information are listed at the end of this article.



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Spoiler Alert: Key Highlights from 2021 Assessment

Engagement in
pediatric readiness
remains high

Emergency care for
children in the US
remains “uneven”

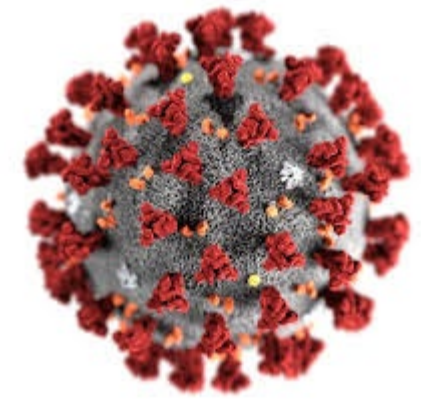
Until pediatric
readiness becomes
policy, PECCs and QI
remain the best drivers
of pediatric emergency
care transformation

Pediatric readiness is
the roadmap to
equitable care for the
pediatric population

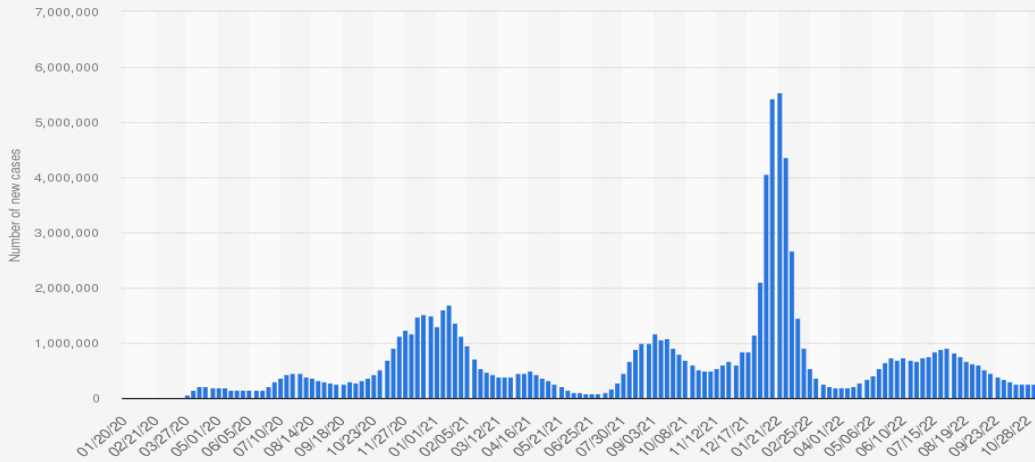


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Timing is Everything...



Number of new cases of coronavirus (COVID-19) in the United States from January 20, 2020 to November 11, 2022, by week



Source
WHO
© Statista 2022

Additional Information:
United States; January 20, 2020 to November 11, 2022

TIMELINE

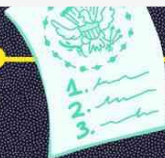
FEBRUARY 26TH, 2020:
CDC CONFIRMS A CASE
IN CA, MARKED AS THE
FIRST DOCUMENTATION
OF COMMUNITY SPREAD



FEBRUARY 6TH, 2020:
FIRST DOCUMENTED
CORONAVIRUS-
RELATED DEATH IN THE U.S.

STAY AT HOME ORDERS

APRIL 16TH, 2020:
WHITEHOUSE SHARES A THREE-PHASE
PLAN FOR REOPENING THE U.S. ECONOMY

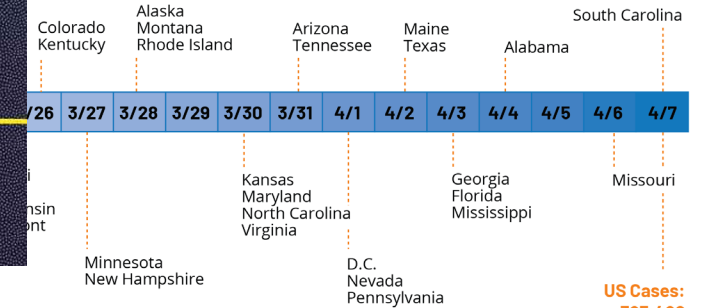


MAY 1ST, 2020:
SOME STATES BEGIN
PROCESS OF REOPENING



US Cases:
9,197

Louisiana
Ohio
Oregon
Washington



US Cases:
395,480



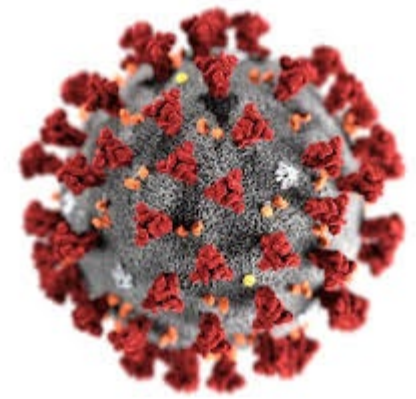
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<https://www.verywellhealth.com/coronavirus-covid-19-timeline-4798671>

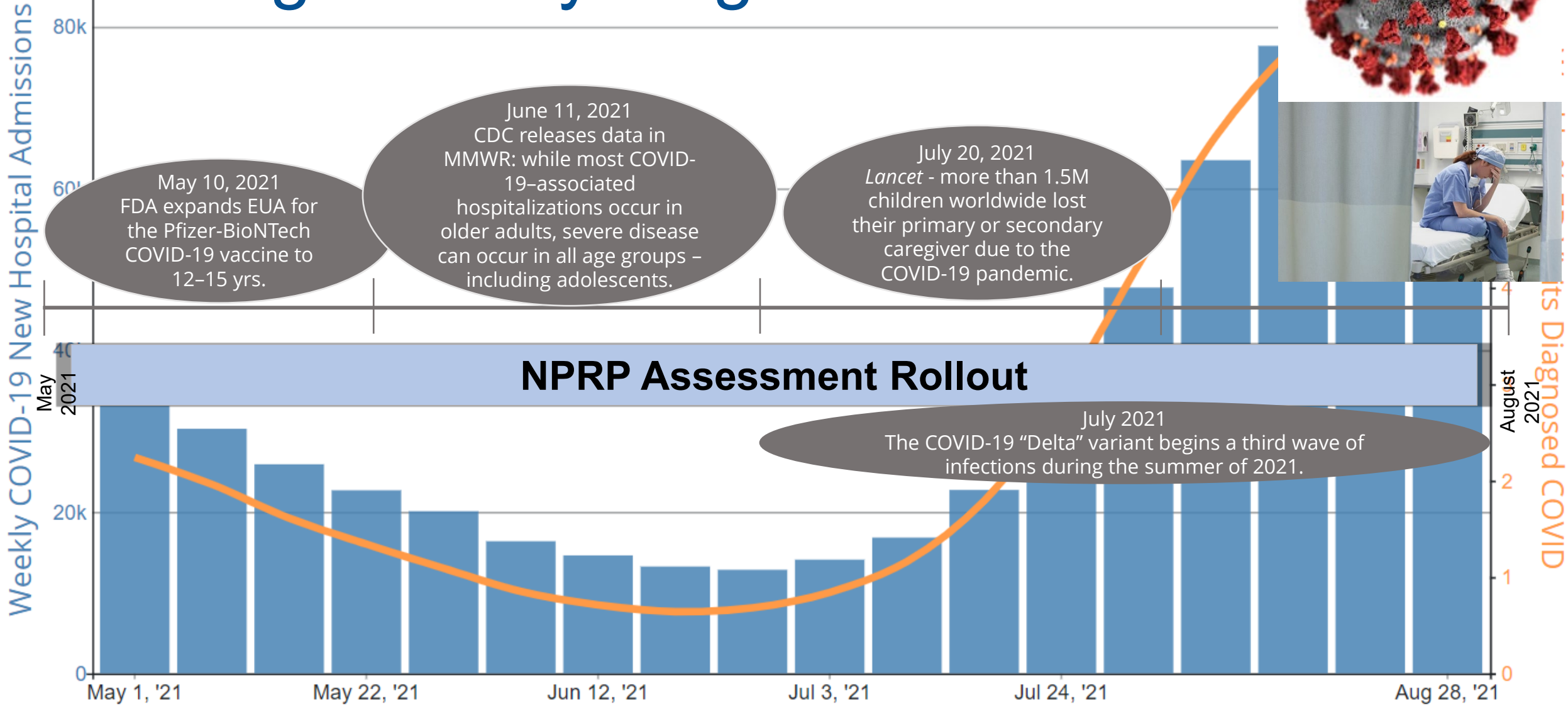
SOURCE: KFF, State Data and Policy Actions to Address Coronavirus, <https://www.kff.org/health-costs/issue-brief/state-data-and-policy-actions-to-address-coronavirus/#note-3-10> and state government websites.



COVID-19 New Hospital Admissions and Percentage of Emergency Department (ED) Visits Diagnosed in The United States, Reported to CDC



Timing is Everything...



its Diagnosed COVID

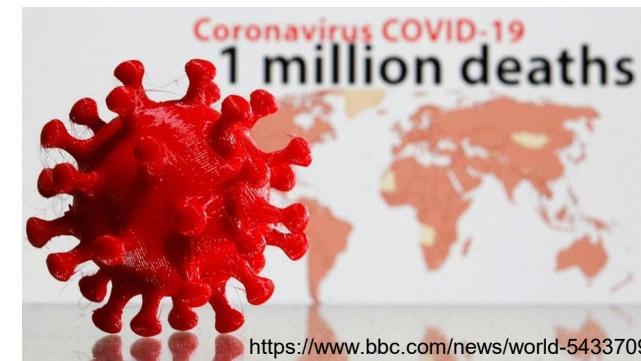
The COVID Pandemic

- Healthcare workforce stressed, overworked, and ready to leave...
50% reported burnout

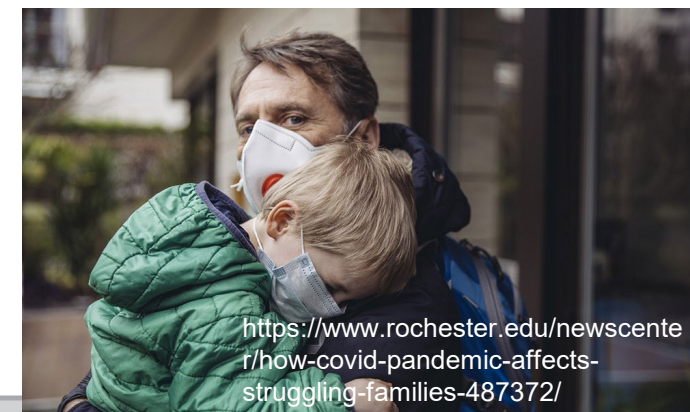
Rotenstein, et al. J Gen Intern Med. 2023 Jun.



<https://www.scientificamerican.com/article/how-the-u-s-pandemic-response-went-wrong-and-what-went-right-during-a-year-of-covid/>



<https://www.bbc.com/news/world-54337098>



<https://www.rochester.edu/newscenter/how-covid-pandemic-affects-struggling-families-487372/>



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Impact of COVID on Healthcare Workforce



As Hospitals Lose Revenue, More Than A Million Health Care Workers Lose Jobs

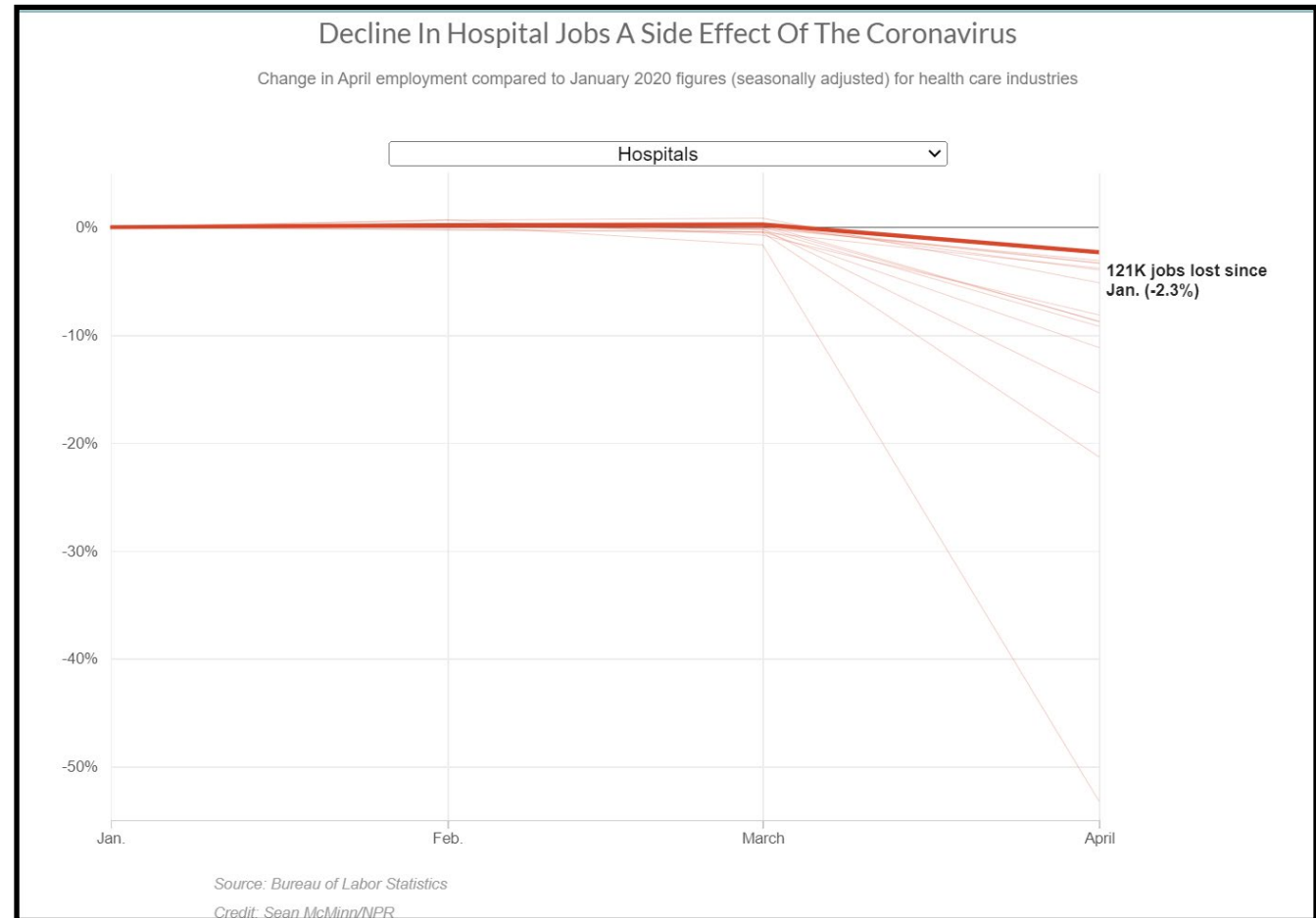
May 8, 2020 · 5:04 AM ET

Heard on Morning Edition

By Leila Fadel, Will Stone, Meg Anderson, Robert Benincasa



Chip Somodevilla/Getty Images



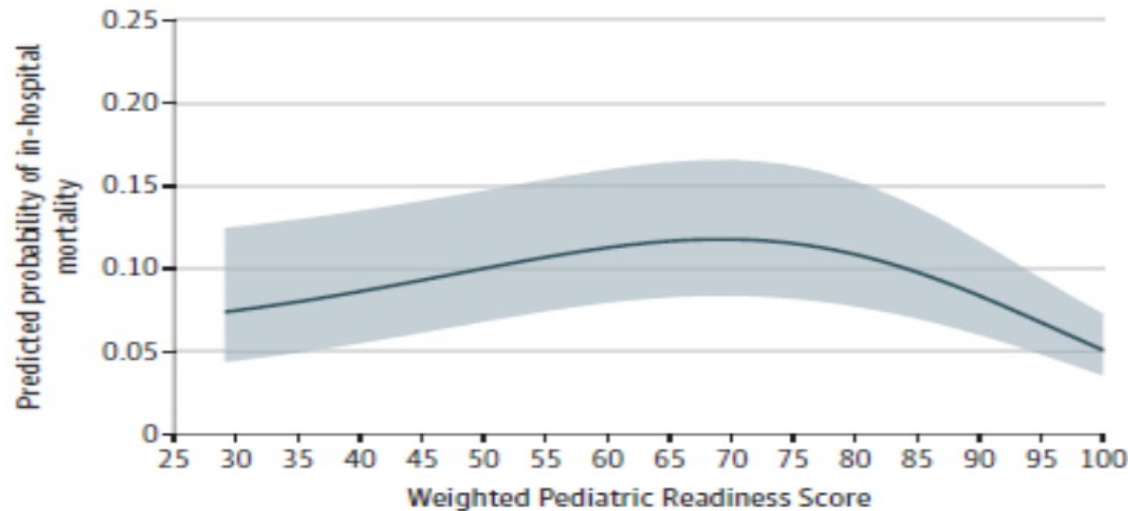
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Evaluation of Emergency Department Pediatric Readiness and Outcomes Among US Trauma Centers

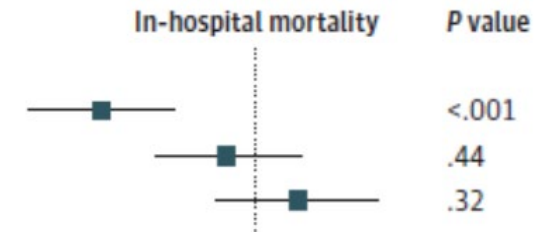
Craig D. Newgard, MD, MPH; Amber Lin, MS; Lenora M. Olson, PhD; Jennifer N. B. Cook, GCPH; Marianne Gausche-Hill, MD; Nathan Kuppermann, MD, MPH; Jeremy D. Goldhaber-Fiebert, PhD; Susan Malveau, MS; McKenna Smith, BS; Mengtao Dai, MS; Avery B. Nathens, MD, PhD; Nina E. Glass, MD; Peter C. Jenkins, MD, MSc; K. John McConnell, PhD; Katherine E. Remick, MD; Hilary Hewes, MD; N. Clay Mann, PhD, MS; for the Pediatric Readiness Study Group

Published June 7, 2021

If high pediatric readiness (wPRS>93), risk of death decreased by nearly 50%



Variable	OR (95% CI)
All patients (n = 372 004)	
4th Quartile	0.58 (0.45-0.75)
3rd Quartile	0.90 (0.70-1.17)
2nd Quartile	1.16 (0.87-1.54)



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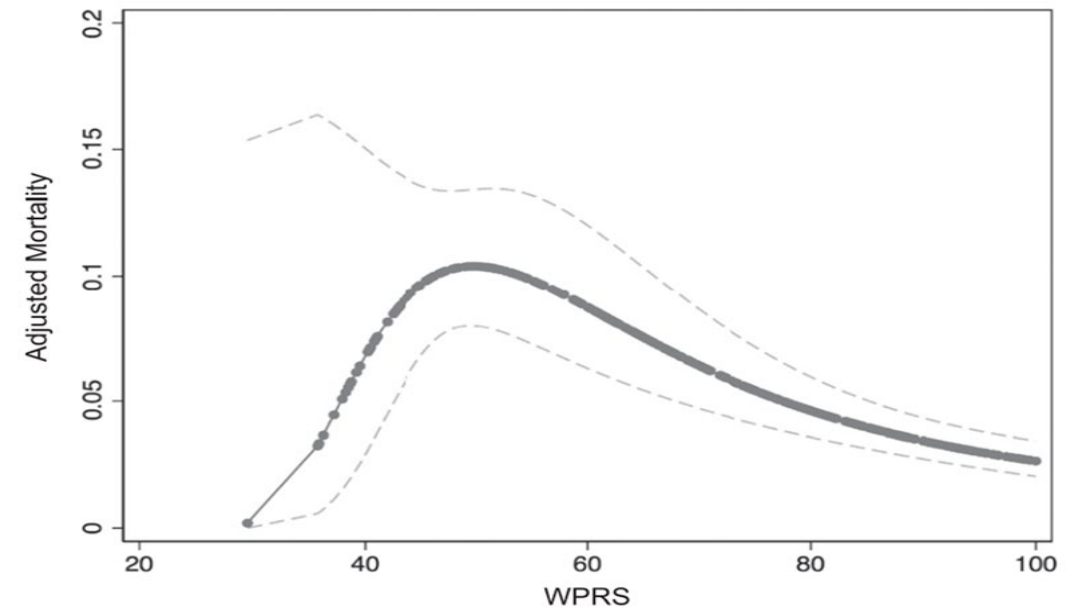
Pediatric Readiness Saves Lives

Emergency Department Pediatric Readiness and Mortality in Critically Ill Children

Stefanie G. Ames, MD, MS,^a Billie S. Davis, PhD,^e Jennifer R. Marin, MD, MSc,^{c,d} Ericka L. Fink, MD, MS,^{c,e}
Lenora M. Olson, PhD, MA,^g Marianne Gausche-Hill, MD,^{e,h,j} Jeremy M. Kahn, MD, MS^{e,f}

- 1/4 mortality rate of critically ill children at pediatric ready EDs

Pediatric Readiness Score	Quartile 1 30-59	Quartile 2 60-74	Quartile 3 75-88	Quartile 4 89-100
Adjusted Odds Ratio (In-hospital Mortality)	----	0.52 (0.3-0.9)	0.36 (0.2-0.6)	0.25 (0.2-0.4)

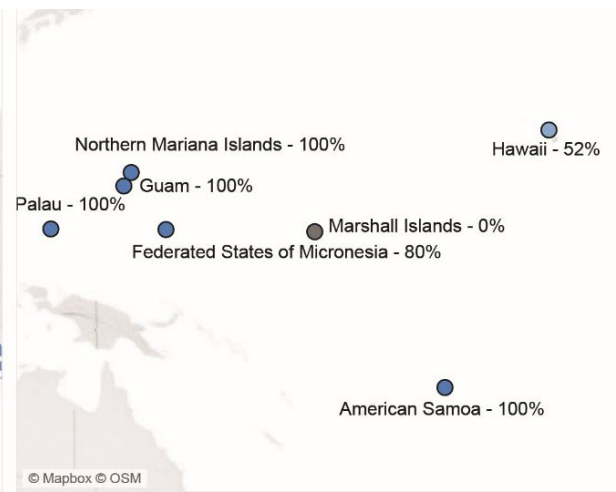
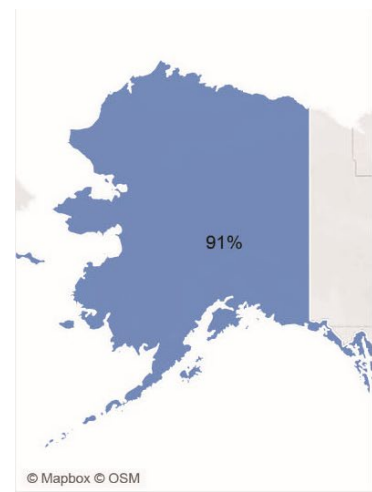
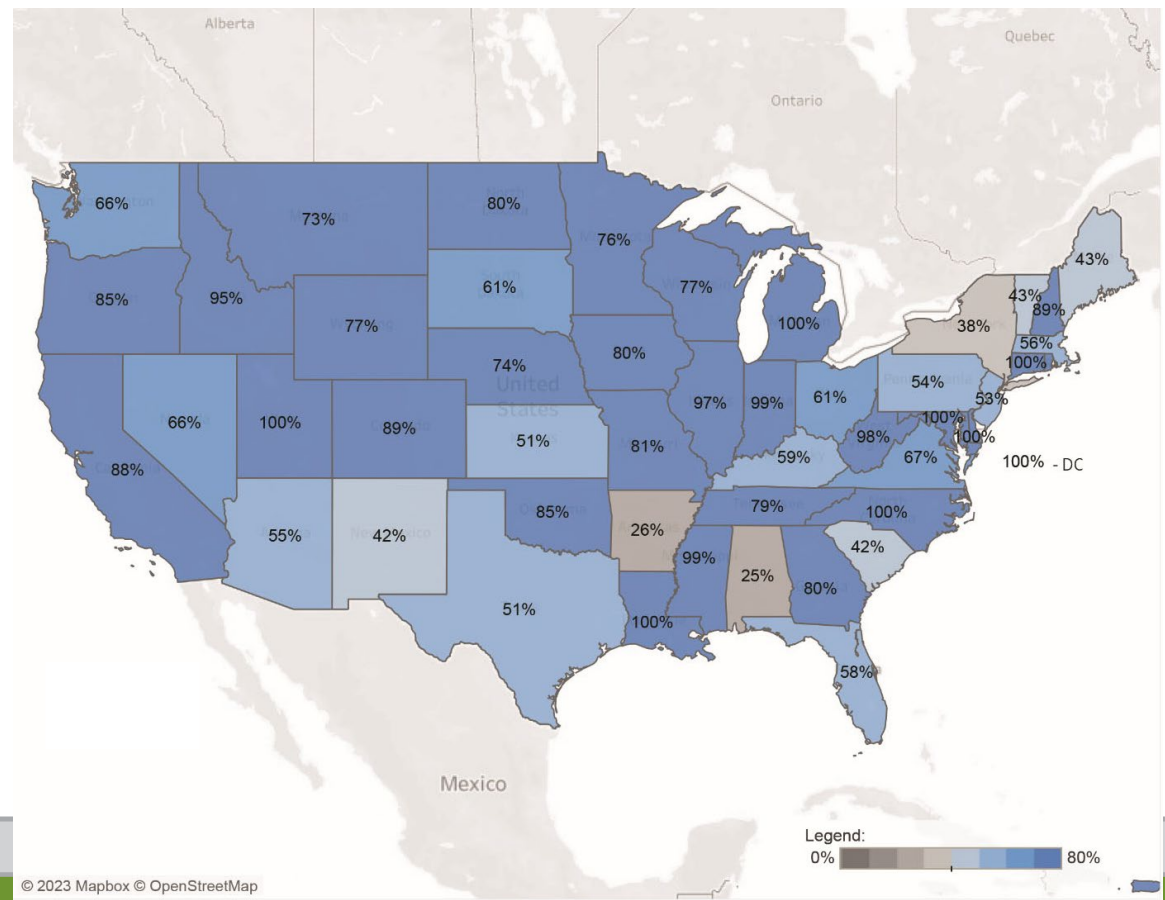


National Assessment of Pediatric Readiness of US Emergency Departments During the COVID-19 Pandemic

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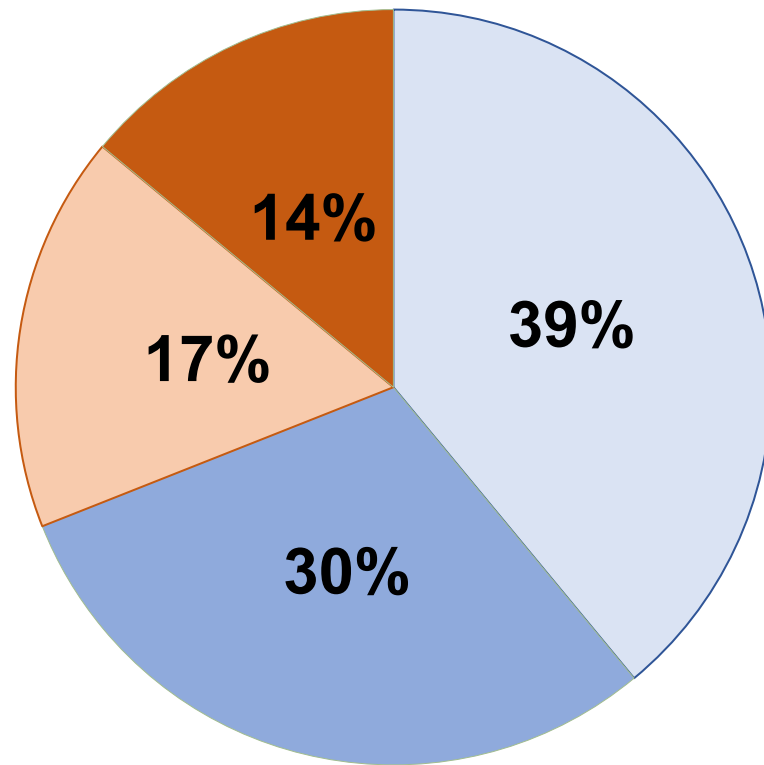


Response Rate: 70.8% (N=3,647)

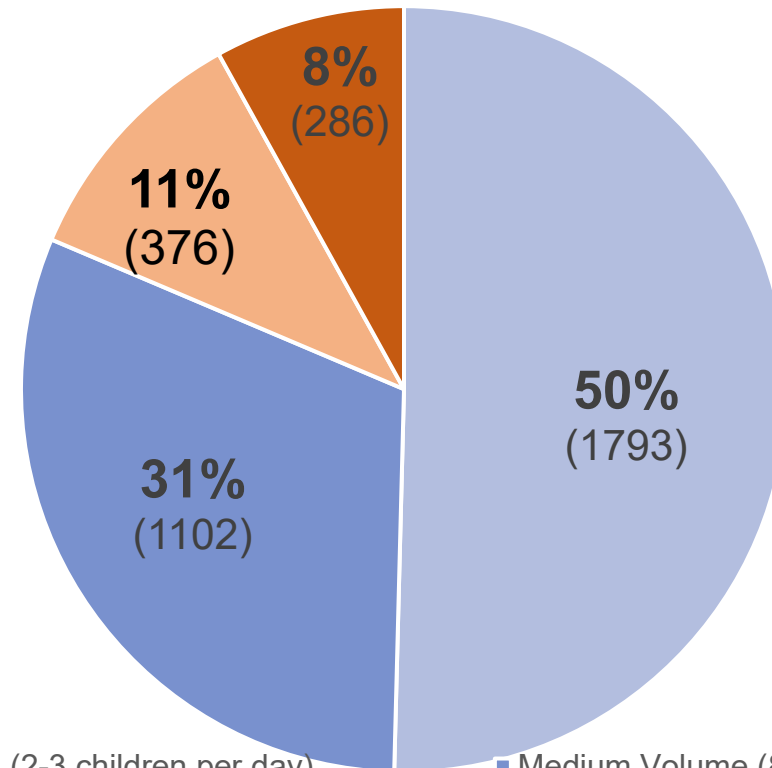


2013 vs 2021 ED Volume Categories

2013



2021



- Low Volume (2-3 children per day)
- Medium Volume (8-9 children per day)
- Medium High Volume (18-19 children per day)
- High Volume (>63 children per day)



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2013 vs 2021: Healthcare Landscape

- Slight decrease in rural and remote EDs may reflect closure of critical access and other low-volume hospitals

98% of EDs are non-stand-alone children's hospitals – provide care to 80% of children

	2013 Assessment	2021 Assessment
Urbanicity		
Urban	2438 (58.8%)	2239 (62.9%)
Suburban	382 (9.2%)	300 (8.4%)
Rural	833 (20.1%)	674 (18.9%)
Remote	493 (11.9%)	344 (9.7%)
Emergency Department Configuration¹		
General ED	3526 (85.0%)	3217 (90.4%)
Separate pediatric ED in a hospital that treats both adults and children	235 (5.7%)	222 (6.2%)
Pediatric ED in a Children's Hospital (hospital cares only for children)	90 (2.2%)	94 (2.6%)
Other	295 (7.1%)	22 (0.6%)

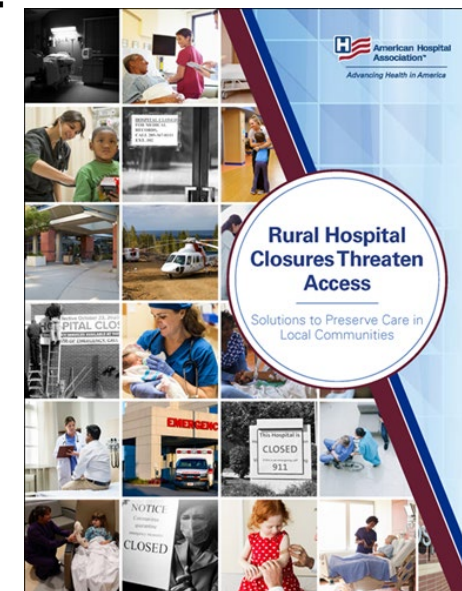


2013 vs 2021: Healthcare Landscape

- 17% fewer hospitals report availability of pediatric inpatient wards

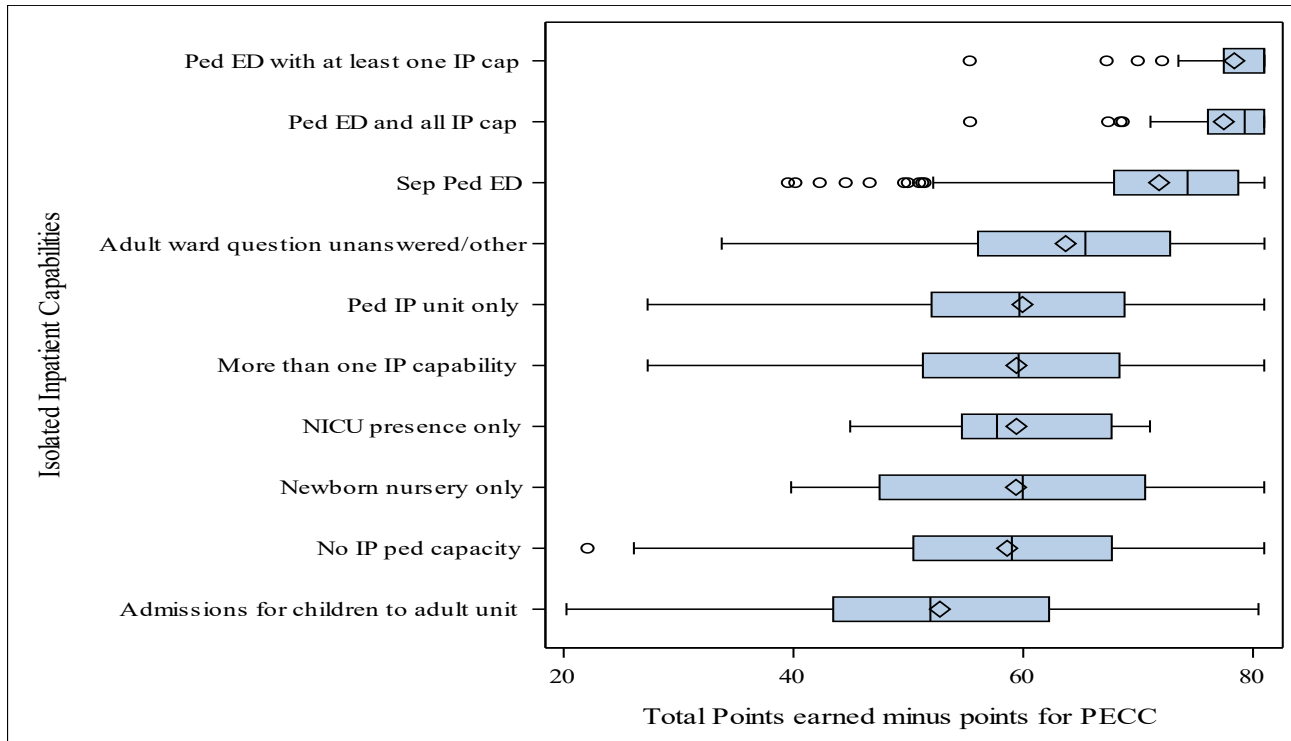
The loss of critical access hospitals over the prior decade (N=136), pales in comparison to the loss of pediatric inpatient units.

	2013 Assessment	2021 Assessment
In-Patient Services²		
Newborn nursery	1931 (57.3%)	2001 (56.3%)
Neonatal intensive care unit	951 (28.2%)	991 (27.9%)
Pediatric intensive care unit	420 (12.5%)	344 (9.7%)
Pediatric inpatient ward/unit	1798 (53.4%)	1094 (30.8%)
Adult intensive care unit (admits children)	1224 (36.3%)	632 (26.7%)
Adult inpatient ward/unit (admits children)	2317 (68.8%)	1545 (48.3%)
Pediatric Volume		
Low: <1,800 pediatric patients (average of 5 or fewer a day)	1629 (39.3%)	1806 (50.8%)
Medium: 1,800 – 4,999 pediatric patients (average of 6-13 a day)	1248 (30.1%)	1103 (31.0%)
Medium to High: 5,000 – 9,999 pediatric patients (average of 14-26 a day)	708 (17.1%)	367 (10.3%)
High: >=10,000 pediatric patients (average of 27 or more a day)	561 (13.5%)	281 (7.9%)



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Inpatient Units and Pediatric Readiness



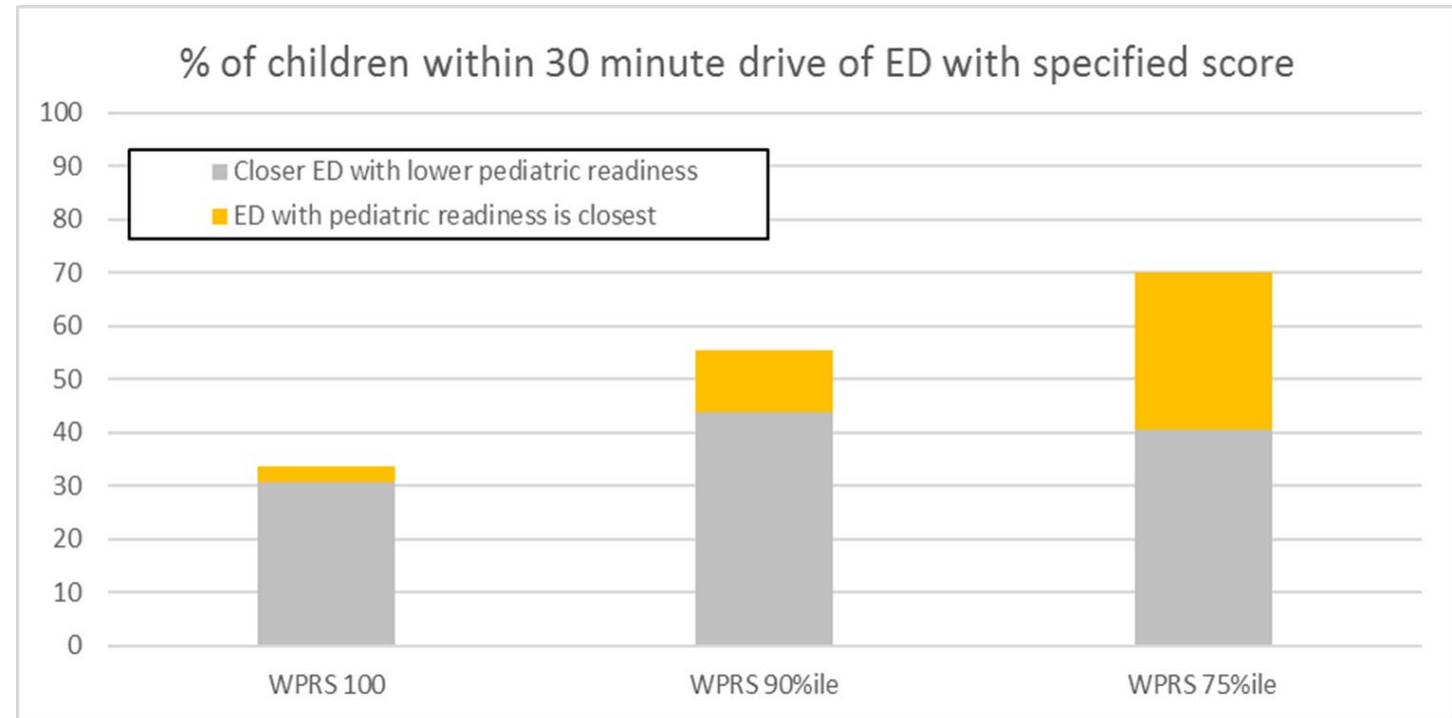
- Pediatric inpatient capabilities have an additive effect on wPRS with PICU presence associated with 13.5pt improvement in wPRS
- Hospitals with a dedicated pediatric ED and at least one pediatric inpatient unit are more likely to have higher wPRS



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Access to Pediatric Ready EDs

- 33% of children live < 30 min from a Pediatric Ready ED
- 90% live closer to a **non-Pediatric Ready ED**

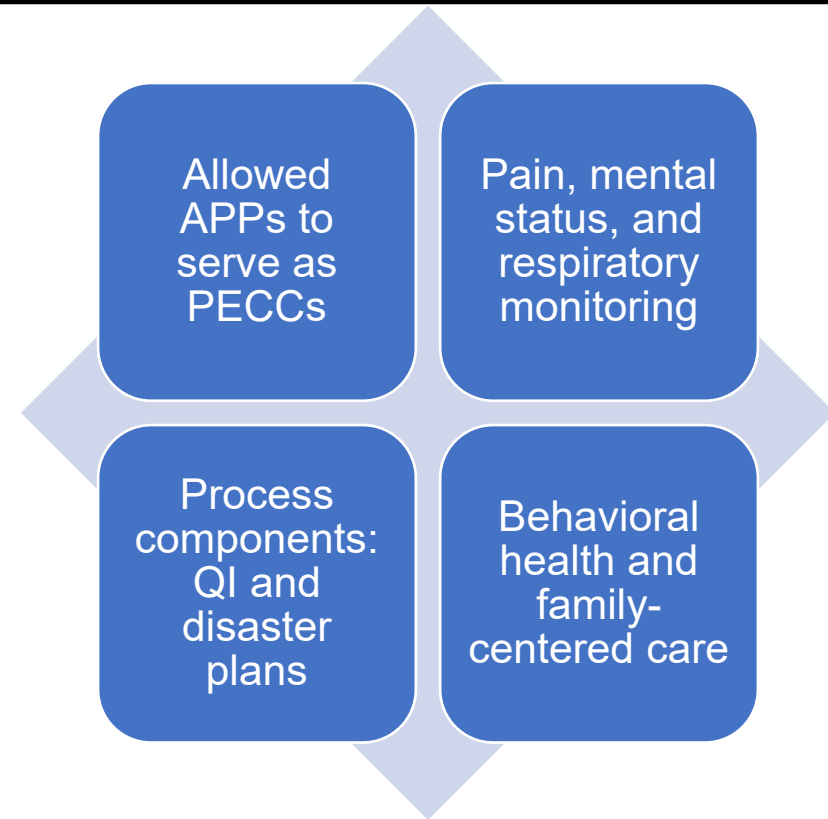


2013 vs 2021 NPRRP Assessment

Same

- Domains and domain scores

New/Increased emphasis



2013 vs 2021 Assessment

- Improvements in all domains except workforce (Pediatric Emergency Care Coordinators)

Table 3. Change in Total and Domain Scores Over Time Normalized for Common Scored Data Elements^a

Element	Score, median (IQR)				P value ^b
	2013, All hospitals (n = 4146)	2021, All hospitals (n = 3557)	2013, Both years (n = 2825)	2021, Both years (n = 2825)	
WPRS	72.2 (59.7-86.5)	70.5 (61.6-87.3)	72.7 (60.1-87.8)	70.5 (61.3-87.4)	.13
Administration and coordination domain score	9.5 (0.0-19.0)	0.0 (0.0-19.0)	9.5 (0.0-19.0)	0.0 (0.0-19.0)	<.001
Personnel domain score	5.0 (0.0-10.0)	10.0 (5.0-10.0)	5.0 (0.0-10.0)	10.0 (5.0-10.0)	<.001
Quality improvement domain score	0.0 (0.0-5.6)	0.0 (0.0-7.0)	0.0 (0.0-5.6)	0.0 (0.0-7.0)	.001
Patient safety domain score	12.1 (10.2-14.0)	14.0 (12.1-14.0)	12.1 (10.2-14.0)	14.0 (12.1-14.0)	<.001
Policies and procedures domain score	11.8 (7.4-14.8)	12.6 (8.9-17.0)	11.8 (7.4-14.8)	12.6 (8.9-17.0)	<.001
Equipment and supplies domain score	32.4 (30.1-33.0)	33.0 (31.3-33.0)	32.4 (30.1-33.0)	33.0 (31.3-33.0)	<.001

^a All scores normalized for common data elements; 78% of scored questions in the 2021 survey were the same in 2013.

^b P value calculated from Wilcoxon signed-rank test comparing domain scores across EDs that took the assessment both years (2825 EDs [79.4%]).



Primary Drivers of Pediatric Readiness

- Pediatric Emergency Care Coordinators
- Quality Improvement Efforts
- Peds Ready Verification

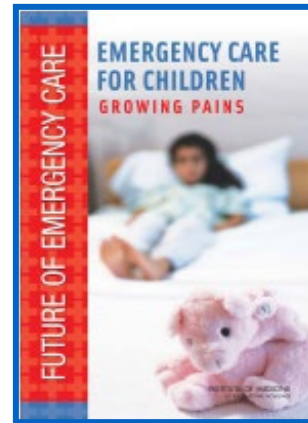


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A PECC Call to Action... since 2006

- “EDs and EMS agencies should appoint a PECC”



2013 Impact of PECCs:

	No PECC	Nurse PECC only	Physician PECC only	Both PECCs	P-value
All Hospitals	66.5 [IQR 56.0,76.9]	69.7 [IQR 58.9, 80.9]	75.3 [IQR 64.4, 85.6]	82.2 [IQR 69.7,92.5]	<.0001

2013 Stats:

Physician PECC - 48% of EDs

Nurse PECC – 59% of EDs



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Gausche-Hill et al. JAMA Pediatr. 2015

Institute of Medicine Committee on the Future of Emergency Care in the U.S. Health System. Washington, DC: National Academies Press; 2006.

Impact of PECCs on wPRS

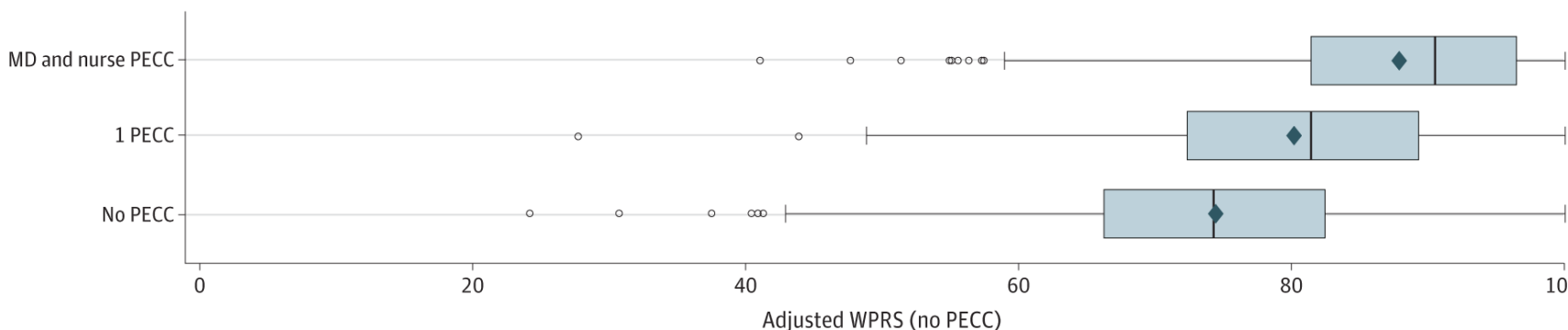
- The presence of the nurse-physician PECC dyad = average **16pt increase** in adjusted wPRS compared to no PECC
- Shift from 2nd to 4th quartile of readiness

2021 Stats:

Physician PECC - 37% of EDs
(76% with protected time)


Nurse PECC – 37% of EDs
(81% with protected time)

28.5% of EDs have both a
physician and nurse PECC



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Pediatric emergency care coordinator workforce: A survey study

Ashley A. Foster MD¹  | Joyce Li MD, MPH² | Matthew H. Wilkinson MD, MPH³ | Michael Ely MHRM^{4,5,6} | Marianne Gausche-Hill MD^{7,8,9} | Craig Newgard MD, MPH¹⁰ | Katherine Remick MD^{3,11,12}

	n (%)	Low pediatric annual volume, n = 22	Medium pediatric annual volume, n = 34	Medium-high pediatric annual volume, n = 24	High pediatric annual volume, n = 34	P value
Median (years) as a PECC <i>n</i> = 113, <i>n</i> [25th, 75th percentile]	1 [0, 4]	1 [0, 2.5]	1 [0, 4]	2 [0, 5]	1 [0, 8.25]	0.163**
PECC selection, <i>n</i> = 114, <i>n</i> (%)						
Designated*	62 (54.4)	9 (40.9)	21 (61.8)	14 (58.3)	18 (52.9)	0.202***
Volunteer	35 (30.7)	10 (45.5)	11 (32.4)	6 (25.0)	8 (23.5)	
Other	17 (14.9)	2 (9.1)	2 (5.9)	4 (16.7)	9 (26.5)	
Role adjuncts offered <i>n</i> = 114, <i>n</i> (%)						
Shift reduction	7 (6.1)	1 (4.5)	1 (2.9)	2 (8.3)	3 (8.8)	0.340**
Preferential scheduling	4 (3.5)	1 (4.5)	0 (0.0)	2 (8.3)	1 (2.9)	0.802**
Monetary compensation	6 (5.3)	0 (0.0)	0 (0.0)	2 (8.3)	4 (11.8)	0.016**
Other	4 (3.5)	0 (0.0)	2 (5.9)	0 (0.0)	2 (5.9)	0.477**
None of the above	84 (73.7)	19 (86.4)	27 (79.4)	16 (66.7)	22 (64.7)	0.042**



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Impact of PECCs on Pediatric Readiness

- PECCs improve all domains of readiness
- PECCs most associated with QI

Table 4. Odds of Perfect Domain Score by PECC Presence^a

Domains of pediatric readiness	No PECC (n = 1914)	≥1 PECC (physician, nurse, or both) (n = 1643)	Odds ratio (95% CI)	P value
Equipment and supplies (33 of 33 points)	864 (45.1)	999 (60.8)	1.89 (1.65-2.16)	<.001
Patient safety (14 of 14 points)	900 (47.0)	1091 (66.4)	2.23 (1.94-2.55)	<.001
Personnel training and competencies (10 of 10 points)	166 (8.7)	336 (20.5)	2.71 (2.22-3.31)	<.001
Policies and procedures (17 of 17 points)	140 (7.3)	351 (21.4)	3.44 (2.80-4.25)	<.001
Quality improvement plan (7 of 7 points)	249 (13.0)	820 (49.9)	6.66 (5.66-7.87)	<.001



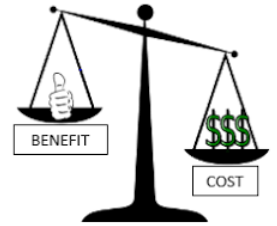
PECC Responsibilities

Assigned responsibilities as a PECC, proportion of effort spent on activities	n (%)	Mean proportion of effort spent per PECC %
Education of staff	88 (77.2)	21.0%
Quality improvement	83 (72.8)	27.5%
Liaise with other hospital committees/departments	77 (67.5)	13.3%
Simulation activities or training	64 (56.1)	11.4%
Evidence-based guidelines/decision support tools development/maintenance	62 (54.4)	10.9%
Administration/management of ED policies relevant to pediatric readiness	60 (52.6)	12.4%
Evaluate/assess pediatric competencies of staff	57 (50.0)	11.0%
Orientation of staff	55 (48.2)	15.2%
Pediatric disaster preparedness planning	52 (45.6)	9.0%
Stocking equipment/medications	47 (41.2)	13.1%



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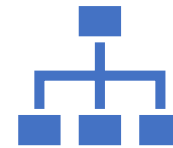
Need to Create Sustainability for PECCs



Standardized PECC training and certification



Protected time



Organizational commitment and integration into the organizational chart



Demonstrate impact on outcomes to bring value to the roll



A PECC is **NOT** a pediatric specialist assigned to oversee care for pediatric patients while on shift.



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Pediatric Policies and Procedures

Pediatric-specific

competencies:

Physicians – 67% of EDs

Nurses – 89% of EDs

APP – 68% of EDs that have APPs

Characteristic	EDs, No. (%)				
	Pediatric patient volume category ^a				
	Low (n = 1793)	Medium (n = 1102)	Medium high (n = 376)	High (n = 286)	Overall (n = 3557)
WPRS, median (IQR) ^b	64.0 (55.6-76.0)	71.4 (61.0-85.4)	77.5 (66.1-91.0)	94.4 (83.3-97.5)	69.5 (59.0- 84.0)
Pediatric-specific policies or procedures					
QI process	738 (41.2)	564 (51.2)	222 (59.0)	253 (88.5)	1777 (50.0)
Weight in kilograms	1177 (65.6)	873 (79.2)	333 (88.6)	268 (93.7)	2651 (74.5)
Triage	934 (52.1)	731 (66.3)	290 (77.1)	263 (92.0)	2218 (62.4)
Patient assessment and reassessment	1303 (72.7)	905 (82.1)	321 (85.4)	271 (94.8)	2800 (78.7)
Immunization assessment and management	702 (39.2)	532 (48.3)	188 (50.0)	204 (71.3)	1626 (45.7)
Child maltreatment	1573 (87.7)	1021 (92.6)	359 (95.5)	277 (96.9)	3230 (90.8)
Death in ED	1137 (63.4)	835 (75.8)	283 (75.3)	269 (94.1)	2524 (71.0)
Reduced-dose radiation for CT and radiograph imaging	1261 (70.3)	864 (78.4)	305 (81.1)	271 (94.8)	2701 (75.9)
Mental health care	1155 (64.4)	877 (79.6)	297 (79.0)	270 (94.4)	2599 (73.1)
Behavioral health transfer	1051 (58.6)	790 (71.7)	268 (71.3)	255 (89.2)	2364 (66.5)
Social service plans	1003 (55.9)	811 (73.6)	310 (82.4)	265 (92.7)	2389 (67.2)
Interfacility guidelines for transfer of pediatric patients	1187 (66.2)	818 (74.2)	300 (79.8)	245 (85.7)	2550 (71.7)
Family-centered care plan	1002 (55.9)	716 (65.0)	262 (69.7)	244 (85.3)	2224 (62.5)
Disaster planning	676 (37.7)	546 (49.5)	231 (61.4)	238 (83.2)	1691 (47.5)
Percentage of recommended equipment carried ^e					
Median (IQR)	100.0 (95.3-100.0)	100.0 (97.7-100.0)	100.0 (97.7-100.0)	100.0 (100.0-100.0)	100.0 (95.3-100.0)
100% of recommended equipment carried	904 (50.4)	707 (64.2)	249 (66.2)	245 (85.7)	2105 (59.2)



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Impact of QI Efforts (2013)

2013 Impact of a QI Plan:

Median Adjusted Pediatric Readiness Score by Presence of QI Plan

	No QI/PI Plan	Yes QI/PI Plan	Median Difference
All Hospitals	62 [51.2, 68.7]	88 [IQR 76.7, 95]	26pts [95% CI 25-27pts]

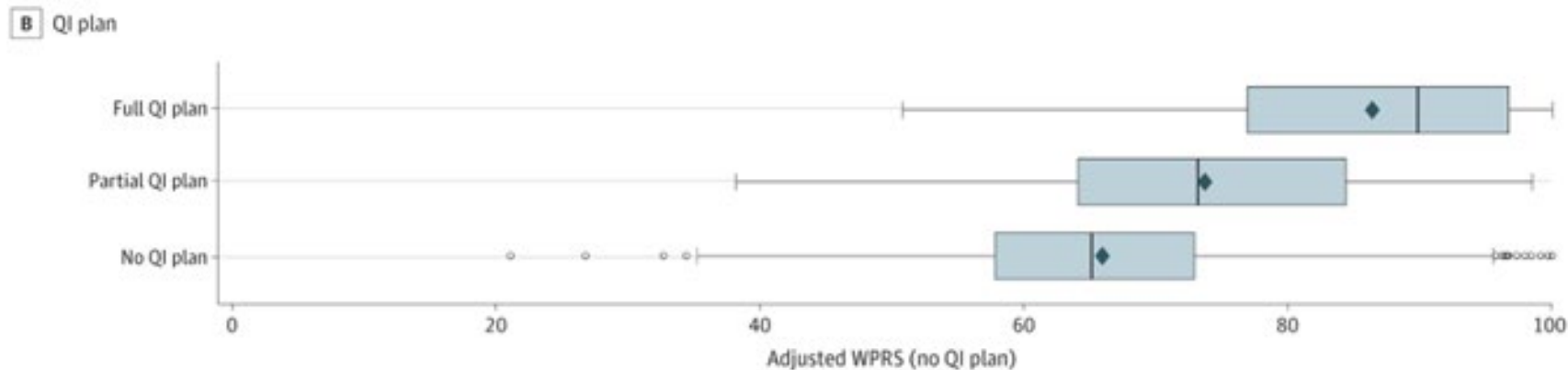
2013 Stats:
Pediatric QI plan – 45% EDs



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Impact of QI plans on wPRS

- The presence of a full QI plan = average **26pt increase** in adjusted wPRS compared to no QI plan
- Shift from lowest to top quartile of readiness



2021 Stats:
Peds QI Plan – 50% of EDs
Among those – 60% complete



Barriers to QI Efforts in Low-Volume EDs

- Low frequency of critical pediatric visits/specific diagnoses
- Few quality measures designed for low volume EDs
- Limited resources/training/technologies to facilitate implementation



2018 Cohort



2023 Cohort





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Open access

Research & reporting methodology

BMJ Open Quality Consensus-driven model to establish paediatric emergency care measures for low-volume emergency departments

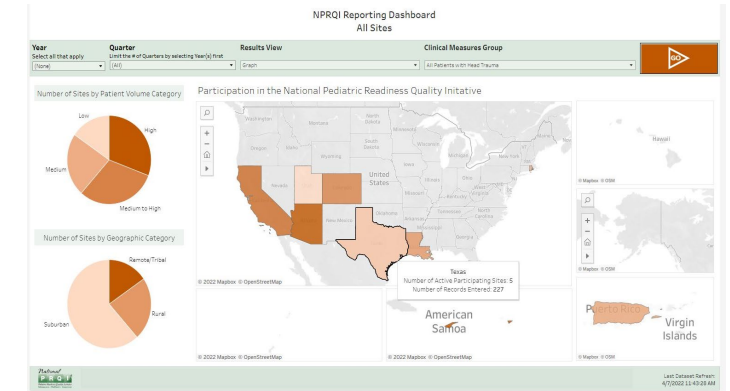
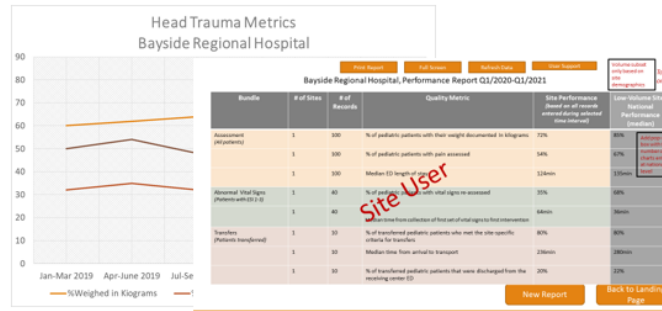
Katherine E Remick ¹, Krystle A Bartley,¹ Louis Gonzales ¹, Kate S MacRae,² Elizabeth A Edgerton¹

Intervention bundle	Donabedian classification	Phase of care	Quality measures
Recognition of a sick or injured child	Process	Assessment	Percentage of paediatric patients with weight documented in kilograms only. Percentage of paediatric patients with pain assessed. Percentage of paediatric patients with vital signs re-assessed.
		Intervention	Median time from collection of first set of vital signs to first intervention (eg, oxygen, medication).
		Disposition	ED length of stay (ED arrival to discharge [†]).
Timely and effective transfer to appropriate resources	Process	Disposition	Percentage of transferred paediatric patients who met the site-specific criteria for transfers. Time from arrival to transport. Percentage of transferred paediatric patients that were discharged from the receiving centre <24 hours of arrival.
		Assessment	Percentage of paediatric patients with a full set [†] of vital signs obtained. Percentage of paediatric patients with a Glasgow Coma Scale reassessment.
		Diagnostics	Percentage of patients with a head CT that met one or more PECARN [§] criteria.
Adherence to evidence-based guidelines [†] for management of blunt head trauma	Process	Assessment	Percentage of paediatric patients that received hypotonic saline.
		Intervention	Percentage of paediatric patients with a neurologic reassessment.
		Diagnostics	Percentage of paediatric patients that received at least one additional class of antiepileptics (for patients requiring ≥2 doses of benzodiazepines). Percentage of paediatric patients who underwent invasive diagnostic assessments: blood glucose, blood work, urinalysis, lumbar puncture and head CT.
Adherence to evidence-based guidelines for respiratory reports	Process	Intervention	Percentage of paediatric patients with asthma or croup that received a steroid. Median time to steroids in patients diagnosed with asthma or croup. Percentage of paediatric patients ≥2 years with a diagnosis of asthma that received beta agonist. Median time to beta agonist administration in patients ≥2 years with a diagnosis of asthma (ED arrival to beta agonist administration). Percentage of patients that received an antibiotic.
		Diagnostics	Percentage of patients that underwent a chest X-ray.
		Intervention	Percentage of paediatric patients that received an antiemetic. Time to first antiemetic (ED arrival to antiemetic administration). Percentage of patients that received oral rehydration.
Assess the timeliness and variability of interventions for vomiting	Process	Intervention	Percentage of patients that received oral rehydration.
		Assessment	Percentage of patients who had a structured suicide screen. Percentage of patients with a positive suicide screen who had a structured suicide assessment.
Acute suicidality encounters	Process	Intervention	Percentage of patients with a positive suicide screen who had a consultation with a licenced mental health professional. Percentage of patients with a positive suicide screen that received a discharge safety plan.

National Pediatric Readiness Quality Initiative



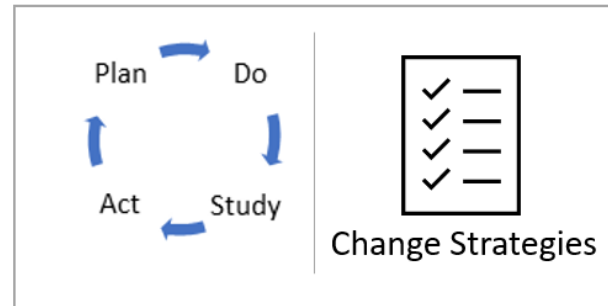
Performance Dashboard



Flexible pace, menu of options to align with site-specific priorities



Data Extracted from Pediatric Encounters

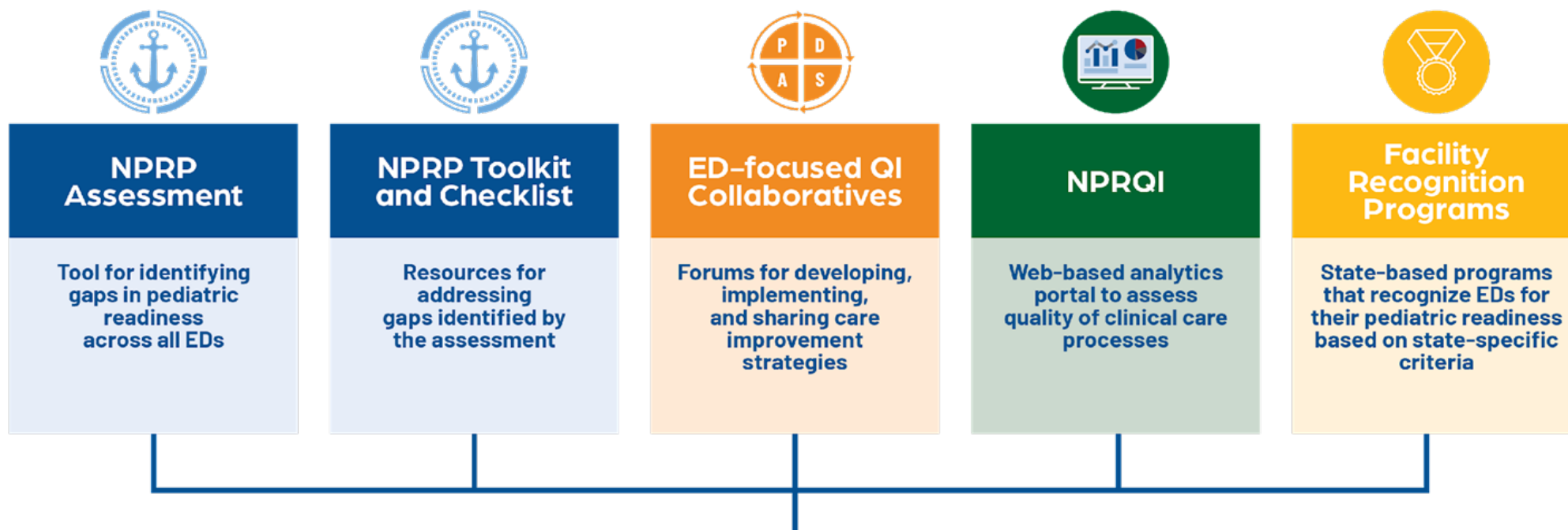


- Site and aggregate performance dashboards (real-time)
- Drive sustainable improvements
- Evaluate and overcome disparities
- Establish standards for pediatric emergency care



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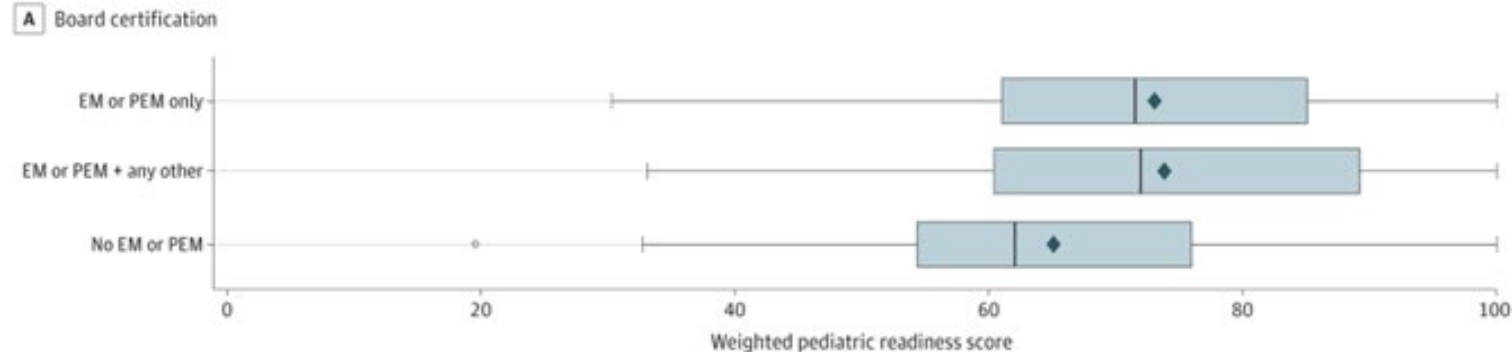
National Pediatric Readiness Project



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Impact of Board Certification in Emergency Medicine or Pediatric Emergency Medicine on wPRS

- The presence of EM/PEM physicians = average **9.5pt increase** in wPRS compared to no EM/PEM physicians



>95% of EDs have EM/PEM Board certified physicians, 43% only staff with EM/PEM physicians



Pediatric Readiness Recognition Programs and Association with Pediatric Readiness



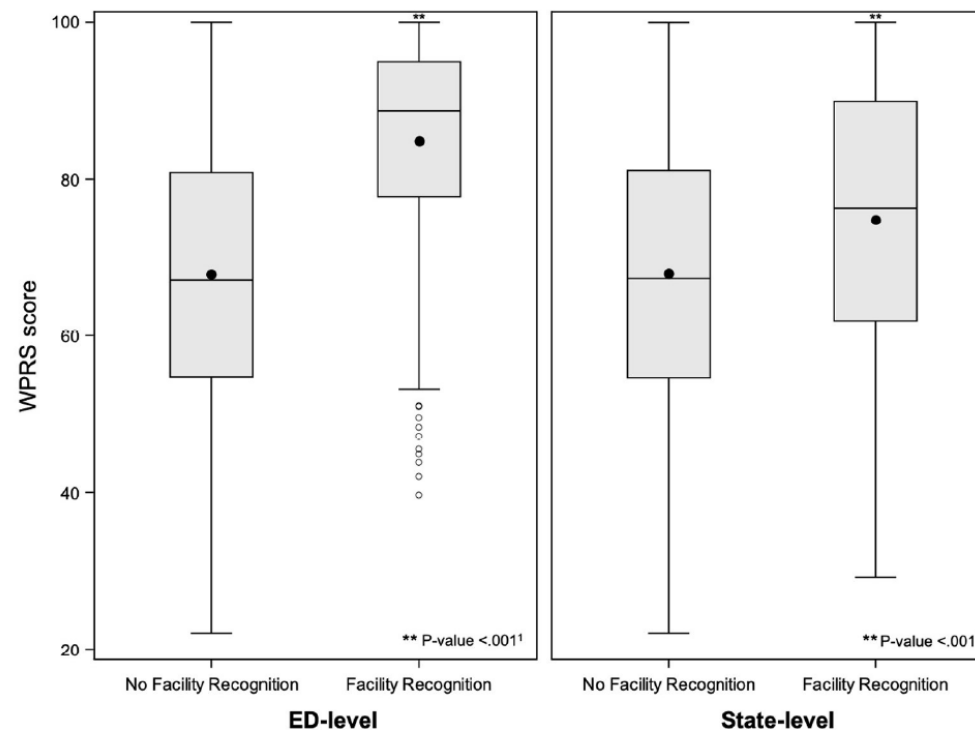
All Hospitals (No. of Points)	Verified (n=51), Median (IQR)	Assessed (n=31), Median (IQR)	Nonassessed (n=218), Median (IQR)
Overall median WPRS (100)*	89.6 (84.1, 94.1)	70.7 (57.4, 88.9)	65.5 (55.5, 76.3)

THE JOURNAL OF PEDIATRICS • www.jpeds.com

ORIGINAL
ARTICLES

Statewide Pediatric Facility Recognition Programs and Their Association with Pediatric Readiness in Emergency Departments in the United States

Travis M. Whitfill, MPH¹, Katherine E. Remick, MD^{2,3,4,5}, Lenora M. Olson, PhD, MA⁶, Rachel Richards, MStat⁶,
Kathleen M. Brown, MD^{7,8}, Marc A. Auerbach, MD, MSci¹, and Marianne Gausche-Hill, MD^{9,10,11}



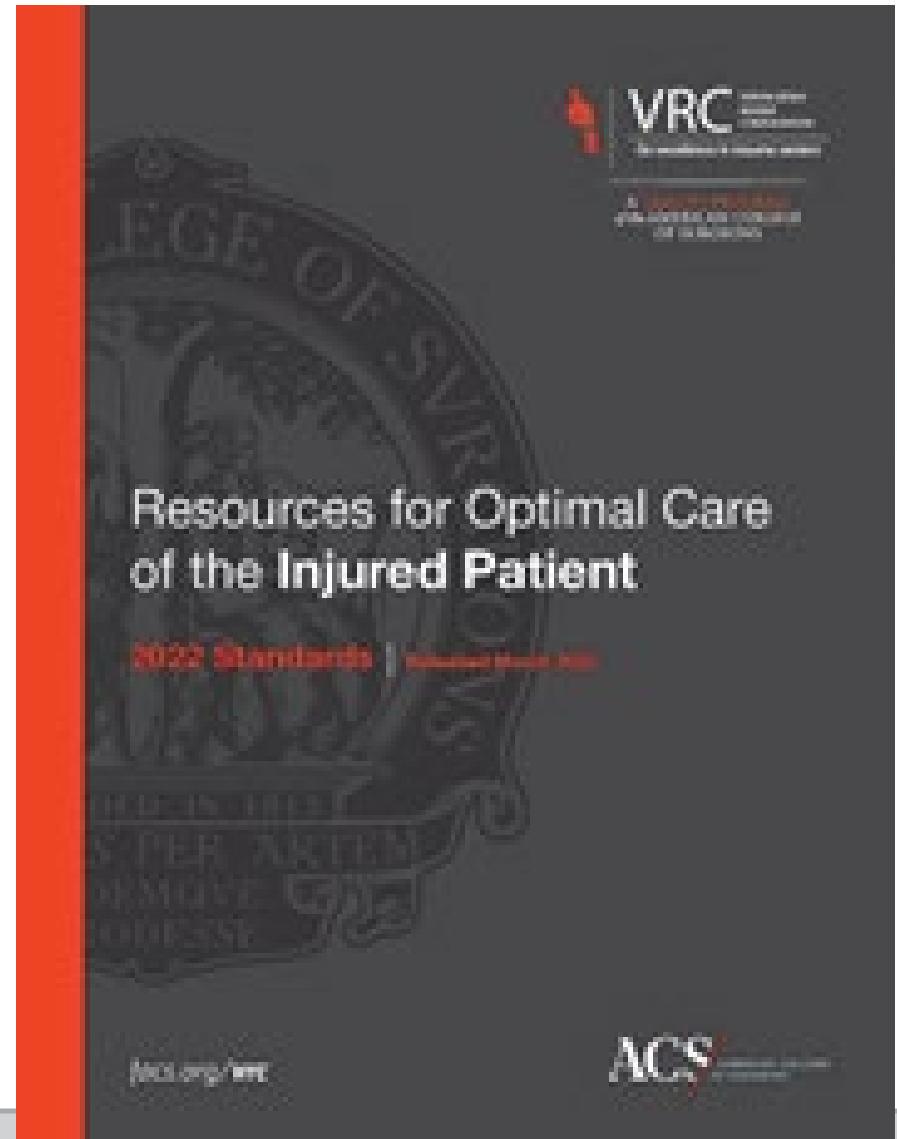
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Raising the bar for pediatric trauma care

Published November 23, 2021

Pediatric readiness assessment to be required for trauma center verification

- ~45% of all hospitals are trauma centers
- ~550 are ACS-verified



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Moving Towards a Robust Pediatric Readiness Policy

- Ensuring pediatric readiness criteria = improved outcomes
- Key Drivers of Pediatric Readiness
 - PECCs
 - QI plans
- Critical gaps in pediatric clinical care processes
 - Disaster plans
 - Pediatric triage
 - Family-centered care
 - Behavioral health
- Meet established standards for pediatric patient safety
 - Weight in Kg
 - Assessment & Reassessment
 - Interfacility transfers
 - Radiation dosing

Threshold: **88** is lowest score associated with improved outcomes



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Healthcare Access The 7th Domain of Quality

- 1 in 5 Americans live in rural areas
- Since 2005, 181 rural hospitals have closed
- Pediatric readiness is increasingly important

AHA report: Rural hospital closures threaten patient access to care

© Sep 08, 2022 - 04:19 PM



The New York Times Account ▾

As Hospitals Close Children's Units, Where Does That Leave Lachlan?

Adult beds are more lucrative than children's beds. So as institutions look to boost profit margins, pediatrics is often among the first services to be cut.



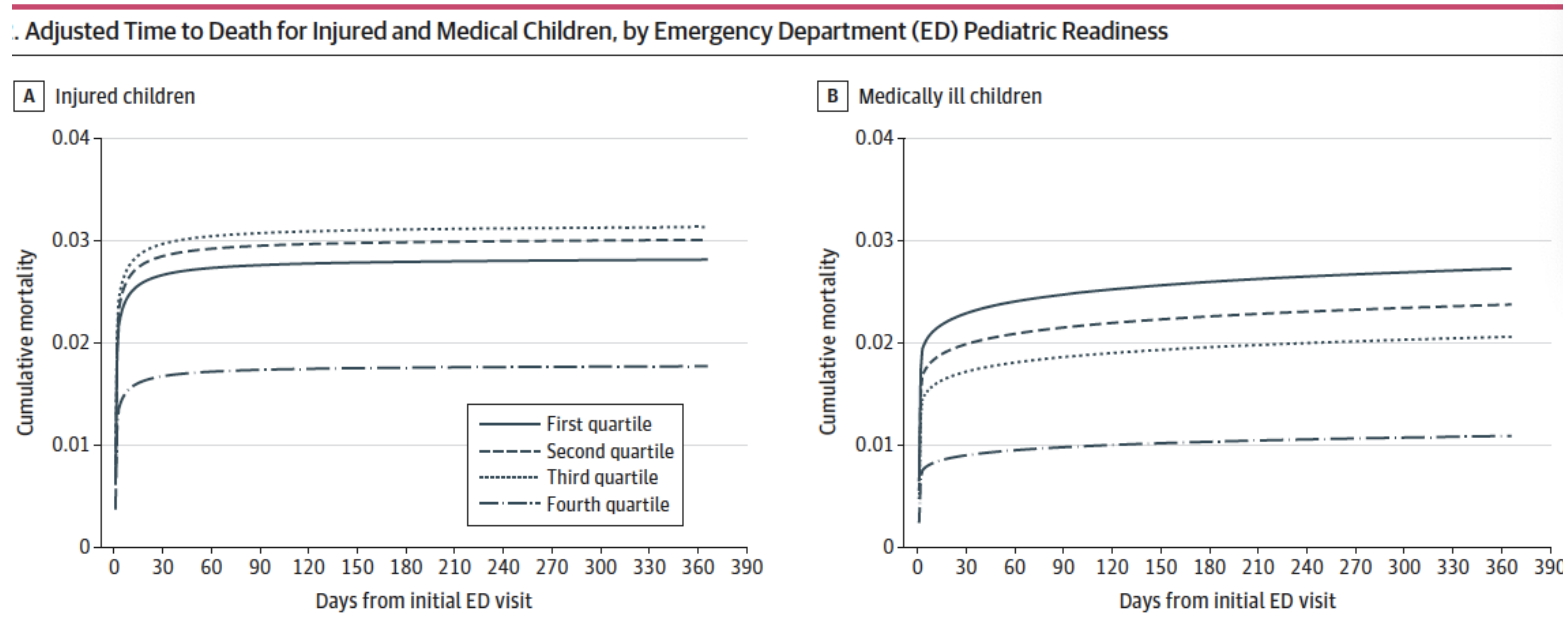
#EMSC23

January 13, 2023

Emergency Department Pediatric Readiness and Short-term and Long-term Mortality Among Children Receiving Emergency Care

60% (injured) to 76% (ill) lower odds of in-hospital death in high-readiness ED

Craig D. Newgard, MD, MPH¹; Amber Lin, MS¹; Susan Malveau, MS¹; et al

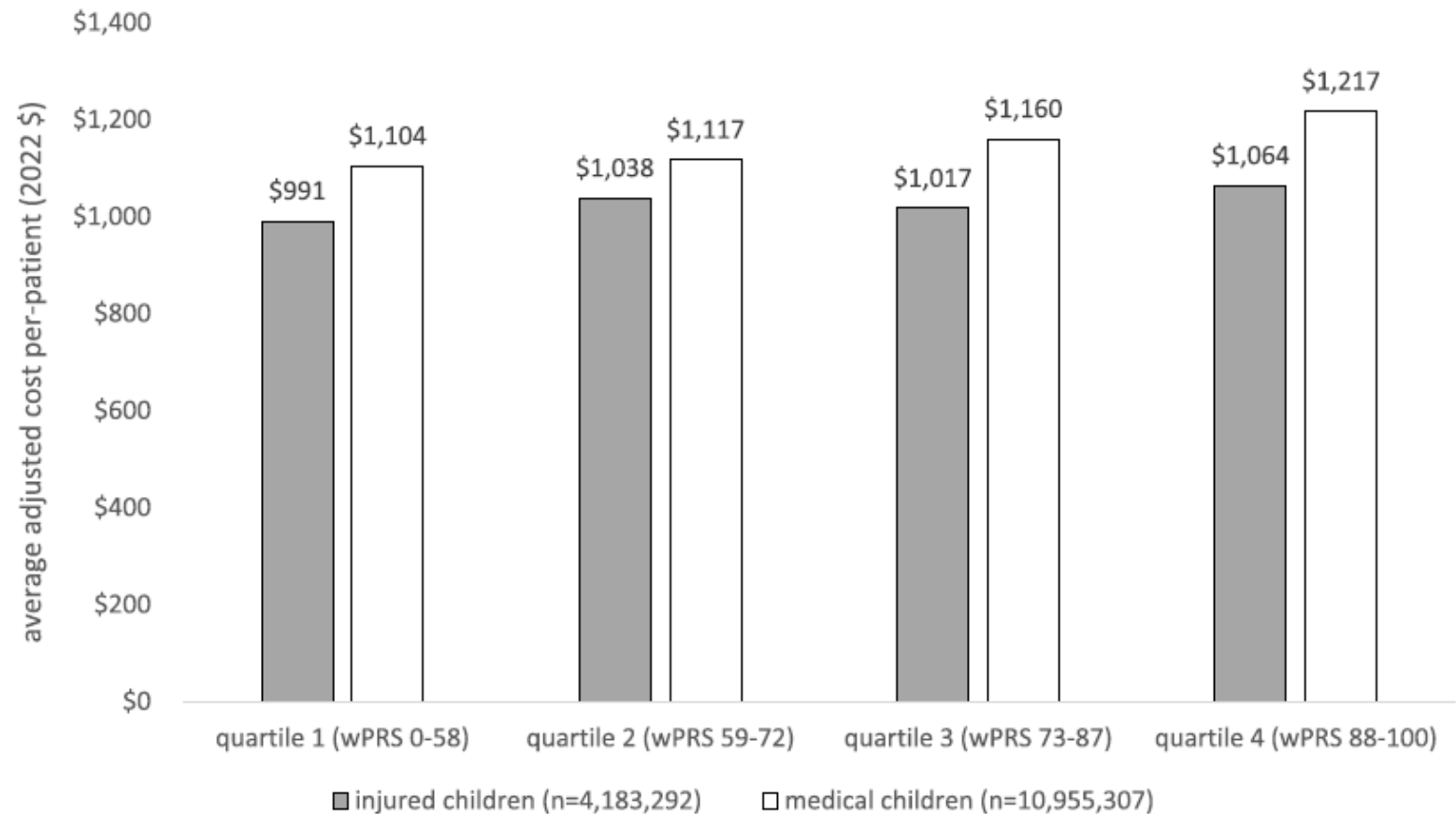


#EMSC23

The cost of emergency care for children across differing levels of emergency department pediatric readiness

Craig D. Newgard^{1,*}, McKenna Smith², Amber Lin¹ , K. John McConnell^{1,3} , Katherine E. Remick⁴ , Randall S. Burd⁵ , Jennifer R. Marin⁶, N. Clay Mann² , Marianne Gausche-Hill⁷ , Hilary A. Hewes², Angela Child² , Benjamin Lang⁴ , Ashley A. Foster⁸ , Brandon Maughan¹ , Jeremy D. Goldhaber-Fiebert⁹ , on behalf of the Pediatric Readiness Study Group[†]

Differences in the adjusted cost of care were \$72 (injured) and \$113 (medical illness).



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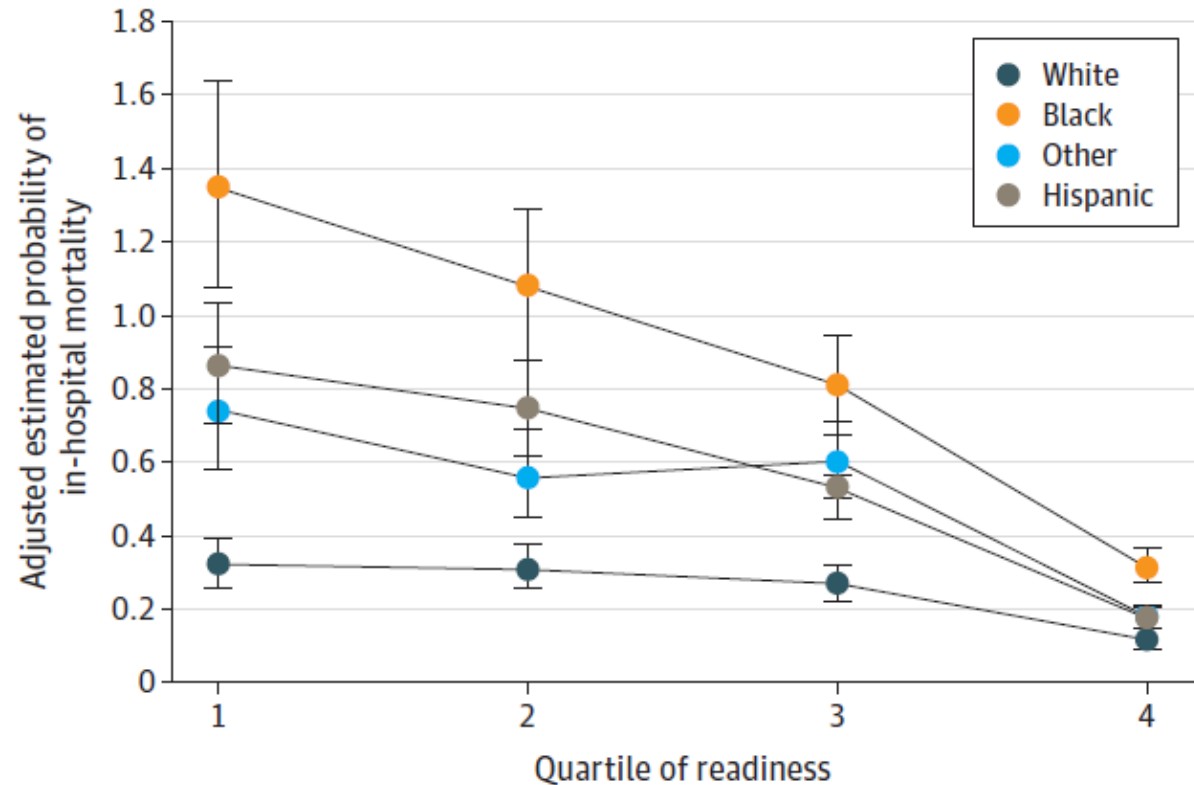
Emergency Department Pediatric Readiness and Disparities in Mortality Based on Race and Ethnicity

Peter C. Jenkins, MD, MSc; Amber Lin, MS; Stefanie G. Ames, MD, MS; Craig D. Newgard, MD, MPH; Benjamin Lang, MD, MPH; James E. Winslow, MD, MPH; Jennifer R. Marin, MD, MSc; Jennifer N. B. Cook, GCPh; Jeremy D. Goldhaber-Fiebert, PhD; Linda Papa, MD, MSc; Mark R. Zonfrillo, MD, MSCE; Matthew Hansen, MD, MCR; Stephen P. Wall, MD, MSHS, MAEd; Susan Malveau, MS; Nathan Kuppermann, MD, MPH; for the Pediatric Readiness Study Group

High pediatric readiness is associated with a 3-fold reduction in disparities for pediatric mortality among medically ill children.

Of all the forms of inequality, injustice in health is the most shocking and inhumane. –MLK Jr.

A Patients with acute medical emergencies (n = 557 537)



Summary Points

Engagement in pediatric readiness remains high

Emergency care for children in the US is still “uneven”

Until pediatric readiness becomes policy, PECCs and QI remain the best drivers of pediatric emergency care transformation

Pediatric readiness is the roadmap to equitable care for the pediatric population



Questions?

- kate.remick@austin.utexas.edu

If access to healthcare is considered a human right, who is considered human enough to have that right? – Paul Farmer



2023 ALL-GRANTEE MEETING

CULTIVATING COMMUNITY GROWING COLLABORATION