

Determination & Perseverance
2020's Lessons and 2021's Challenges



WRAP-EM Telehealth and COVID-19 Community Regional Response

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WRAP-EM Community Regional Response to COVID-19: Lessons Learned and Best Practices Intra-Action Report

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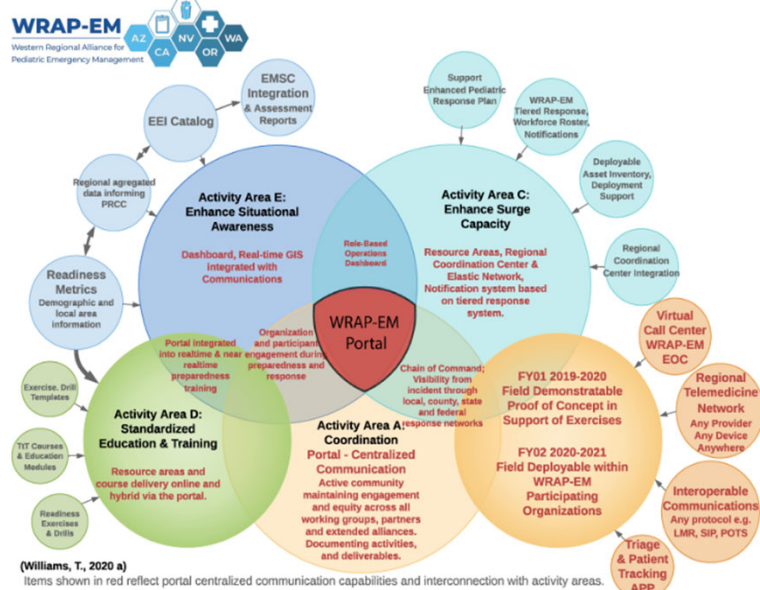
Introduction to WRAP-EM

- Western Regional Alliance for Pediatric Emergency Management (WRAP-EM)
- The Coalition
- WRAP-EM Goals
- ASPR Grant

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WRAP-EM Portal & Functional Areas



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WRAP-EM Response to COVID-19

- Bi-weekly conference calls connecting subject matter (SMEs) experts across the region.
- Focus group shifted attention to COVID-19 response (surge plans, PPE management, OB strategies, mental health, telemedicine etc.)
- WRAP-EM Portal utilized for rapid dissemination of information and networking

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Methods

- During COVID-19 pandemic response, focus groups support emerged
- WRAP-EM leadership was asked to develop an intra-action report to document outcomes to date.
- The pandemic response highlighted unexpected needs

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Methods (cont.)

- The Regional Exercise Focus Group was asked to lead the IAR production
- Targeted group discussions with all active focus groups between May 18-29, 2020
- Four key questions asked of each group:
 - What did we expect?
 - What was the reality?
 - What went well?
 - What should be improved or explored?

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What Did We Expect?

- Purpose definition and deliverable completion
- Networking and communication

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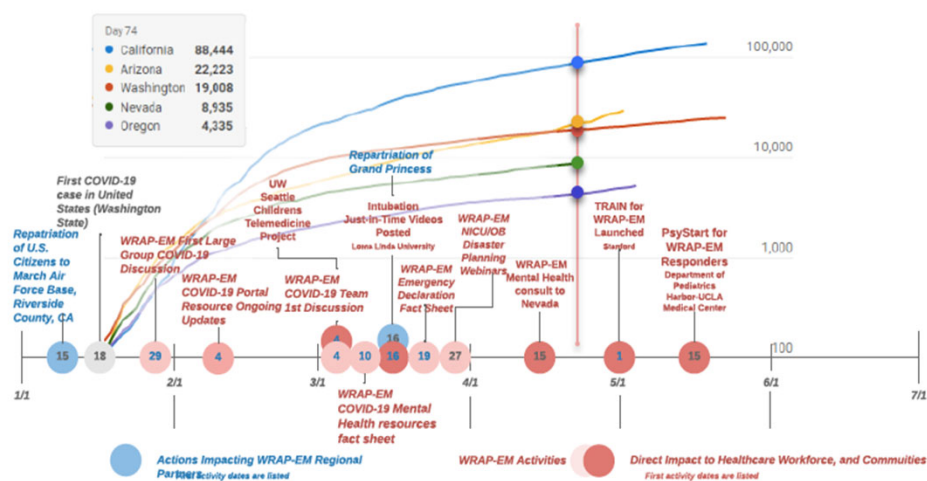
What Was the Reality?

- Weekly calls to share information
- The need to share and archive resources
- Rapid expansion of the WRAP-EM portal
- Group achievements (summary in appendix and Figure 2)

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WRAP-EM Activities Responding to COVID-19 Case Trends



(Williams, T., 2020 b)

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What Was the Reality? (cont.)

- Quickly solidify WRAP-EM infrastructure
- Surge planning
- Transition to online strategies and unique ways to communicate
- Shift from expected to reality

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What Was the Reality? (cont.)

- Differing state and local policies
- Unexpected reductions due to low Census
- Integrating COVID-19 testing into Standard of Care (SOC)

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What Went Well?

- Communication
- Portal development
- Resource sharing
- Generous collaborators
- Advocacy and influence, sharing expertise to craft solutions

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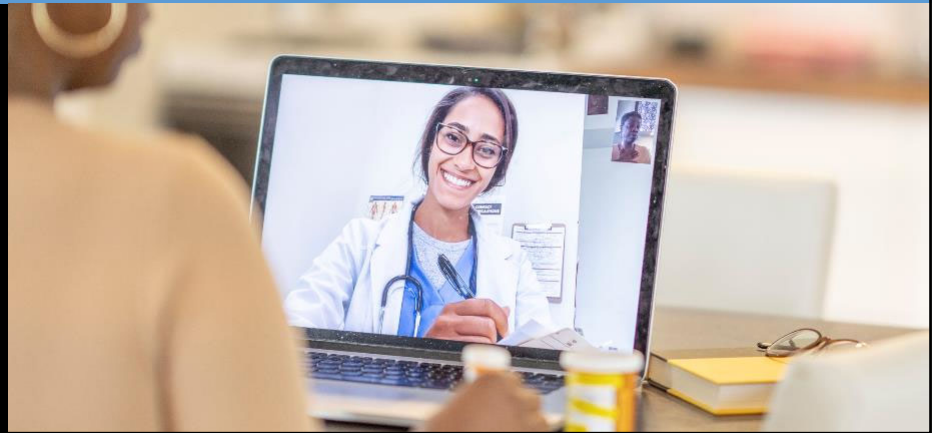
What Should Be Improved or Explored?

- System changes supported by legislation
- Planning
- Encourage participation of technological solutions
- Suggested resource development
- Leveraging our learners
- Cross pollination

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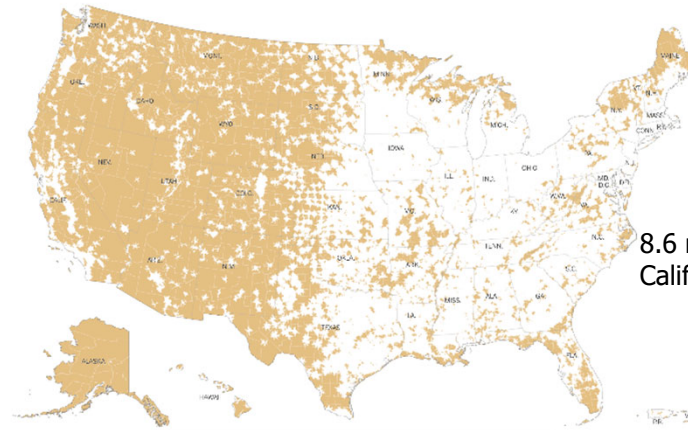
Disclosures



No Conflict of Interest to Report

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Geography or Distance Barriers



8.6 million people in USA
California: 800,000 people

>30-minute drive to nearest hospital

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Access To Children's Hospitals

16 million (23%) of children live
>60 minutes from Children's
Hospital (CHA)

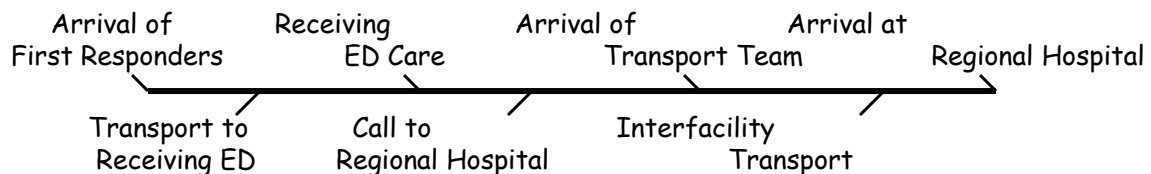
41 million (57%) of children live
>30 minutes from Pediatric
Trauma Center (ACS)



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Telehealth in EMS & EMS-C

- 2019: Telemedicine used in 12% of ED; 36% of hospitals
- Use following EMS activation

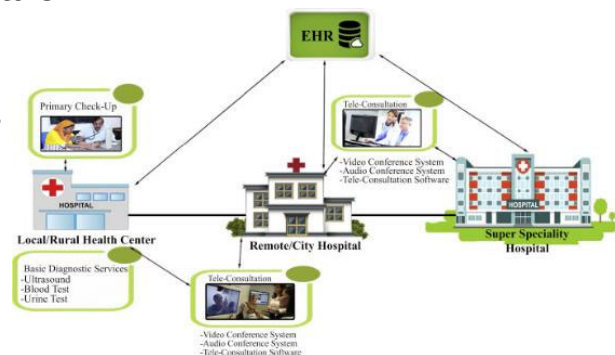


- Actual need during northern California fires
 - Improved telehealth planning and integration

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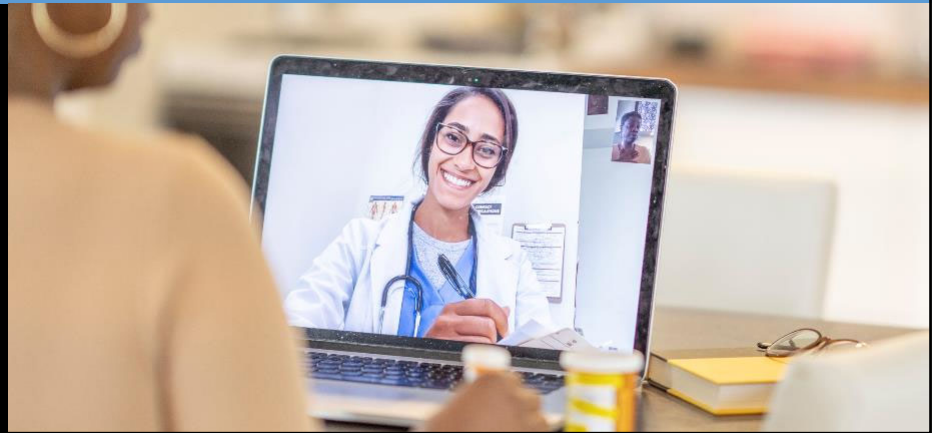
Proof of Concept: Connectivity Tests

- Many hospitals have their own telehealth network
- Tests conducted between Regional Children's Hospitals
- 6 California Children's Hospitals
- None could be immediately connected
- All required support from IT and/or Telehealth Team



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Two Studies



- Consortium of five states
- 13 million covered children
- Mixed methods study
 - Telemedicine utilization?
 - Systematic review of literature

OHSU Pediatric Surgery

- Tertiary referral center
- Retrospective review
- Was rural access preserved?



DOERNBECHER
CHILDREN'S
Hospital

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Background

- COVID pandemic has altered medical practice
- Efforts to “flatten curve” and preserve PPE ↑ demand for virtual care
- Telemedicine key tool in pandemic
- WRAP-EM: Hospitals/Organizations from WA, OR, CA, NV, AZ
 - ✓ Increase capacity/capability to care for children during disasters

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Aims

1. Understand impact of telemedicine on children in WRAP-EM consortium
2. Evaluate utilization of telemedicine within WRAP-EM during COVID
3. Systematic review to study broader context of telemedicine in pediatric care during COVID pandemic

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Methods

- Survey WRAP-EM consortium members 4/30-5/30 2020
 - ✓ Solicited current changes in telemedicine during COVID, projections for use
 - ✓ Responses analyzed qualitatively by WRAP-EM telemedicine group for themes
- Multicenter retrospective review on telemedicine utilization
 - ✓ Weekly run-charts compiled comparing in-person vs. telemedicine visits
 - ✓ Compared before-and-after pandemic declaration
- Systematic review of literature
 - ✓ PubMed search: “Pediatric,” “COVID,” “telemedicine”
 - ✓ Themes and lessons learned extracted

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Results – Cross-Sectional Survey

- 52-respondents
 - ✓ 37% MDs
 - ✓ 19% RNs
 - ✓ 23% patients
- 96% positive impression of telemedicine noting:
 - ✓ Increased utilization
 - ✓ Enhanced safety
 - ✓ Increased access
- Concerns around billing, security

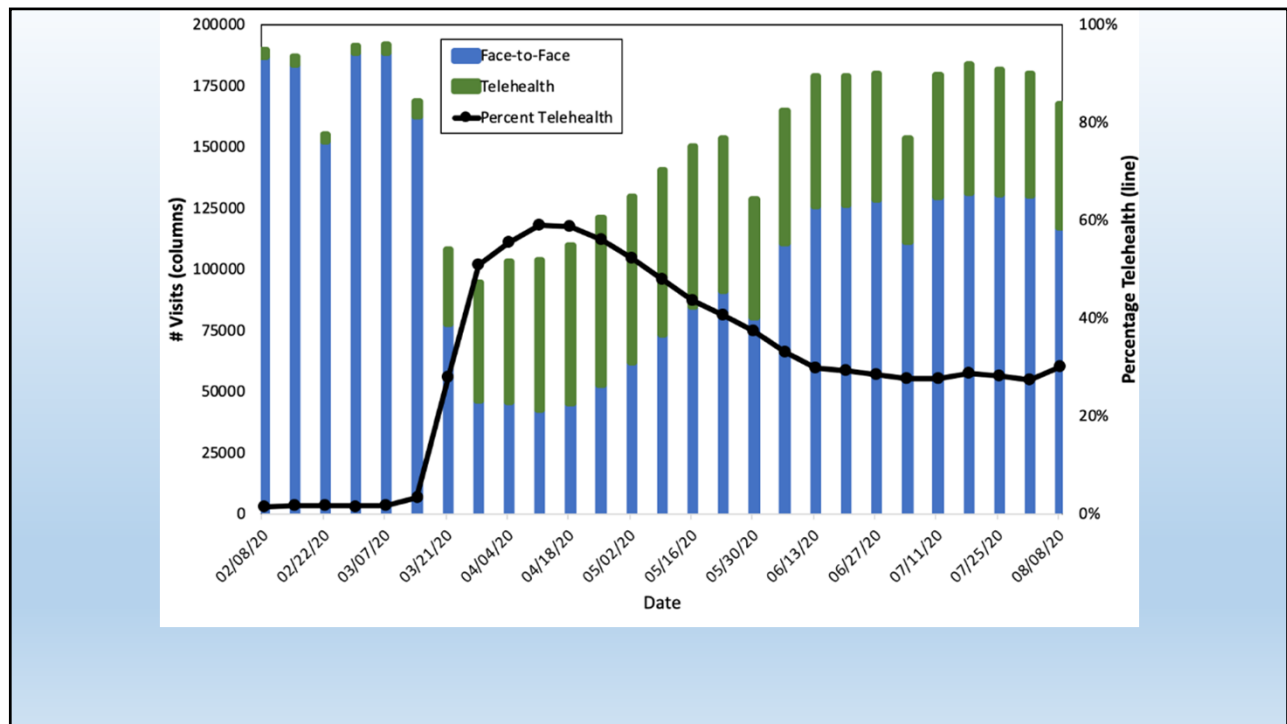
Specialty	Novel Telemedicine Application
Critical Care	Telemedicine incorporated into Code Blue cart limiting exposure
Burn Care	Teaching remote medical providers basic burn care to limit transfers
Emergency Med	Screening patients, home EMT visits communicating with providers
Education	Telemedicine objective-structured clinical examinations (OSCEs)
Nursing	Recertification and supervisory visits for Private Duty nurses

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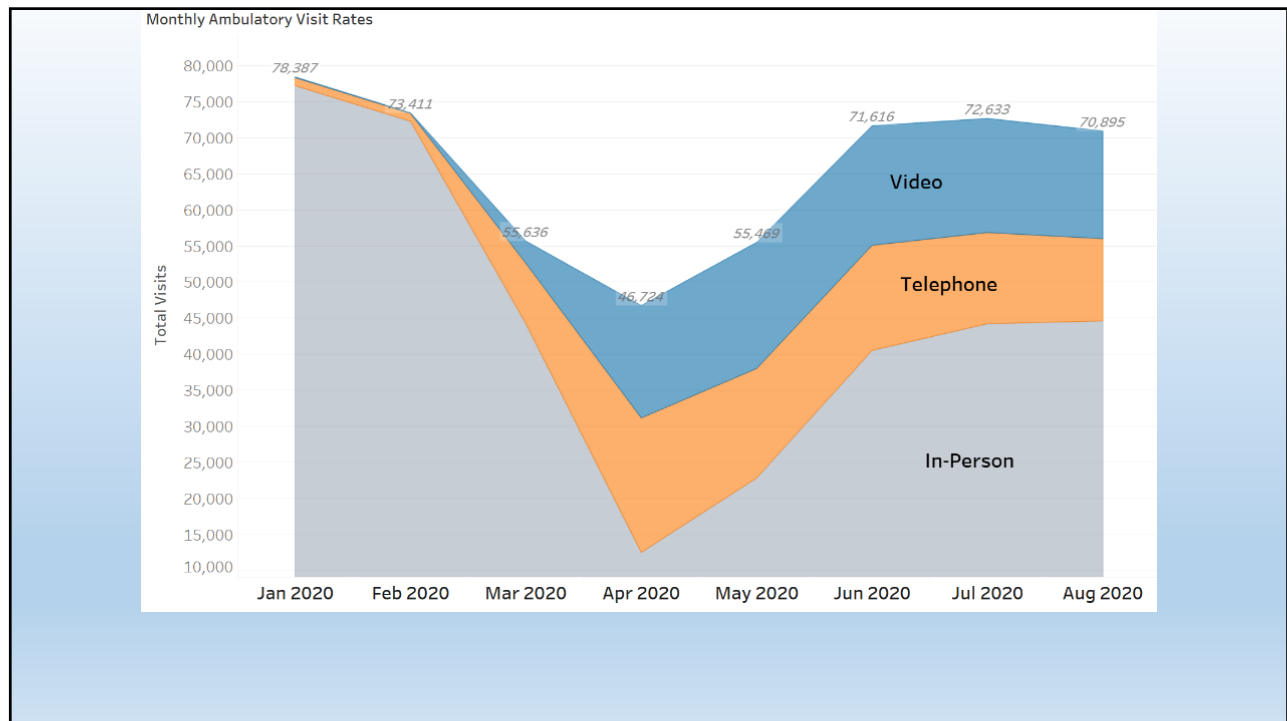
Results – Multicenter Utilization Review

- Weekly ambulatory visit data from 7 member organizations
 - ✓ 2/8/2020 – 8/8/2020
 - ✓ WHO declares COVID pandemic 3/11/2020
- Modest use of telemedicine pre-pandemic: 1-3%
- Significant increase during “stay-at-home” orders: 59%
- Telemedicine Utilization continues during relaxation of orders: 30%
- Telemedicine: Increases in both video and telephone visits

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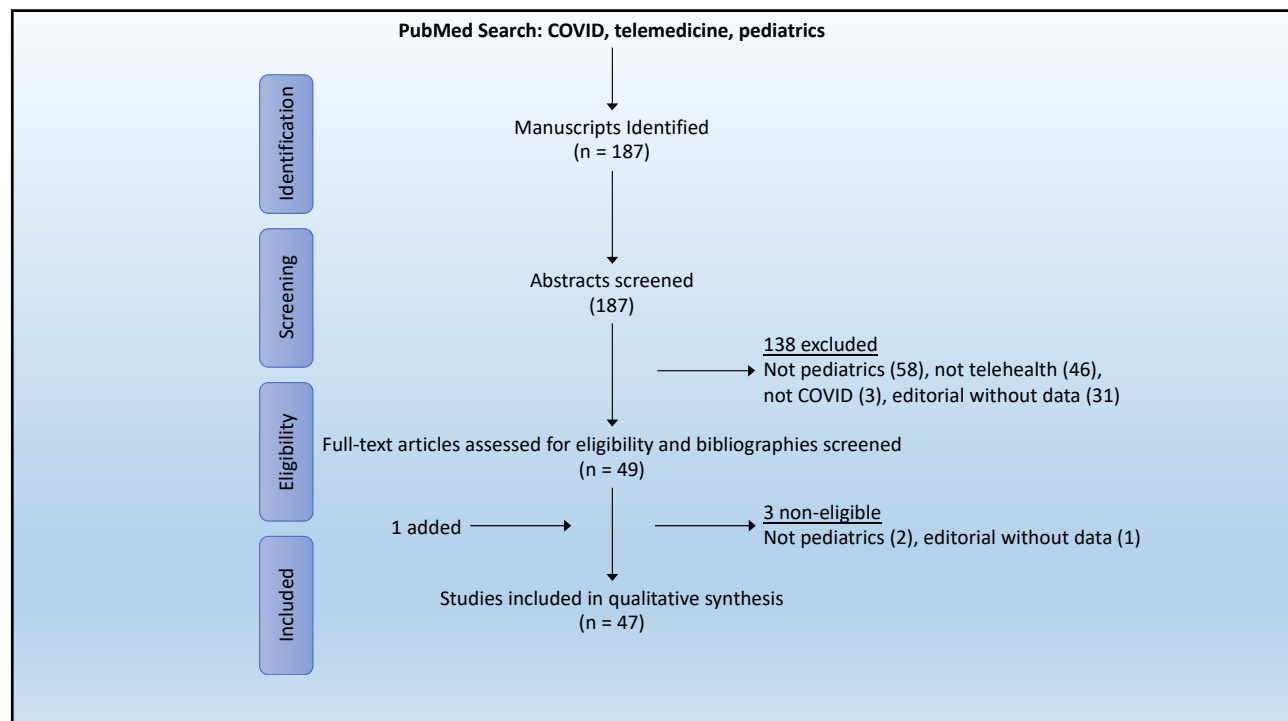
Results – Systematic Review of Literature

- 187 abstracts screened
 - ✓ 49 articles and bibliographies reviewed
 - ✓ 47 articles included in final analysis

Themes

- The implementation of telemedicine has been broad
- Patients and caregivers are satisfied
- Telemedicine improves access, but challenges remain

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Conclusions

- Telemedicine longstanding tool well-suited for population disasters
- Telemedicine utilization has increased during COVID pandemic
- Novel applications have emerged
 - ✓ Outpatient and inpatient roles
 - ✓ Advanced technology for discipline-specific exams
- Infrastructure limitations, particularly during initial phase of disasters

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Limitations

- Cross-sectional survey
 - ✓ Selection bias
 - ✓ Perspectives at point in time
- Retrospective multicenter review
 - ✓ Adult and pediatric data
- Systematic review of literature
 - ✓ All data level IV or V based on Oxford criteria

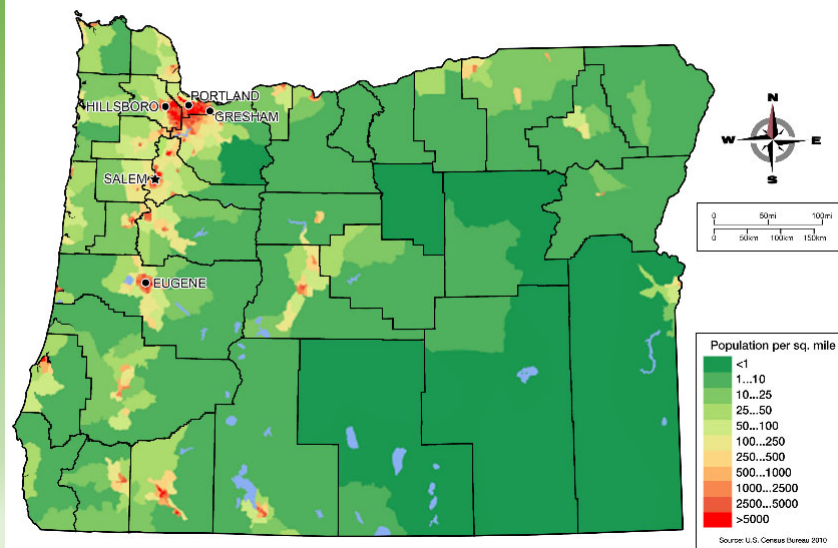
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OHSU Pediatric Surgery

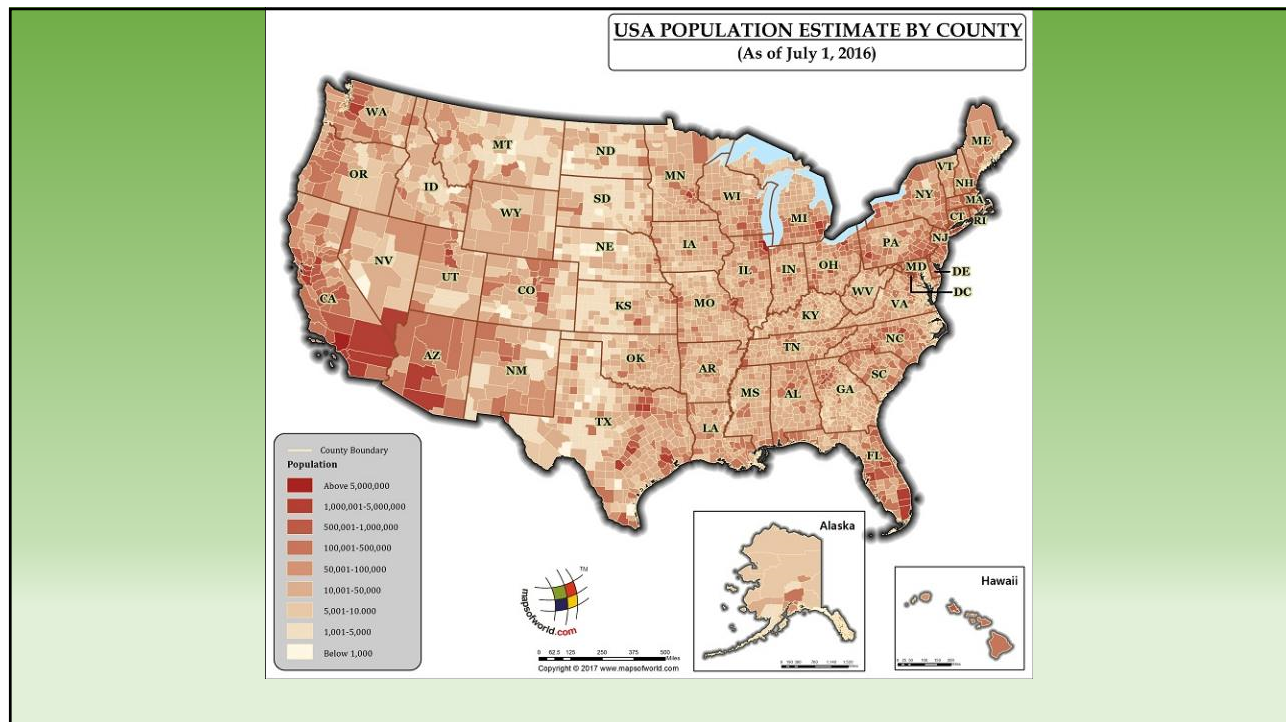
Retrospective review: Was rural access preserved?

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Oregon's Population Density



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Background and Purpose

- COVID has altered medical practice
- Increased use of telemedicine during pandemic
- Concern that telemedicine widens inequity

Questions:

- Has telemedicine use increased in pediatric surgery during COVID?
- What is the impact of telemedicine on children's access to pediatric surgery?

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Methods

Design: Retrospective case-control review

Setting: Single-center, tertiary referral pediatric surgery clinic

Time Period: June 2019 – June 2021

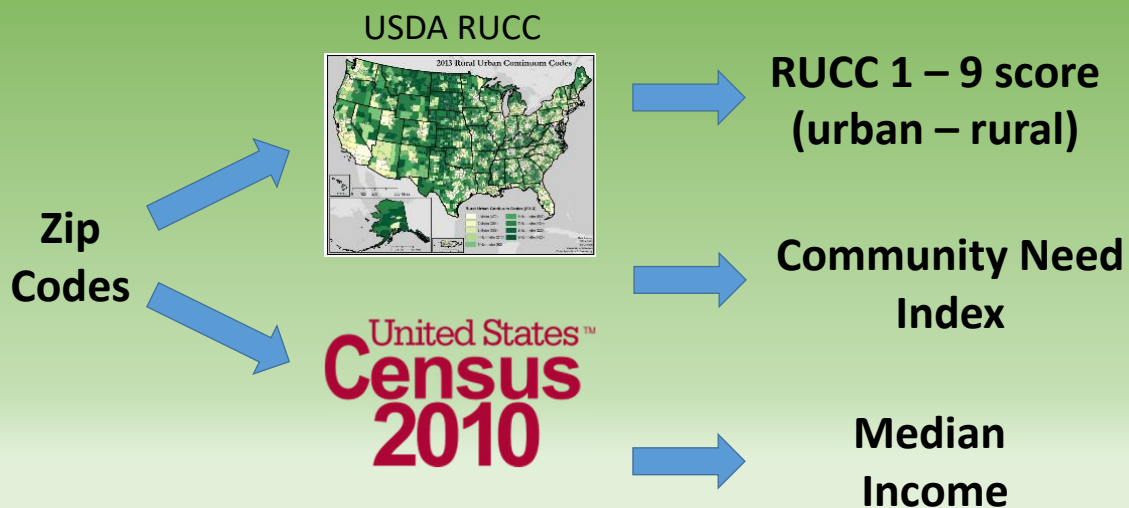
Measures:

- Date
- Visit type: New vs. follow-up
- Visit modality: In-person, phone, video
- Zip code
- No-show status



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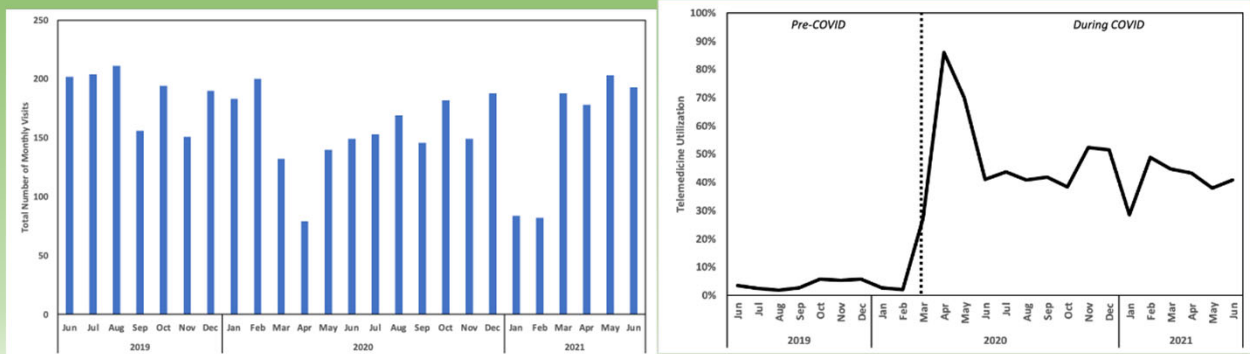
Methods: Rural-Urban and SES



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Results - Overview

4,106 encounters



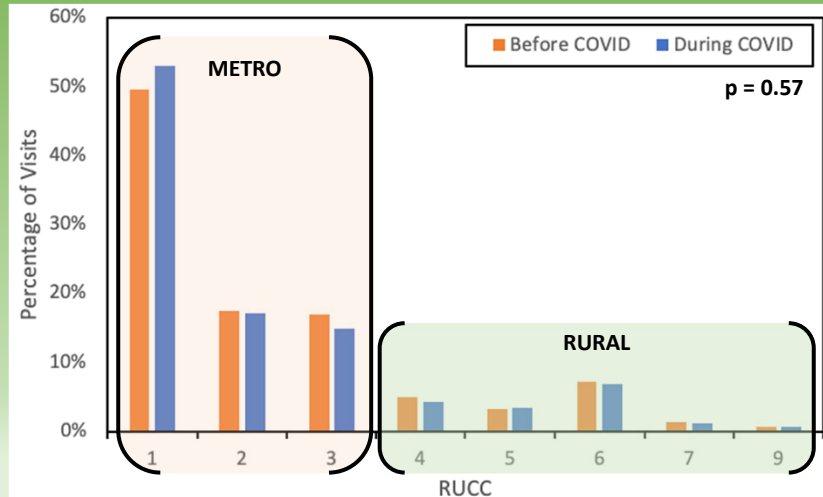
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Results

Table 1 - Visit Summary			
	Pre-COVID	During COVID	
<u>Visit Type</u>			
New Patient	531 (30%)	622 (26%)	
Follow-Up	1,215 (70%)	1,738 (74%)	p < 0.01
<u>Visit Modality</u>			
In-Person	1682 (96%)	1279 (54%)	
Telephone	29 (2%)	243 (10%)	
Virtual	35 (2%)	838 (36%)	p < 0.001
<u>No-Shows</u>			
In-Person	101 (6%)	58 (2.5%)	
Telephone	3 (0.2%)	14 (0.6%)	
Virtual	5 (0.3%)	81 (3.4%)	p < 0.001
Total	109 (6%)	153 (6%)	
Avg. Month	194	148	p < 0.01
Total Visits	1,746	2,360	
Time period JUN19-10M/ 11MAR20-JUN21			

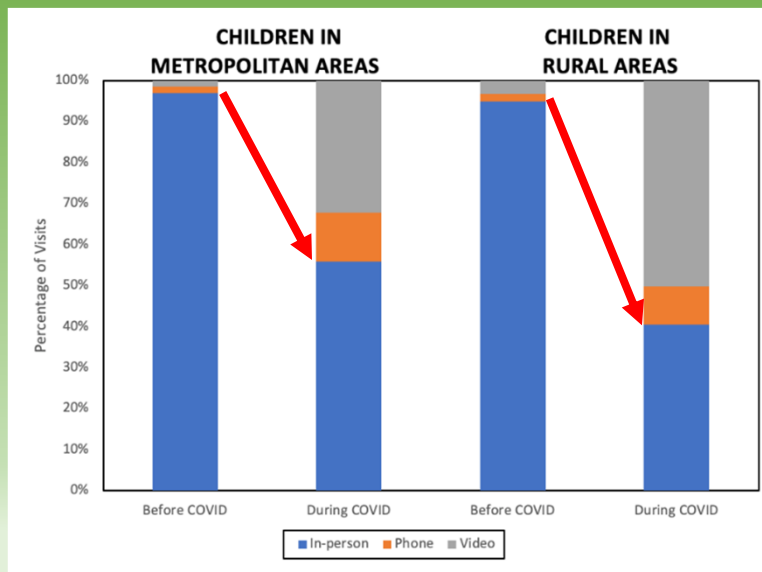
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Results – Rural-Urban Distribution



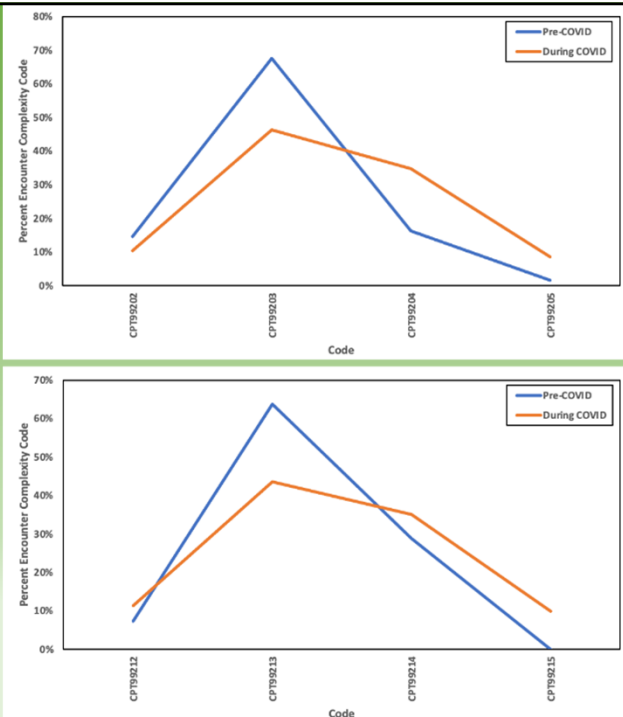
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Results



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No difference in clinic billing or decreased complexity with shift to virtual

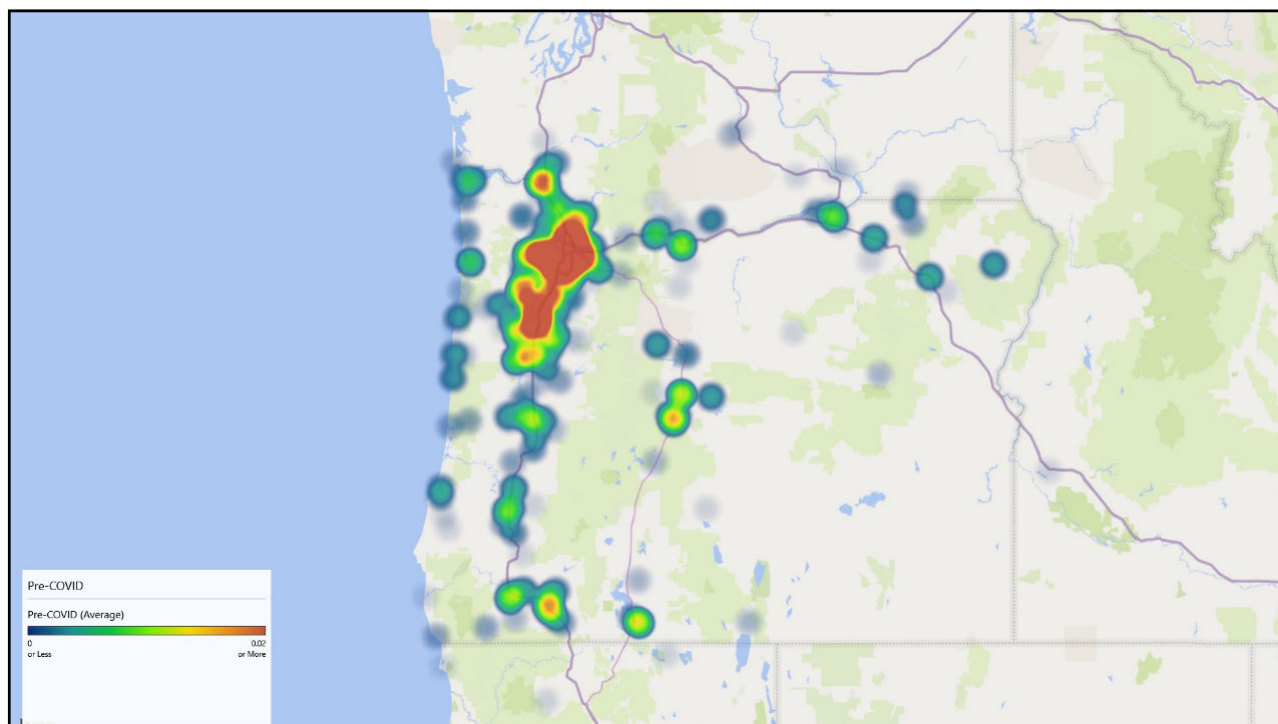


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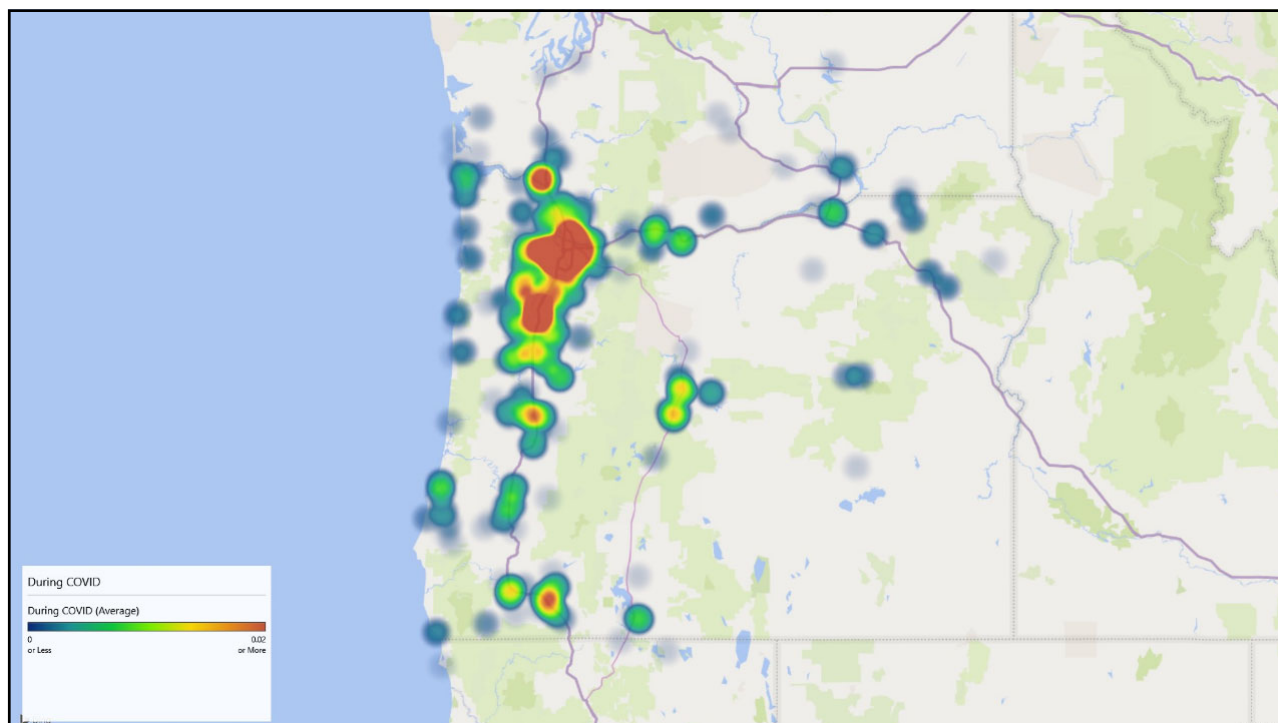
Heat maps

- Pre/Post pandemic – these heat-maps represent percentages of which zip codes people are coming from; absolute numbers also look quite similar but scales are off with absolute numbers
- Qualitatively, this supports the RUCC distribution data that rural access preserved and is a neat geographic way to look at where we serve
- There are also very low density colors in CA/Kansas/AK that represent 1-2 encounters which are not shown well and are cropped

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No Difference in CNI or Median Income

CNI	Pre-COVID	During COVID
Avg	3.205613	3.2125424
STDev	0.682648	0.7095392
n	1746	2360
Med Income	Pre-COVID	During COVID
Avg	52071.12	52277.57
STDev	13308.4	12771.467
n	1746	2360

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Conclusions

- Significant increase in telemedicine use in pediatric surgery
- Poor and rural access appears preserved
- Preservation of rural access appears to be mediated through telemedicine

Limitations

- Single center, retrospective
- Proxies for SES; rural-urban challenges more nuanced

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Telemedicine utilization increased across the board
Innovative applications to meet needs during COVID
Dramatic increase in Publications



Significant increase in telemedicine utilization
Access for rural children preserved
Preservation appears mediated through telemedicine

Next Steps

- Is preservation of rural access via telemedicine similar in the WRAP-EM region?
- Can telemedicine break down barriers to care for children?
- Develop best practices and iterate: "Minimizing variance in systems."

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Determination & Perseverance

2020's Lessons and 2021's Challenges



Questions?

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Thank You

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