Pediatric Safety Event

Findings Report

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transcend

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Table of Contents

Executive Summary

The Pediatric Safety Net initiative represents a bold and collaborative response to longstanding vulnerabilities in Michigan's pediatric emergency care system. With increasing demands on emergency services, persistent resource disparities between urban and rural settings, and a growing awareness of the limitations in real time pediatric data, stakeholders across the healthcare continuum gathered for a two-day working session to build a more equitable, data-driven, and resilient system of care.

This initiative brought together over 50 multidisciplinary professionals including pediatric physicians, nurses, hospital administrators, EMS leaders, public health officials, emergency managers, and data scientists. Participants were divided into three expert working groups each assigned a core objective aimed at transforming the pediatric emergency care landscape in disaster/surge conditions:

- **Group 1** focused on designing a Comprehensive Pediatric Dashboard that allows for systemwide visibility, supports rapid decision making, and helps quantify pediatric readiness across institutions.
- **Group 2** developed a tiered, trigger-based activation framework to ensure that operational strain on pediatric services prompts predictable, timely, and coordinated actions across the healthcare ecosystem.
- **Group 3** reimagined the pediatric critical care distribution model, calling for an equity centered approach that prioritizes dynamic load balancing, transport integration, and centralized governance.

Across all groups, a common thread emerged: the current system does not adequately support pediatric specific surge coordination, especially during scenarios such as viral outbreaks, mass casualty incidents, or severe staffing shortages. Participants agreed that transforming pediatric care response requires not just better data, but the right infrastructure, clear governance, and shared accountability.

The recommendations generated during the event were grounded in real world operational experience. For instance, discussions addressed issues like inconsistent definitions of "available beds;" transport delays in rural areas; EMS handoff breakdowns; and the challenge of staffing pediatric units in non-specialty hospitals. In response, participants proposed solutions such as real time dashboard enhancements, standardized communication protocols, and regional coordination hubs modeled after "air traffic control" concepts.

Equally important, the event emphasized the need for an inclusive, adaptable system. Rather than reinforce historical divides between "pediatric" and "non-pediatric" hospitals, participants advocated for a model that recognizes all facilities as part of the continuum—each with a role in stabilization, transfer, or surge support.

By the end of the two days, the initiative had produced a shared vision for pediatric readiness and safety, one that included real time data flows, standardized metrics, activation playbooks, and a statewide coordination infrastructure. These outputs now form the basis for a forward-looking action plan that addresses known gaps, anticipates

future surges, and promotes equitable access to pediatric critical care for all communities in Michigan.

This summary serves not only as a reflection of the group's work but also as a call to action. Implementation of these strategies will require continued collaboration, leadership buy-in, governance clarity, and sustainable investment. The Pediatric Safety Net is a platform for long-term transformation of pediatric emergency preparedness statewide.

The Process

The Pediatric Safety Net initiative was built on the premise that transformative solutions for pediatric emergency care must emerge from the collective experience and expertise of those who live and operate within the system every day. To that end, the process behind this initiative was intentionally structured to foster collaboration across professional disciplines, organizational roles, and geographic regions.

Planning and Structure

The event was organized as a two-day intensive working session, with participation from over 50 professionals representing hospitals, EMS agencies, public health departments, academic institutions, and statewide emergency preparedness coalitions. Participants were strategically assigned to one of three breakout groups, each tasked with solving a distinct but interconnected problem:

Group 1 focused on developing a standardized and actionable pediatric data set.
Group 2 was responsible for defining clear, measurable triggers for activating the Pediatric Safety Net plan.
Group 3 designed a pediatric critical care distribution model that functions in both routine and surge conditions.

These assignments were informed by the participants' backgrounds to ensure a mix of clinical, operational, and system level perspectives in each group. Pre-work materials, including transcripts, survey data, and regional dashboards, were distributed to help participants ground their contributions in real world conditions.

Facilitation and Guiding Questions

Each group operated under the guidance of a trained facilitator, supported by subject matter experts in emergency medicine, informatics, and pediatric transport. Facilitators used a standardized set of guiding questions to promote consistency in outputs, while allowing room for creative and context specific problem solving.

These guiding questions included:

- What real time data elements are needed to manage pediatric surges effectively?
- How can we define triggers that are actionable, equitable, and scalable?

- What structural changes would enable better distribution of pediatric patients across regions?

The event was designed as a highly interactive experience. Rather than relying on presentations or lectures, the process emphasized structured dialogue, rapid iteration, and the integration of multiple perspectives into clear deliverables. Participants engaged in small group discussions, shared field experiences, diagrammed system models, and reviewed real data sets to validate assumptions.

Cross Group Collaboration

At designated times throughout the event, groups paused their independent work to present updates and gather feedback from the full cohort. This cross-group collaboration helped align overlapping areas such as data integration, transport coordination, and dashboard functionality. It also ensured that each group's recommendations were compatible with the others.

For instance, Group 1's work on essential data elements informed Group 2's activation framework, while Group 3's proposed coordination hub supported the operational needs identified by both other groups. Facilitators tracked these connections and helped translate them into integrated recommendations.

From Concepts to Operationalization

The second day of the event was structured to shift the focus from strategic design to operational planning. Each group revisited its outputs and worked to clarify practical considerations, including:

- What existing systems or tools can support this solution?
- What barriers must be addressed to enable implementation?
- Who would be responsible for activating and maintaining this intervention?
- What early steps can be taken to show progress within six to twelve months?

The results were polished deliverables that included data specifications, activation thresholds, governance proposals, and implementation roadmaps. These were presented during a final session that allowed for alignment and synthesis across all groups.

Inclusive Engagement and Shared Ownership

Throughout the process, a strong emphasis was placed on ensuring that diverse voices were included. The event featured participation from rural hospitals, EMS agencies, public health officials, and administrative leaders, in addition to clinical specialists. This range of perspectives was critical to developing a Pediatric Safety Net that reflects the full complexity of Michigan's healthcare landscape.

Participants noted the unique value of the format, which broke down silos between data, operations, clinical care, and policy. This collaborative environment not only produced

actionable ideas but also established a strong foundation for ongoing partnership and collective ownership of pediatric emergency readiness statewide.

Group 1 Report – Data Framework

Summary of Group 1 Work

Group 1 was tasked with developing and implementing a comprehensive pediatric data framework to support the Pediatric Safety Net Program. The primary goal of this effort was to create a robust and adaptable data infrastructure capable of enhancing real time decision making during pediatric surges—whether triggered by acute events like mass casualty incidents or prolonged stressors such as seasonal respiratory illnesses. The resulting framework was intended to improve situational awareness, streamline transfer coordination, and enable statewide performance tracking through meaningful metrics. By leveraging existing infrastructure like the EMResource dashboard and reducing reliance on manual data entry, the group was expected to create a scalable, efficient, and user-friendly solution that facilitates timely and equitable pediatric care.

Deliverable Review and Findings

Establish Core Pediatric Data Elements

The group successfully defined a detailed set of data elements to be used across pediatric emergencies. These included patient age, acuity, vital signs, presumptive diagnosis, medical history, medications, and transportation mode. The group also aligned these data points with likely sources such as EMS assessments, EHR entries, and bedside evaluations. By rooting the data set in clinical workflows, the team ensured the proposed elements could be captured with minimal disruption.

Data Elements: Based on the discussions in Group 1, the following **core pediatric data elements** were identified as essential for establishing a Pediatric Safety Net:

Patient Level Data Elements

- Age (or age bucket: infant, toddler, adolescent, etc.)
- Acuity level
- Vital signs
- Diagnosis
- Presenting condition
- Past medical history
- Interventions already attempted
- Social vulnerability factors (e.g., insurance status, access to transportation)

- Special needs or disabilities
- Disposition or expected level of care

Prehospital and Triage Data

- 911/EMS call data (chief complaint, age/age estimate, triage bucket)
- Initial EMS assessment
- Mode of arrival (EMS vs. self-reporting/caregiver transport)
- EMS triage level
- Prehospital treatment provided

Hospital Capability and Capacity Data

- Number of pediatric ICU beds (staffed vs. licensed)
- Number of pediatric med/surg beds
- Real time bed availability (API implementation)
- Specialty resources (e.g., ECMO, isolation rooms, negative pressure)
- Staff availability and expertise (including telehealth capability)
- Ancillary services availability (RT, pharmacy, pediatric specialists)
- Hospital designation (general, pediatric capable, full pediatric center)
- Pediatric mental health service availability

System Wide Operational Data

- Transport availability (ground and air, timing and capacity)
- EMResource status indicators
- Hospital surge capacity (flex beds, ability to double rooms)
- Discharge projections
- Data integration capacity (EHR/EMResource/API connectivity)
- Public health indicators (e.g., flu/RSV/COVID trends)
- Telehealth coverage and consultation availability
- Coordination center or transfer call line status

Define Hospital Capability Metrics

Group 1 outlined metrics to describe facility level pediatric capability, including pediatric bed counts (ED, PICU, NICU), availability of board-certified EM physicians, telehealth capacity, and specialty services (e.g., trauma, burn). The metrics aimed to help identify gaps and determine which facilities were best suited to manage specific cases. Participants noted that capabilities vary significantly and proposed that some of these metrics be reported as static facility profiles, rather than time-sensitive updates.

Bed Capacity & Availability

- Total number of pediatric ICU beds (licensed vs. staffed)
- Total number of pediatric med/surg beds
- Non-rented ventilators available
- ECMO availability
- Negative pressure rooms available
- Surge capacity (e.g., ability to double rooms or convert adult beds for pediatric use)

Staffing & Expertise

- 24/7 pediatric emergency physician availability
- Pediatric hospitalist or general pediatrician on-site
- Access to pediatric intensivist (in person or telehealth)
- Ancillary services coverage (e.g., respiratory therapy, pharmacy, radiology)
- Specialized pediatric clinical staff availability (e.g., PICU nurses)
- Pediatric behavioral health capabilities

Equipment and Infrastructure

- Pediatric specific medical equipment (e.g., ventilators, infusion pumps, resuscitation carts)
- Access to pediatric surgical services
- On-site blood bank supply levels
- Lab capacity (e.g., turnaround time, ability to support surge testing)

Technology & Communication

- Telehealth capacity for pediatric consults
- Health information exchange/API readiness for real time data sharing
- Participation in EMResource dashboard with real time updates

Operational Status

- Ability to accept pediatric transfers currently (yes/no)
- Elective procedure status (operating, deferred)
- Readiness to hold pediatric patients in the ED during capacity challenges
- Participation in pediatric readiness surveys (e.g., >85% score)

Transport Coordination

- Pediatric transport team availability
- EMS ground and air transport interface
- Transport outage notification process (downtime >4 hours reported)

Real time Data Collection Strategies

The group advanced a vision for reducing manual data entry through the use of APIs and EMR-integrated feeds. While acknowledging current limitations at some institutions, they emphasized moving from twice daily updates to more frequent intervals (e.g., every 4–6 hours) or real time tracking when feasible. Barriers included staffing for data entry and technical gaps between inventory and EMR systems, which remain areas for future investment.

Real time Data Collection Strategies

1. Leverage Existing Platforms

- Use EMResource as the foundational dashboard for real time hospital capability reporting.
- Integrate EMResource with hospital EHRs via Application Programming Interfaces (APIs) to automate data uploads.

2. Define Essential Data Elements for Automation

- Prioritize a core set of critical data points (e.g., bed availability, ECMO circuits, ventilator supply) for automated real time feeds.
- Establish clear definitions and standardized formats for each data field.

3. Implement Scheduled Manual Data Entry

- For data not yet automatable, establish consistent manual entry intervals (e.g., 6 a.m., noon, 6 p.m.).
- Identify designated staff responsible for data input at each facility.

4. Develop Facility Profiles with Static/Periodic Data

- Capture and maintain relatively static data (e.g., pediatric specialties, telehealth capabilities) in pre-filled hospital profiles.
- Update periodically (e.g., quarterly or upon change in capability).

5. Introduce Tiered Data Update Requirements

- Daily updates for high priority dynamic data (e.g., staffed beds, transport availability).
- Weekly or monthly updates for secondary metrics (e.g., readiness survey score).

6. Utilize Centralized Data Coordination

- Establish a regional or statewide Pediatric Coordination Center ("air traffic controller" model) to interpret dashboard data and validate reported information.
- Enable the center to request situational updates or clarification from facilities as needed.

7. Employ Conditional Data Activation

- Build flexibility into the dashboard to activate or require additional data points in specific scenarios (e.g., blood supply status during trauma events, ECMO during respiratory surges).

8. Pilot API Connections

- Launch pilot projects with selected hospitals to test API data pulls from EHRs into EMResource.
- Assess data quality, lag time, and operational effort required.

9. Incorporate Quality Assurance Measures

- Conduct regular audits of data accuracy and timeliness.
- Provide feedback to facilities on data quality and usage trends.

10. Create Visual User-Friendly Interfaces

- Design simplified views for key stakeholders (e.g., transfer centers, pediatric leads) to prevent overload from too many data points.
- Offer filters and toggles to focus on relevant metrics during different emergency types.

Align with EMS/Public Health Data

The team incorporated EMS assessment data, transport availability, and public health surveillance trends into the broader dashboard vision. This cross-sector integration was seen as essential to understanding and responding to surges. Though public health data can lag, its value for forecasting and strategic planning was recognized.

EMS Data Alignment

a. Core EMS Data Elements to Align

- **Triage category** (e.g., START, JumpSTART)
- **Age and estimated weight**
- **Chief complaint and mechanism of injury/illness**
- **Prehospital interventions provided**
- **Initial vital signs and reassessments**
- **Transport destination and rationale**
- **Time of incident and time of arrival**

b. Integration Opportunities

- Link EMS run reports (ePCRs) into hospital dashboards or Pediatric Coordination Center
- Use data to inform surge triggers (e.g., multiple pediatric trauma transports)
- Enable early warning for MCIs or outbreaks affecting children

c. Dispatch level Data

- Real time integration with 911 dispatch (e.g., number of pediatric patients on scene)
- Alerting hospitals through EMResource or similar platforms when two or more pediatric units are deployed
- Develop EMS to Hospital handoff summary template that standardizes pediatric data

d. Transport Availability Monitoring

- Critical care transport team status (in service / out of service)
- Estimated arrival times for accepting facilities
- Vehicle and crew resource tracking (air and ground) integrated with dashboard view

Public Health Data Alignment

a. Use of Surveillance Data

- Incorporate real time or near-real time trends for:
    - **Influenza**, **RSV**, **COVID-19**
    - Emerging infections or syndromic surveillance flags
- Display regional trends on dashboard to support surge awareness

b. Social Vulnerability Integration with WebEOC

- Overlay public datasets (e.g., CDC/ATSDR Social Vulnerability Index)
- Identify geographic areas with:
    - Low pediatric specialty access
    - High ED usage
    - High uninsured or Medicaid populations

c. Public Health Reporting Channels

- Align with MDHHS, CDC, NHSN, and EMResource data reporting
- Ensure the Pediatric Safety Net system does not duplicate but enhances state/federal reporting streams

- Enable data feedback loops to public health for real time pediatric capacity trends

d. Strategic Use of Claims and Pharmacy Data

- Use payer claims (if available) to understand outpatient burden and referral trends
- Pharmacy fill patterns as collected by MDSS (e.g., pediatric cold medications) as an early outbreak signal

Cross system Collaboration Needs

- Establish **data-sharing agreements** between EMS, hospitals, public health departments
- Define **standardized pediatric terminology** across EMS, hospital, and public health systems
- Appoint **liaisons from EMS and public health** to participate in governance and data review
- Design **shared use cases** for real time collaboration (e.g., infectious outbreak response, evacuation planning)

Recommend Pediatric Readiness Indicators

Rather than relying on outdated or static survey scores, the group recommended functional readiness indicators—such as a facility's ability to accept pediatric transfers or retain patients of specific ages. This approach better reflects actual care capabilities during a surge and aligns with broader equity goals by not penalizing hospitals without PICU beds.

Recommended Pediatric Readiness Indicators

1. Pediatric Readiness Score

- Score from the National Pediatric Readiness Project (NPRP)

2. Pediatric specific Staff Availability

- 24/7 board certified pediatric emergency physician availability
- Pediatric hospitalist or general pediatrician on-site
- Access to pediatric intensivists (in person or via telehealth)

3. Availability of Pediatric Equipment

- Pediatric-sized airway equipment, resuscitation carts, infusion pumps, and monitoring devices
- ECMO capability (or defined access to ECMO centers)

4. Pediatric specific Bed Availability

- Pediatric ICU beds
- Pediatric med/surg beds
- Isolation/negative pressure rooms

5. Ancillary Support Services

- 24/7 respiratory therapy, pediatric pharmacy support, lab, and radiology
- Pediatric behavioral health services

6. Facility Type & Designation

- Pediatric capable ED vs. pediatric specific hospital
- Children's hospital, community hospital with pediatric services, or non-pediatric hospital with holding capability

7. Telehealth Capacity

- Ability to access pediatric specialty consults through telemedicine, especially for hospitals without in-house pediatric expertise

8. Willingness to Hold Pediatric Patients

- EDs' willingness to hold pediatric patients temporarily with remote consultation or until transfer is available
- Age specific holding policies (e.g., able to hold ≥12 year olds only)

9. Participation in Pediatric Assessments

- Completion of pediatric emergency care assessments (e.g., NPRP survey)
- Updates to readiness scores or facility profiles based on new assessments

10. Capability to Manage Pediatric Transfers

- Established policies and contacts for initiating pediatric transfers
- Capacity to serve as a receiver or stabilize for transfer

11. Surge and Disaster Readiness

- Internal pediatric surge plans
- Ability to double rooms or convert space during crisis situations
- Participation in pediatric focused exercises or drills

Draft Data Integration & Governance Structure

A stepwise implementation model was proposed, beginning with an audit of the existing EMResource dashboard. The team laid out a plan to modify data fields, engage multidisciplinary stakeholders, and define governance and input roles. This included user training, API enablement, and iterative refinement through structured feedback mechanisms. While this plan was comprehensive, its execution will depend on sustained leadership and funding.

1. System Architecture & Data Integration

a. Core Platform

- EMResource is recommended as the central data platform for pediatric capability and availability reporting.
- Leverage existing infrastructure rather than building a new system to improve adoption and minimize startup time.

b. EHR Integration via API

- Create API connections between hospital EHRs (e.g., Epic, Cerner) and EMResource for automated data pulls.
- Begin with pilot hospitals and expand based on success and lessons learned.
- Target data types for automation: staffed beds, ventilators, ECMO, boarding status.

c. Static Data Repository

- Facility level profiles with standardized data (e.g., pediatric readiness scores, specialty services, telehealth availability) updated quarterly.
- Stored in a linked, editable directory accessible through EMResource or the Pediatric Coordination Center.

d. Manual Data Entry

- Certain dynamic or nuanced fields (e.g., staffing concerns, equipment outage, willingness to hold patients) remain manual until automation becomes feasible. Manual data entry is only recommended during an incident.
- Standardized timing for manual updates (e.g., 6 a.m., noon, 6 p.m.).

2. Governance Structure

a. Oversight Body

- **Statewide Pediatric Safety Net Governance Council**, composed of a limited number of participants representing the following roles:
    - Pediatric physicians and nursing leaders (tertiary and community)
    - Emergency management representatives
    - Health system executives
    - Public health officials
    - Transport and EMS leaders
    - Health IT/data officers

b. Roles and Responsibilities

- **Governance Council**
    - Approves data definitions, dashboard elements, and indicator thresholds.
    - Manages cross system disputes or escalations.
    - Guides integration with state and federal systems (e.g., NHSN, HHS Protect).
- **Pediatric Coordination Center ("Air Traffic Controller")**
    - Monitors real time dashboard and assists with matching patients to available beds during an incident.
    - Requests clarification or updates from facilities.
    - Acts as the operational liaison between data, hospitals, and EMS.
- **Facility Data Leads**
    - Responsible for reviewing and updating facility level data.

- Serve as point of contact for dashboard operations and readiness reporting.

3. Data Standards and Quality

a. Data Definitions

- Standardized across facilities and platforms (e.g., define "available bed" as licensed + staffable within 4 hours).
- Definitions for pediatric capability categories: Med/Surg capable, pediatric ICU capable, neonatal ICU capable.

b. Data Validation

- Built-in rules to flag inconsistencies (e.g., 0 staffed beds but "open to transfers" marked yes).
- Routine audits conducted quarterly by Pediatric Coordination Center.

c. Tiered Data Update Requirements

- High priority dynamic data (e.g., PICU beds, ECMO, transport availability): updated at least 3x daily.
- Semi-static data (e.g., staffing model, services available): updated daily.
- Surge specific data (e.g., blood supply, transport outage): updated per incident.

4. Legal and Ethical Considerations

a. Data Use Agreements (DUAs)

- Agreements between hospitals and the EMResource operator outlining:
  - Data types shared
  - Update frequency
  - Permissions and limitations on use
  - Responsibilities during downtime

b. Security and Privacy

- Ensure compliance with HIPAA where applicable.

- Limit access to sensitive facility level data to authorized users only.

5. Evolution and Continuous Improvement

a. Performance Monitoring

- KPIs tracked include:
    - % of hospitals updating on schedule
    - Accuracy rate of reported data
    - Use of dashboard data in transfer decision making

b. Feedback Loop

- Regular stakeholder check-ins and surveys to identify pain points and enhancements.
- Annual revision of metrics and governance documents.

c. Expansion Planning

- Evaluate expansion to include outpatient pediatrics, mental health facilities, and school-based health centers.

Next Steps Identified by the Group

- Finalize dashboard data element definitions and standardize terminology across systems.
- Establish the Dashboard Data Working Group to oversee implementation and governance.
- Develop and pilot real time data feeds using EMR-integrated APIs.
- Create SOPs for data entry and dashboard use to ensure consistency across facilities.
- Develop formal data-sharing agreements to support inter-facility transparency.
- Train dashboard users and technical support staff on workflows and troubleshooting.
- Initiate tracking of key performance indicators to establish baseline metrics for system evaluation.
- Address legal and cultural barriers to information sharing through policy updates and outreach.

Group 2 Report – Plan Activation Triggers

Summary of Group 2 Work

Group 2 was tasked with defining clear, actionable triggers for activating the Pediatric Safety Net plan. These triggers are meant to help hospitals, EMS, and public health officials identify when the pediatric system is under stress and requires coordinated, elevated action. The group approached this by breaking triggers into categories, assigning measurable thresholds, and identifying both data dependencies and operational workflows. They emphasized the need for a proactive and standardized approach.

Define Trigger Categories and Criteria

Group 2 established four major categories for trigger development—volume, acuity, resource strain, and operational strain. They developed sample criteria under each and discussed the importance of making these triggers actionable, measurable, and tied to real time or near-real time data.

Volume Triggers:

*Triggers based on the **number of pediatric patients** in the system, either due to a sudden event (acute) or gradually increasing demand (chronic).*

Detailed Criteria:

- Acute events like school bus crashes, mass trauma, or fire incidents
- Seasonal surges such as RSV, flu, or gastroenteritis outbreaks
- ED throughput saturation due to high pediatric census
- Regional impact where a few hospitals carry the burden for many

Trigger Examples:

- 85% occupancy of staffed pediatric beds in a hospital
- 90% occupancy in all tertiary pediatric hospitals in a region
- Two or more major pediatric hospitals on diversion to pediatric transfers
- 15% week over week increase in pediatric ED visits systemwide
- 20% of total ED census is pediatric for 3 consecutive days

Acuity Triggers

*Triggers based on the **severity** of pediatric illness or injury, especially when high-acuity patients start to overwhelm specialty resources.*

Detailed Criteria:

- Spike in PICU level needs or trauma patients
- Increase in patients requiring high-resource interventions (e.g., ECMO, vents)
- Sudden uptick in specific syndromes (e.g., bronchiolitis, DKA, sepsis)

- Surge of medically complex children or technology dependent patients

Trigger Examples:

- 70% of PICU beds occupied across 3 or more pediatric centers
- 5 active ECMO patients across the state
- 3 pediatric trauma activations in 24 hours within a region
- Atypical clustering of high severity cases (e.g., 3+ intubations in a single ED shift)
- Identification of >5 children needing vent support and waiting >2 hours for bed placement

Resource Triggers

Triggered when key pediatric resources become unavailable or limited, including transport, equipment, or pharmaceuticals.

Detailed Criteria:

- Inability to transport critically ill children in a timely manner
- Supply chain issues affecting medication or oxygen delivery
- Staffing unable to cover key pediatric care roles
- Equipment constraints such as ventilators, pediatric beds, isolation space

Trigger Examples:

- Pediatric critical care transport unavailable >60 minutes
- 1 hour delay in finding a PICU bed for an accepted transfer
- Unavailability of essential pediatric medication (e.g., albuterol, sedatives, epinephrine)
- 2 hospitals reporting oxygen shortage impacting patient care
- Loss of telemetry monitoring capability in pediatric inpatient unit

Operational Triggers

Indicators that the healthcare system function is compromised, regardless of volume or acuity, due to process strain or structural limits.

Detailed Criteria:

- Excessive ED boarding
- Delayed elective surgery postponement decisions
- Internal disaster affecting pediatric services
- Staffing reallocation pulling away from pediatric specialty areas

Trigger Examples:

- Pediatric ED boarding >6 hours for more than 3 patients simultaneously
- 3+ hospitals delaying or canceling pediatric elective surgeries due to bed constraints
- Internal disaster (e.g., IT failure, water damage) causing closure of pediatric unit
- Multiple EDs reporting inability to maintain pediatric triage protocols
- Pediatric nurses reallocated to adult units for >48 hours

Deliverable 2: Identify Supporting Data Elements

Group 2 emphasized that activation triggers must be grounded in timely, accurate, and standardized data. Without this foundation, even the best defined triggers would be ineffective due to delays, inconsistent interpretation, or data inaccessibility. The group identified three tiers of supporting data: real time operational data, validated static/facility level data, and contextual data from EMS or public health. They also noted that automation via EHR/EMResource APIs would be critical for sustainability and speed.

Tier 1: Real time Operational Data (Dynamic & High Frequency)

These data-points change frequently and are essential to system-wide visibility and trigger activation.

Required Data Elements:

- Current number of available staffed pediatric med/surg beds
- Current number of available staffed pediatric ICU beds
- Number of occupied ECMO circuits
- Number of available pediatric ventilators
- ED boarding time for pediatric patients (e.g., >4 hrs)
- Status of critical care transport teams (available, en route, out of service)
- Number of pediatric transfers pending or on hold
- Elective surgery status (operating normally, delayed, or canceled)
- Staffing alert status (e.g., ability to maintain nurse-patient ratios in PICU)
- Incident or disaster declarations (internal, diversion, or EMS-triggered)

Tier 2: Facility level Capability Data (Semi-Static)

These data elements may not change daily but are vital for interpreting what each hospital can offer in a surge scenario.

Required Data Elements:

- Pediatric readiness score (e.g., from NPRP assessment)
- PICU and ED capacity limits (licensed vs. surge)
- Availability of telehealth pediatric specialty consultation
- Specialized services available (e.g., pediatric trauma, ECMO, dialysis)
- Facility designation (e.g., Children's hospital, pediatric capable, or general)
- Willingness to hold pediatric patients temporarily in the ED
- Behavioral health support availability for pediatric patients
- Capability to double up rooms or convert adult units for peds during surge

Tier 3: Contextual Data from EMS & Public Health

*These elements provide **external signals** about incoming volume, acuity, or system threats. Integration or data-sharing with EMS and health departments is critical for proactive posture.*

Required Data Elements:

- EMS dispatch volume involving pediatric patients
- Real time EMS diversion status
- ED pediatric chief complaint trends
- Syndromic surveillance data (e.g., flu/RSV spikes)
- Pediatric transport wait times or delays
- Public health alerts (e.g., outbreak notifications, MCI reports)
- Pharmaceutical shortage notices related to pediatric meds
- Indicators of social vulnerability (e.g., high-density low-resource zip codes)

Data Capture Recommendations
To ensure this data is collected and shared consistently:

- Use API integration to pull data every 5 minutes from EHRs into EMResource.
- Establish manual entry protocol for data not yet automatable (e.g., willingness to hold patients).
- Create standard data definitions to ensure statewide consistency (e.g., define "available ICU bed").
- Leverage EMResource or a unified dashboard as the single source of truth.

Align Triggers to Operational Actions

Group 2 stressed that defining triggers without specifying operational consequences would lead to inconsistency and confusion. To solve this, they proposed a tiered activation model—each tier reflects the severity of strain on the pediatric system and dictates specific, pre-agreed responses. These actions range from internal awareness to statewide coordination. The group emphasized that predictable, scalable responses are essential to avoid decision paralysis and to enable load balancing before the system collapses. They also highlighted the importance of building institutional muscle memory through drills and tabletops so that the actions tied to each tier become routine.

Tiered Trigger to action Framework

Tier 1: Alert – Monitor and Prepare

Criteria Example: Pediatric bed occupancy >75%, but <90%; staffing tight but stable; minor transport delays

Operational Actions:

- Notify internal hospital leadership and emergency management teams
- Begin internal tracking of pediatric volumes and acuity metrics
- Communicate status to pediatric coordination center or regional hub
- Increase frequency of internal pediatric data reporting (e.g., every 6 hours)

- Brief EMS leaders about early signs of capacity stress
- Pre-identify units that could convert or flex into pediatric use
- Prepare to delay elective pediatric admissions/procedures if necessary
- Encourage facilities to complete pediatric readiness validation if outdated

Tier 2: Coordination Activation – System Support Required

Criteria Example: 90%+ statewide occupancy, multiple pediatric facilities on diversion, significant transport delays or outages

Operational Actions:

- Pediatric Coordination Center is activated (staffed 24/7 if needed)
- Initiate load balancing: redistribute patients among available pediatric beds
- Begin regional coordination calls (e.g., every 8–12 hours) with hospitals and EMS
- Stand up telehealth support for community hospitals to retain low-acuity patients
- Send regular situation updates to EMS, public health, and regional partners
- Shift elective surgery status to "case by case" or pause as needed
- Adjust EMS routing protocols to bypass over-capacity facilities
- Enable direct physician-to-physician communication for pediatric triage decisions

Tier 3: Emergency Surge – Crisis-Level Coordination

Criteria Example: 100% regional capacity, transport failure, critical care waiting list forms, major incident affecting pediatrics (e.g., chemical spill, infectious outbreak)

Operational Actions:

- Full-scale Pediatric Medical Operations Coordination Center (PMOCC) activation
- Statewide communication alert issued via EMResource and public health channels
- Suspend all elective pediatric procedures statewide or regionally
- Implement alternate care sites for pediatric patients (e.g., adult wards, school gyms)
- Mobilize out-of-region or out of state transfer agreements
- Activate mutual aid staffing plans (e.g., pediatric specialists shift across systems)
- Coordinate medication and equipment redistribution (e.g., nebulizers, CPAPs)
- Use press/media communication to update the public and manage expectations
- Consider emergency declarations to access surge funds and regulatory waivers

Supporting Infrastructure Needed

To make these actions effective, the group recommended:

- Standard playbooks with role specific checklists for each tier
- Automated alerts within EMResource when data thresholds are breached
- Template communications for each audience: EMS, hospital leaders, public health
- Regular tabletop drills to practice trigger response alignment

Determine Dashboard and Data System Needs

Group 2 unanimously agreed that real time visibility into pediatric system status is the cornerstone of effective Pediatric Safety Net activation. Without a reliable dashboard, data becomes fragmented, decisions are delayed, and coordination breaks down. They recommended enhancing the existing EMResource platform rather than creating a new tool—leveraging its wide adoption and familiarity across healthcare, EMS, and public health sectors.

The dashboard must be dynamic, user friendly, and flexible enough to adapt to emerging threats or new data elements. Additionally, it should distinguish between standard operating metrics and surge specific indicators, enabling tailored responses for varying levels of system stress.

Dashboard Requirements

1. Core Functions

- Centralized, statewide pediatric visibility across EDs, PICUs, med/surg units, and transport
- Real time data refresh (via API preferred, every 5 minutes)
- Role based views (e.g., ED charge nurse, EMS dispatch, pediatric coordinator)
- Visual indicators of trigger thresholds met (e.g., color coded alerts or tier banners)

2. Required Dashboard Fields (Standard & Surge)

Standard Fields:

- Number of available staffed pediatric ICU beds
- Number of available staffed pediatric med/surg beds
- Elective surgery status (normal, reduced, canceled)
- Current ED pediatric boarding time
- PICU capacity utilization (%)
- EMCO circuit availability
- Pediatric ventilator availability
- Pediatric transfer status (open, delayed, closed)
- Pediatric transport team status (in service, out of service, ETA)

Surge Activation Fields:

- Emergency Department Triage acuity levels (e.g., % of Level 1 and Level 2 patients)
- Status of pediatric behavioral health beds

- Telehealth consult availability for pediatrics
- Pharmaceutical supply alerts (e.g., shortage of albuterol, sedation meds)
- Staffing alert flag (e.g., unit under resourced due to call-ins or reallocation)
- Notes field for qualitative updates (e.g., “double rooming now active”)

3. Data Flow & Integration

- API integration with EHRs (e.g., Epic, Cerner) for automated updates
- Manual override/edit capability for nuanced or non-integrated data
- Pull data from EMS systems (e.g., dispatch, ePCR platforms) for pre-hospital visibility
- Incorporate public health syndromic surveillance feeds (e.g., flu/RSV/COVID dashboards)

4. Technical Enhancements Needed

- Add custom pediatric specific modules to EMResource (or other adopted platform)
- Embed trigger logic into the dashboard to automatically flag activation levels (Tier 1–3)
- Build printable/exportable reports for incident briefings and documentation
- Include timestamping for each data entry or update to ensure freshness
- Enable notification features (e.g., SMS or email alerts when thresholds breached)

5. User Experience (UX) and Training

- Simplified interface with clear summaries (e.g., red-yellow-green dashboards)
- Filters by region, hospital type, or patient age group
- Training videos and quick reference guides for users at hospitals and EMS agencies
- Scheduled review sessions and drills using live dashboard data

6. Data Governance Considerations

- Clearly define who is responsible for each data field’s accuracy and update frequency
- Ensure HIPAA compliance and restrict access to sensitive patient or facility level data
- Create **statewide data use and sharing agreements**
- Establish a **governance body** to oversee dashboard evolution, field definitions, and user access across the region

Next Steps

1. Convene a Pediatric Trigger Governance Group
2. Standardize Definitions and Metrics
3. Test Triggers Through Scenario Based Tabletop Exercises
4. Build EMResource Enhancements
5. Secure State Buy-In and Data Sharing Agreements
6. Develop Communication Plans by Trigger Level
7. Create a Monitoring and Evaluation Framework

Group 3 Report – Pediatric Distribution Model

Group Objective and Intended Outcome

Group 3 was assigned to assess the current pediatric critical care distribution model across Michigan and propose a redesigned approach that supports both equity and efficiency during normal operations and surge events. The goal was to identify where critical care services exist, understand regional capacity gaps, and ensure that during high demand events such as respiratory virus surges or mass casualty incidents, children can be transferred and treated quickly and appropriately. The ideal outcome would be a scalable, trigger-based model that improves access to pediatric critical care, supported by real time data systems, coordinated transport, and clear governance.

Deliverable Review and Results

Mapping Pediatric Critical Care and Identifying Barriers to Access

Group 3 conducted a comprehensive assessment of Michigan's pediatric critical care landscape, aiming to understand both where capacity exists and how accessible and functional that capacity is under real world conditions. This effort went far beyond static counts of beds—it focused on the systemic, geographic, and operational dynamics that determine whether a child in crisis can get the care they need, when they need it.

Key findings:

- **Geographic and Transport Disparities**:
  - Pediatric ICUs are concentrated in a few urban centers, leaving many rural areas with no PICU access within 60–90 minutes.
  - EMS and critical transport services are limited or unavailable in many areas—especially those requiring pediatric trained teams.
  - Seasonal conditions (e.g., winter storms) further isolate certain regions, delaying or preventing transfers.
- **Staffing Limitations and Scope of Practice**:
  - Some hospitals report pediatric beds but lack trained staff, such as pediatric intensivists or pediatric trained nurses, particularly during nights or weekends.
  - Facilities often depend on adult trained providers who may not be confident or equipped to manage complex pediatric cases.
  - Subspecialist access (e.g., trauma, ECMO) is highly variable, resulting in uneven clinical capabilities across the state.
- **Infrastructure and System Gaps**:

    - Many hospitals have physical bed space but face constraints due to lack of ventilators, isolation rooms, or pediatric equipment.
    - Telehealth infrastructure—which could support remote pediatric consultation—is inconsistently deployed, especially in smaller or community hospitals.
- **Data and Operational Readiness Challenges**:
    - There is no standardized definition for "pediatric capable" beds or readiness across institutions.
    - Reporting tools like EMResource often reflect administrative bed counts but not whether a bed is staffed, equipped, or appropriate for a pediatric patient.
    - Surge protocols vary significantly; some hospitals have clear escalation procedures while others lack any documented response plan.
- **Transparency and Coordination Shortfalls**:
    - Hospitals marked as "open" for pediatric transfers sometimes lack the actual capacity or staff to receive new patients.
    - Mismatch between reported and actual readiness leads to failed or delayed transfers.
    - There is no unified statewide dashboard or coordination hub to guide transfer decisions, prioritize based on acuity, or match resources in real time.

These findings clearly demonstrate that equity and access are not just clinical issues—they're infrastructure and coordination challenges. Children's access to timely, specialized care depends not just on the number of beds in the state, but on:

- Where those beds are,
- Whether they are usable at the moment of need,
- Whether transport systems can reach them,
- And whether hospitals are empowered and informed to make the right decisions under pressure.

Rather than assuming uniform capacity or a one size fits all approach, Group 3 called for a nuanced, adaptive surge model that:

- Accounts for local variability in staffing, space, and clinical capacity.
- Uses real time data to dynamically match patients to appropriate facilities.
- Includes all hospitals in the system, without penalizing those that don't have PICU beds.
- Builds in coordination infrastructure to support transparent, centralized decision making.
- Elevates equity from a stated goal to a functional design feature of the Pediatric Safety Net.

These foundational insights directly shaped the group's recommendation for a trigger based pediatric distribution model supported by enhanced dashboards, coordinated transport pathways, and statewide governance.

Design Trigger-Activated Distribution Model

One of the most impactful contributions from Group 3 was the design of a trigger-based distribution model that dynamically manages pediatric critical care capacity across the state. This model addresses the limitations of static planning by using real time indicators to guide the activation and escalation of pediatric surge protocols. The group recognized that hospitals vary in resources and capabilities, and a flexible system must adapt to changing conditions in both urban and rural settings.

Core Elements of the Trigger-Based Model:

- **Real time Data Inputs for Trigger Activation Statewide and Regionally**:
    - Bed occupancy thresholds (e.g., >90% PICU capacity).
    - Availability of life-support resources, such as ECMO circuits or pediatric ventilators.
    - Closures to pediatric transfers at major referral centers.
    - Disruptions to transport infrastructure (e.g., unavailable pediatric critical transport teams).
    - Situational incidents, such as large-scale accidents or regional infectious disease surges, that impact multiple facilities simultaneously.
- **Scalable, Tiered Activation Levels**:
    - The model proposes multi-tiered response levels (e.g., awareness, enhanced coordination, full activation) triggered based on thresholds met across key metrics.
    - Lower tiers may initiate additional data monitoring and inter-hospital communications.
    - Higher tiers would prompt real time coordination and regional redistribution of patients and resources.
- **Prioritizing Equity in Access and Role Definition**:
    - The system is designed to **include rural and community hospitals**, rather than exclude them due to lack of PICU beds.
    - These facilities can still contribute to the overall response by stabilizing patients, participating in shared visibility dashboards, or holding low acuity cases.
    - The model avoids reinforcing structural inequities by recognizing the value of all hospitals in the pediatric care continuum.
- **Centralized Coordination – "Air Traffic Controller" Model**:
    - The group introduced the concept of a centralized surge coordination hub, operating similar to an "air traffic controller."
    - This coordinating entity would:
        - Monitor statewide and regional dashboards.
        - Facilitate placement and transfer logistics across systems.
        - Interface with EMS, transport providers, and receiving facilities.
        - Activate cross regional support when one area becomes overwhelmed.
    - The hub could be virtual or physically located within an existing state operations center or coalition command structure.

    - Prior to the ideal state, the hub could also be staffed by bed placement team members across various healthcare organizations using existing technology.
- **Data Driven Decision Making**:
    - All decisions within the model are anchored in live or near live data.
    - This ensures that decisions reflect current system status rather than legacy bed counts or outdated survey scores.
    - Dashboard customization allows users (e.g., transfer coordinators, EMS directors, hospital leadership) to view the metrics most relevant to their role.

This trigger-based distribution model represents a paradigm shift away from rigid, preassigned care pathways and toward a fluid, equity focused system that adapts to both resource availability and patient needs in real time, taking into consideration locations close to the patient's support system. It empowers hospitals of all sizes to participate meaningfully, promotes transparency and accountability, and ultimately enhances the likelihood that every pediatric patient will be cared for in the most appropriate and timely setting available.

Governance Recommendations

While Group 3's discussions around governance were thoughtful and forward looking, a formalized governance structure for managing pediatric surge operations across the state was not finalized. The group recognized that effective coordination in high stress, high urgency scenarios require not only data and dashboards, but also clearly defined leadership roles, escalation authority, and accountability structures.

Key Governance Concepts Proposed by the Group:

- **Creation of a State Level Pediatric Surge Oversight Team**:
    - This multidisciplinary team would serve as the operational authority during pediatric surge events.
    - Suggested representation included:
        - Pediatric physicians and hospital leadership (from both tertiary and community hospitals).
        - EMS system directors and transport leadership.
        - State and regional public health officials.
        - Health information and IT system administrators (e.g., EMResource representatives).
        - Emergency management and preparedness coordinators.
- **Core Responsibilities of the Oversight Team**:
    - Activate and manage surge response tiers based on data triggers (volume, acuity, closures, etc.).
    - Oversee and validate real time data dashboards, ensuring consistent definitions and usage.

    - Approve transfer protocols and coordinate resolution of resource bottlenecks (e.g., bed shortages, transport disruptions).
    - Serve as the liaison between frontline clinical teams, transport systems, and executive public health leadership.
    - Communicate updates to participating facilities and systems during ongoing surge conditions.
- **Decision making Ambiguity Highlighted**:
    - While the need for centralized leadership was agreed upon, who would ultimately hold activation authority—state public health, EMS command, regional coalitions, or a hybrid structure—remained unresolved.
    - Questions about how decisions would be enforced across independent hospital systems were also raised.
    - There was acknowledgment that legal and regulatory frameworks might need to evolve to support a shared, cross institutional command structure.
- **Funding and Sustainability Concerns**:
    - Participants emphasized that without dedicated, sustainable funding, governance efforts risk being one time or ad hoc.
    - Ongoing needs such as staffing the coordinator role, maintaining dashboard infrastructure, and providing surge drills or trainings would require investment.
    - The group noted potential funding sources, including:
        - Federal HPP (Hospital Preparedness Program) or ASPR grants.
        - State EMS/public health funds.
        - Public private partnerships with health systems.
- **Interoperability and Jurisdictional Alignment**:
    - Successful governance would require harmonizing procedures across:
        - Statewide emergency operations.
        - Regional healthcare coalitions.
        - Individual hospital system emergency plans.
    - The team stressed the importance of governance being inclusive, non-punitive, and consensus driven, while still maintaining the authority needed to act decisively in emergencies.

Path Forward

While consensus was reached on the importance of strong governance, the group acknowledged that finalizing the structure, authority model, and funding will require further convenings. These discussions should include executive level decisionmakers, legal counsel, and operational leaders. Governance will be the linchpin in transforming the proposed distribution model from a concept into a real world, operationally sustainable solution.

Transport and EMS Coordination

Group 3 placed significant emphasis on the pivotal role of transportation systems—both ground and air—in facilitating timely access to pediatric critical care, especially in a geographically large and demographically varied state like Michigan. Transport was identified not only as a logistics function, but as a clinical determinant of outcomes,

particularly in time sensitive scenarios like trauma, respiratory failure, or neonatal emergencies.

Recommendations on Pediatric Transport:

- **Mapping Transport Capabilities Across the State**:
    - The group called for a comprehensive statewide inventory of transport teams that are capable of managing pediatric and neonatal patients.
    - Key variables to map include:
        - Which agencies (EMS, private, hospital-based) can transport pediatric patients.
        - Availability of pediatric trained paramedics, nurses, or RTs on transport crews.
        - Equipment capacity (e.g., pediatric ventilators, isolation capability, incubators).
        - Which agencies offer **critical care transport** vs. basic transport for stable children.
        - Regional **transport deserts**—areas where no pediatric capable teams are stationed.
- **Integrating Transport Status into Dashboard Systems**:
    - The group proposed that transport readiness and availability data be included in real time dashboard tools.
    - Specific dashboard elements might include:
        - Active/inactive transport team status.
        - Any systemwide alerts affecting EMS (e.g., weather, road closures, concurrent disasters).
    - This would enable hospitals and command centers to make faster and more data-driven decisions when selecting destinations or determining if local stabilization is required.
- **Coordination Between Transport and Receiving Facilities**:
    - Gaps were identified in communication protocols between EMS/transport crews and hospital transfer centers.
    - The group emphasized standardizing:
        - Pre-arrival pediatric handoff templates.
        - Communication triggers for when EMS recognizes acuity that exceeds local hospital capacity.
        - Feedback loops to transport teams regarding receiving facility readiness (e.g., staffed beds, appropriate subspecialty care).
- **Transport as an Equity Tool**:
    - Without pediatric capable transport, even well-equipped hospitals can't fulfill their role in the care continuum.
    - The group emphasized that transport availability should not dictate a child's outcome, and strategies must be developed to:
        - Crosstrain existing EMS crews in pediatric stabilization.
        - Share transport teams regionally through memoranda of understanding (MOUs).
        - Expand state funding for specialized teams, especially in underserved or rural regions.

- **Readiness During Surges**:
    - During surge incidents (e.g., RSV, flu peaks), transport teams themselves become overwhelmed.
    - Participants suggested including dynamic staffing flags for transport—similar to hospital staffing flags—to indicate surge conditions.
    - This would allow central coordination hubs to reroute, prioritize, or request mutual aid more effectively.

By identifying transport as a **critical bottleneck in pediatric care access**, the group reframed it from a logistics afterthought to a front-line asset requiring investment, tracking, and integration. Their recommendations aim to bridge the gap between capacity and access—ensuring that children, no matter where they present, can be moved safely, quickly, and appropriately to the care they need. The inclusion of transport data in operational dashboards and planning models is a necessary evolution for any modern, equitable pediatric surge response system.

Data Integration and Dashboard Usage

To support the functionality and scalability of their proposed trigger-based distribution model, Group 3 identified the EMResource dashboard as the most logical and practical platform for integration—given its existing statewide adoption and familiarity across health systems and emergency response partners. However, they also acknowledged that the current configuration of EMResource is limited in its ability to reflect real time pediatric specific data and transport readiness.

Proposed Enhancements to the Dashboard:

- **Shift from Manual "Push" to Automated "Pull" Data Systems**:
    - Currently, EMResource relies heavily on manual data entry, which introduces lag and variability.
    - The group proposed integrating EMR connected APIs (Application Programming Interfaces) to allow for:
        - Automatic updates of bed availability, vent usage, and staffing levels.
        - Reduced data entry burden on clinical or administrative teams.
        - Higher confidence in the accuracy and timeliness of displayed data.
- **Add Pediatric specific Critical Resource Metrics**:
    - The existing dashboard was seen as too adult focused or generic. Key pediatric additions recommended included:
        - ECMO circuit availability: Number of pediatric ECMO capable centers and circuit status.
        - Ventilator inventory: Specifically non-rented pediatric ventilators.
        - Isolation bed capacity: With age specific criteria.
        - Transport capability flags: Including team readiness and out-of-service notices.
        - Elective procedure deferral status: As an indirect signal of surge pressure.
- **Visualize Real time Transport Status**:

    - Group 3 emphasized that transport availability should be visible alongside hospital data, not separate from it.
    - Suggested features:
        - Color coded status of pediatric capable transport units.
        - Indicators of ETA, surge status, and out-of-service notifications.
        - Geospatial overlays to map transport accessibility by region in real time.
- **User Customization and Scenario Specific Views**:
    - Recognizing that different users (e.g., transfer coordinators, EMS leads, pediatric hospitalists) have different data needs, the group called for:
        - Customizable dashboards where users can select relevant data fields.
        - Scenario specific modules—for example:
            - Mass casualty incident (MCI) view with trauma triage and blood supply.
            - Respiratory surge view prioritizing ventilators, boarding, and transfer delays.
        - Toggle options to hide/show certain data elements depending on the incident type or operational tier.
- **Interface Usability and Adoption**:
    - Participants noted that any upgrade must preserve the usability that makes EMResource widely accepted.
    - Proposed features included:
        - Mobile responsive views for use by EMS in the field.
        - Summary panels with key indicators at a glance.
        - Built-in help prompts and tooltips to clarify pediatric specific metrics.
- **Governance and Permissions**:
    - With greater automation and complexity comes the need for clear user access controls.
    - The group recommended tiered access (read/write/edit) for different users, with pediatric coordination leads having enhanced visibility and authority.

These enhancements aim to transform EMResource from a static situational reporting tool into a dynamic decision support platform that enables precise, equitable, and timely coordination of pediatric surge resources. By embedding pediatric metrics, real time transport data, and API based automation, the dashboard can serve as the digital backbone of Michigan's Pediatric Safety Net. The group stressed that user centric design and operational alignment—not just technical upgrades—will be essential to drive adoption and effectiveness.

Next Steps Identified by the Group

1. Finalize the governance structure for pediatric surge response, with representation from hospitals, EMS, and state health authorities.
2. Enhance & Educate on the EMResource dashboard with pediatric specific data elements and transport visibility (**Goal: Fall of 2025)**.

3. Develop SOPs for hospital transfers, including triage criteria and communication pathways.
4. Establish a phone call system that can be managed out of multiple bed transfer systems (**Goal: Fall of 2026)**
5. Conduct a statewide assessment of pediatric transport readiness and team availability.
6. Establish an ethical considerations work group for this effort (**Goal: Summer 2025)**
7. Secure funding and resources to support data automation, dashboard integration, and transport capacity building.

Action Items

Finalize and Publish Core Pediatric Data Set

- Validate data elements with stakeholders
- Establish standard definitions and reporting frequencies
- Integrate into EMResource or other shared platforms

Operationalize Trigger Based Activation Tiers

- Develop standardized playbooks linked to Tier 1–3 triggers
- Implement alerting mechanisms in dashboards
- Conduct tabletop exercises to build system muscle memory

Modernize and Expand Pediatric Dashboard Functionality

- Prioritize EMResource enhancements (e.g., pediatric specific fields, automation, customizable views)
- Enable real time updates via EHR and EMS API integrations
- Include transport status, staffing alerts, and elective procedure flags

Create and Staff a Pediatric Coordination Hub

- Define governance structure and escalation authority
- Staff with cross system personnel or use a rotating virtual model
- Align with existing coalition or state emergency operations

Support Data Governance and Legal Agreements

- Draft data sharing agreements and MOUs
- Clarify access levels and expectations across organizations
- Build a data dictionary to ensure consistency

Improve Access to Pediatric Transport and Specialty Resources

- Map current pediatric capable transport availability
- Create visibility in dashboards
- Develop mutual aid agreements for rural and underserved regions

Engage Leadership and Secure Sustainable Funding

- Present findings to state and health system executives
- Identify federal, state, and public private funding streams
- Build long term sustainability plans for staffing, tech, and training

Track Progress Through KPIs and Continuous Feedback

- Define success metrics (e.g., transfer time, utilization, patient outcomes)
- Review dashboard use and data quality regularly
- Refine model based on real world events and feedback

Participating Organizations

Bronson Children's Hospital

Children's Hospital of Michigan

Corewell Health Children's Hospitals

Covenant Healthcare

CS Mott's Children's Hospital

Henry Ford Health

Michigan Department of Health & Human Services

Michigan Medicine

Region V For Kids

Trinity Health Ann Arbor Hospital

Upper Peninsula Health System