
WEMSYS HIE Roadmap -A guide for future implementation

Purpose

The purpose of this “roadmap” is to guide the future integration of EMS data with the Washington State Health Information Exchange (WA HIE). This roadmap will inform Washington Emergency Medical Services Information System (WEMSYS) leadership, EMS partners, and other emergency care system stakeholders of potential approaches to HIE integration. Technical experts and key partners developed it through collaboration.

Background

In response to stakeholder needs and emerging informatics policies, the Department of Health (DOH) is pursuing the integration of EMS data into the WA HIE. The WA HIE is a data transport mechanism by which health care organizations may share standardized messages with trading partners on a system-to-system basis. In Washington, OneHealthPort serves as the sole HIE vendor for a statewide exchange system. This offers an opportunity for broad availability of data exchange between EMS services and hospitals across the state. The DOH is pursuing opportunities to move the state emergency care system toward a future where patient data may be exchanged easily and quickly for emergent care, public health surveillance, and quality improvement.

The advantages for EMS with HIE integration include compliance with regulations (RCW [18.71](#), [18.73](#), [70.168](#), and [WAC 246-976](#)), the ability to measure outcomes and identify opportunities for quality improvement.

Additionally, the advantages of HIE integration for EMS may include:

- Searching an individual’s health information
- Alerting the receiving hospital about an individual’s status
- Filing the EMS patient care report directly with the receiving facility
- Reconciling the hospital Electronic Health Report information such as diagnosis and disposition directly with the EMS patient care report

Partner Input

In 2021 the DOH called together the HIE Roadmap Workgroup to elicit input from stakeholders across multiple partner areas, including hospitals, EMS physician medical program directors, and EMS services representing tribal organizations, urban centers, and rural areas. The workgroup membership was open to all interested parties, including electronic patient care report (ePCR) system vendors and hospital organizations.

The WEMISIS team worked closely with ImageTrend (the state EMS data system vendor), OneHealthPort (the state HIE vendor), and the DOH Health Technology Services (HTS) team to identify solutions that are technologically feasible and efficient for this effort.



Figure 1: Word Cloud from content analysis of WEMISIS HIE Roadmap Workgroup discussions.

Partner Input summary

Figure 1 above shows a visual representation of the complex themes brought up by participants in the HIE Roadmap Workgroup. Below is a summary of the motivations, solutions, and gaps identified during the HIE Roadmap Workgroup sessions.

Motivations

Most partners, when asked about their motivations to exchange data, described a desire to:

- Meet the requirements in regulations RCW [18.71](#), [18.73](#), [70.168](#), and [WAC 246-976](#)
- Track and improve patient outcomes

Local Solutions and Innovations

EMS services and hospital partners have been working to identify and overcome barriers to information exchange. These include:

- Working with their ePCR vendor to create local health information exchanges with partner hospitals
- Utilizing a variety of applications, voice, digital, and fax communications to collaborate on patient care and meet reporting requirements

Gaps in Communication/Connectivity

Partners identified essential care as a priority and the need to meet regulations when discussing connectivity needs.

- Delivering the ePCR to receiving facility
- Acquiring outcome data from receiving facility
- Accessing complete EMS records by the receiving facility
- Keeping up with expensive technological advancements and resource-intensive reporting requirements

Core Solution Criteria

The WEMISIS team compiled stakeholder input, consulted with key informants, and DOH HTS to develop proposed solutions to statewide data exchange. Future solutions should be considered regarding the following characteristics:

- **Impact of regulations** – Does the solution work to minimize the work involved in meeting the reporting requirement for healthcare providers?
- **Quality improvement** – Does the solution improve capacity to track local, regional, and statewide performance measures, to help inform and improve patient care?
- **Feasibility** – Does the solution work within the confines of existing or available resources such as technical subject matter experts and staffing needed to support the concept at the local, regional levels, and at DOH?
- **Equity** – Does the solution benefit EMS services and hospitals across the state, including rural communities where barriers to investing in technology solutions may be greater?

Necessary Resources

Interest, participation, and engagement among EMS partners and other key stakeholders were identified as the elements needed to ensure the success of any HIE solution for EMS data.

Technical resources may also be needed to implement an HIE solution. Stakeholders emphasized that local investment in technical resources would require support from local community leaders who may need to be incentivized and believe in the return on investment to fully buy into the concept.

Limitations

Cost – Cost for both local EMS services and the WEMSIS program was identified as a limiting factor.

Reliance on infrastructure enhancements – EMS services across the state vary in their technology infrastructure. Some services report that they are using paper records or computer systems that are outdated or have significant limitations. A statewide solution available to all will need to address and account for these disparities in resources.

Duplication of efforts – Some counties and EMS services have invested significant resources and political capital in local data exchange solutions. Implementing a statewide solution will likely result in a duplication of these other models built by local and regional partnerships. While a statewide solution may promise a broader availability of data exchange, it may be of minimal benefit to those already operating exchanges.

Future Focus

Currently, WEMSIS receives data from EMS services through various ePCR vendors, see *Figure 2*. *Figures 3 and 4* show two functional models of potential future approaches, discussed below.

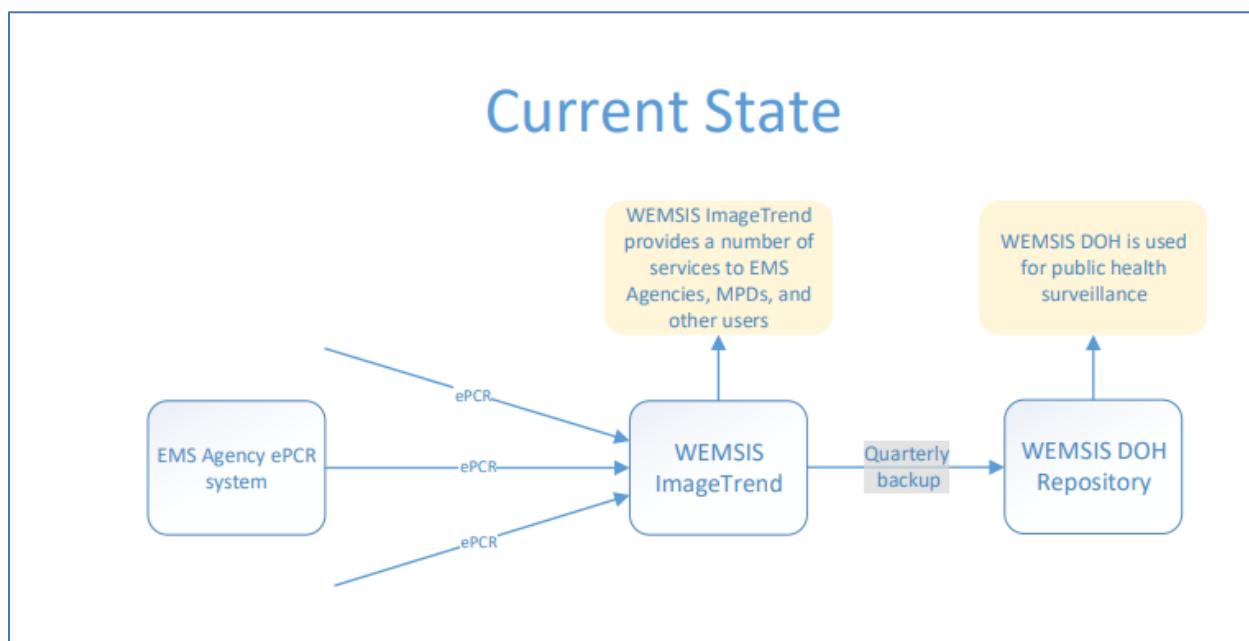


Figure 2: Current state of data flow from EMS agency to WEMSIS/DOH

Approaches

The first two approaches below focus on partnerships. EMS services and ePCR vendors would connect directly to the HIE to develop specific EMS service-based local or regional solutions. In these approaches, DOH involvement is limited (*Figure 3*). They are detailed in *Tables 1 and 2*. These approaches may be limited in their impact and depend on local resources.

EMS Based Approach

Under this approach, each EMS service or centralized office representing EMS services (such as a county EMS office) would work with OneHealthPort and the EMS ePCR vendor(s) to establish connections with hospitals through the WA HIE.

DOH would facilitate EMS discussions with OneHealthPort and other key partners to encourage data exchange connections that support the core solution criteria described in this roadmap. While DOH’s role is technologically “hands-off” in this approach, it would still play a role in ensuring a consistent approach.

Benefits	More direct and timely access to data to be exchanged Fewer parties involved in the exchange of data No change to WEMISIS data submission
Risks/ Limitations	Separate data exchange route to hospitals than WEMISIS Staff burden to maintain relationships and systems Limited equity impact
Resource Needs	ePCR partner connection to HIE Partner agreement with OHP includes fees

Table 1: EMS-Based Approach

Vendor Based Approach

Under this approach, each ePCR vendor would work with OneHealthPort to establish connections with hospitals through the WA HIE and offer EMS services connection options via HIE. DOH would facilitate vendor connections with OneHealthPort and other key partners to encourage connections that support the core solution criteria described in this roadmap.

Benefits	Potential shared cost across those EMS services using same ePCR vendor Equity potential for smaller EMS services
Risks/ Limitations	Requires negotiation with ePCR and EMR vendors Dependent upon technical and business feasibility Staff burden to maintain relationships and systems
Resource Needs	Local EMS and hospital champions to participate in discussions with respective vendors.

Table 2: Vendor-Based Approach

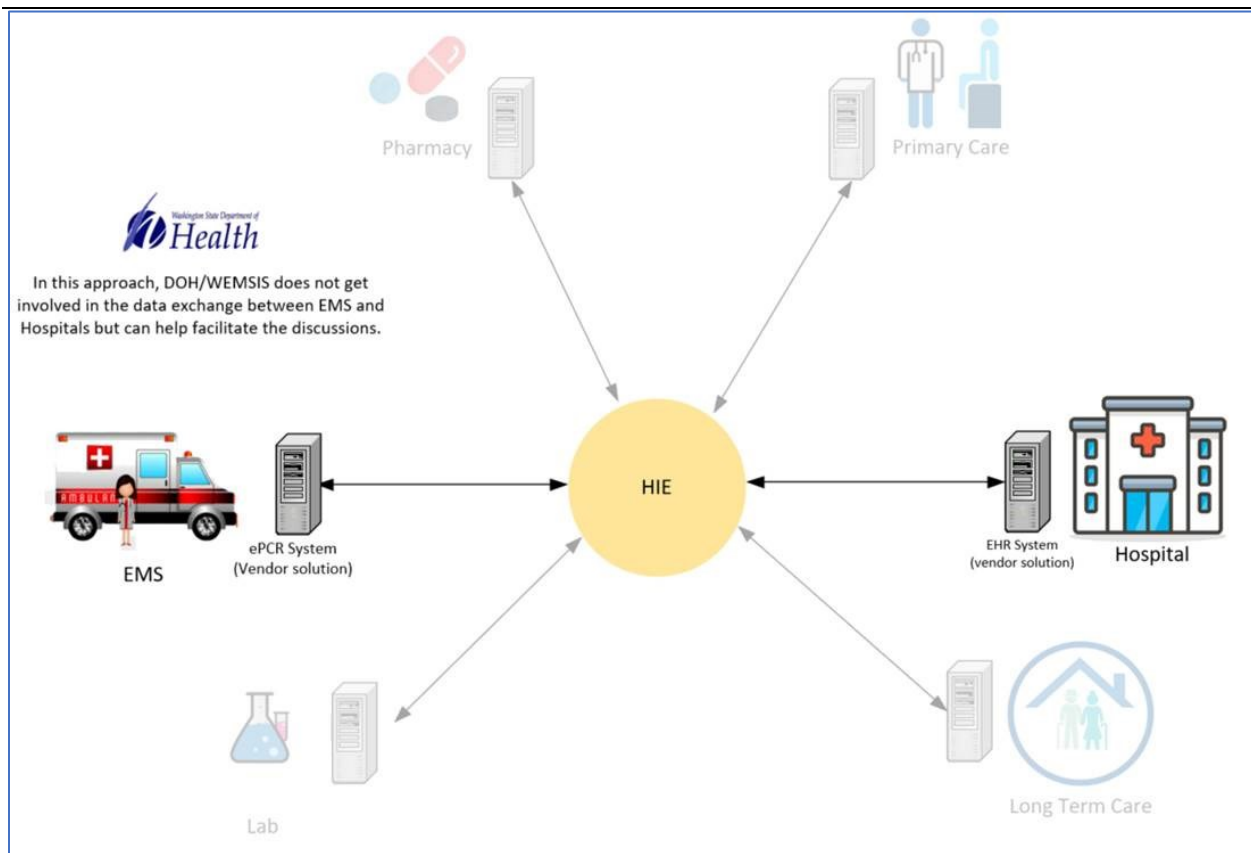


Figure 3: EMS or Vendor Based Approach

DOH Based Approach

The approach in *Figure 4* below shows a more prominent role by DOH in data exchange and in developing the data exchange infrastructure for all partners. Under this approach, the DOH WEMSIS team would pursue a direct exchange between the WEMSIS data system and hospitals.

The goal of this exchange would be to make WEMSIS data more accessible to hospitals and patient outcome data more accessible to EMS services through the WEMSIS system, rather than through direct exchange between EMS and hospitals.

<p>Benefits</p>	<p>Provide full ePCR record to hospital in near real-time Eliminate the need for individual agency agreements with OHP Could provide hospital outcome data to WEMSIS record Could lead to additional connections to other data systems Ensures DOH access to outcomes data to support quality improvement and performance measurement</p>
<p>Risks/ Limitations</p>	<p>Funding availability for vendor costs and/or DOH staffing Willingness of hospitals to add WEMSIS as HIE destination/trading partner</p>

Resource Needs	Funding for vendor costs and DOH staffing Continued input from EMS data partners DOH Health Technology Services support
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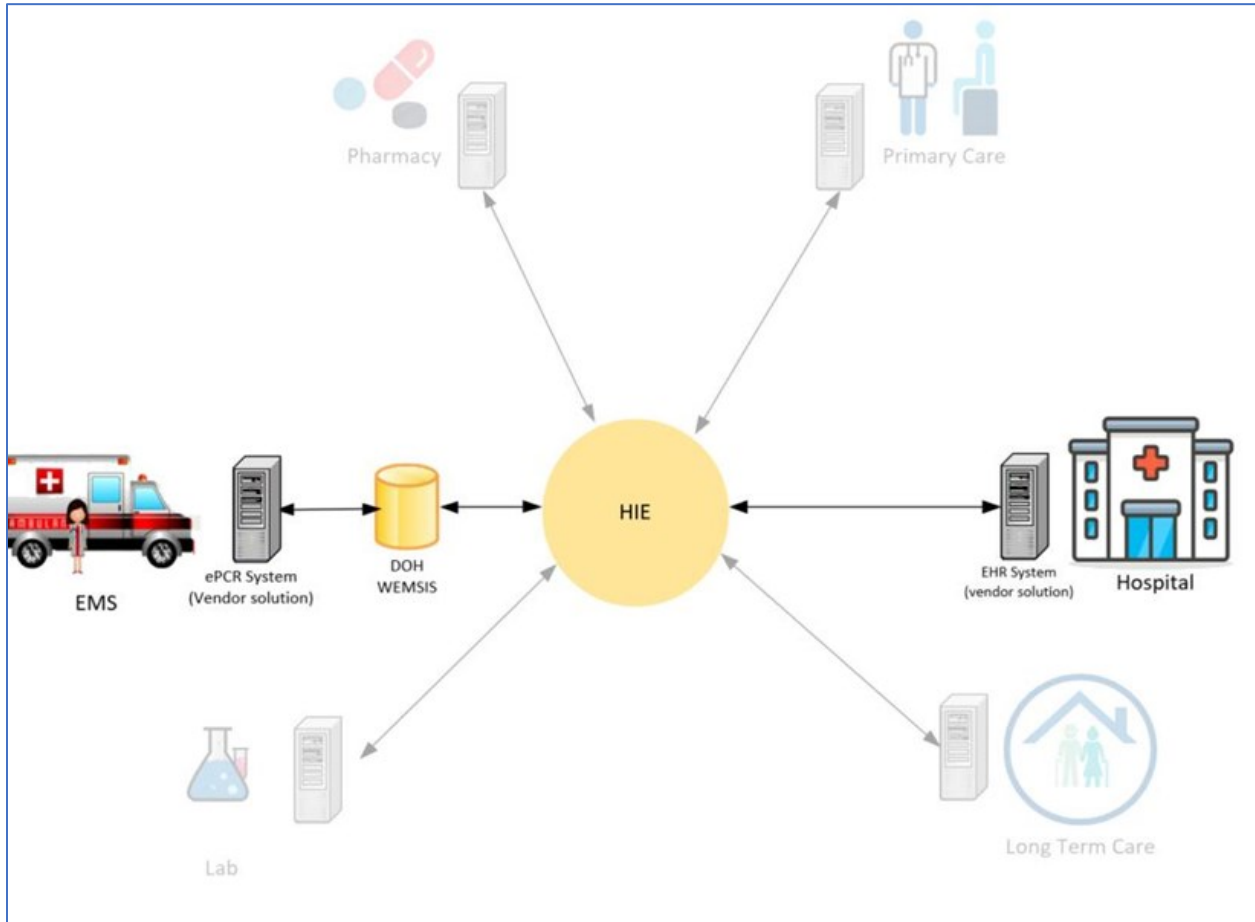


Figure 4: DOH-Based Approach

Conclusion/Reflection

Through community engagement and intensive discussion, DOH has leveraged the expertise of the EMS system partners to create a vision of what needs to be done next to achieve the greatest potential impact. With this directive guidance from all participating stakeholders, DOH is well-positioned to leverage future resources as they become available and move toward the exchange of key patient data where it is needed.

This roadmap provides a broad outline of three approaches for an EMS to hospital data exchange, each with its benefits and limitations.

Like many partners in the emergency care system, DOH is managing competing priorities, including a continued statewide response to a global pandemic and unknown financial

resources at the time of this writing. Development and continued discussion of these proposed options and ideas will enable DOH, EMS, and hospital partners to be prepared to continue efforts as resources become available.

As planning for this effort continues, all stakeholders should consider solutions that include the four core solution criteria identified in this roadmap: the impact of regulations, quality improvement, feasibility, and equity.

Any identified concepts and solutions will need to align with DOH's vision of equity and optimal health for all. Selected approaches would also need to take into consideration DOH's values of human-centered approaches, partnership and collaboration, seven generations of wisdom from experts before us while benefiting future generations, and excellence.

The EMS Data Workgroup will seek future discussions and feedback on this topic. For more information about this work, please contact WEMISIS@doh.wa.gov.
