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Executive Summary

2019 was a year of excitement, planning and progress for the Oregon POLST Registry. With the celebration of our 10 year anniversary, OPR launched an assessment our current technology and began planning a major technology overhaul of our 2009 database platform. We intend on making the Registry more efficient for POLST form entry and easily accessible for providers and EMS personnel with a focus on platform interoperability.

Another area of emphasis for the Registry in 2019 was POLST quality education and outreach. This has been a multi-year initiative spearheaded by the Oregon POLST Program, Coalition and Quality Committee. Through this collaboration, 2019 saw the most profound decrease in inappropriate POLST use (demonstrated in fig. 1c) yet.

With support of our collaborators and funders, the Registry team continues to offer the highest level of service to our registrants and medical community. A special thanks to those who help make the Registry and our services possible: the Oregon Health Authority, the OHSU Department of Emergency Medicine, the OHSU Emergency Communication Center, the Oregon POLST Program, and the thousands of health care professionals who help to expand access to patient wishes for end of life treatment by submitting POLST forms to the Registry.

I am excited to begin developing the new services that OPR will roll out in the next year as we remain focused on offering Oregonians and healthcare professionals the very best in digital health options for POLST accessibility. Please enjoy our 2019 Annual Report.

Regards,

Abby L. Dotson, Ph.D.
Director, Oregon POLST Registry
Research Assistant Professor, OHSU Emergency Medicine
Introduction: POLST and the Oregon POLST Registry

In 1990, a task force was convened by the Center for Ethics in Health Care at OHSU with representatives from stakeholder health care organizations to develop a new method to translate patient preferences into actionable medical orders that follow patients across care settings. This led to the development of Physician Orders for Life-Sustaining Treatment (POLST) form, and the POLST program. Since then POLST has become the standard of care for portable medical orders in most states, and programs are being developed throughout the country and internationally.

The Oregon POLST Registry project began in response to a need expressed by Emergency Medical Services (EMS) to access POLST orders when they arrived on the scene of a medical emergency, and could not immediately locate the original POLST form. The development of the Registry programming and pilot systems were funded by a grant from The Greenwall Foundation, along with additional private philanthropy. The project was a collaboration of the Oregon POLST Coalition, the OHSU Center for Ethics in Health Care and the OHSU Department of Emergency Medicine. The legislature created and funded the Oregon POLST Registry effective July 1, 2009 and the Registry began statewide operation December 3, 2009. The Registry is a public health registry within the Oregon Health Authority, and operated through contract with the OHSU Department of Emergency Medicine. The Registry office accepts and receives POLST forms from across all of Oregon.

The Registry’s goal remains to connect health care professionals with patient treatment preferences as portable medical orders whenever and wherever they are needed.
Year by Year

Throughout the past ten years, the Oregon POLST Registry has gone from a pilot project to a well-established and nationally recognized leader in POLST registry development, implementation and operational excellence. Form submission (Figure 1a) decreased slightly for the second year in a row and POLST form entry (Figure 1b) was down for the first time in eight years. This is largely due to very successful, educational efforts to reduce the inappropriate use of POLST forms for healthy individuals, evident by a steady decrease in number and percent of “Attempt CPR” medical orders seen in 2018 and 2019 (Figure 1c). Registry utilization (Figure 2), match rates (Figure 3), and requests for consultation with other states continue to grow with each passing year. In February of 2019, The United States Government Accountability Office featured Oregon’s advanced Registry program in their report to congressional requestors on their guide to advance care planning.1

Figure 1a. Cumulative POLST Forms Received and Entered by Year

Figure 1b. Cumulative POLST Forms Entered by Year

Figure 1c. Cumulative Section A Medical Orders by Year
Figure 2. Emergency Call Center (ECC) Calls by Year

Figure 3. ECC Calls Matched by Year
2019 in Review

Form Submission

In 2019 the Registry received 55,030 POLST forms via fax, eFax, mail, electronic secure files transfer (eSubmit), direct secure messaging (Figure 4); indicating steady use of POLST and the Registry’s over the years. Of the forms received, 41,674 (76%) were Registry Ready while 13,356 (24%) were Not Registry Ready. In 2019, the OPR began a new initiative to identify hospice patients for priority enrolment into the Registry using our direct form submission process. The use of eSubmit and ePOLSTs saw an increase in users as more healthcare systems, clinics and providers enrolled in our sftp process or inquired about the ePOLST process. Those interested in eSubmit should call or email the Registry, or review the eSubmit FAQ sheet on the Oregon POLST Registry website (orpolstregistry.org).

Figure 4. Monthly Receipt of Forms in 2019
POLST form submissions by authorized signers

Figure 5 illustrates the number of registry ready forms submitted to the Registry by signer type in 2019. MDs remain the highest volume of forms signed at 66% of all forms followed by NPs (18%), DOs (11%) and PAs (5%). ND submissions represented less than 0.05% of POLST form signers.

Figure 5. Form submissions by signer type
**Not Registry Ready (NRR) Forms**

In 2019 the Registry received 13,356 forms that were deemed NRR. Before processing, these NRR forms are separated into two categories: those with coversheets and those without. Of the NRR forms received, 68.6% included a coversheet and were able to be returned for correction, with a resolution rate (return of a valid Registry-ready form) of 38%. Those with coversheets were most often deemed NRR due to missing or illegible information in one or more required fields.

About 31.4% were submitted without a coversheet. Without a coversheet, no follow-up can be performed and the forms remain NRR and unable to be entered. This is a significant portion of NRR forms and has been an area of continuing education as resolution rates are largely affected by the Registry’s ability to follow-up with senders (Figure 6).

**Figure 6. Sender Information and NRR Form Resolution**

*Data as of 2/28/2020
*Without sender information NRR forms cannot be sent back for resolution and subsequent entry into the Registry
POLST Registry Hotline

In 2019 the POLST Registry Hotline, operated by the OHSU Emergency Communication Center (ECC), received 2,468 emergent calls. This represented the highest volume of emergency POLST requests to date. The median call time was under one minute (47.3 seconds).

Figure 7. ECC Calls Received by Month
Figure 8. ECC Caller Type by Month

Figure 9. ECC Calls Received by Month (match rates)
The Registry’s business office can be described as the hub of operations: it is where all POLST forms are received and processed, where all registrant packets are printed, prepared and mailed, and where thousands of calls for non-urgent POLST form requests and general information are taken. The business office is staffed with a small interdependent team that processes, on average, over 4,500 POLST forms each month. The figure below (Figure 10) illustrates the volume of work performed by this highly efficient group.

**Figure 10. 2019 by the Numbers**
Utilization

In 2019, the OPR business office fielded over 5,000 calls with 1,877 non-urgent requests for POLST forms. OPR Business office calls are in addition to those received through the POLST Registry Hotline. 2019 saw continual steady utilization (Figure 11). A total of 2,402 individual forms were requested through the business office with a 58.6% match rate.

Figure 11. Non-Urgent (Business Office) POLST Form Requests by Month

Figure 12. Calls (Business Office) Received by Month
Volunteers
The Registry hosted 7 volunteers in 2019. Over the course of the year, Oregon POLST Registry volunteers prepared and mailed 37,448 packets (Figure 13). Registry packets include a letter confirming the registrant’s information and medical orders, a Registry ID magnet and a set of three Registry ID stickers. The Registry team is truly grateful for the time and energy that volunteers contribute to the Registry’s mission.

Figure 13: Packets Prepared

*Interested in volunteering or know someone who is? Information can be found on the Registry website at: [www.orpolstregistry.org/contribute](http://www.orpolstregistry.org/contribute)*
Education and Conferences

Summary
In today’s changing healthcare system, full of new and innovative technologies, products, and techniques, the work of educators is never done. We’re continually collaborating with the Oregon POLST Program and the Oregon POLST Coalition to provide invaluable assistance in educating health care professionals across the state.

We’re also working with POLST leaders across the country to develop a set of best practices and recommendations to help move POLST registry technology and accessibility forward.

Table 1. OPR Educational Events and Conferences

<table>
<thead>
<tr>
<th>Event Date(s)</th>
<th>Event name/type</th>
<th>Presenter</th>
<th># of attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/8/2019-4/9/2019</td>
<td>The Coalition for Compassionate Care of California Summit Panel talk: Cracking the Nut on POLST Registries</td>
<td>Abby Dotson</td>
<td>400</td>
</tr>
<tr>
<td>7/16/2019</td>
<td>OHSU Emergency Medicine Intern Orientation</td>
<td>Abby Dotson</td>
<td>11</td>
</tr>
<tr>
<td>8/4/2019</td>
<td>OHSU Emergency Medicine Conference</td>
<td>Abby Dotson</td>
<td>65</td>
</tr>
<tr>
<td>9/24/2019-9/26/2019</td>
<td>Annual Oregon EMS Conference</td>
<td>Abby Dotson, Judit Takacs and Melissa Wong</td>
<td>400</td>
</tr>
<tr>
<td>10/8/19</td>
<td>National POLST Technology Conference</td>
<td>Abby Dotson</td>
<td>40</td>
</tr>
<tr>
<td>11/5/2019</td>
<td>OHSU Division of General Internal Medicine and Geriatrics Seminar</td>
<td>Abby Dotson</td>
<td>12</td>
</tr>
</tbody>
</table>

OPR Public Website
The Registry’s public website (orpolstregistry.org) saw incredible utilization in 2019. Created in 2012 and maintained by the Registry’s Director, the website hosts information for individuals, health care professionals, health information management teams, as well as helpful documents or processes for POLST form submission. In 2019, the website had over 1.6 million pages viewed and 64,848 individual visits.
Bidirectional, Interoperability and Accessibility

In September of 2019 the Registry announced an initiative to improve our database platform with a strong focus on POLST accessibility, interoperability and bidirectional capabilities. The platform rebuild will include three main upgrades: (1) More efficient POLST form entry into the Registry to accommodate the high volume of POLST submissions every year. (2) Automated data reporting capabilities for enhanced continuous quality improvement. (3) Better POLST form accessibility for both POLST form submitters and emergency end-users. Our goal is to leverage technical advances and increase POLST form accessibility to better serve Oregonians who want to have their emergency-related treatment preferences known. We’re excited to roll out new services in 2020.

OPR Research Contributions

The Oregon POLST Registry provides the opportunity to study many elements of POLST, including completion of forms, orders, changes in orders over time, and utilization of the Registry system. In 2019, a major POLST research study was completed that highlights new POLST utilization trends in Oregon. Additionally, new studies were conceptualized and initiated using Registry data.

The Registry team supports researchers by providing data after IRB reviews (by both the Oregon Health Authority IRB and a researcher’s home institution) and OHA-approved Data Request form. For more information about using Registry data for research, please email polstreg@ohsu.edu.

2019 Published Research


**POLST Registration and Associated Outcomes Among Veterans With Advanced-Stage Lung Cancer.**


### 2019 Oregon POLST Registry Staff and Partners

**Volunteers:** Cyndi Haupt, Elana mater-Zuber, Tracy Van, Leo Nguyen, Dennis Pham, Regan Vo, and Kevin O’Boyle.

**Data Entry Specialists:** Bryanna DeLima, Sylvie Huhn, Raya Johnson, Lacey Novak

**Operations Manager:** Judit Takacs

**Technology Manager:** Melissa Wong

**Director:** Abby Dotson, PhD

**State EMS & Trauma Systems Medical Director:** David Lehrfeld, MD

**State HCRQI Section Manager, EMS and Trauma Systems Director:** Dana Selover, MD, MPH

**OHA Director:** Patrick Allen

**Oregon Center for Health Statistics:** Jennifer Woodward, Marsha Trump
## Table 2. Glossary of terms

<table>
<thead>
<tr>
<th>Terms in this report</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Registry Forms or Registry Registrants:</strong></td>
<td>Forms or registrants recorded in the Registry only, not all those received by the Registry office.</td>
</tr>
<tr>
<td><strong>Not Registry Ready (NRR):</strong></td>
<td>Forms received that are missing information to make them eligible for the Registry.</td>
</tr>
<tr>
<td><strong>Not Registry Ready (NRR) - REQUIRED ELEMENTS ONLY:</strong></td>
<td>Forms received that are missing any one or more of the REQUIRED data elements: First or Last Name, DOB, Signature, Date signed, Section A orders</td>
</tr>
<tr>
<td><strong>Not Registry Ready (NRR) - Registry Unusable Only:</strong></td>
<td>Forms received that are unable to be entered into the Registry but are still valid POLST orders. Includes copies that are illegible, copies that are too dark or too light, etc.</td>
</tr>
<tr>
<td><strong>Active Forms:</strong></td>
<td>Forms in the Registry that are ready to be searched.</td>
</tr>
<tr>
<td><strong>Archived Forms:</strong></td>
<td>Forms in the Registry that are no longer valid. These have been removed from searches.</td>
</tr>
<tr>
<td><strong>Pending Forms:</strong></td>
<td>Valid forms in the Registry that have been entered but have not been &quot;activated&quot; (double-checked to ensure accuracy, the last step before a form becomes searchable).</td>
</tr>
<tr>
<td><strong>Active Registrants:</strong></td>
<td>Registrants with searchable, active forms who are not known to be deceased and have not opted out.</td>
</tr>
<tr>
<td><strong>Archived Registrants:</strong></td>
<td>Registrants known to be deceased or those who have opted out of the Registry. Forms from these registrants are not searchable for healthcare professionals.</td>
</tr>
<tr>
<td><strong>Updated Forms:</strong></td>
<td>An updated form is one received for a patient already in the Registry, but with a more recent date.</td>
</tr>
<tr>
<td><strong>Forms Received:</strong></td>
<td>All forms received by the Registry, including NRR but excluding duplicate submissions</td>
</tr>
<tr>
<td><strong>Valid Form Follow-up (VFF):</strong></td>
<td>Valid form follow-up. This type of follow-up is used to clarify optional information that is too dark, too light, or illegible</td>
</tr>
<tr>
<td><strong>Forms Created/Entered:</strong></td>
<td>All forms entered into the Registry in a given timeframe but not necessarily searchable for healthcare professionals. This may include forms received in the previous month.</td>
</tr>
<tr>
<td><strong>ECC Call Time Outliers:</strong></td>
<td>Calls excluded from this data report due to excessive length. These calls are due to additional provider consult, online medical control requests, or operator error with call timer.</td>
</tr>
</tbody>
</table>
# Workload and Call Profiles

## Table 3. 2019 Workload Profile

<table>
<thead>
<tr>
<th>Registrants</th>
<th>2019</th>
<th>Total Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Created</td>
<td>29,817</td>
<td>318,363</td>
</tr>
<tr>
<td>Archived</td>
<td>15,222</td>
<td>102,090</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Forms</th>
<th>2019</th>
<th>Total overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received</td>
<td>55,030</td>
<td>526,749</td>
</tr>
<tr>
<td>Entered</td>
<td>42,333</td>
<td>414,460</td>
</tr>
</tbody>
</table>

### NRR Forms

<table>
<thead>
<tr>
<th>NRR forms received</th>
<th>2019</th>
<th>Overall</th>
<th>% of 2019 NRR faxed back</th>
<th>% of 2019 NRR w/sender information resolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRR forms received no sender</td>
<td>13,594</td>
<td>110,331</td>
<td>68.65%</td>
<td></td>
</tr>
<tr>
<td>NRR forms with sender information</td>
<td>9,332</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valid forms received</td>
<td>3,546</td>
<td></td>
<td></td>
<td>26.1%</td>
</tr>
</tbody>
</table>

## Table 4. 2019 Call Profile

### POLST Registry Hotline Data

<table>
<thead>
<tr>
<th>Calls*</th>
<th>2019</th>
<th>Total Overall</th>
<th>% of Calls with a Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matches</td>
<td>951</td>
<td>5,449</td>
<td>39.76%</td>
</tr>
</tbody>
</table>

*Includes only calls not canceled

### Caller Type

<table>
<thead>
<tr>
<th>Caller Type</th>
<th>2019</th>
<th>Total Overall</th>
<th>% of all Calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS</td>
<td>1645</td>
<td>3,252</td>
<td>23.73%</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>530</td>
<td>7,877</td>
<td>57.47%</td>
</tr>
<tr>
<td>Hospital Acute Care</td>
<td>190</td>
<td>2,105</td>
<td>15.36%</td>
</tr>
<tr>
<td>Other/Not Classified**</td>
<td>103</td>
<td>528</td>
<td>3.85%</td>
</tr>
</tbody>
</table>

**While all calls are now classified, this was not standard at outset.

### Length of Call^:

<table>
<thead>
<tr>
<th>Length of Call</th>
<th>2019</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>55.0 sec / .92 min</td>
<td>60.3 sec / 1.01 min</td>
</tr>
<tr>
<td>Median</td>
<td>47.28 / 0.79 min</td>
<td>51.2 sec / 0.86 min</td>
</tr>
<tr>
<td>Max Length</td>
<td>208.5 sec / 3.48 min</td>
<td>209.9 sec / 3.50 min</td>
</tr>
</tbody>
</table>

^Excludes ECC call time outliers

### Business Office Call Data *

<table>
<thead>
<tr>
<th>Business Office Call Data *</th>
<th>2019</th>
<th>Total Overall</th>
<th>% of all Calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Calls</td>
<td>3,416</td>
<td>27,501</td>
<td>68.51%</td>
</tr>
<tr>
<td>Form Requests</td>
<td>1,877</td>
<td>12,703</td>
<td>31.65%</td>
</tr>
<tr>
<td>All calls</td>
<td>5,293</td>
<td>40,139</td>
<td></td>
</tr>
</tbody>
</table>

*Enhanced tracking of back office calls and form requests began 4/2011

### Non-Urgent POLST Requests *

<table>
<thead>
<tr>
<th>Non-Urgent POLST Requests</th>
<th>2019</th>
<th>Total Overall</th>
<th>% of all Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forms Requested</td>
<td>2,402</td>
<td>20,227</td>
<td></td>
</tr>
<tr>
<td>Matches</td>
<td>1,407</td>
<td>9,139</td>
<td>45.18%</td>
</tr>
</tbody>
</table>
Maps

Figure 14. New Registrants by County 2019 Map
The map below illustrates the location of persons who registered their first POLST form with the Registry in 2019 and provided the Registry with address information (address information is optional). New Registrants whose forms did not include address information, or who reside outside the state of Oregon, were not able to be mapped. Address information is pertinent for the Registry and allows for the mailing of a confirmation packet to the Registrant.
Figure 15. POLST Registry Hotline (ECC) Calls by County 2019
This map highlights the increased utilization of the Registry especially along the I-5 corridor. It is important to note that three counties (Gilliam, Sherman, and Wheeler) near the Oregon-Washington border are without an area hospital.