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Earthquake Early Warning and Schools Survey Preliminary Results: Oregon

Between March 30 and June 15, 2022, our research team at the Natural Hazards Center at the University of Colorado Boulder invited superintendents from every public school district in **Alaska, California, Oregon, and Washington** (N=1,516) to participate in an online survey. This briefing sheet summarizes the preliminary results for the focal state of **Oregon** from the portion of the survey that focused on the ShakeAlert® earthquake early warning system.

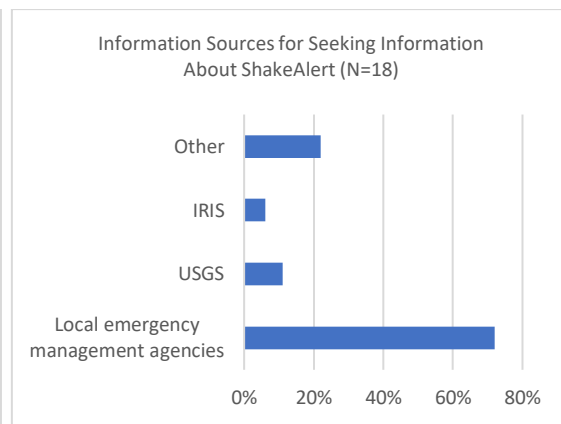
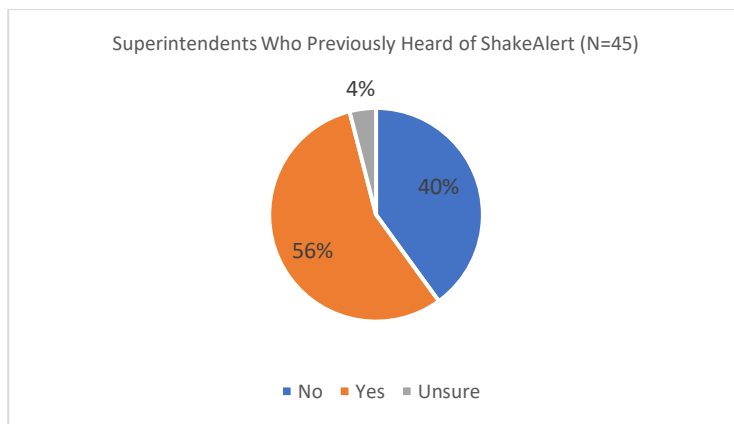
In total, **45** of the 176 school district superintendents in Oregon completed the survey (**25.6% response rate**). Oregon was one of two states that provided a letter of support from the State Superintendent of Public Instruction, which possibly contributed to a higher response rate when compared to the other states in the four-state region included in this study.

Adoption and Funding of ShakeAlert

We found that a slight majority (56%) of superintendents in Oregon had previously heard of ShakeAlert. The most common source that superintendents turned to for more information was local emergency management agencies (72%) followed by the “other” option (22%).

Among those superintendents who knew about ShakeAlert, most had *not* yet considered incorporating it into district emergency preparedness or other operations plans (44%). However, 36% had considered incorporating it, 4% had taken steps to add it to plans, and 16% had already done so. Three-quarters of respondents (75%) indicated that the superintendent would be responsible for making the decision to adopt ShakeAlert.

In terms of the initial cost of installation, most respondents felt that the state government (77%) should pay for it, followed by the federal government (40%), and the school district (37%). For the annual subscription option, most respondents thought that the state government should pay for it (65%), followed by the school district (42%) and the federal government (33%). If the school district were to assume the expense for the annual subscription, most respondents indicated that they would be willing to pay no more than \$100 per year.



Potential Advantages of Incorporating ShakeAlert in Schools

When asked about their level of agreement with opportunities that a 10-second alert could provide students, most superintendents strongly agreed that students would be able to drop, cover, and hold on (DCHO) and agreed that they could mentally prepare for shaking. Most respondents did *not* agree that a 10-second warning would allow students to evacuate. When asked about teachers and staff, most respondents strongly agreed that teachers and staff could DCHO. Most respondents also agreed it could allow them mentally prepare for shaking and help students DCHO. Most

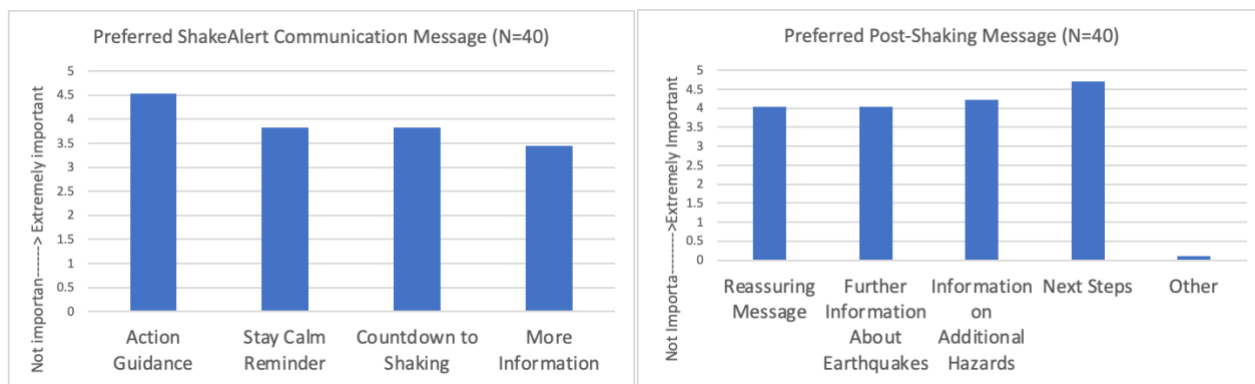
respondents were neutral about the ability for the alert to allow teachers and staff to communicate with school leadership. They also mostly disagreed that the alert could allow teachers and staff to communicate with parents and mostly strongly disagreed it would allow them to evacuate.

Barriers to Incorporate ShakeAlert in Schools

When asked about barriers that would prevent schools in their district from implementing ShakeAlert, most superintendents ranked financial costs of the system, diversion of funds from building maintenance/mitigation, and drill/warning fatigue. Most respondents indicated that drill/warning confusion would be a slight barrier and that classroom disruption would not be a barrier.

Preferences for Alert Messaging

When asked about the preferred method to receive alerts, most respondents in Oregon indicated SMS/text (88%), followed by siren/Public Address (PA) system (78%), smartphone app (63%), and specific device designed to receive an earthquake early warning alert (39%). In terms of the message provided in an alert, most respondents thought action guidance was extremely important, and that a reminder to stay calm, a countdown to shaking, and more information about the earthquake were moderately important. For messaging after the shaking has stopped, most respondents thought a message about next steps and information on additional hazards were extremely important. Superintendents indicated that a message with a reassuring note and further information about the earthquake were moderately important.



Tolerance for False Alerts

On average, most participants ranked false alerts as having a moderate impact on teacher, parent, and student confidence in ShakeAlert, as well as warning/drill fatigue and classroom instruction time.

Next Steps and Additional Information

Our research team is currently analyzing the results of the survey by each focal state, as well as by comparing states across the region. We plan to publish and present the findings from this research to academic audiences as well as to educators and emergency managers. In addition, this research is designed to be useful and actionable for our partners at the U.S. Geological Survey (USGS), who are working to refine the messaging for ShakeAlert to ensure it reaches a broad and diverse userbase.

The project is led by a multi-disciplinary research team from the Natural Hazards Center at the University of Colorado Boulder in partnership with researchers at the USGS. More information about the study is available at: <https://hazards.colorado.edu/research-projects/nhc-usgs-earthquake-early-warning-and-schools-study>. Please visit the USGS website for more information on ShakeAlert and earthquake early warning: <https://www.usgs.gov/programs/earthquake-hazards/science/early-warning>. If you have additional questions, please contact Rachel Adams at Rachel.Adams-1@colorado.edu.