

Schools, Earthquakes, and Early Warning Systems



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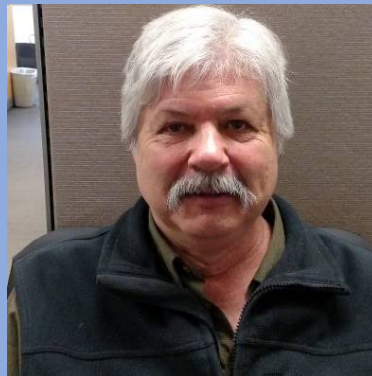
Acknowledgements



Lori Peek, Rachel Adams, Jolie Breeden, Jennifer Tobin,
Natural Hazards Center



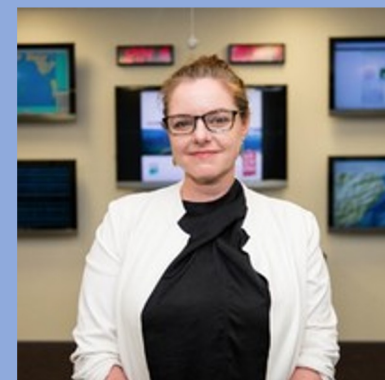
Holly Davies,
University of
Houston



Luther Green,
Natural Hazards
Center



Robert de Groot,
USGS



Sara McBride,
USGS



Study Phase 1: Interviews & Focus Groups



Focus

Earthquake case studies and earthquake early warning



Research Site

Anchorage and Matanuska-Susitna Borough, **Alaska** and Ridgecrest and Trona, **California**



Sample

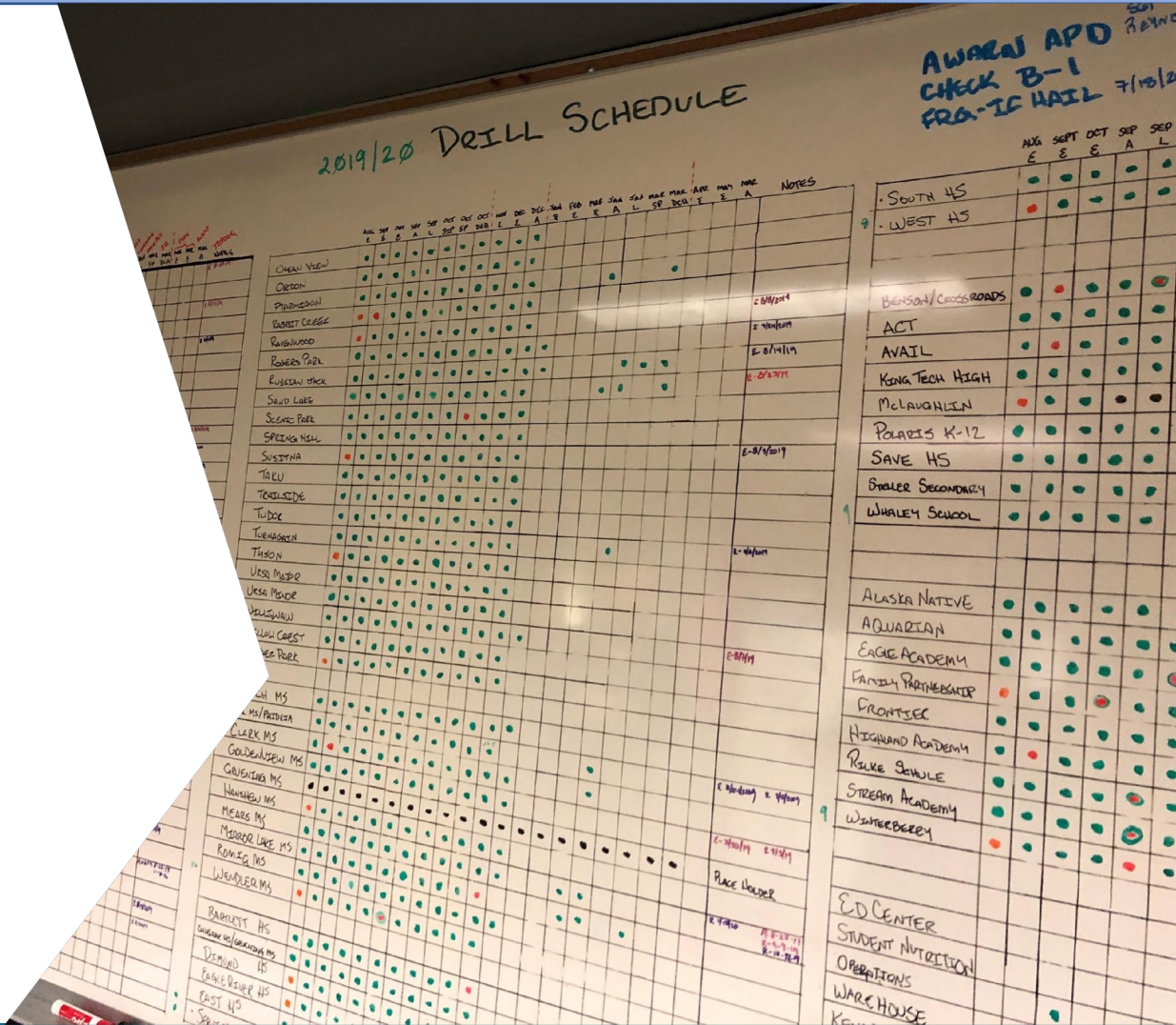
118 K-12 school administrators, teachers, parents, students, emergency managers, building officials, and engineers



Timeline

Data collected January and February 2022

Key Findings



1

Little knowledge of ShakeAlert

2

Uncertainty about delivery mechanisms

3

Concerns about drills and warnings

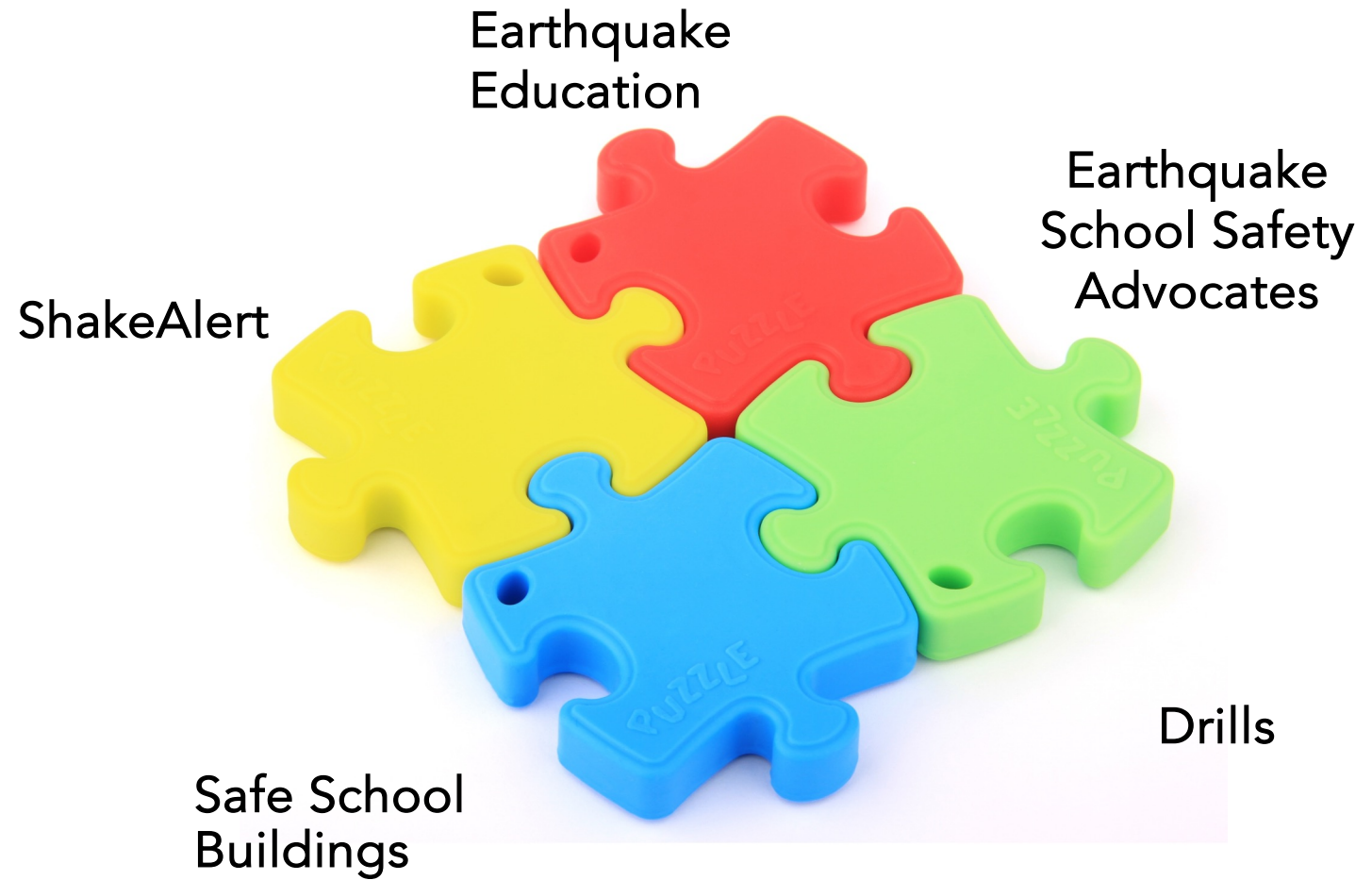
Key Findings

4

Generational differences in protective actions

5

ShakeAlert as one piece of the puzzle



Forthcoming Publication

Adams, R. M., Tobin, J., Peek, L., Breeden, J., McBride, S. & de Groot, R. (2022). The generational gap: Children, adults, and protective actions in response to earthquakes. *Australasian Journal of Disaster and Trauma*.

The screenshot shows the ResearchGate interface for a pre-print article. At the top, there is a teal header with the ResearchGate logo, a search bar, and a 'Discover by subject area' button. The article title is 'The generational gap: Children, adults, and protective actions in response to earthquakes', published in July 2022 in the *Australasian Journal of Disaster and Trauma Studies*. The authors listed are Rachel M Adams, Jennifer Tobin, Lori Peek, and Jolie Breeden, all from the University of Colorado Boulder. The page includes buttons for 'Download full-text PDF' and 'Read full-text'. At the bottom, there are buttons for 'Download citation' and 'Copy link'.

Pre-print available on Research Gate at:

<https://www.researchgate.net/publication/362322380> *The generational gap: Children, adults, and protective actions in response to earthquakes*

Study Phase 2: Superintendent Survey



Focus

Online survey to assess knowledge, understanding, and willingness/barriers to adopt ShakeAlert in K-12 schools



Research Site

School districts in Alaska, California, Oregon, and Washington



Sample

225 school district superintendents in
(Response rate=14.8%)

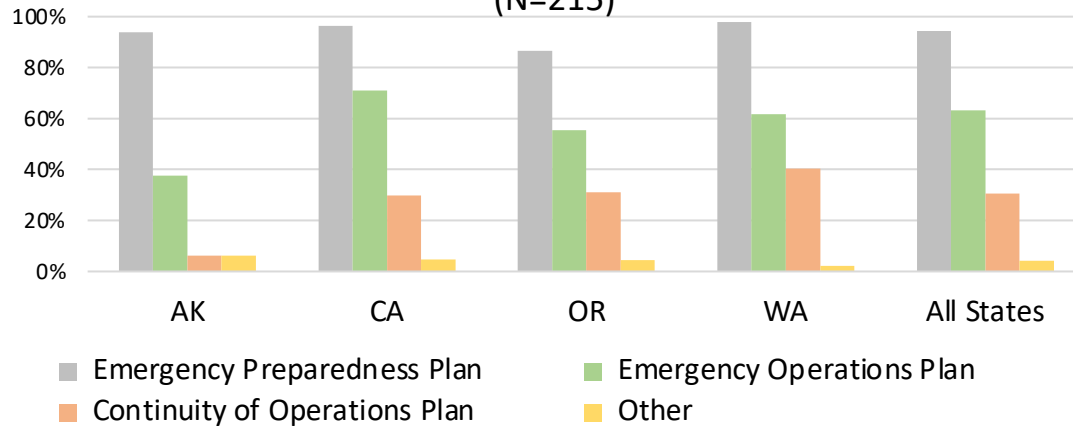


Timeline

Survey administered March 30, 2022-June 15, 2022

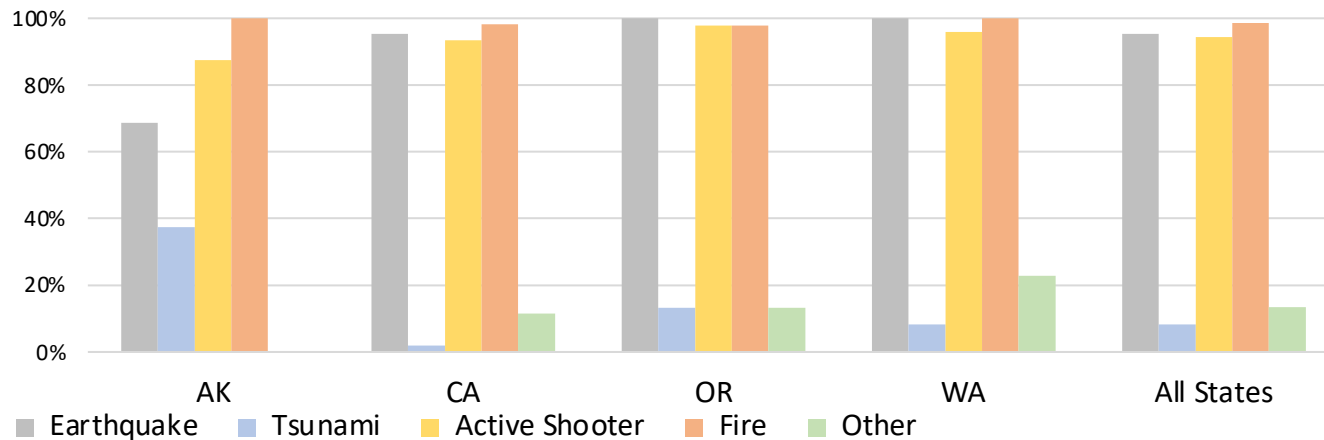
Preliminary Findings: Earthquake Safety and Drills in Schools

District Schools have the following emergency plans:
(N=215)



Chi-square test found a significant difference in proportions of school districts with an emergency operations plan across states ($\chi^2_{(df=3)} = 8.544, p = .036$).

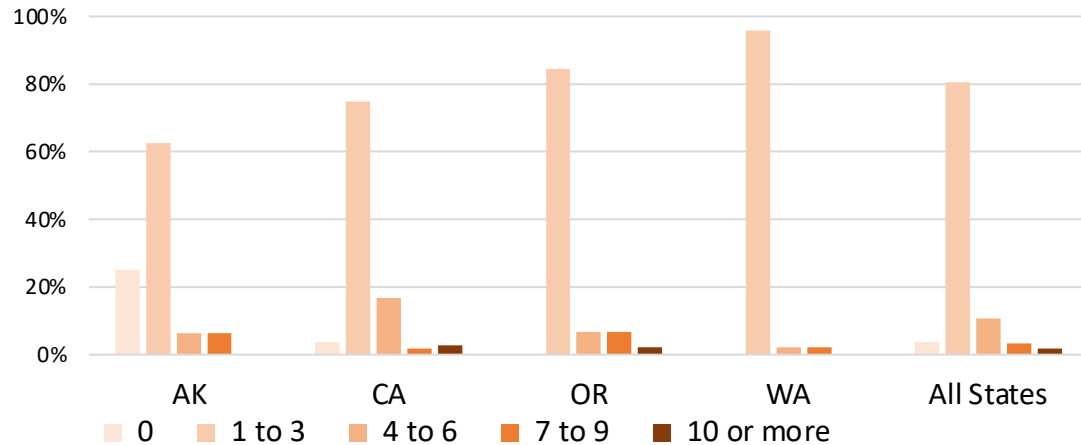
District schools practice the following drills: (N=216)



Fisher's exact test found significant difference in proportions of school districts with earthquake drills ($p < .001$) and tsunami drills ($p < .001$) across states.

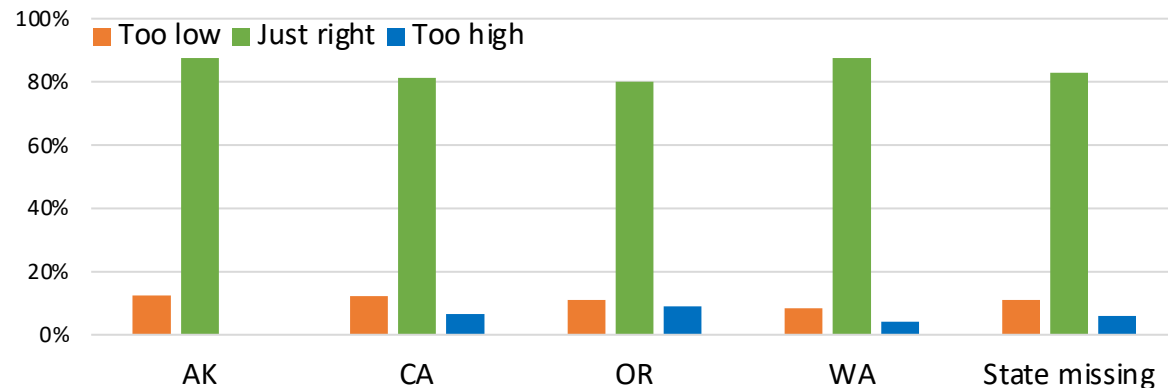
Preliminary Findings: Earthquake Safety and Drills in Schools

How many earthquake specific drills does the average school in the district perform each year? (N=216)



Chi-square test found a significant difference in proportion of school districts with an emergency operations plans across states ($\chi^2_{(df=3)} = 8.544, p = .036$).

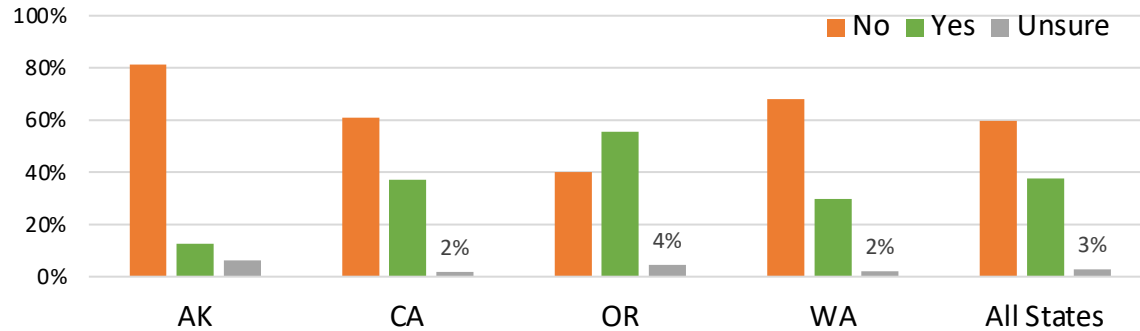
Rate the amount of all the emergency drills per year: (N=216)



Fisher's exact test found no statistically significant difference in drill number satisfaction proportions across states ($p = .92$).

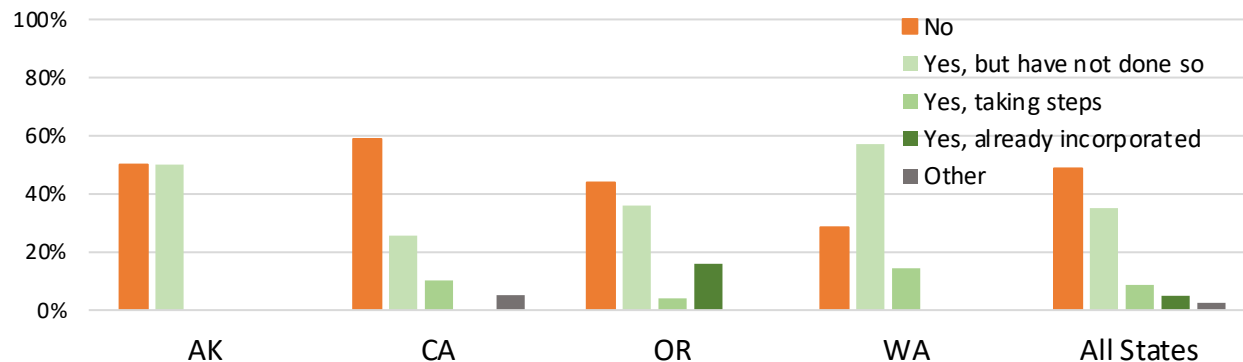
Preliminary Findings: Knowledge and Current Use of ShakeAlert

Shake Alert is a U.S. Geological Survey operated earthquake early warning system...Before taking this survey, had you previously heard of ShakeAlert? (N=213)



Fisher's exact test found a significant difference in proportion of respondents who heard of ShakeAlert across states ($p = .014$).

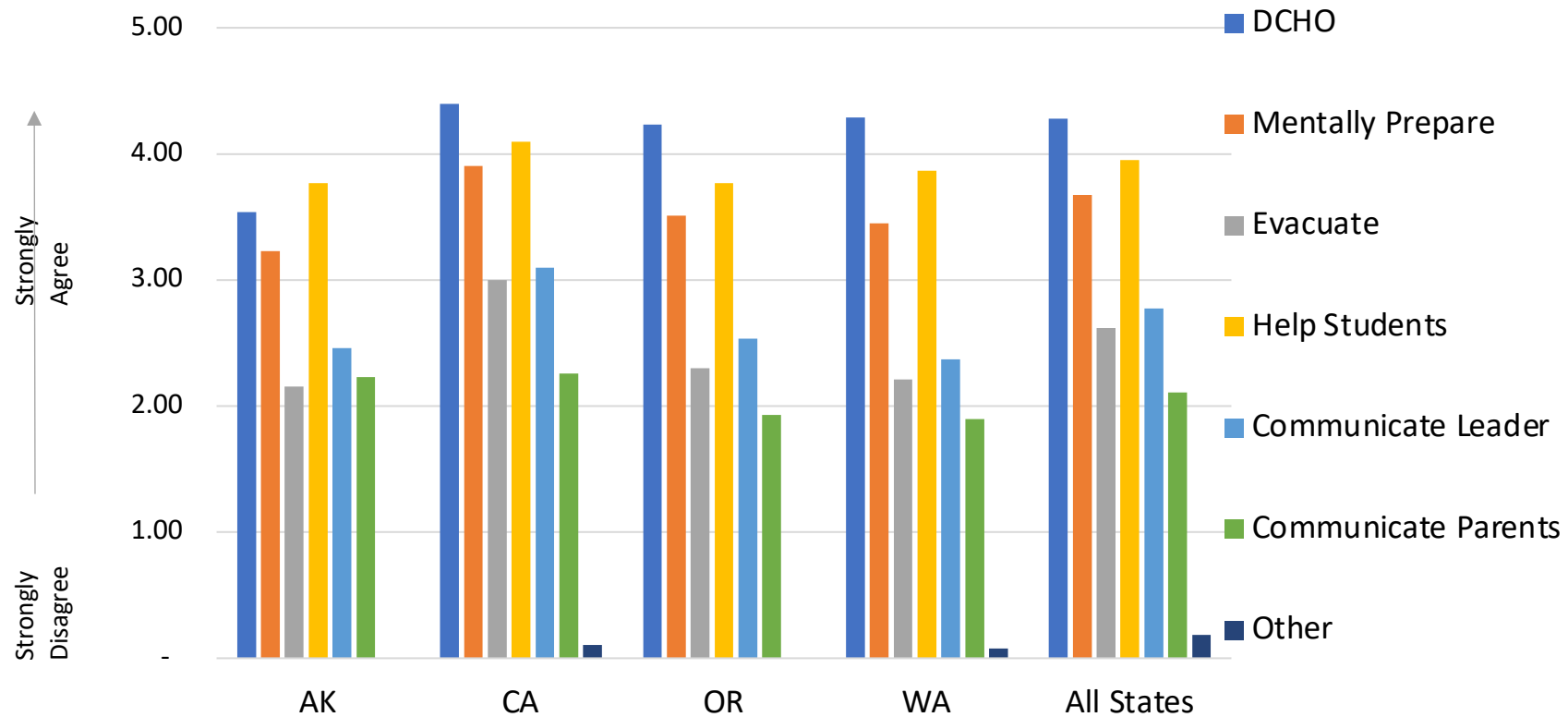
Have you considered incorporating ShakeAlert into the district's emergency preparedness or other operations plans? (N=80)



Fisher's exact test found no significant difference in proportion of responses across states ($p = .095$).

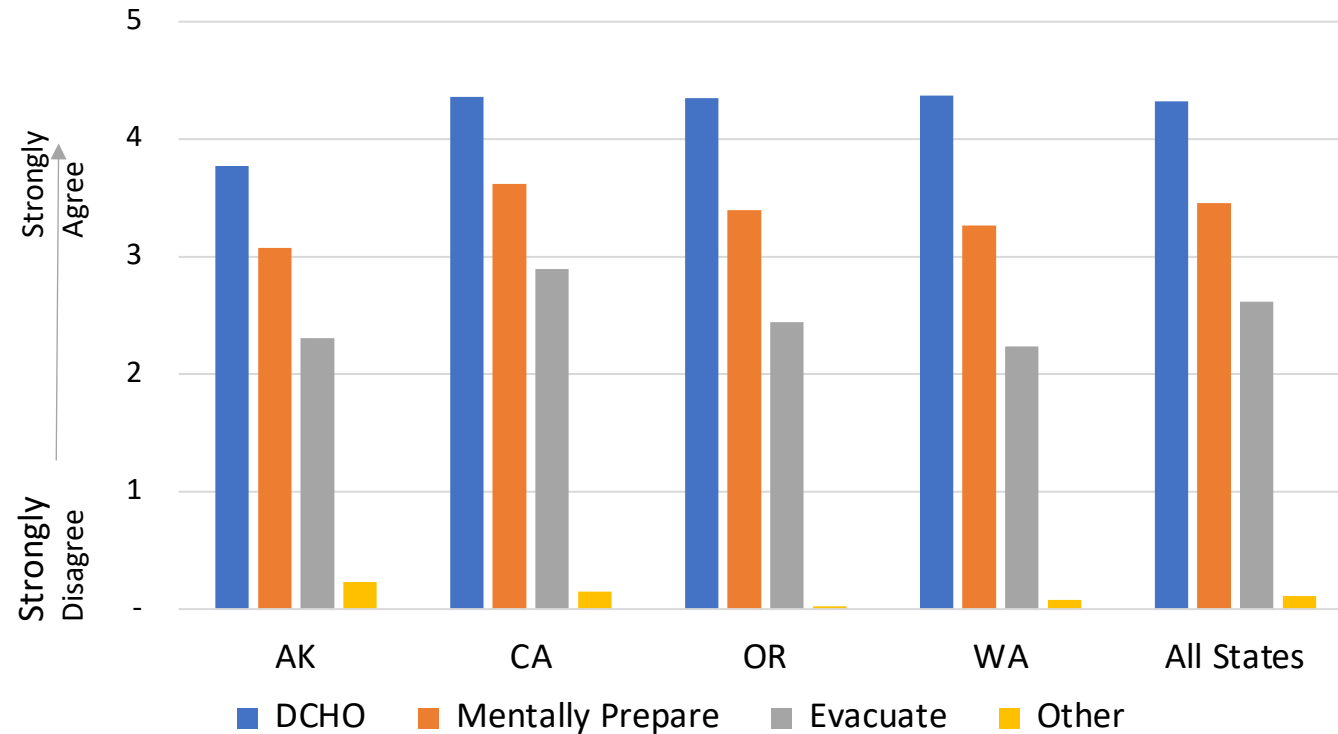
Preliminary Findings: ShakeAlert Opportunities in Schools

If my school district had 10 seconds or less...it could enable teachers and staff to... (N=187)



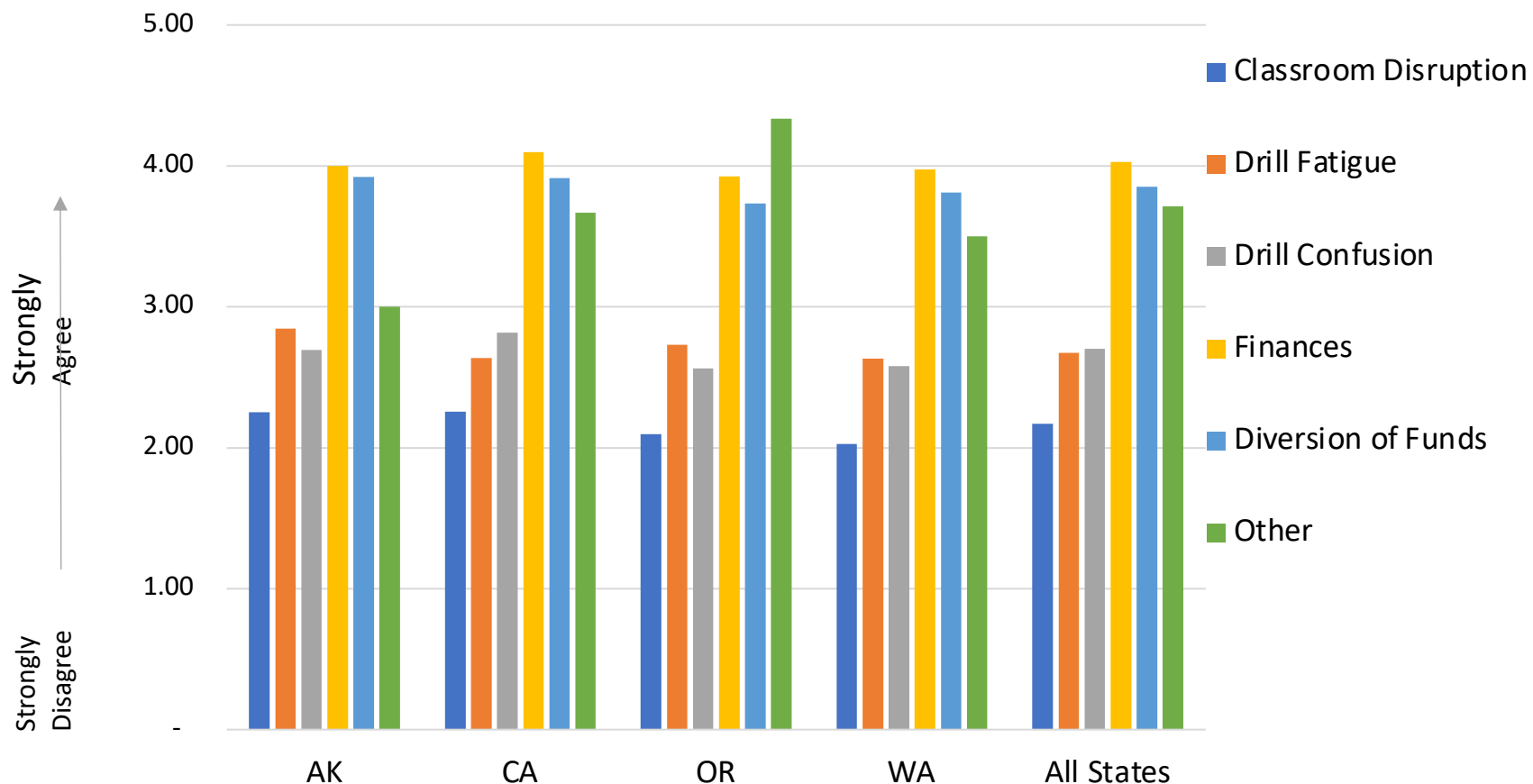
Preliminary Findings: ShakeAlert Opportunities in Schools

If my school had 10 seconds or less...it could enable students to...
average agreement score (N=188)



Preliminary Findings: Barriers to Implementing ShakeAlert in Schools

Barriers to implementing ShakeAlert EEW





Next Steps

- Chi-square tests to look at difference in responses by district size and earthquake experience
- Triangulation of qualitative and quantitative findings
- Recommendations for how to effectively integrate ShakeAlert into schools
- Report to share with school districts

Thank you!



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