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## Vaccine Hesitancy Among Mothers of 3-Year-Old Children — Alaska, 2015–2017

### Background

On July 16, 2019, Alaska became the 29<sup>th</sup> state to be included in the current national measles epidemic when a case of measles was confirmed in an unvaccinated teenager living on the Kenai Peninsula.<sup>1</sup> As of August 1, 2019, over 1,170 cases of measles have been confirmed in the U.S. this year; 124 of these people were hospitalized, and 64 had complications, including pneumonia and encephalitis.<sup>1</sup> The largest measles outbreak in the U.S. since 1992, this epidemic is being driven by undervaccination in many communities nationwide. An important contributor to undervaccination is *vaccine hesitancy* (i.e., concerns related to the safety or necessity of vaccines that lead parents and guardians to delay or decline vaccines for their children). This *Bulletin* provides an update on vaccine hesitancy as reported by Alaska mothers of 3-year-olds.<sup>2</sup>

### Methods

We reviewed responses to the Alaska Childhood Understanding Behaviors Survey (CUBS), a population-based survey that collects information from mothers of 3-year-olds about health-related behaviors and experiences.<sup>3</sup> We focused on responses to two questions: 1) Did you ever delay or not get vaccine shots for your 3-year-old child (not including flu shots) for reasons other than illness or allergy?, and 2) What were the reasons you delayed or did not get vaccine shots for your child? Mothers were considered *vaccine hesitant* if they selected the option of “personal choice or belief” for the second question or if they wrote in an analogous explanation. The results are weighted to represent all mothers of 3-year-olds born during 2012–2014.

### Results

During 2015–2017, 1,605 mothers of 3-year-olds participated in the CUBS survey (weighted n=32,468). Of the 22.8% (weighted n=7,116) of mothers who indicated that they delayed or did not vaccinate their child (Table), 59.4% said they delayed vaccinating, 28.1% said they did not vaccinate, and 12.5% said they delayed and did not vaccinate; 75.9% of mothers who delayed or did not vaccinate said they did so, at least in part, due to vaccine hesitancy (this represents 17.3% of all mothers).

**Table. Maternal Vaccine Hesitancy, by Specified Characteristics — Alaska CUBS, 2015–2017**

Characteristic	% Who Reported Vaccine Hesitancy (95% CI)*	Prevalence Ratio (95% CI)*
Overall	17.3 (15.0-19.9)	
Level of Maternal Education		
≤ High School	11.6 (7.9-16.6)	ref
> High School	20.2 (17.3-23.4)	<b>1.7 (1.2-2.6)</b>
Region of Residence		
Anchorage	11.5 (8.5-15.2)	ref
Gulf Coast	34.4 (25.1-45.0)	<b>3.0 (2.0-4.5)</b>
Interior	22.9 (16.3-31.2)	<b>2.0 (1.3-3.1)</b>
Mat-Su	21.7 (15.6-29.3)	<b>1.9 (1.2-2.9)</b>
Northern	8.9 (2.8-24.9)	0.8 (0.2-2.5)
Southeast	18.3 (11.5-27.8)	1.6 (0.9-2.7)
Southwest	7.9 (3.8-15.8)	0.7 (0.3-1.5)
Place of Child’s Birth		
Hospital	14.2 (11.5-17.4)	ref
Birth Center or Home	46.0 (32.5-60.1)	<b>3.2 (2.2-4.7)</b>
Child Ever had a Gap in Health Plan Coverage		
Yes	25.5 (18.1-34.5)	<b>1.5 (1.1-2.2)</b>
No	16.4 (14.0-19.2)	ref
Child Received Routine Medical Care in the Past 12 Months		
Yes	14.5 (12.2-17.1)	ref
No	41.0 (31.7-51.0)	<b>2.8 (2.1-3.8)</b>

\*CI = Confidence Interval; Bold font = statistically significant

Vaccine hesitancy was higher among mothers with more than high school education; residents of the Gulf Coast, Interior, and Mat-Su regions compared to residents of Anchorage; mothers whose child was born in a birth center or at home rather than a hospital; mothers whose child had a gap in their health plan coverage; and mothers whose child had not seen a health care provider for routine medical care in the past 12 months (Table).

Less common reasons cited for delaying vaccination or not vaccinating (other than vaccine hesitancy) were as follows: the vaccine was not available (6.7%), problem making an appointment for child to get vaccine (5.6%), cost of vaccine (4.5%), problem getting to a provider who could give vaccines (3.8%), and a health care provider advised against it (3.3%).

### Discussion

Vaccine hesitancy puts children at risk for measles and other vaccine-preventable diseases, and knowing which segments of the population have a particularly high prevalence of vaccine hesitancy can help direct educational efforts. Vaccine hesitancy is not grounded in science; a recent extensive scientific review found no significant evidence to imply that the Advisory Committee on Immunization Practices (ACIP) immunization schedule is unsafe.<sup>4</sup> The CUBS data presented here indicate that 17.3% of mothers of 3-year-olds in Alaska reported vaccine hesitancy, which continues to be the primary reason why parents are not vaccinating their children according to the ACIP immunization schedule. Despite this concerning prevalence of vaccine hesitancy among mothers of 3-year-olds, Alaska is making progress overall in vaccinating children. In 2017, 69.5% of Alaska children aged 19–35 months were vaccinated according to the ACIP schedule, the highest level in 10 years (the 2017 national average was 70.4%).<sup>5</sup>

### Recommendations

1. Clinicians should encourage parents to vaccinate their children according to the ACIP immunization schedule,<sup>6</sup> and allot ample time with parents to address any concerns they have about vaccines and provide them with evidence-based information to make well-informed choices (Box).
2. Clinicians should also promote regular well-child visits within a medical home to help assure that scheduled vaccines are not unintentionally missed.

### Box. Informational Resources for Vaccine-Hesitant Parents

- U.S. Centers for Disease Control and Prevention (CDC): <http://www.cdc.gov/vaccines/>
- American Academy of Pediatrics (AAP): <http://www2.aap.org/immunization>
- Immunization Action Coalition: <http://www.immunize.org/>
- Bright Futures periodicity schedule: [http://brightfutures.aap.org/clinical\\_practice.html](http://brightfutures.aap.org/clinical_practice.html)

### References

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6. CDC. The Childhood Immunization Schedule. 2019. Available at: <https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>