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Childhood vaccination practices and parental hesitancy barriers in rural and urban primary care settings

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Childhood vaccination practices and parental hesitancy barriers in rural and urban primary care settings

Alexandria (she/her/hers)
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Grad Con, February 2023

AGENDA

Introduction to childhood
vaccinations

Study objectives

Methods

Results

Key findings

Table 1

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2). School entry and adolescent vaccine age groups are shaded in gray.

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19-23 mos	2-3 yrs	4-6 yrs	7-10 yrs	11-12 yrs	13-15 yrs	16 yrs	17-18 yrs		
Hepatitis B (HepB)	1 st dose	2 nd dose		← 3 rd dose →					[Green bar]										
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1 st dose	2 nd dose	See Notes														
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 st dose	2 nd dose	3 rd dose	[Green bar]		← 4 th dose →		[Green bar]		5 th dose							
<i>Haemophilus influenzae</i> type b (Hib)			1 st dose	2 nd dose	See Notes	← 3 rd or 4 th dose, See Notes →		[Green bar]				[Purple bar]							
Pneumococcal conjugate (PCV13)			1 st dose	2 nd dose	3 rd dose	← 4 th dose →		[Green bar]				[Purple bar]							
Inactivated poliovirus (IPV <18 yrs)			1 st dose	2 nd dose	← 3 rd dose →					[Green bar]		4 th dose	[Green bar]						
Influenza (IIV)					Annual vaccination 1 or 2 doses								Annual vaccination 1 dose only						
OR													OR		Annual vaccination 1 dose only				
Influenza (LAIV)												Annual vaccination 1 or 2 doses		Annual vaccination 1 dose only					
Measles, mumps, rubella (MMR)					See Notes	← 1 st dose →		[Green bar]				2 nd dose	[Green bar]						
Varicella (VAR)						← 1 st dose →		[Green bar]				2 nd dose	[Green bar]						
Hepatitis A (HepA)					See Notes	2-dose series, See Notes					[Green bar]								

Background



Background

Montana has lower early childhood vaccination rates (Hill et al., 2023) &

Lower COVID-19 vaccination rates, 5-17 years old (AAP, 2022; DPHHS, 2022)



American Academy of Pediatrics (AAP). 2022. Published online.
Hill et al. *MMWR Morb Mortal Wkly Rep.* 2023;72(2):33-38.
MT DPHHS. MT COVID-19 Dashboard. November 2022.

Background

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Limited research in rural communities (Albers et al., 2022)

Background



Montana has lower early childhood vaccination rates (Hill et al., 2023) &

Lower COVID-19 vaccination rates, 5-17 years old (AAP, 2022; DPHHS, 2022)

Limited research in rural communities (Albers et al., 2022)

Limited information re: strategies Montana providers use to promote vaccination

Objectives

To identify Montana primary care providers'



Current practices in promoting
childhood vaccinations

&



Experiences vaccinating young
children



Objectives

To identify Montana primary care providers'



Current practices in promoting childhood vaccinations

&



Experiences vaccinating young children

&



Compare providers working in urban and rural facilities



METHODS



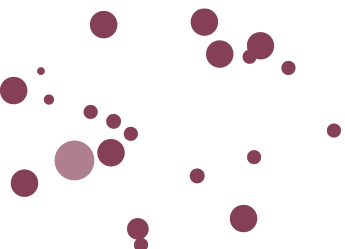
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* **MONTANA** *
**PRIMARY
CARE PROVIDER
SURVEY**



Jan-May 2022

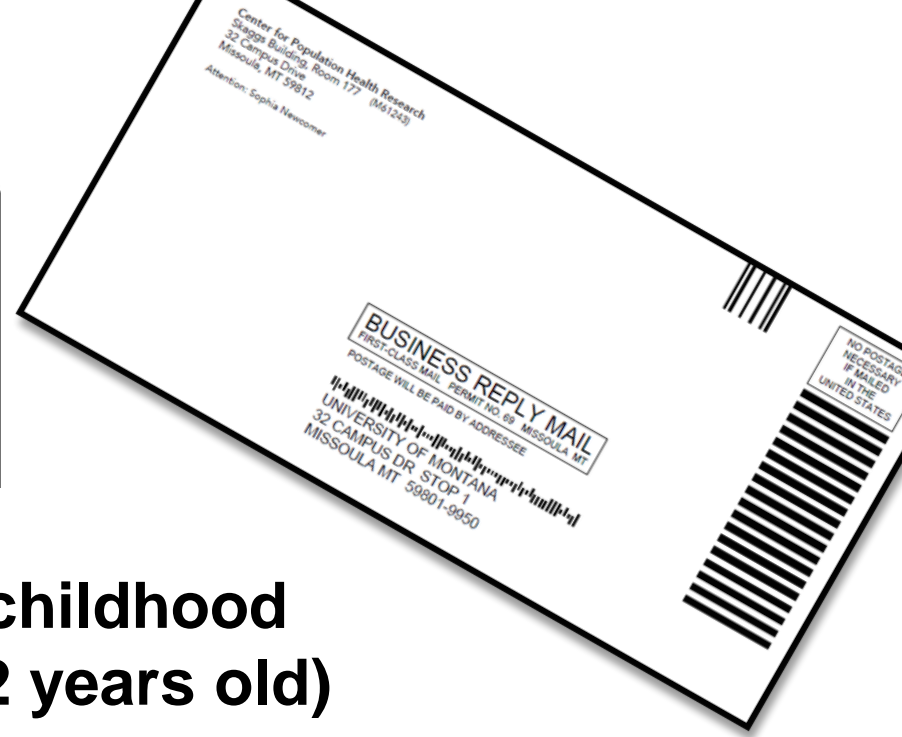
4 survey mailouts





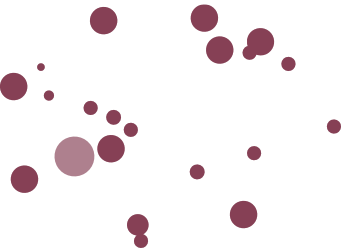
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**PRIMARY
CARE PROVIDER
SURVEY**



***Module 1: Early childhood
vaccinations (0-2 years old)***

***Module 2: COVID-19
vaccination (5-17 years old)***



Survey Eligibility

- ✓ **Physicians**
- ✓ **Advanced Practice Registered Nurses (APRNs)**
- ✓ **Physician Associates (PAs)**
- ✓ **Primarily worked in Montana**
- ✓ **Recommended or administered childhood vaccinations**
- ✓ **Family medicine or Pediatric specialty**

Analyses

- ✓ **Descriptive analyses**
- ✓ **Chi-square test of independence to determine differences between providers working in rural and urban areas**

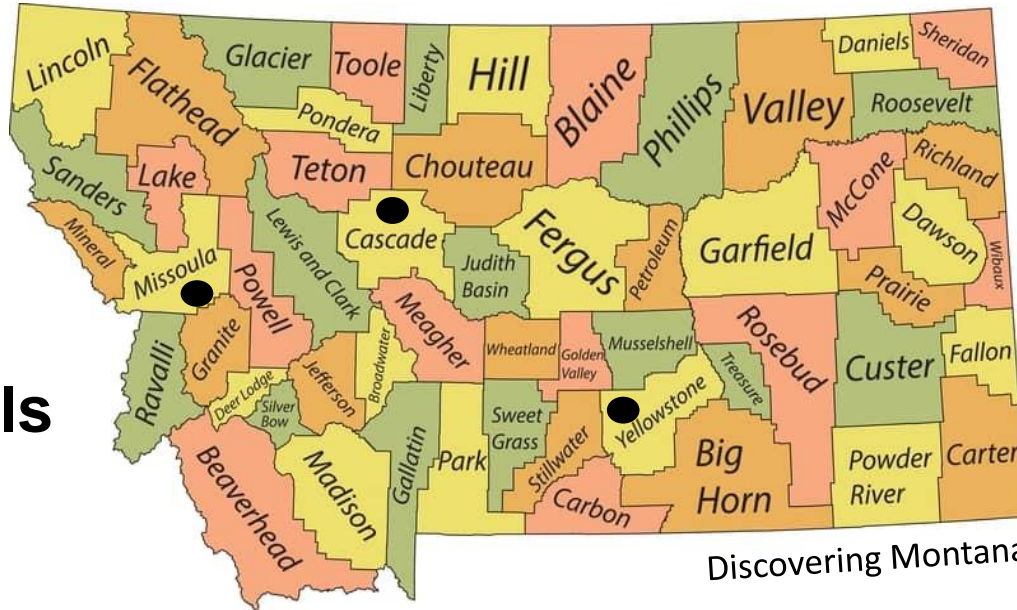
Defining rurality

Rural Urban Commuting Area (RUCA) codes

Urban



Great Falls
Missoula
Billings



Rural

Large rural town
+ Small town
+ Rural

RESULTS

Abbreviation note: PCP means primary care provider

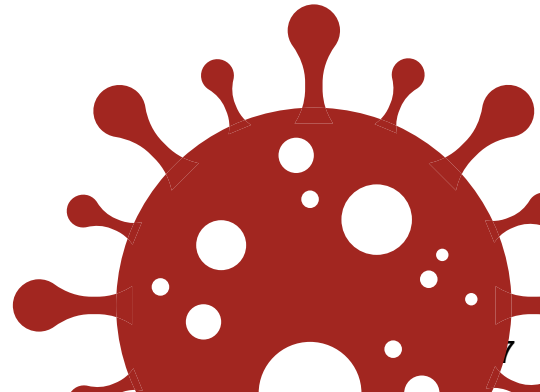
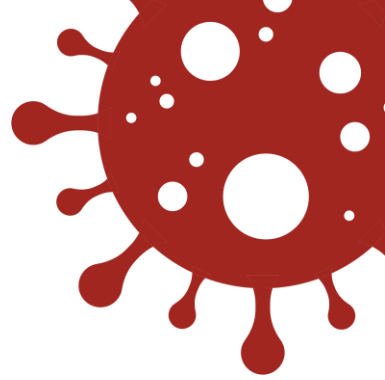
Results

298/829 (36% response rate)

172 Physicians


85 Advanced Practice Registered Nurses

41 Physician Associates



***Asked PCPs to select
which vaccines they
“regularly stock at their
facility” (n=298)***






	Rural (n=218)	Urban (n=80)	<i>p</i> -value*
	n (%)	n (%)	
<i>Rotavirus</i>	166 (76)	70 (88)	0.03
<i>Poliovirus</i>	167 (77)	71 (89)	0.02
<i>Hepatitis A</i>	177 (81)	73 (91)	0.04

*Chi-square test of independence; significance level is $p < 0.05$





	Rural (n=218)	Urban (n=80)	<i>p</i> -value*
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<i>Rotavirus</i>	166 (76)	70 (88)	0.03
<i>Poliovirus</i>	167 (77)	71 (89)	0.02
<i>Hepatitis A</i>	177 (81)	73 (91)	0.04
<i>COVID-19</i>	154 (71)	34 (44)	<0.001

*Chi-square test of independence; significance level is $p < 0.05$

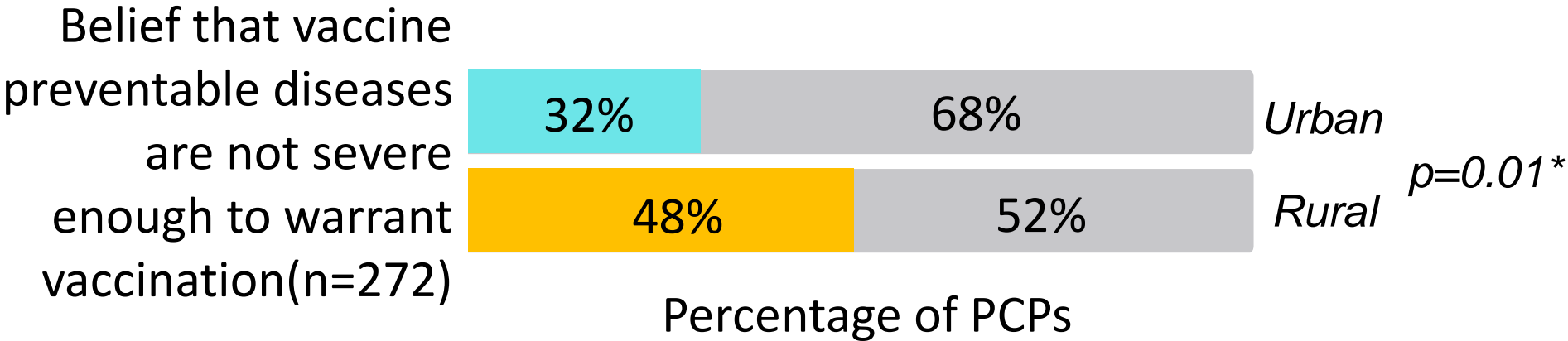


FACTORS THAT CONTRIBUTE TO PARENTAL CONCERNS

Recommended early childhood vaccinations

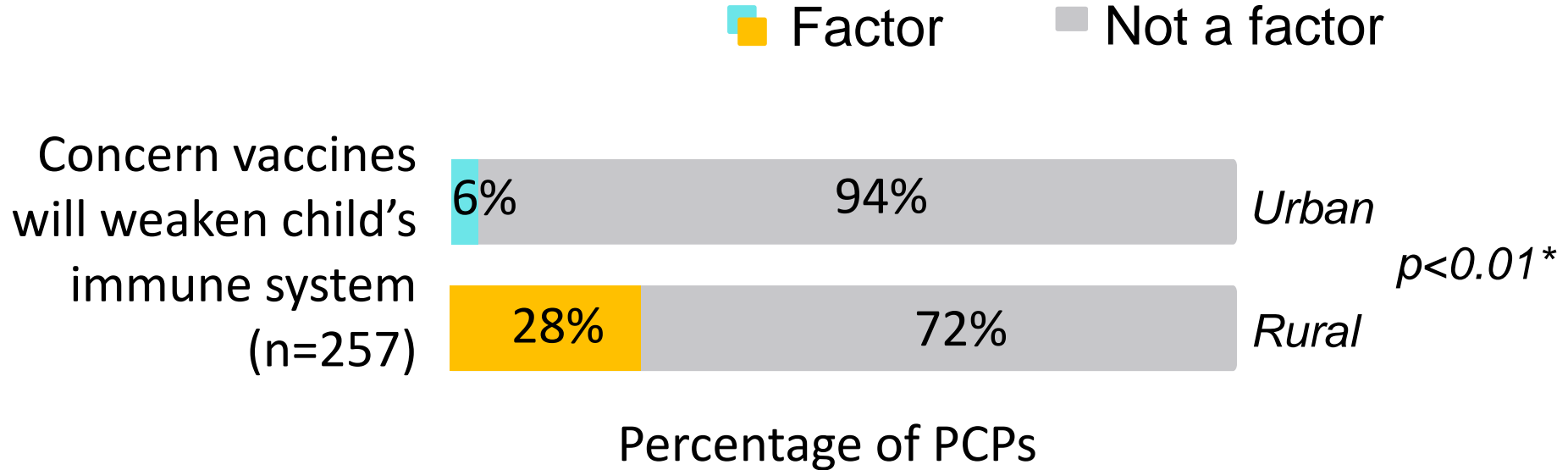
PARENTAL CONCERNS

■ Factor ■ Not a factor



**Chi-square test of independence; significance level is $p < 0.05$*

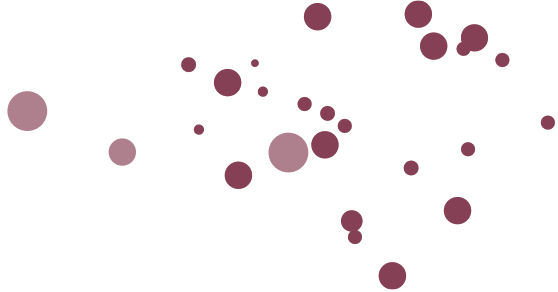
PARENTAL CONCERNS



*Chi-square test of independence; significance level is $p < 0.05$

**PROVIDER-REPORTED
STRATEGIES PCPs
CURRENTLY USING**

&



**STRATEGIES THAT
WOULD BE
EFFECTIVE TO
INCREASE
VACCINATION**

Recommended early childhood vaccinations

Strategies currently using (n=298)	% of PCPs
Conversations at office visits	95%
Information and pamphlet sheets (sent home with parents or in exam room)	68%
Utilizing other members of the care team to educate parents about vaccines	56%

No rural and urban differences



Strategies that would be very or somewhat effective (n=298)

% of PCPs

Providing expecting parents with information about early childhood vaccination as part of prenatal care

88%

Having the local public health department contact parents about vaccinations that are due/overdue

81%

No rural and urban differences



Strategies that would be effective (n=298)	All PCPs (%)	Urban (%)	Rural (%)	p-value
A social media campaign from state or local health departments promoting early childhood vaccinations	69%	59%	74%	0.01*

*Chi-square test of independence; significance level is $p < 0.05$



```
graph TD; A((Key findings)) --> B((Regularly stocking vaccines)); A --> C((PCPs using strategies)); A --> D((Vaccine concerns)); A --> E((Intervention strategies));
```

**Regularly
stocking
vaccines**

**PCPs
using
strategies**

**Vaccine
concerns**

**Key
findings**

**Intervention
strategies**



Thank
You

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