



Protecting Private Well Users' Health: results from two statewide surveys

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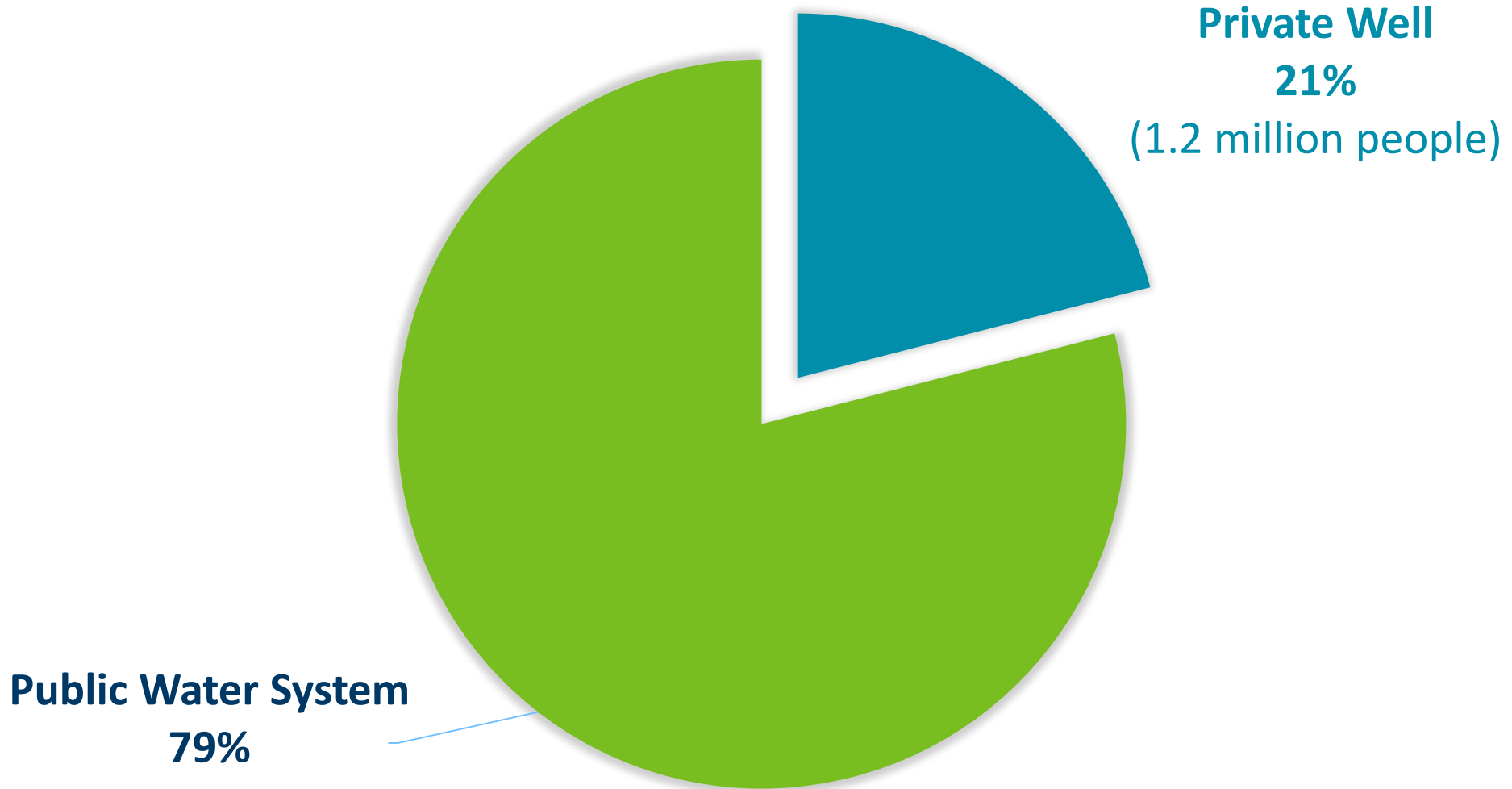


Talking Points

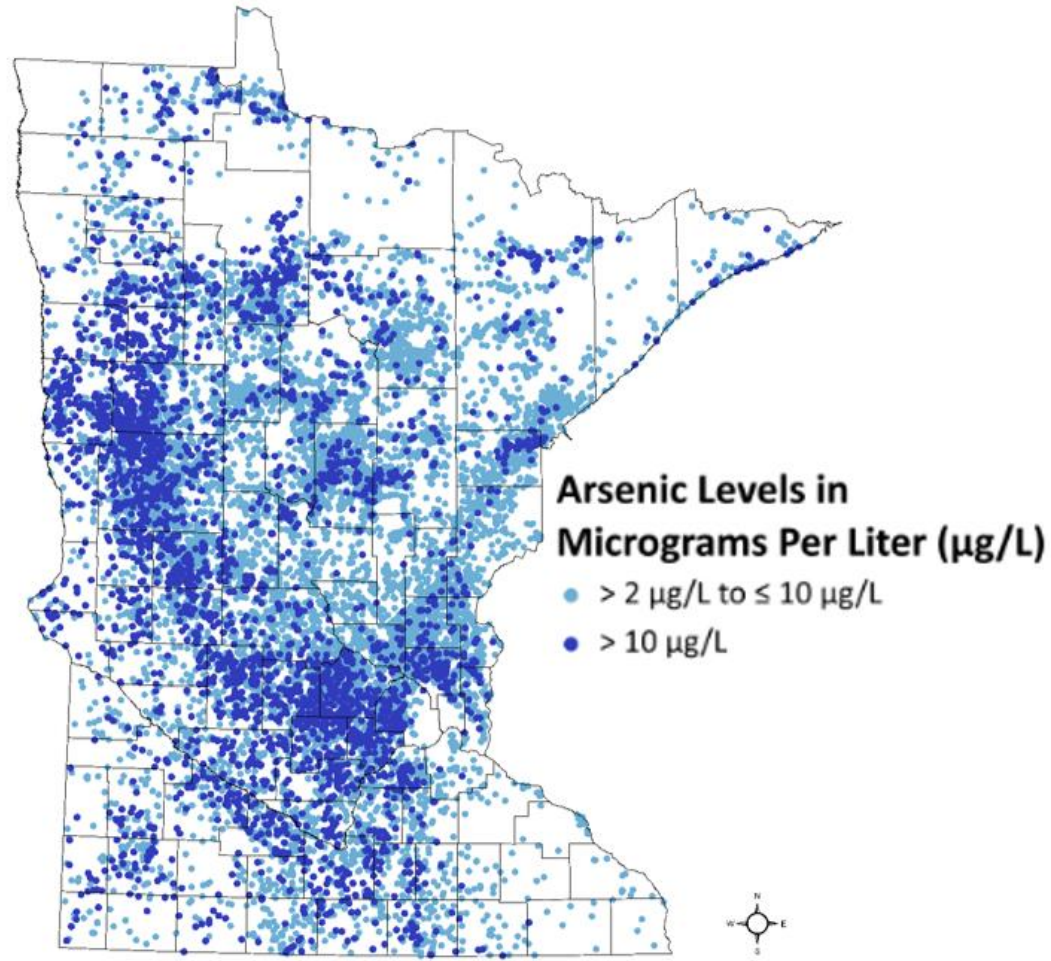
- Minnesota geology and private well use
- Arsenic study
- Private well household survey
- Next steps
- Questions



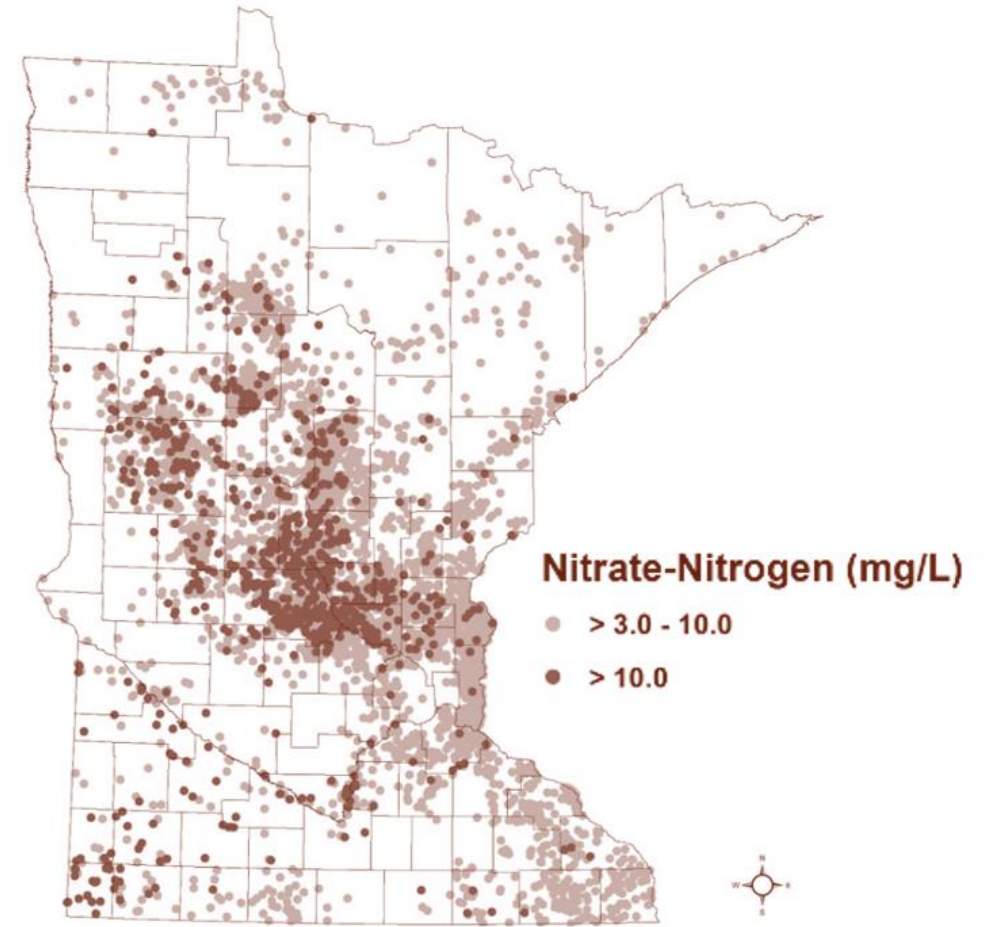
Minnesotans' drinking water sources



Public Health Issue: Contaminants



**Arsenic concentrations in
new wells (2008-2017)**



**Nitrate concentrations in
new wells (1991-2016)**

Two statewide studies



Arsenic study

Do arsenic results represent the long-term arsenic concentration for that well?



Household survey

Are private well users taking action to ensure safe drinking water?

Arsenic study: methods



Well location

- Varied geology



Sample point

- Off the rig
- Plumbing



Sample method

- Filtered
- Unfiltered



Sample timing

- Immediate
- 6 months
- 12 months

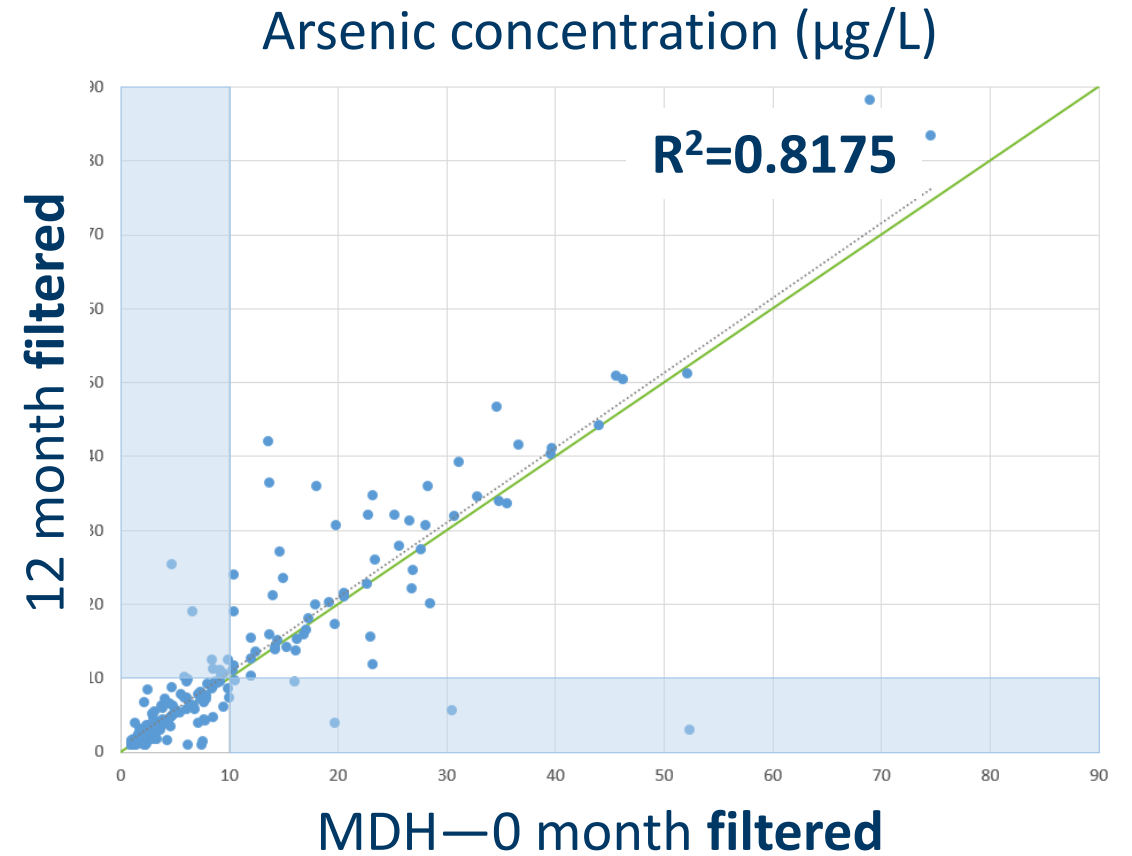
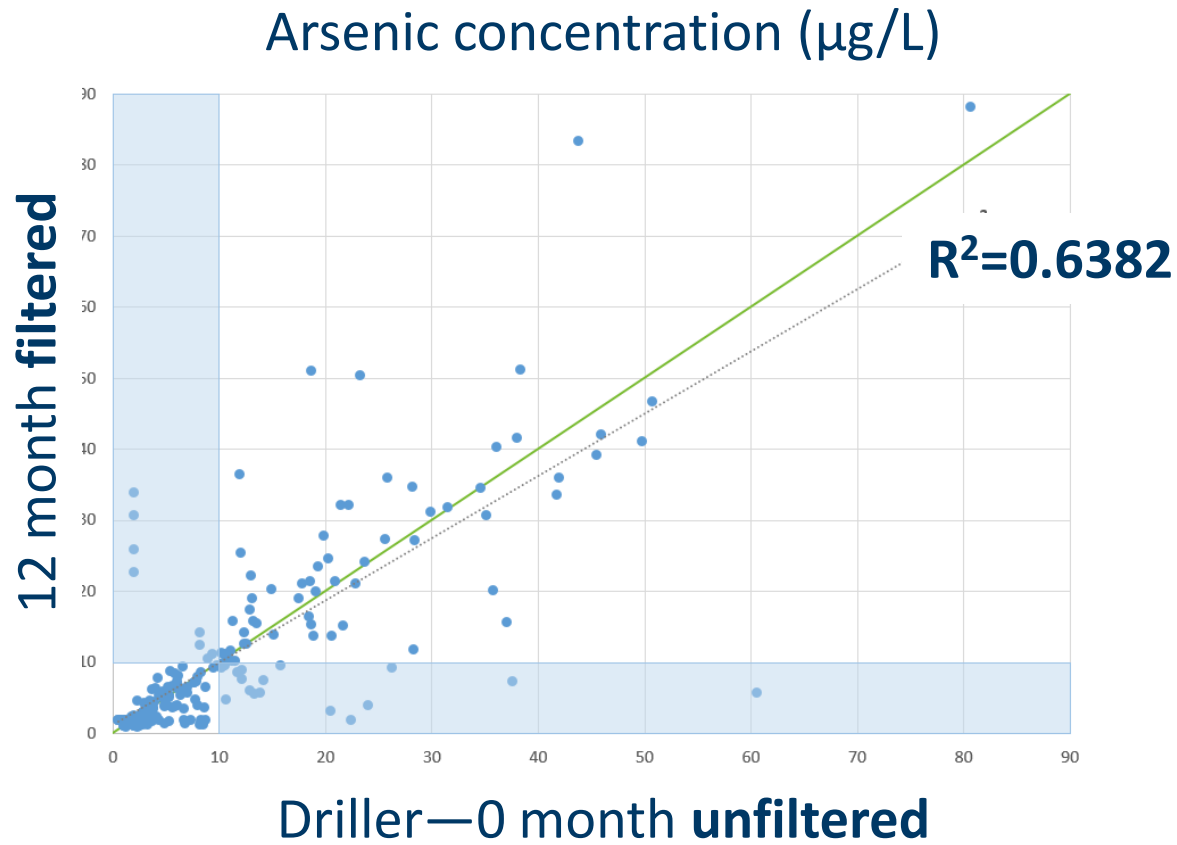
264 wells sampled

Arsenic study results: sample point

Driller v MDH Common Recensoring	MDH Collection							
	0 Mo. Plumbing		0 Mo. Rig		3-6 Mo. Plumbing		12 Mo. Plumbing	
Driller Collection	TAs	AqAs	TAs	AqAs	TAs	AqAs	TAs	AqAs
0 Mo. Plumbing	Not different	Not different	--	--	Not different	Not different	Not different	Not different
0 Mo. Rig	--	--	Not different	Different	Different	Different	Different	Different

Sampling at the plumbing better predicts long-term concentration

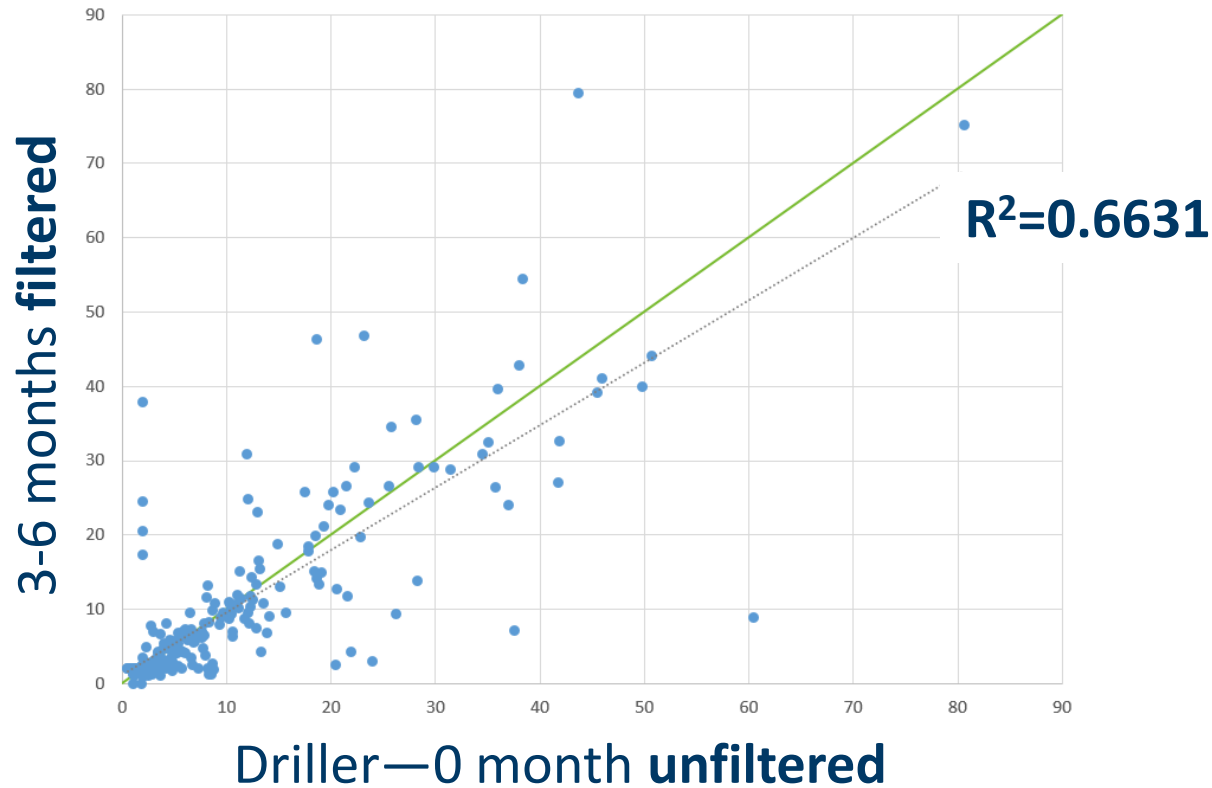
Arsenic study results: filtering



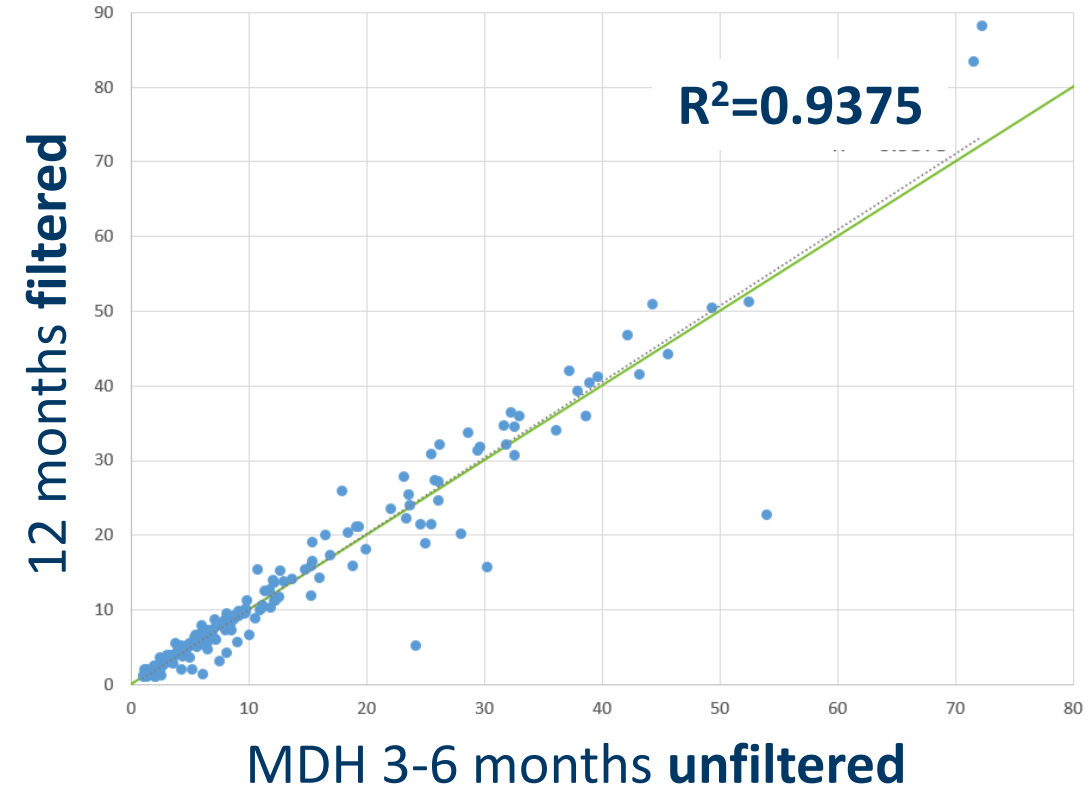
Filtering better predicts long-term concentration

Arsenic study results: timing

Round 1 to 2: Arsenic concentrations ($\mu\text{g/L}$)

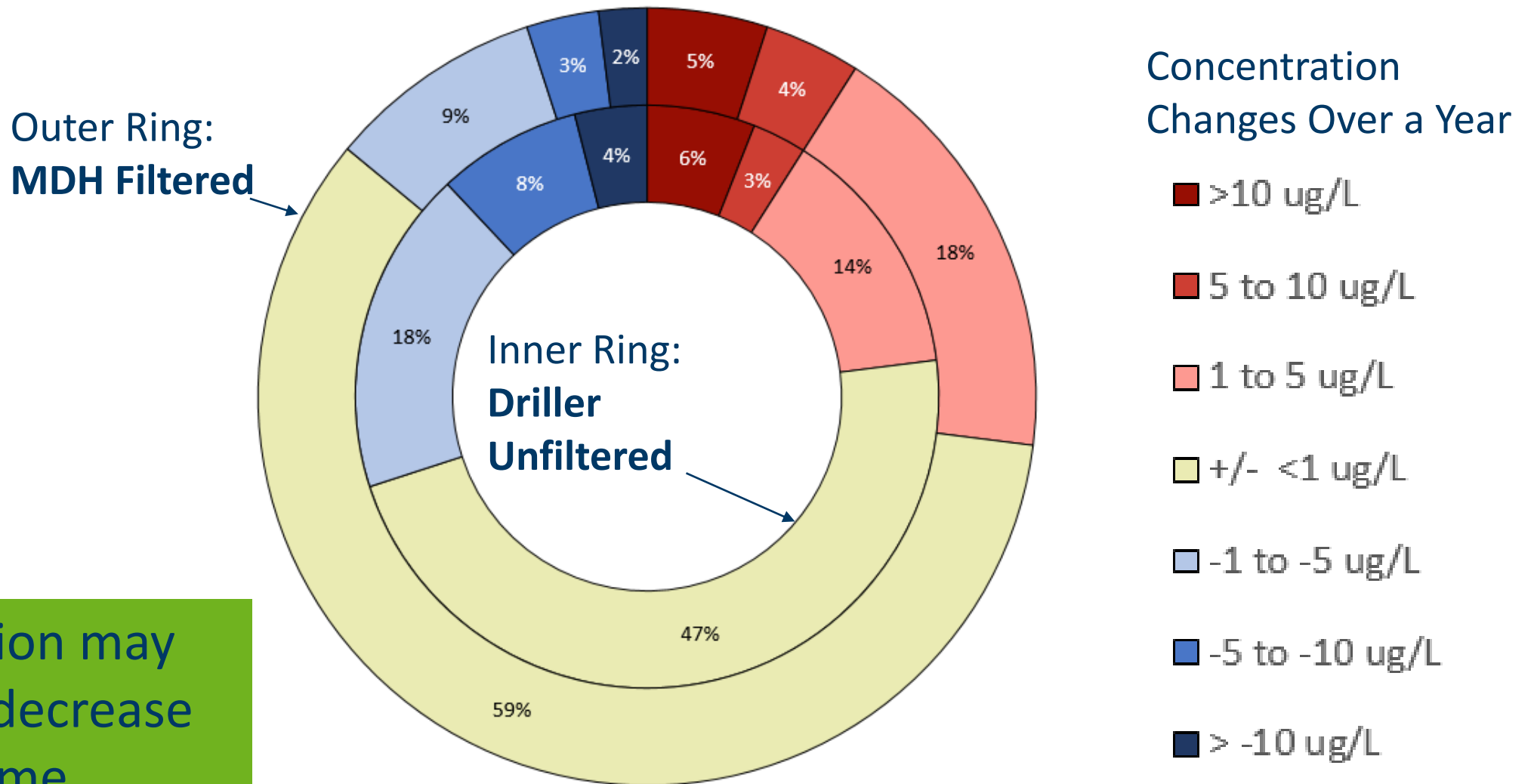


Round 2 to 3: Arsenic concentrations ($\mu\text{g/L}$)



Sampling **3-6 months after construction** better predicts long-term concentration

Arsenic study results: changes in concentration



Concentration may increase or decrease over time

Household survey: methods



Household survey

Are private well users taking action to ensure safe drinking water?

Survey sent to **3,815** private well users with elevated arsenic (2016)

- Demographic information
- Actions taken
- Well stewardship



Do you have what you need to keep your drinking water safe?

MDH
Minnesota Department of Health

Questions? Need a paper survey?
Emily Berquist, MDH Hydrologist
651-201-4594 | emily.berquist@state.mn.us

Take the survey online for a chance to win a \$25 Target gift card

www.health.state.mn.us/wellsurvey
(use this web address or QR code to take the survey)

798 responses

Household survey: Did respondents take action?

34%

did not take any action

Arsenic level is...

- Typical for the area
- Too low to be dangerous
- Would decrease with time

Some did not take action because of misinformation

Reason for not taking action	%
Not concerned about arsenic level	50
Wasn't sure what to do or who to contact	21
Treatment options too expensive	15
Treatment systems too difficult to use and maintain	15
Haven't gotten around to it, but plan to	11
Other	16

Multiple selections allowed

Household survey: Have respondents tested their water?





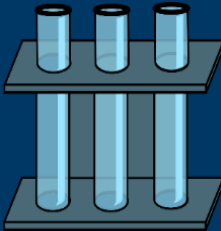

MDH recommends

- Coliform Bacteria (every year)
- Nitrate (every other year)
- Arsenic (at least once)
- Lead (at least once)

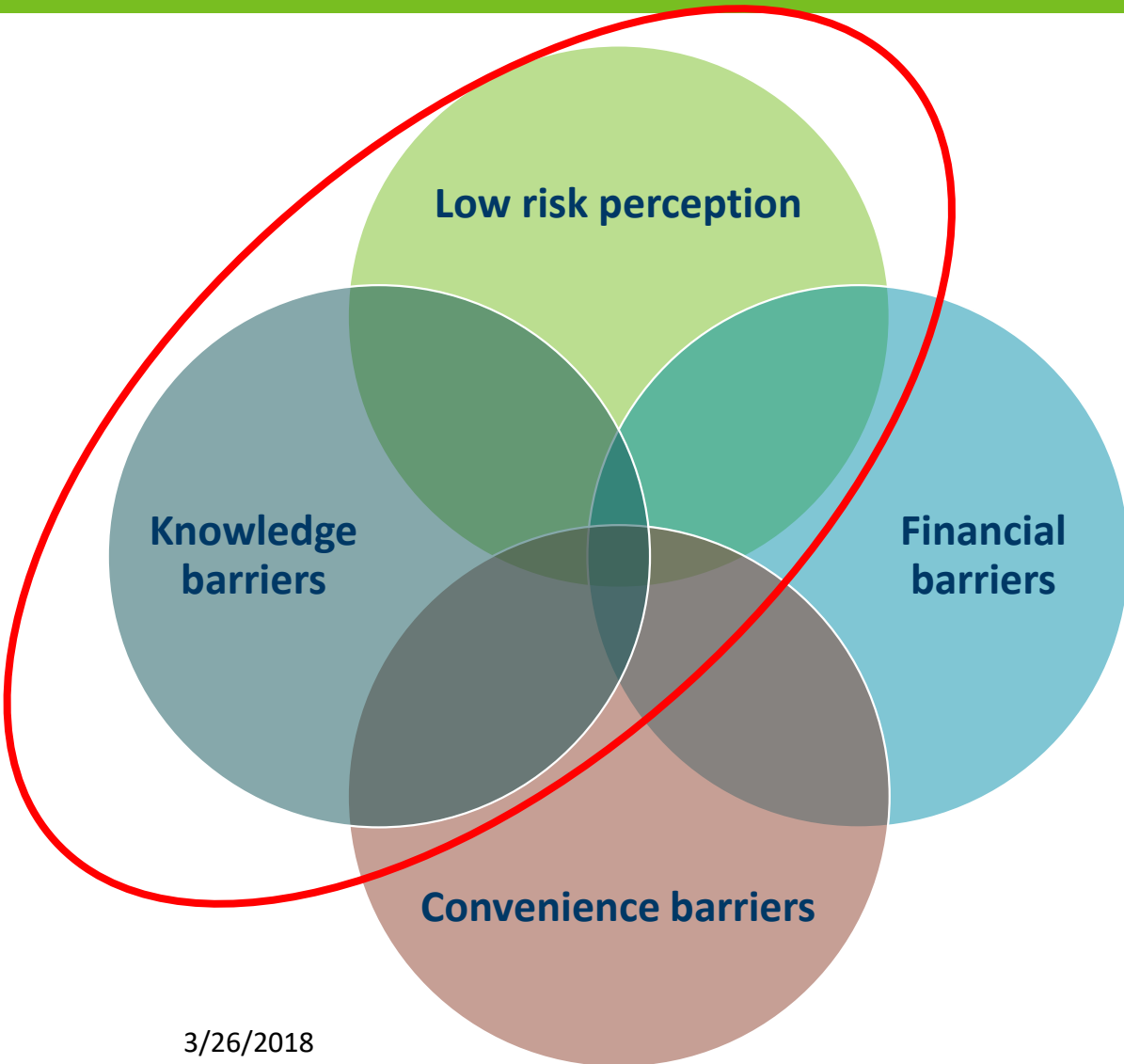
<20%
tested at recommended frequency

Selected as “very important” to prompt testing	%
Doctor’s recommendation	59
Infant/young child in home	50
Well testing event in my community	50
Town official’s suggestion	31
News article about testing	21

Household survey: habits and preferences

	Where people look for water quality information*	How people would like to pick up and return a test kit
<50 years old College degree + Higher income	 Internet	 Order online & return by mail
>50 years old Less than two year degree Lower income	 Water testing laboratory	 Pick up & drop off at local spot

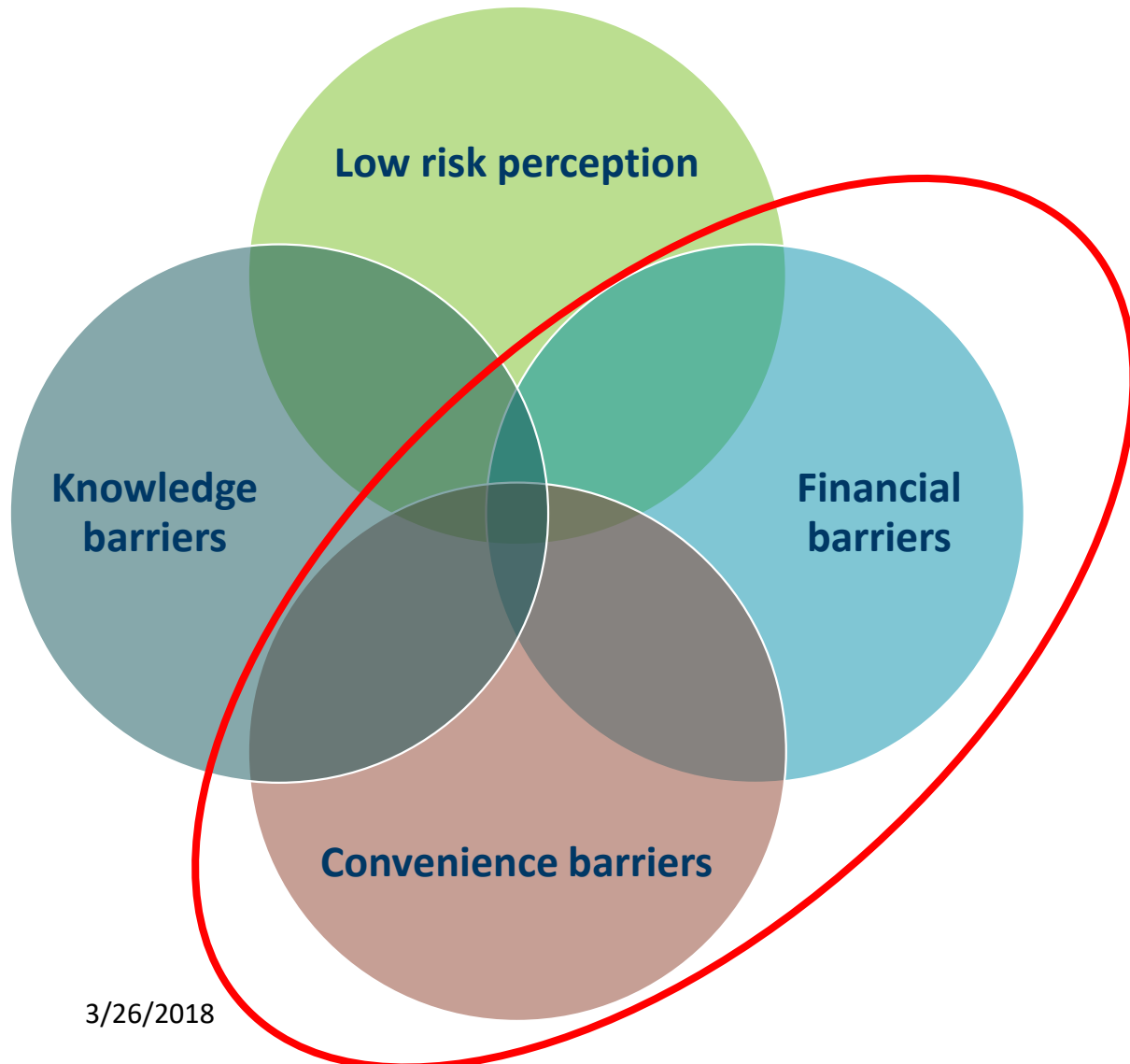
Public Health Action: Barriers & Current Efforts



Current Efforts

- Raise awareness
- Increase accurate risk perception
- Make information more accessible

Public Health Action: Barriers & Future Efforts



Future Efforts Include

- Make testing and treatment more affordable
- Make testing more accessible

Questions?

Arsenic study

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Household survey

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