

# **Improving Vaccine Uptake in a Vaccine-Resistant Cluster in Oregon**

**Shawn Foley, M.D.**

**Sandra J. Bean, MPH, PhD**

**Oregon Public Health Association Conference 2016**



August 1, 2015

RE: Practice Improvement Project

Dear Dr. Foley,

Thanks for reaching out to ask about [REDACTED] immunization status.

As parents, we chose not to vaccinate [REDACTED]. This was not done without careful thought and thorough investigation on our part as new parents many years ago. (He is 18 now and I don't feel we should have been contacted in the first place)

During this time, the # of recommended childhood vaccines has increased dramatically. We are thankful that we live in a country where parents have a choice, but we know that this is likely to become more difficult as government steps up its efforts to control more aspects of our lives than we are comfortable with.

If you'd like to pay to have [REDACTED] get a Titer blood test to check his immunity, that'd be great. More information is always helpful.

Along those same lines, I would encourage you to take a look at this video and see why there are so many parents who are hesitant to trust in the studies and quality of reporting regarding vaccines.

<https://www.youtube.com/watch?v=qxr-cv-Jul8&feature=youtu.be>

Please make a note in our file to **NOT** contact me to discuss MMR vaccines or any other childhood diseases.

Sincerely,

Dear Dr. Foley,

Thanks for reaching out to ask about [REDACTED] immunization status.

As parents, we chose not to vaccinate [REDACTED]

This was not done without careful thought and thorough investigation on our part as new parents many years ago. (He is 18 now and I don't feel we should have been contacted in the first place)

During this time, the # of recommended childhood vaccines has increased dramatically. We are thankful that we live in a country where parents have a choice, but we know that this is likely to become more difficult as government steps up its efforts to control more aspects of our lives than we are comfortable with.

If you'd like to pay to have [REDACTED] get a Titer blood test to check his immunity, that'd be great. More information is always helpful.

Along those same lines, I would encourage you to take a look at this video and see why there are so many parents who are hesitant to trust in the studies and quality of reporting regarding vaccines.

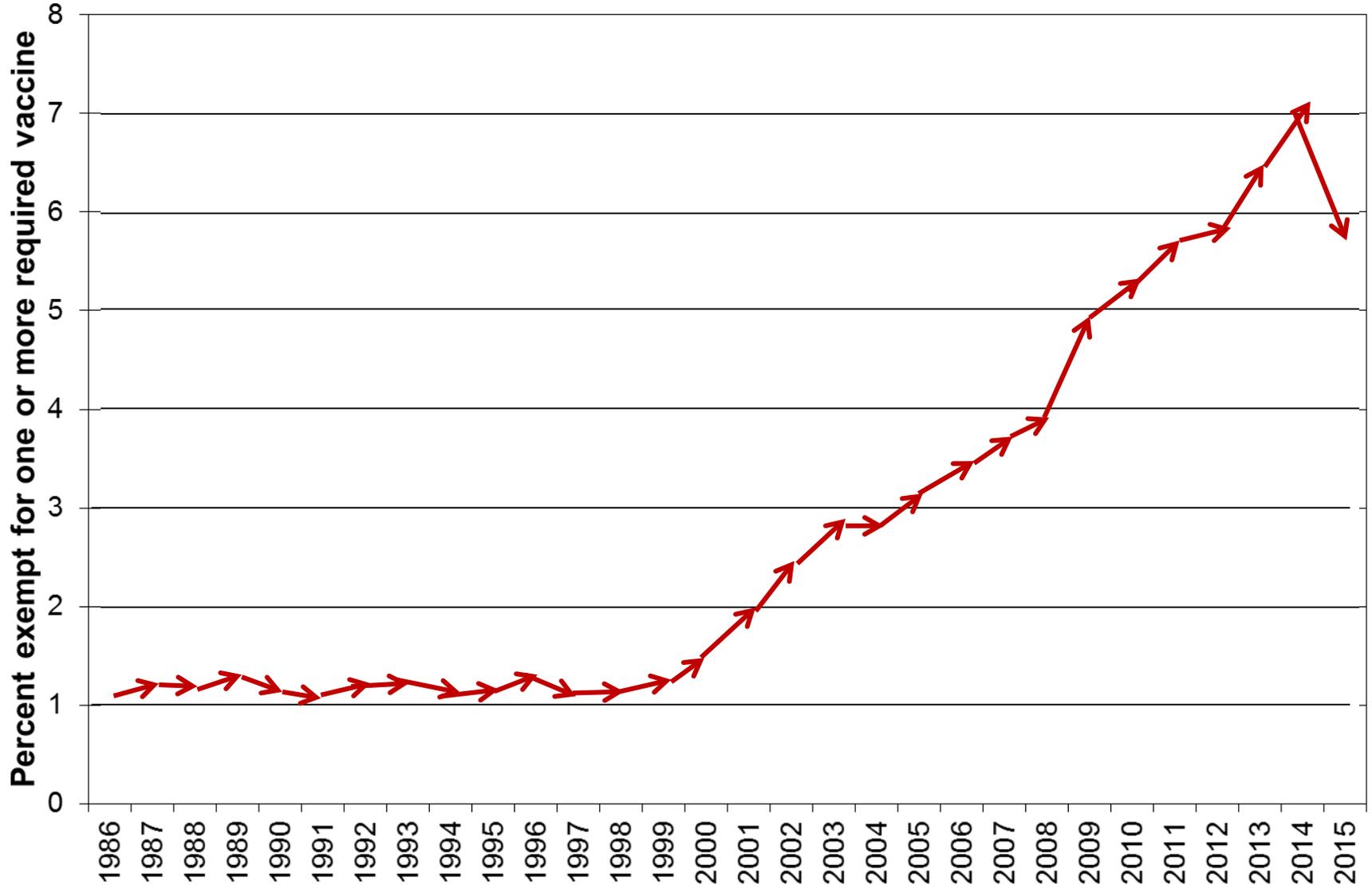
<https://www.youtube.com/watch?v=qxr-cv-Jul8&feature=youtu.be>

# Overview

- **Vaccines** save millions of lives a year.
- Oregon parental **exemptions—Highest in the U.S.**
- **Vaccine-opposing populations** → outbreaks of vaccine-preventable diseases (VPDs), like measles.
- Health care providers—pediatricians, general practitioners, nurses—are seen as **trustworthy**.



# Oregon Kindergarten Nonmedical Exemption Rates



\*Includes 1st grade through 2006

# Measles

- Parents view measles as a minor, mild childhood illness.
- **One person** can infect → 15–18 persons.

Photo courtesy © U.S. Bahai'i Media Bank



# Measles

- Measles can be serious—
  - 1 in 4 will need hospitalization.
  - 1 in 1,000 will develop brain swelling (encephalitis).
  - 1–2 in 1,000 will die, even with the best care.



# Methods

- Comb clinic database for records of children lacking MMR vaccine.
- Cross-check these data with ALERT.
- Parents of 23 unvax children contacted by phone.
- Conversations with vax-hesitant or –refusing parents, using evidence-based scripts.



# Dialogue with Accepting Parent

**Table 5 Example of dialogue with the unquestioning or cautious acceptor parent**

|                             |   |
|-----------------------------|---|
| <b>Health professional:</b> | Hello Mrs Cheung. I understand you have brought Lily for her vaccinations today.  |
| <b>Mother:</b>              | Yeah, that's right.   |
| <b>Health professional:</b> | Hello, Lily. OK, have you read the leaflet about the injections? I'd be happy to share with you more information about vaccination. ( <i>build rapport, seek questions and concerns</i> )   |
| <b>Mother:</b>              | Well only one thing. She had a slight cold last week, she seems to be over it now but I just wondered if it was safe.   |
| <b>Health professional:</b> | She's back to her normal self now?  |
| <b>Mother:</b>              | Yes she is  |
| <b>Health professional:</b> | Then it is safe for Lily to have them today. ( <i>pausing to allow mother to interject if she has questions and observing body language</i> ) We are vaccinating her against measles, mumps and rubella, Hib, meningococcal C disease and pneumococcal disease* – all serious diseases which have been made much rarer through vaccination programs. It will be three injections and I will give her two in one arm and one in the other arm. They may upset her for a few moments but most children settle straight away after some comforting and 90% don't have any other side effects at all ( <i>positive framing of risk using percentages</i> ). If there is a problem, the commonest thing is a slightly sore arm that will last for a few days and then settles ( <i>pause to allow questions or clarification – chunking and checking</i> ).  |
| <b>Mother:</b>              | OK – anything else?   |
| <b>Health professional:</b> | One of the vaccines contains a small amount of weakened measles, mumps and rubella viruses which stimulate Lily's immune system to respond and develop protection to these infections. That means she may have some mild symptoms of measles, such as a rash and a fever, and she may feel a bit off-colour 7 to 11 days after the vaccine. ( <i>pause</i> ) About 3 weeks after the vaccine, she may get a mild form of mumps, with swelling under her jaw. But this is less common and happens in only about 1% of children ( <i>qualitative and quantitative risk estimates</i> ). These symptoms are not infectious so she can't pass them onto to anyone else and they usually go away after 1 to 2 days. The side-effects of the vaccine are usually mild and they are milder than the risks of having measles, mumps or rubella diseases. If you have worries afterwards, bring her back to the clinic and we can check her over. How does that sound? ( <i>structured information using chunks and checks and unbiased expectation of consent</i> ) |
| <b>Mother:</b>              | Fine yeah that's OK   |

# Dialogue with Accepting Parent

**Table 5 Example of dialogue with the unquestioning or cautious acceptor parent**

|                             |   |
|-----------------------------|---|
| <b>Health professional:</b> | Hello Mrs Cheung. I understand you have brought Lily for her vaccinations today.  |
| <b>Mother:</b>              | Yeah, that's right.   |
| <b>Health professional:</b> | Hello, Lily. OK, have you read the leaflet about the injections? I'd be happy to share with you more information about vaccination. <i>(build rapport, seek questions and answers)</i>  |
| <b>Mother:</b>              | Well only one thing. She had a slight cold last week, she seems to be over it now but I just wondered if it was safe.   |
| <b>Health professional:</b> | She's back to her normal self now?  |
| <b>Mother:</b>              | Yes she is  |
| <b>Health professional:</b> | Then it is safe for Lily to have them today. <i>(pausing to allow mother to interject if she has questions and observing body language)</i> We are vaccinating her against measles, mumps and rubella, Hib, meningococcal C disease and pneumococcal disease* serious diseases which have been made much rarer through vaccination programmes. There will be three injections and I will give her two in one arm and one in the other arm. They may upset her for a few moments but most children settle straight away and I can give you some comforting and 90% don't have any other side effects at all <i>(positive framing and risk using percentages)</i> . If there is a problem, the commonest thing is a slightly sore arm that will last for a few days and then settles <i>(pause to allow questions or clarification – chunking and checking)</i> . |
| <b>Mother:</b>              | OK – anything else?   |
| <b>Health professional:</b> | One of the vaccines contains a small amount of weakened measles, mumps and rubella viruses which stimulate Lily's immune system to respond and develop protection to these infections. That means she may have some mild symptoms of measles, such as a rash and a fever, and she may feel a bit off-colour 7 to 11 days after the vaccine. <i>(pause)</i> About 3 weeks after the vaccine, she may get a mild form of mumps, with swelling under her jaw. But this is less common and happens in about 1% of children <i>(qualitative and quantitative risk estimates)</i> . These symptoms are not infectious so she can't pass them onto to anyone else and they usually go away after 1 to 2 days. The side-effects of the vaccine are usually mild and they are much less than the risks of having measles, mumps or rubella diseases. If you have worries |

# Dialogue with Hesitant Parent

**Table 6 Example of dialogue with the hesitant parent**

---

|                             |  |
|-----------------------------|--|
| <b>Health professional:</b> | Good morning Mrs Wilkinson. I understand you have brought Robbie for his first infant vaccinations today.  |
| <b>Mother:</b>              | That's right.  |
| <b>Health professional:</b> | OK, have you read the leaflet about the injections? What questions are on your mind? ( <i>build rapport, seek questions and concerns</i> )   |
| <b>Mother:</b>              | Well, I'm pretty nervous – he seems so young.  |
| <b>Health professional:</b> | You sound quite worried ( <i>empathic response</i> ), let's talk it through together, tell me what you are concerned about? ( <i>further building rapport and eliciting concerns</i> )   |
| <b>Mother:</b>              | One of the mums in my mothers' group said that one of the injections has got five ingredients and that's too many for their immune systems to cope with. He does seem so young to be having injections against all these diseases at once. Won't it make him ill?  |
| <b>Health professional:</b> | OK, we can talk about this ( <i>guiding</i> ) but do you have other worries as well? ( <i>eliciting further concerns</i> )   |
| <b>Mother:</b>              | Well I read also that they can get a sore leg afterwards, so that's another worry.   |
| <b>Health professional:</b> | ( <i>pausing to allow mother to interject if she has questions and to observe body language</i> ) Right, let's talk about the five ingredients and then we can talk about the chances of getting a sore leg ( <i>signposting and structuring of explanation</i> ). You're right that the injection has got five ingredients which would protect Robbie from the diseases called diphtheria, tetanus, whooping cough, polio and <i>Haemophilus influenzae</i> b (Hib). It seems a lot doesn't it ( <i>empathic response</i> ). Children, even newborn babies, have to deal with enormous amounts of bacteria and other foreign material every day, and the immune system responds to each of these in various ways to protect the body. Babies' immune systems can handle this, and the vaccines these days are so refined that babies can easily cope with several vaccines in one go. ( <i>chunk of information provided followed by pause for mother to raise further questions and health professional to observe mother's body language</i> ). |
| <b>Mother:</b>              | OK, and will he get a sore leg?  |
| <b>Health professional:</b> | Most children don't have any reaction at all, other than having a cry with the injection, and even then they generally settle really quickly with a cuddle and some comforting words from mum ( <i>empowering</i> ). It's true that a small number of children, about 10%, or 1 in 10, can get a redness or a sore area where the needle goes in ( <i>acknowledging</i> ) – but these reactions don't usually distress the child, and only last a couple of days, then go away. So what I ask mothers to do is to watch their child and if they are concerned bring them back to the clinic so we can check them over. How does that sound? ( <i>avoid being overly persuasive, positive framing of risk</i> )   |
| <b>Mother:</b>              | Is there anything in particular I should watch for?  |
| <b>Health professional:</b> | Robbie may be a bit unsettled for a day or so after his injection but he shouldn't be ill with it. The leaflet tells you about what to look out for and what to do if you are concerned.   |
| <b>Mother:</b>              | Thanks – I'm still a bit nervous but I think we should get it done.  |

---

# Dialogue with Hesitant Parent

**Table 6 Example of dialogue with the hesitant parent**

|                             |   |
|-----------------------------|---|
| <b>Health professional:</b> | Good morning Mrs Wilkinson. I understand you have brought Robbie for his first infant vaccination.  |
| <b>Mother:</b>              | That's right.   |
| <b>Health professional:</b> | OK, have you read the leaflet about the injections? What questions are on your mind? ( <i>build rapport, raise questions and concerns</i> )   |
| <b>Mother:</b>              | Well, I'm pretty nervous – he seems so young.   |
| <b>Health professional:</b> | You sound quite worried ( <i>empathic response</i> ), let's talk it through together, tell me what you are worried about? ( <i>further building rapport and eliciting concerns</i> )  |
| <b>Mother:</b>              | One of the mums in my mothers' group said that one of the injections has got five ingredients, too many for their immune systems to cope with. He does seem so young to be having injections for all these diseases at once. Won't it make him ill?   |
| <b>Health professional:</b> | OK, we can talk about this ( <i>guiding</i> ) but do you have other worries as well? ( <i>eliciting further concerns</i> )  |
| <b>Mother:</b>              | Well I read also that they can get a sore leg afterwards, so that's another worry.  |
| <b>Health professional:</b> | ( <i>pausing to allow mother to interject if she has questions and to observe body language</i> ) Right, let's talk about the five ingredients and then we can talk about the chances of getting a sore leg ( <i>signposting of explanation</i> ). You're right that the injection has got five ingredients which would protect Robbie from diseases called diphtheria, tetanus, whooping cough, polio and <i>Haemophilus influenzae b</i> (Hib). It doesn't it ( <i>empathic response</i> ). Children, even newborn babies, have to deal with enormous amounts of bacteria and other foreign material every day, and the immune system responds to each of these in various ways to protect the body. Babies' immune systems can handle this, and the vaccines these days are so safe that babies can easily cope with several vaccines in one go. ( <i>chunk of information provided followed by a pause for mother to raise further questions and health professional to observe mother's body language</i> ). |
| <b>Mother:</b>              | OK, and will he get a sore leg?   |
| <b>Health professional:</b> | Most children don't have any reaction at all, other than having a cry with the injection, and even if they do they generally settle really quickly with a cuddle and some comforting words from mum ( <i>empowering</i> ). It's true that a small number of children, about 10%, or 1 in 10, can get a redness or a sore area where the injection is given.   |

# Dialogue with Refusing Parent

**Table 7 Example of dialogue with the vaccine-refusing parent**

---

*There is a discussion about Oliver's upper respiratory tract infection then:*

|                             |   |
|-----------------------------|---|
| <b>Health professional:</b> | Do you mind if we take a moment to talk about Oliver's vaccinations?  |
| <b>Mother:</b>              | Ah, yes, we did some research into it and decided not to vaccinate him.   |
| <b>Health professional:</b> | OK, can I just talk it through so I understand your decision? ( <i>asking permission to discuss and use of a guiding style</i> )  |
| <b>Mother:</b>              | Yeah, OK.   |
| <b>Health professional:</b> | To start with can I just ask you how important you think it is to get Oliver protected from the diseases vaccines are designed to prevent? ( <i>assessing importance</i> )  |
| <b>Mother:</b>              | Well, mostly the diseases aren't that much of a problem in healthy children and we keep Oliver very healthy with a good diet, organic food, and plenty of fresh air.  |
| <b>Health professional:</b> | You're right, most children will overcome illnesses without too much of a problem ( <i>acknowledging</i> ). Unfortunately, there are still children that get pretty sick with these diseases, and sadly a significant number of children end up in hospital with complications from the disease. With measles, for example, 9 in every 100 children get pneumonia and some need to go to hospital ( <i>pause</i> ).   |
| <b>Mother:</b>              | I didn't know that.   |
| <b>Health professional:</b> | Yes, it can still be a serious problem. Could I ask now how confident you are that the vaccinations are safe? ( <i>assessing confidence</i> )   |
| <b>Mother:</b>              | I'm not all confident in them being safe.   |
| <b>Health professional:</b> | What have you heard? ( <i>exploring</i> )   |
| <b>Mother:</b>              | Well on one internet site it said that children can get brain damage and all kinds of problems after vaccination. And the drug companies try to cover it up.  |
| <b>Health professional:</b> | That sounds frightening ( <i>empathic response</i> ). Which vaccines are you most concerned about? ( <i>eliciting specific concerns</i> )   |
| <b>Mother:</b>              | The MMR one because it can cause autism.  |
| <b>Health professional:</b> | I understand you are concerned about vaccinations ( <i>building rapport by accepting rather than rebutting concerns</i> ) but I'd just like to give you my view if that's OK? ( <i>Mother nods.</i> ) Although there has been some research that raises concerns about vaccine safety, each time a concern comes up, new research is done to check whether the results are consistent or not. The vaccines that we use are very safe and serious side effects are very rare. Would you like to look at the MMR vaccine decision aid which can help you weigh up the risks of the vaccine and the diseases? ( <i>respecting autonomy, offering information</i> ) |
| <b>Mother:</b>              | Well, I guess I could have a look but I'm still pretty cautious about Oliver getting these jabs.  |
| <b>Health professional:</b> | Well, take a look at the decision aid and then if you like, come back to the clinic for another talk. We have a clinic each Tuesday and I'll be here most weeks. Would you like to come back in two weeks? ( <i>leaving door open to further discussion</i> )   |
| <b>Mother:</b>              | OK thanks.  |

---

# Dialogue with Refusing Parent

**Table 7 Example of dialogue with the vaccine-refusing parent**

---

*There is a discussion about Oliver's upper respiratory tract infection then:*

**Health professional:**

Do you mind if we take a moment to talk about Oliver's vaccinations?

**Mother:**

Ah, yes, we did some research into it and decided not to vaccinate him.

**Health professional:**

OK, can I just talk it through so I understand your decision? *(asking permission to discuss)*

**Mother:**

Yeah, OK.

**Health professional:**

To start with can I just ask you how important you think it is to get Oliver protected and what vaccines are designed to prevent? *(assessing importance)*

**Mother:**

Well, mostly the diseases aren't that much of a problem in healthy children and we keep him on a good diet, organic food, and plenty of fresh air.

**Health professional:**

You're right, most children will overcome illnesses without too much of a problem (and) there are still children that get pretty sick with these diseases, and sadly a significant number end up in hospital with complications from the disease. With measles, for example, 9 in every 1000 some need to go to hospital *(pause)*.

**Mother:**

I didn't know that.

**Health professional:**

Yes, it can still be a serious problem. Could I ask now how confident you are that the vaccines are safe? *(assessing confidence)*

**Mother:**

I'm not all confident in them being safe.

**Health professional:**

What have you heard? *(exploring)*

**Mother:**

Well on one internet site it said that children can get brain damage and all kinds of problems

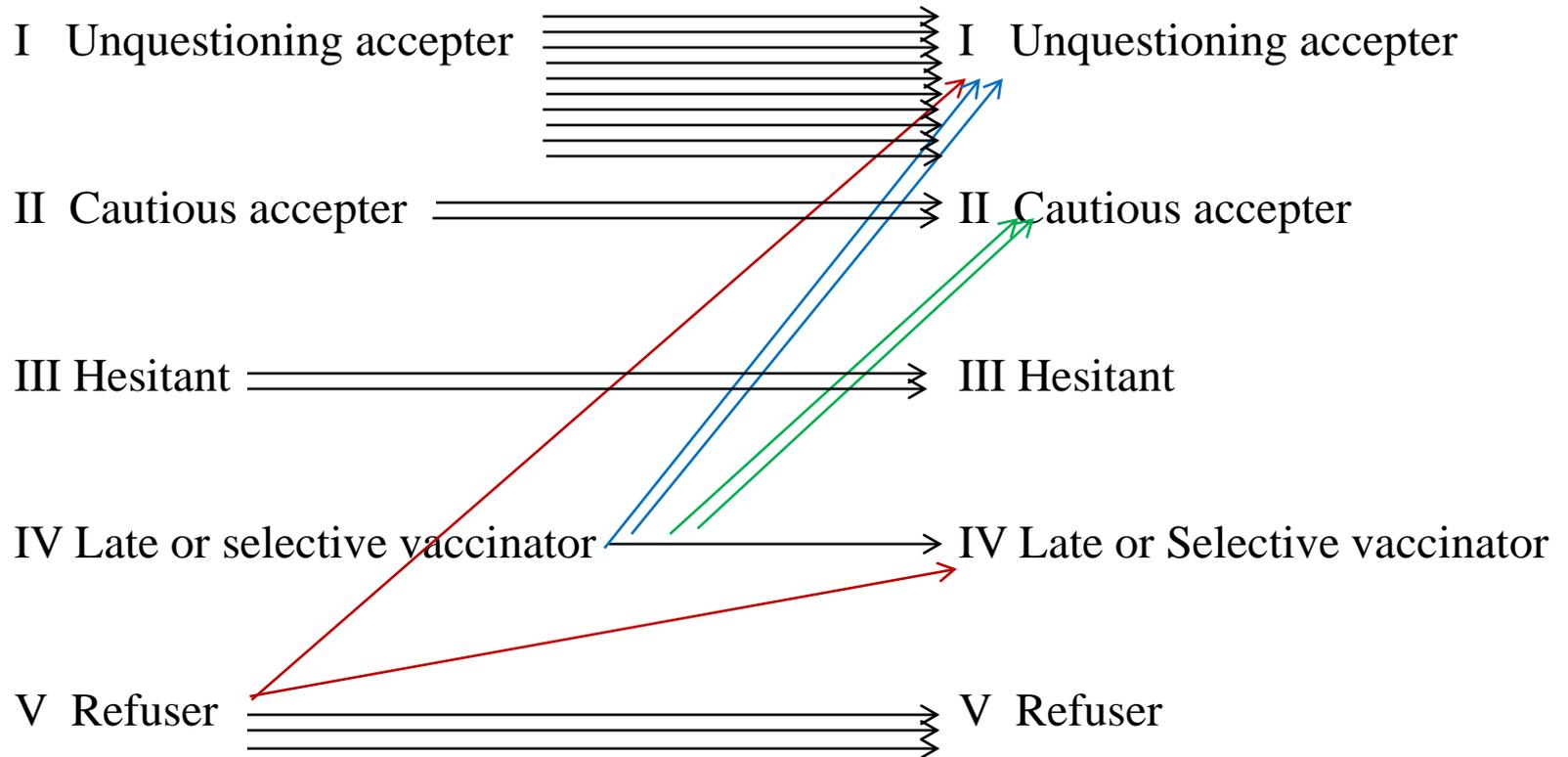
# Results

- 22% of parents of unvaccinated children agreed to the MMR vaccine for their child
- None of the 23 parents became less willing to vaccinate their child
- Realizing the **risk to others** persuaded one family to vaccinate their child



# Results

Movement from lower to higher vaccine acceptance category following guided conversation



# Discussion

- Physician conversations with parents are an effective vaccine-promotion intervention.
- Physicians are trusted sources of information.
- Six of 23 parents moved toward vaccinating their children because of the physician-parent conversations.



# Limitations

- **Small** number of participants (n = 23)
- **Possibility** of interviewer bias, response bias, and confounding bias
- **Time and opportunity**—busy clinicians have little time to develop the kind of rapport needed to establish a parent's trust and carry on a guiding dialogue

# Conclusions

- Physicians need **appropriate interventions** to improve vaccination uptake.
- They need **time and opportunity** to carry out one-on-one guided conversations, based on a tested model.
- Such dialogue can have a **significant impact** on vaccine-hesitant and –refusing parents, leading to better vaccine uptake.

Questions?