Report on Physician Attitudes and Practices Regarding Vaccine Exemptions

ADHS Contract: Deliverable 3

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Summary of Findings:

We found that the majority of responding clinicians strongly advocate for vaccinations for children in their practices. There is a slight difference in exemption comfort level by vaccine, with clinicians being more comfortable with exemptions for newer vaccines such as rotavirus and varicella and vaccinations for those diseases thought to be more strongly related to adulthood, such as hepatitis B. The most cited reasons for vaccine hesitancy and refusal among patients were fears of autism and other long-term health consequences for the children. The primary means of addressing these parental concerns was through in-office conversations. This was also deemed the most effective way to educate and influence parental decision making about vaccination. Modest effectiveness was also attributed to referencing parents to websites about vaccination as a means of educating them. Very few responding clinicians (7%) reported excluding families from their practice for non-vaccination; however, a substantial proportion monitored the health of the child and the family differently if they were non-vaccinators. Mixed attitudes were found towards protocols that require signatures of clinicians for vaccine exemptions. Most indicated they would not want to carry out the protocol due to liability, moral and ethical reasons. Only half felt it would effectively reduce the number of exemptors.

Recommendations:

- **Strong support from the medical community should be leveraged to develop educational campaigns that address vaccine hesitancy on a broader scale.**
- **Physician education classes on communicating with vaccine hesitant parents should be developed and implemented in state medical schools as well as for continuing medical education courses.**
- **Physician education on the importance of newer vaccines and the risks incurred by the diseases they prevent should be emphasized.**
- **Brochures and posters that address vaccine hesitancy should be revised to include personal statements from medical professionals as well as individuals who have suffered from the diseases and links to informational websites should be distributed to clinicians that are included in the ASIIS database. This will act as a supplement to one on one education during in office visits.**
- **Protocol changes that involve physician buy in must be vetted thoroughly through statewide medical associations to determine levels of support for the program.**
- **Physicians and public health practitioners should be made aware of the effects of the requirement for a physician's signature on exemption forms a protocol which was recently enacted in Washington, and which has reduced the proportion of exemptors from 6.0% to 4.5% (Washington State Dept of Health).**

Background:

Clinicians who routinely administer childhood immunizations are finding themselves facing the dilemma of parents who wish to refuse some or all childhood vaccinations. [1, 2] An annual survey published in the journal Pediatrics indicated that 7 out of 10 pediatricians had at least one parent refuse to vaccinate their child in the previous 12 months. [3] A recent national survey demonstrated that in a typical month 8% of physicians (family practitioners and pediatricians) reported that >/=10% of parents refused a vaccine and 20% reported that >/=10% of parents requested to spread out vaccines. [4] Some vaccines are more likely to be refused than others. Measles-mumps-rubella vaccine refused most frequently, followed by varicella vaccine, pneumococcal conjugate vaccine, hepatitis B vaccine, and diphtheria and tetanus toxoids and pertussis vaccines. [3]

Clinical response to the increase in vaccine refusal has been variable. In a national representative survey, some pediatricians and family medicine practitioners (53% and 31%) reported requiring parents to sign a form if they refused vaccination. [4] The reaction is more extreme by some clinical practices whose solution is to exclude unvaccinated children from their practice. In Connecticut, as many as 30% of clinicians excluded patients from their practice that are unvaccinated due to non-medical reasons. [5] On the other hand, there is a growing number of clinicians who accept vaccine refusal and one study indicated that at least 4% of pediatricians had opted a child under 11 years of age out of at least one vaccination [3] and one in ten doctors indicated they do not recommend parents receive all available vaccines. [6] This trend is exacerbated by high profile clinicians who promote alternative vaccine schedules. [7]

Clinicians are critical in conveying the importance of vaccination to parents. Studies show that parents rely on personal interactions with their clinicians to make decisions about vaccination. [8] Messages most commonly reported as "very effective" were personal statements such as what they would do for their own children. [4]

In Arizona, vaccine refusal has been on the rise and in some counties exemption rates for school entry requirements exceed 8%. We conducted a survey of Arizona clinicians who provide childhood immunizations to determine 1) their perceptions of the severity of vaccine refusal in their patients 2) the underlying reasons for vaccine refusal 3) physician willingness to post-pone or not vaccinate children for the diseases mandated by school entry requirements and 4) how they change their interactions with families who have refused to vaccinate against one or more vaccine-preventable disease.

Methods:

Study population: Clinicians listed in the Arizona State Immunization Information System (ASIIS) database were targeted for the study.

Recruitment: An online survey was developed that asked clinicians about their attitudes and practices surrounding vaccine refusal and exemptions in their patient populations. The online survey link was distributed by The Arizona Partnership for Immunization (TAPI). An email reminder was sent two weeks after the initial distribution and a notice of the survey was distributed in the monthly newsletter to

physicians. Additionally, the survey was also distributed through the Arizona Medical Association's newsletter by e-mail and fax.

Analysis: Frequencies of all categorical responses were tabulated. Items generated through Likert scales were assessed by determining a mean response based on the value of the Likert response (ie. Strongly disagree = 1, disagree = 2, neither agree nor disagree = 3; agree = 4; strongly agree = 5).

Results:

A total of 1125 clinicians were listed in the ASIIS database with an email address. With a total of 131 physician respondents, the overall response rate was 11.6% after the three attempts at contact. Table 1 displays the demographics of participants in the survey.

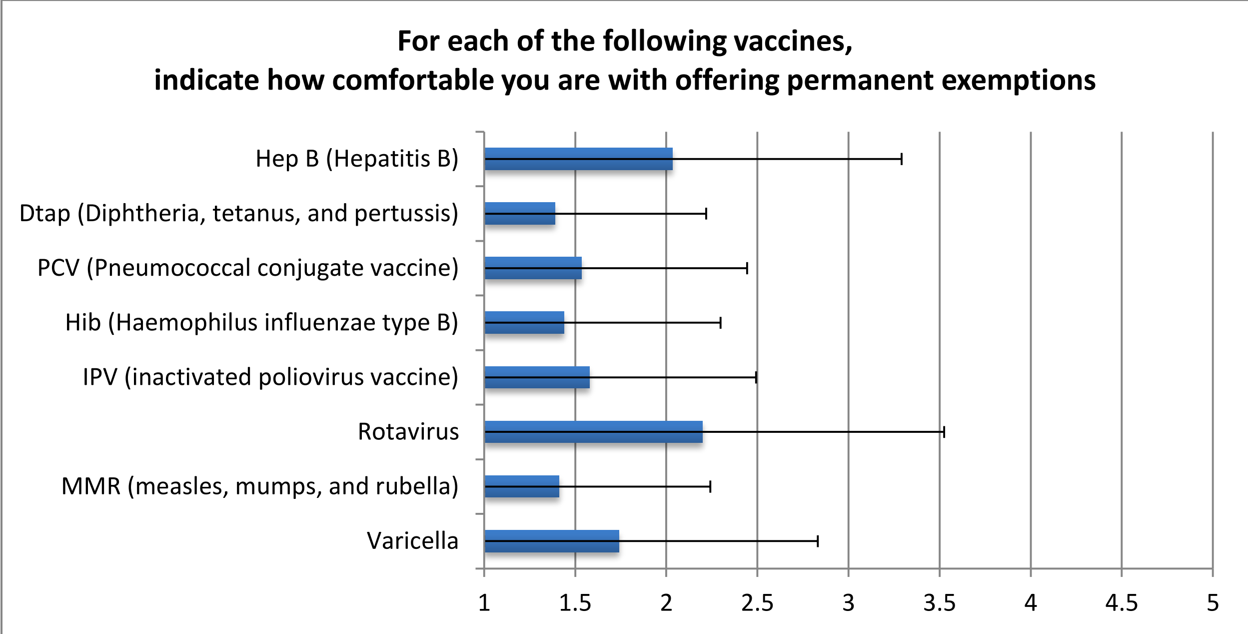
Table 1. Demographics of Clinician Respondents

Demographics	Proportion	Frequency
Sex		
Male	27.0%	41
Female	73.0%	111
Years in Practice		
<5 years	11.9%	18
at least 5 but less than 10 years	13.3%	20
at least 10 but less than 15 years	19.9%	30
15 years or more	55.0%	83
County		
Apache	0.0%	0
Cochise	2.0%	3
Coconino	1.3%	2
Gila	0.7%	1
Graham	0.0%	0
Greenlee	0.7%	1
La Paz	0.7%	1
Maricopa	52.3%	79
Mohave	4.0%	6
Navajo	4.0%	6
Pima	21.9%	33
Pinal	2.0%	3
Santa Cruz	2.7%	4
Yavapai	4.6%	7
Yuma	3.3%	5
Physicians in Practice		
3 or fewer	53.0%	80
4 to 7	17.2%	26
8 or more	29.8%	45
Type of Practice		

Pediatrician	51.7%	77
Family practitioner	31.5%	47
Public health clinic	4.7%	7
Other specialty	12.1%	18
Proportion of Patients on ACCHSS		
Very few (<10%)	16.9%	25
Some (10-40%)	28.4%	42
About half (40-60%)	25.0%	37
Most (60-80%)	18.2%	27
Nearly all (80+%)	11.5%	17

The majority of respondents were female, practiced family medicine or pediatrics more than 15 years and practiced in smaller clinics (<3 physicians). Good geographic coverage was achieved with responses were received from all counties except Apache and Graham Counties. Apparent diversity in economic status of patients served was also obtained with responses from clinicians who primarily saw patients funded through ACCHSS and those who had less than 10% of their clinic population on ACCHSS.

Figure 1. Comfort–level with offering parents permanent exemptions for specific vaccinations. (1 indicates extremely uncomfortable and 5 indicates extremely comfortable)



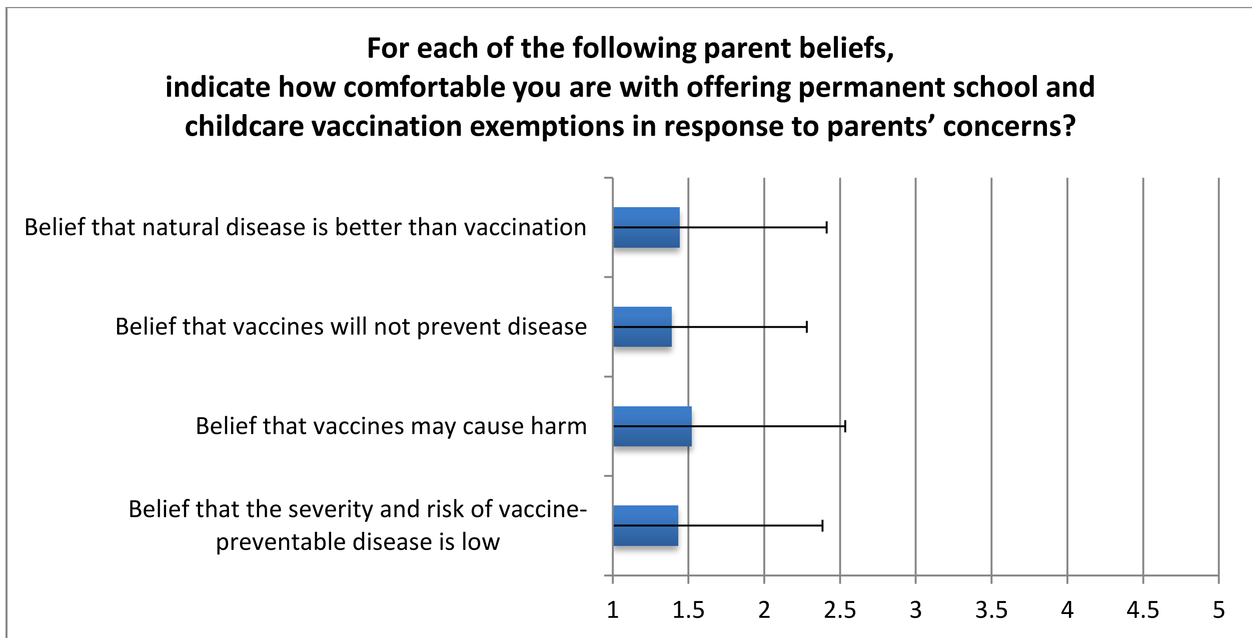
Bars are mean responses regarding each vaccine; error bars are ± 1 standard deviation.

Most respondents indicated that they were extremely uncomfortable with a parent's decision to exempt their children from receiving the MMR (measles, mumps and rubella), DTaP (diptheria, tetanus and pertussis), Hib (haemophilus influenza type B) and IPV (polio) vaccinations. Clinicians were more likely to be comfortable with exemptions for rotavirus and hepatitis B vaccinations.

In general, there was very little acceptance of personal beliefs as valid reasons for obtaining an exemption for vaccination (Figure 2). The mean response for all categories was below 1.5 indicating that

on average clinicians were between uncomfortable and extremely uncomfortable with providing an exemption for the reasons surveyed. There were however, subtle differences. Clinicians had on average a more accepting attitude towards parents who sought an exemption because they were afraid that the vaccine may cause harm (rating 1.52). They were least accepting of parental beliefs that vaccines did not prevent disease (1.39) or that natural disease is better than vaccination and that the severity and risk of the vaccine preventable diseases are low (1.43).

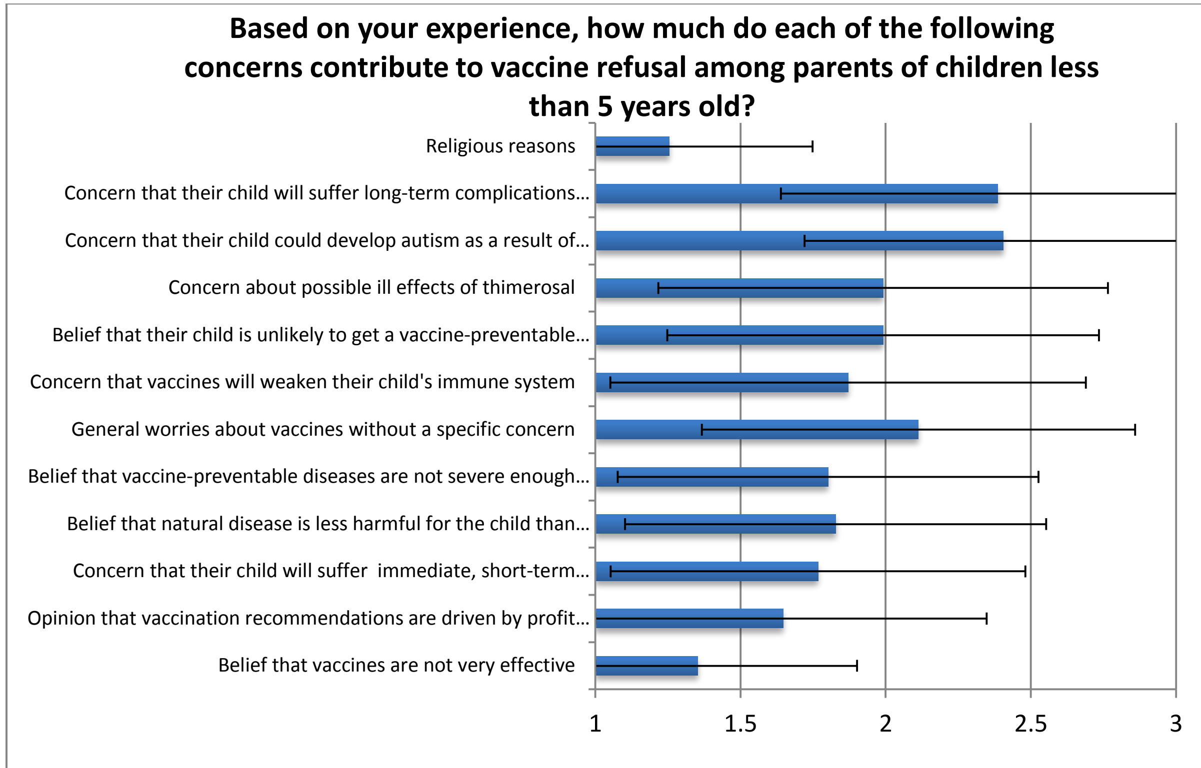
Figure 2. Acceptance of parental reasons for wanting a vaccine exemption (1 is extremely uncomfortable and 5 is extremely comfortable).



Bars are mean responses regarding each vaccine; error bars are ± 1 standard deviation.

Respondents cited additional reasons why they believed that parents refused vaccinations. The two primary reasons relayed to them during conversations with parents were that parents were concerned about vaccines causing autism (2.4), that their child could suffer other long term consequences from vaccination (2.4), or just general worries (2.1). Reasons with the least frequency were reported as beliefs that vaccines were not effective (1.4) and religious reasons (1.3).

Figure 3. Frequency of reasons why parents refuse vaccination for their children (1 – A little, 2 – somewhat and 3 – A lot)



Bars are mean responses regarding each vaccine; error bars are ± 1 standard deviation.

The majority of concerns raised by parents were with respect to the safety of vaccines. In order to educate parents clinicians used a variety of strategies (Figure 4). The most common strategy was to have conversations during the office visits (96%) with a few clinicians who addressed parental concerns over the phone (41%). More passive approaches were also used including the availability of information and pamphlet sheets in the waiting room (82%), presence of posters and signs in the office (58%) and recommendation of internet websites (64%).

Figure 4. Strategies employed by clinicians to educate parents about vaccinations

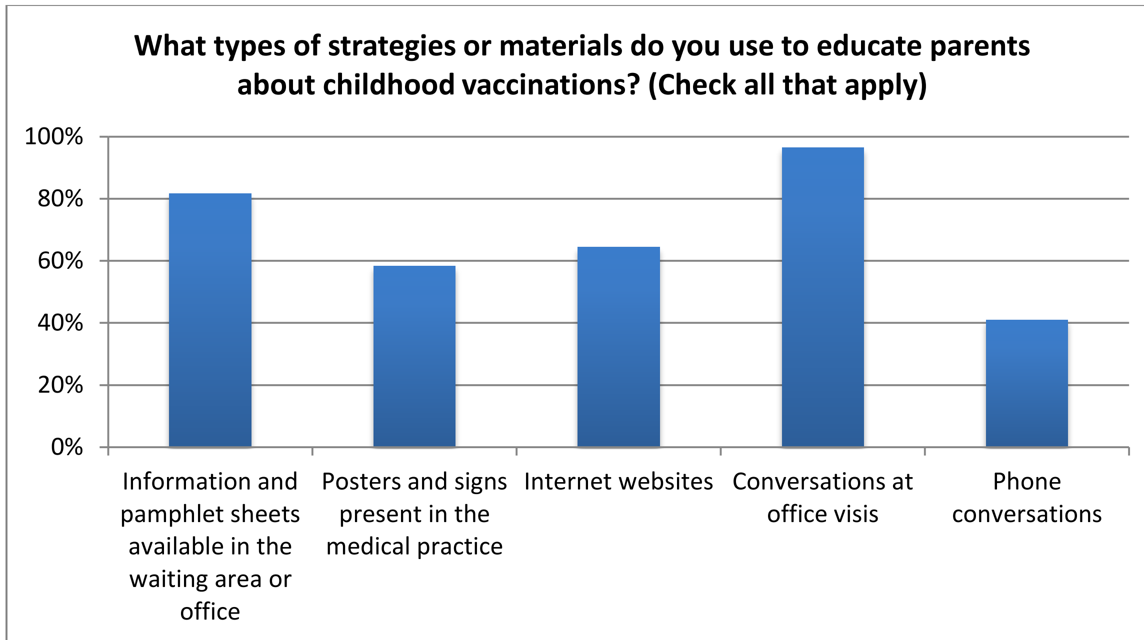
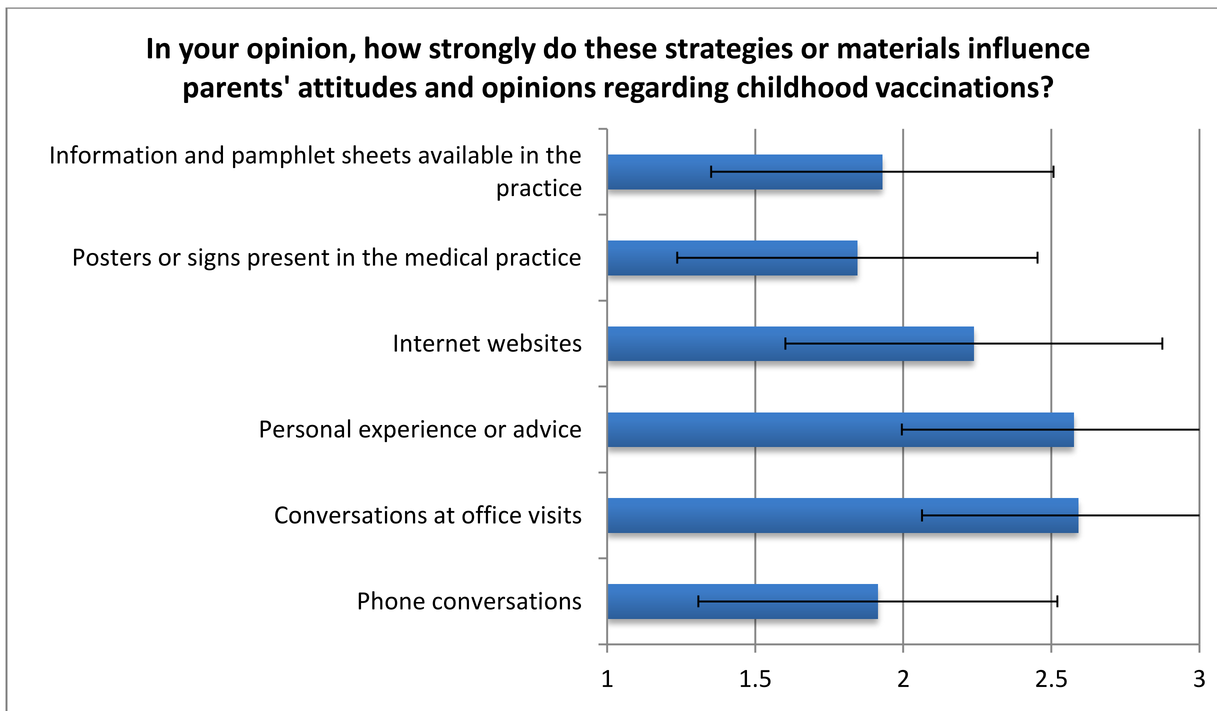


Figure 5. Effectiveness of strategies to educate parents on vaccinations. (1 – no influence, 2- somewhat influence and 3 – strongly influence)



The relative utility of these different approaches is outlined in Figure 5. Not surprisingly, the most commonly used strategies are also those that the clinicians find to be the most effective. Relaying personal experience and advice (2.6) and communication at office visits (2.6) were rated as the most effective strategies to educating the parents. Internet websites were ranked as somewhat effective (2.2) while phone conversations (1.9), pamphlets (1.9) and posters (1.8) were rated as having only a modest impact on parental decision making about vaccination.

Despite attempts at education some parents still opt to not vaccinate their children. Most clinicians did not alter their provision of care to the children if they had an exemption (51.9%) (Table 2). However more than one-third indicated that they monitored the children's health differently when they had a vaccination exemption and 8.9% indicated they would exclude the child from their practice.

Table 2. Changes in provision of care to children with vaccination exemptions.

After requesting a vaccination exemption, do you provide care differently to the children?		
Answer Options	**Yes**	**% indicating change**
Refuse to provide regular care	10	8.9%
Monitor child's health differently	43	38.7%
No change in care provided	56	51.9%

In general, protocols that required physician approval and signatures for vaccination exemption were not widely accepted in the population responding to the survey. Over 63.4% of clinicians did not support implementation of protocol shifts that required physician sign-off for vaccination exemptions. However, if protocols were in place the majority of clinicians indicated they would attempt to educate parents about vaccinations before they signed the form (95.7%). Clinicians were almost equally divided on if they thought this type of protocol would reduce parents seeking vaccination exemptions, with 50.9% indicating they did not feel it would have an effect. And roughly half of clinicians reported that such a protocol would be a burden to their practice (55.3%). Among clinicians that do not support this protocol 67.6% indicate that it would be a burden on their practice, but an even greater proportion (71.1%) do not feel that adoption of the protocol would be effective.

Table 3. Attitudes about protocols that require clinician signatures on exemptions forms, % (n=).

Some states have protocols in which clinicians approve and sign off on philosophical/personal belief exemptions for childhood vaccines required for entrance into public school. Do you feel as though such a protocol should be implemented?		
Yes	36.6%	41
No	63.4%	71
Would you educate parents about childhood vaccines before signing a personal/philosophical belief exemption form?		
Yes	95.7%	110
No	4.3%	5

Do you feel as though such a practice would reduce philosophical belief exemptions?		
Yes	49.1%	55
No	50.9%	57
Do you feel this protocol would be a burden to your practice?		
Yes	55.3%	63
No	44.7%	51

In addition to the closed-ended questions an open-ended question was posed to clinicians. “If there is anything else you would like to add about philosophical or personal belief exemptions you may state it here:”

A high proportion of clinicians provided commentary (n = 37, 24% of all respondents). An unedited list of responses is included in Appendix A. In general the primary themes discussed in the free comments section referred to reasons for clinician’s own attitude towards vaccination exemptions, parental reasons for refusal of vaccination, clinician responses and interventions towards vaccination exemptions, thoughts on protocol changes that require clinician signatures on exemptions and the burden of parent refusal on clinical practice.

Most physicians expressed very strong opinions about vaccination exemptions. One clinician states, “My position is everyone gets immunized unless there is a medical reason or a recognized religious reason not to.” and another indicated “I will not accept unvaccinated children in my practice.” Several clinicians, however, expressed views that were softer towards vaccination exemptions and delays.

Clinician: “I appreciate the opportunity to answer this survey. I will say however that not every vaccine and vaccine preventable disease carries the same concerns for me in regards to the health of the child. Many of my patients choose to do some vaccines and not others. If they choose to not do one that possesses high risk to their child I spend a lot of time talking to them about it. Also, some choose not to do vaccines with low risk until later in life, like polio. I believe this is the right of the parent. If the school would like to remove unvaccinated children from school in the case of an outbreak that is also their right.”

Clinician response: “The survey was somewhat hard to answer. I strongly believe in vaccinating my patients; however, ultimately the decision is up to the parents. I consider myself a resource for parents who are either unwilling or uncomfortable with vaccines. After discussion some change their minds, others do not. I am comfortable with that and do not want to feel like i am "coercing" parents into doing something they are not comfortable doing.”

Respondents also commented on their perceptions of the type of parent who refuses vaccination and reasoning behind their refusal to vaccinate. “A minority of patients already come influenced by family members, perhaps because of naturopathy/homeopathy beliefs. A lot of time they refuse outright to discuss reasons of refusal. 95% are Caucasians, have private insurance, live in well off areas and appear to be the ones empowered to take these decisions. Medicaid patients very rarely refuse vaccines.”

There were also clinicians who voiced strong opinions against protocols such as those in Washington State that require clinicians to sign off on personal belief exemptions. Asking me to approve a parents' philosophical/personal belief would be asking me to violate my own philosophical/personal beliefs and makes it appear that medical providers approve of these decisions. If a parent wants to make these decisions, they have to also assume the consequences of these decisions."

Some indicated that the burden of parental concerns about vaccinations as well as the burden of parents who choose not to vaccinate were quite great in their practice "This takes up a significant part of each day. In reality I am at the point where I can't keep having a full discussion every time someone wants to go over it. This issue has caused significant disruption to flow and practice care and is costing more because these children have to be seen more. When there is a "scare" the amount of time and energy that goes into trying to address calls and dealing with things families have been told by the health department are overwhelming."

Discussion:

Overall most clinicians indicated that they were very pro-vaccination. While most appeared to have extremely strong views on anti-vaccination attitudes there were a few who emphasized their role as educating families on the benefits of vaccination rather than strongly stating their patients should be vaccinated. This mirrors the consistent strong support of vaccines from the medical community that is seen in national surveys and surveys in other parts of the country. [1, 5, 6] Interestingly, clinicians were more comfortable exempting individuals for vaccines that are somewhat newer including varicella and rotavirus as well as those that may be perceived as "adult" disease vaccines such as hepatitis B. This has also been found in other studies. [9] Frustration with the growing number of exemptors and the repercussions this poses to their practice and to the health of the general population was expressed.

The primary means of addressing the issue of parental refusal was through direct patient contact during clinical hours. Other studies have shown the increased burden these individuals who are vaccine hesitant place on the clinicians and their practice. A study of physician interaction with patients who experience vaccine hesitancy used a standard patient to assess the quality of the interaction. The overall time spent addressing the patient's vaccine concerns was roughly 20 minutes. [10] Given this added burden to clinicians for vaccine hesitancy it is not surprising that some called for further intervention and action to take place on a broad scale. Two suggestions included better education of the public through advertising and mass media campaigns. While mass media campaigns have been successful during pandemics such as the H1N1 pandemic there have been few studies that indicate if this would be successful for childhood immunizations. [11] Indeed the role of the media in exacerbating vaccine refusal has been highlighted. [12]

Overall attitudes towards protocols that involved physicians signing exemptions were less than enthusiastic. A majority of those surveyed felt it was not a good idea and half felt it would not improve vaccination rates. There was concern expressed about the additional burden this would place on already overburdened practices and open field comments indicated that physicians would feel very

uncomfortable signing something that they did not agree with ethically or morally. A single physician also expressed concerns about the possibilities of lawsuits that such a strategy might incur.

Conclusions:

In conclusion the majority of clinicians who responded are very supportive of the current vaccine programs and take time and energy to encourage vaccine hesitant parent's to vaccinate their children. In developing programs and interventions to improve rates of vaccination, it is expected that they will be a strong ally and would be willing to commit time to educating patient's one on one.

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2. **Vaccination coverage among children in kindergarten--United States, 2009-10 school year**. *MMWR Morb Mortal Wkly Rep* 2011, **60**(21):700-704.
3. Diekema DS: **Responding to parental refusals of immunization of children**. *Pediatrics* 2005, **115**(5):1428-1431.
4. Kempe A, Daley MF, McCauley MM, Crane LA, Suh CA, Kennedy AM, Basket MM, Stokley SK, Dong F, Babbel CI *et al*: **Prevalence of parental concerns about childhood vaccines: the experience of primary care physicians**. *Am J Prev Med* 2011, **40**(5):548-555.
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7. Offit PA, Moser CA: **The problem with Dr Bob's alternative vaccine schedule**. *Pediatrics* 2009, **123**(1):e164-169.
8. Gust DA, Woodruff R, Kennedy A, Brown C, Sheedy K, Hibbs B: **Parental perceptions surrounding risks and benefits of immunization**. *Semin Pediatr Infect Dis* 2003, **14**(3):207-212.
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11. Tagajdid MR, El Annaz H, Belefquih B, Doblali T, Casalegno JS, Mekki Y, Mrani S: **Factors influencing uptake of influenza vaccine amongst healthcare workers in a regional center after the A(H1N1) 2009 pandemic: lessons for improving vaccination rates**. *Int J Risk Saf Med* 2011, **23**(4):249-254.
12. May T: **Public communication, risk perception, and the viability of preventive vaccination against communicable diseases**. *Bioethics* 2005, **19**(4):407-421.

Appendix A. Unedited Open-field comments from clinicians

General Category	Direct Unedited Quotation
Attitude toward exemption and delays	I tell parents that I will not sign a waiver. I've never signed a waiver, I will continue to not sign waivers. Parents should be allowed to opt out of getting their children after reading a full explanation of the waiver, what they stand to risk, and then the children who have waivers should be named at a school so parents of other children are aware of the children who do not have immunizations to avoid disease exposure.
	Personal beliefs should not influence the parent to NOT get the vaccine. It will increase the chance of their child getting the disease and passing it on to others.
	WE BELIEVE THAT EVERY CHILD SHOULD BE VACCINATED PEROID......
	We do feel comfortable with a delayed in schedule, but it is not our preference.
	Every child should be vaccinated unless a previous serious adverse effect or other medical reason.
	I appreciate the opportunity to answer this survey. I will say however that not every vaccine and vaccine preventable disease carries the same concerns for me in regards to the health of the child. Many of my patients choose to do some vaccines and not others. If they choose to not do one that possesses high risk to their child I spend a lot of time talking to them about it. Also, some choose not to do vaccines with low risk until later in life, like polio. I believe this is the right of the parent. If the school would like to remove unvaccinated children from school in case of an outbreak that is also their right.
	The survey was somewhat hard to answer. I strongly believe in vaccinating my patients; however, ultimately the decision is up to the parents. i consider myself a resource for parents who are either unwilling or uncomfortable with vaccines. After discussion some change their minds, others do not. I am comfortable with that and do not want to feel like i am "coercing" parents into doing something they are not comfortable doing.
	My position is everyone gets immunized unless there is a medical reason or a recognized religious reason not to.
	I will not accept unvaccinated children in my practice.
	In Arizona I am not aware of any physician generated form supporting vaccine exemption
	I have not read any school exemption protocol therefore I cannot comment
	I never sign exemptions because I do not agree with that decision.
	Unfortunately the only thing that might change this is stories of deaths from vaccine preventable illness. H1N1 deaths had all the "non vaccinaters" suddenly rushing Peds offices to get their kids protected. Funny how that works.
	By signing a protocol for exemption it would seem I am agreeing with their refusal and while I will respect a decision not to vaccinate I will not agree with it.
Burden of Refusers	This takes up a significant part of each day. In reality I am at the point where I can't keep having a full discussion every time someone wants to go over it. This issues has caused sig disruption to flow and practice care and is costing more because these children have to be seen more. When there is a "scare" the amount of time and energy that goes into to trying to address calls and dealing with things families have been told by the health dept and overwhelming.
	I believe the public health risk to vulnerable populations of children and adults make exemptions irresponsible and sends a message that these diseases are not serious. We mislead them if we tell them otherwise. Patients in my practice either use the standard schedule or one slightly delayed schedule or I refer them to other practices. Parents usually chose to stay.
	While I generally support parental autonomy, and don't think it's fair to punish children for their parents' choices, it is also not fair to put other people's children (especially those such as children with Down's who don't mount a good immune

	response) at risk based of bad science. If parent's choose not to immunize (for non-medical reasons), I think that choice should include a choice to not attend public school. At the least, they should not be allowed to attend when a particular disease is known to be circulating in the community.
Protocol change	...I am answering these questions as GENERAL replies for my entire doctor grouping.....I can say without doubt my doctors want no part of signing off/agreeing with any parent's philosophical/personal belief exceptions, because they are certain their personal liability will increase.
	I believe it is the physician's ethical duty to educate & inform parents about the benefits of vaccine & disease prevention. And if the parent insists on an exemption (unless there is a sound medical reason), then it is solely their responsibility to carry that burden by signing the exemption.
	I do not feel a physician should condone someone else's poor choices by signing off on a personal belief exemption.
	I do not feel that physicians should sign philosophical or personal exemptions, only medical need exemptions
	Our practice is fairly adamant about children receiving their immunizations. Although we will not refuse care to patients, we STRONGLY encourage parents who are delaying or refusing immunization, to immunize their children. Asking me to approve a parents' philosophical/personal belief would be asking me to violate my own philosophical/personal beliefs and makes it appear that medical providers approve of these decisions. If a parent wants to make these decisions, they have to also assume the consequences of these decisions.
	If the parent chooses not to immunize-for personal reasons of any kind-it is their signature the school should get not the medical providers
Intervention	We need a way to combat the Jenny McCarthy's. Education is key, but very time consuming. We need to publicize better what happens when the refuser gets the vaccine.
	1. Death is 100% natural. Parents need to be reminded. 2. I feel that grandparents are an under-utilized resource. Some can remember the reality of childhood diseases; all of them could be encouraged to be sure their grandchildren are protected. 3. Many people seem willing to accept advice from neutral sources, e.g., cartoon characters. This could be utilized.
	I think it is a good idea to have physician have a detailed conversation with parents regarding their decision to decline immunizations and have documentation of this decision.
	I have been a school nurse since 1976 and have giving most vaccines to student each year. For the past 3 -4 years, I have been the only SN in my county to continue to give shots to students - in fact I give them to students across the district as they are identified and referred to be needing shot to me so I can bring them into compliance. My goal for the district is to reach at least a 98% compliance by the end of the 2012/2013 school year for our district.
	We provide immunization updates to primarily adolescents in a juvenile detention facility. When a child comes without immunizations or has many delays sometimes the issue is parental perception about vaccines. We obtain consent to immunize from the guardian and proceed to immunize in most instances.
	Unfortunately many non-vaccinators do not have logical reasons to abstain from vaccinations and thus are difficult to counsel. I would not want to be part of signing that it is ok to not vaccinate. This would force us to withhold treatment of these patients some of whom we eventually convince to undergo some or all vaccines. I feel they would simply seek care from non-allopathic doctors whose care I have witnessed can be detrimental. Thank you. Best bet to contradict this trend is public ads encouraging vaccinations.
	To have a parent understand that their child poses a health risk to others, I have different appointment times for them, ALERT stickers on their chart and have them sign the AAP refusal form for their chart. Some don't like to have that stigma

	placed but it reinforces their health choice is a high risk. Thank you for taking on this difficult task!
	if AAP believes in vaccines we should be stronger in our messages. we need legislators to understand vaccines and put those with incorrect info on the spot. schools should also require more parent education for exemptors. perhaps refusers should pay for any costs related to the refusal ie an outbreak, an admit etc
Parental attitudes	Since the reason for refusing vaccines is not rational, presenting info in a rational manner is generally unhelpful.
	I rarely treat children but receive a lot of phone calls from parents nationwide who are very concerned about vaccines. They do not trust public health officials or vaccine manufacturers. The answers to these questions would be different for different vaccines.
	It is very difficult to persuade talk to parents about their philosophical beliefs. It's like asking them to change their religion.
	A minority of patients already come influenced by family members, perhaps because of naturopathy/homeopathy beliefs. A lot of time they refuse outright to discuss reasons of refusal. 95% are Caucasians, have private insurance, live in well of areas and appear to be the ones empowered to take these decisions. Medicaid patients very rarely refuse vaccines.
	This is result of imbalance between new disease awareness, Opinion that vaccination recommendations are driven by profit considerations of drug companies and people losing trust in outside world
Parental attitudes and intervention	In my experience, parents who are confused by misinformation are easily convinced by clear, science based reasoning (about 40%). Parents who are set against immunizations from the start are not going to be swayed by ANY evidence or explanation the physician can give (60%). The only rational course of action is to refuse to care for these families since their actions pose personal and public health risks.