# Vaccine Hesitancy

The sun rises over the San Joaquin Valley, California, today in April 23, 2020.

This week the FDA approved the first **IV medication for prophylaxis of migraine:** Epti-nezu-mab- jjmr (brand name Vyepti®). This is a humanized monoclonal antibody that blocks the calcitonin gene-related peptide (CGRP). Blocking this receptor results in prevention of migraines. Epti-nezu-mab is administered every 3 months(1).

Do you remember those headlines in January 2019? “Insulin loses its place as the first-line injectable treatment”(2) for type 2 diabetes. The family of GLP-1 agonists (the medications that end in “tide”, such as liraglutide, dulaglutide, exenatide, etc.) became the preferred injectable for most patients with type 2 diabetes. In case you didn’t know, in September 2019, the FDA approved the **first ORAL GLP1 agonist for use in type 2 diabetes**(3). Rybelsus® (semaglutide) (yeah! No needles!). The benefits in weight loss and glycemic control of the ORAL semaglutide (Rybelsus®) are comparable to the INJECTABLE semaglutide (Ozempic®).

In case you did not know, in July 2019, the European Commission approved the first **oral medication for adults with type 1 diabetes:** Dapaglifozin (Forxiga® in Eruope, Farxiga® in USA). It is an SGLT2 inhibitor previously approved for TYPE 2 diabetes, but now it is being used in Europe for TYPE 1 diabetes as well. The FDA did not approve Farxiga for Type 1 diabetes in the USA.

Now you know it, there is an IV medication for migraine prophylaxis (**Vyepti®**), an oral GLP-1 agonist for diabetes type 2 (**Rybelsus®**), and at least one oral medication for Type 1 diabetes (**Forxiga**, used only in Europe).

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Quote: “Being aware of your ignorance gives you the gift of curiosity” –Unknown Author (6)

“Curiosity killed the cat… but satisfaction brought it back”. Curiosity can be a driving force to guide you in your residency training. When used properly, curiosity will take you to unexplored areas and will increase your knowledge and expertise to help more and more patients. I am happy to be with you today in another episode of our podcast. My name is Hector Arreaza, and I am a faculty in the Rio Bravo Family Medicine Residency Program. We received feedback about a word that I mispronounced: Irrelevant. Also, during a previous episode we talked about leucorrhea. Do you know another cause of leucorrhea in little girls? Tiny pinworms: *Enterobius vermicularis.* Today we have a different kind of episode. I left Dr Saito and Dr Manzanares take over the main part of the podcast. Just a warning, it is rated PG-13 today, enjoy it.

1. **Question number 1:** Who are you?

This is Steven Saito. I am a former Navy doctor, having spent 6.5 years in the service primarily working out of a branch clinic having taken on a variety of additional duties including prior department head and senior medical officer.  I have since come to Rio Bravo BFM to continue to give my service. I’m here to give you your weekly suppository of information. Relax and let it in (joke).

1. **Question number 2:** What did you learn this week?

As an introduction, Prazosin is an alpha-1 blocker used for treatment of PTSD. It may cause priapism, which is defined as painful erections longer than 4 hours. If this happens to you, just call more people (joke). Main topic: So, I encountered a *mother who was against vaccinations*.  I wanted to talk a little about vaccine hesitancy and approach to discussion with parents/patients for vaccination.  Hold onto your butts because this is a topic that definitely will not get any controversy or angry emails from Facebook moms groups!

We reviewed information on vaccine hesitancy from the World Health Organization, the Center for Disease Control, and the AAFP.

In a “short” 253-page paper, the World Health Organization laid out its review of literature and its conclusions for strategies for addressing vaccine hesitancy.  It found that there are few well-studied strategies for addressing vaccine hesitancy due to wide variation in studies for setting and target populations. This 2014 paper acknowledges that vaccine hesitancy is a rather novel issue at the time of this study.  However, they did condense the useful information that was gleaned into a 2-hr PowerPoint that I’m going to attempt to condense into something that hopefully will not put you to sleep on the drive home from work.

First, we have to address what *hesitancy* is.  It is not outright refusal but whether or not the patient/parent has uncertainty.  There will be people that refuse regardless of whatever information is presented.

There are multiple factors which contribute to hesitancy:

* Complacency:  people feel that there is low risk or that the disease are not dangerous enough and therefore don’t prioritize it;
* Confidence: lack of trust either in vaccines or health authorities. Patients get multiple inputs from that can influence their confidence including media/politics/religion/culture/personal knowledge;
* Convenience: as it relates to barriers to access/availability;

WHO recognizes that there may not be any one specific measure to overcome hesitancy but there are general recommendations include:

1. Default conversation: Start with presumption of vaccination as default: “It’s time for your vaccination” or “You are due for XYZ”, as opposed to “Do you want your vaccinations?”. This reinforces our understanding of the importance of vaccinations as opposed to sounding ambivalent on the necessity.
2. Motivational interviewing: A majority of patients are likely to comply with health maintenance. For those who don’t, it is generally not recommended to take a *directive* or *argumentative* response as that style of communication can result in decreased trust and has shown vaccine uptake does not improve.  A better recommendation would be to start with **motivational interviewing**.  Motivational interviewing is focused on collaborative and patient centered exploration of their hesitancy with a focus on how to change attitude or behavior. Some principles of motivational interviewing include:
* Open-ended questions:
* Use *“what”, “why”, “how”, “tell me…”* to explore reasons behindhesitancy
* Reflect and respond
* Simple reflection:“I understand that you are afraid.”
* Complex reflection: “You want to make the best choice for your child but you are nervous.”
* Affirm strengths and validate concern
* “It is great that you are starting to think about vaccines.”
* “The health of your children is important to you.”
* “Protecting yourself from illness is important for you and the health of your community.”
* Ask-Provide-Verify
* Ask information on what they know: “So what do you already know about vaccination?”
* Provide information:“Could I provide you with some information, based on what you just shared?”
* Verify that they understood: “Given our discussion, how do you view the decision now? Remember I am here to help talk through any concerns you may have.”
* Summarize
* “The reason that’s important is…”
* “What that means to you is…”
* “The main point to remember is….”

At this point during the traditional 2-hr PowerPoint involves some roleplaying, so grab your dice and where going to roll up some characters and fight a dragon.

1. Build trust: Healthcare workers can work toward building trust by both demonstrating competence and caring.  Humans are emotional and simply demonstrating your competence / reason / data may not be enough.  It is okay to admit you do not know at a particular moment.

Frequently-Asked Questions about Vaccines (WHO)

* ***Can vaccinations lead to infertility?***

No, vaccinations cannot lead to infertility. In fact, medical experts suggest that some vaccines actually protect fertility indirectly by preventing the need for treatment.

* ***Can vaccines cause harmful side effects, illness and even death?***

No, vaccines are very safe. Most side effects from vaccines are minor and temporary, such as a sore arm or mild fever. Serious adverse events or death are VERY rare (e.g. 1 per millions of doses) for most vaccines.

* ***Can needles used for immunization cause infection?***

For every vaccine, we always use one-time or auto-disable syringes that cannot be reused, which eliminates the risk of transmitting infections from needles.

* ***Isn’t giving three needles too many in one visit?***

No, receiving multiple vaccines in one visit is completely safe as you/your child’s immune system is strong enough to handle them.

* ***“Won’t breast feeding protect babies from infection?”***

Yes, breast milk will give some protection against some infection, but it does not have the direct ability to prevent infection like vaccines. Vaccines are very specific to the given infection and their prevention capacity is very high.

* ***“Can vaccines cause the infection they are supposed to prevent?”***

Inactivated vaccines do not have live germs and cannot cause infections. Live vaccines have weakened germs that are unable to cause disease in healthy people. Rarely a mild form of infection may occur.

* ***“Is protection from natural infection more effective protection?”***

Natural infection comes with the risks of serious complications related to that infection. With vaccines, the immune system is stimulated to develop protection without infection, hence it is more effective.

* ***“Shouldn’t vaccines be delayed until children are older and there is less risk of side effects?”***

There is no evidence that side effects are more common in infants/babies than older children. Delaying vaccines leaves young children at risk of the disease and its complications.

Other resources to address vaccination hesitancy: The CDC and the AAFP has a very similar approach so I won’t be reiterating. Although I did find some nice handouts on their website including a handout to make sure that parents understand the risks and responsibilities for their decision.

On the AAFP website there are some videos to demonstrate motivational interviewing: <https://www.aafp.org/patient-care/public-health/immunizations/video.html>.

**A Review of Anti-Vaccination Literature**

Now, to discuss more controversial stuff including a look at antivaccination literature: Now to start with let me be clear, antivaccination arguments are difficult to fully quantify because new arguments can be added without evidence, individuals may have unique responses, and the memetic mutations on Facebook and other online communities change stories at alarming regularity so I will be focusing on the more common concerns that I have seen.

* 1. *Autism***:**

Let me be frank, there is no known connection between vaccinations and autism. Epidemiologic evidence does not support an association between immunization and Autism Spectrum disorder, but let’s discuss some of the reasons why our population may be concerned.

There is an apparent increase in autism rates in the 1990s. Two primary factors seem be associated with this increase: There was a **definitional change** in Autism to allow a greater number of children to get the diagnosis.  This means that children who may have been given another diagnosis or had been low enough on the spectrum may not have been categorized.  From an outsider perspective, this would look like a doubling of incidence.

The second was that we change the way we do **surveillance** including active surveillance.  As part of routine screening for toddlers, the M-CHAT was introduced with an update in 2009 to the M-CHAT R/F.  Note that this means that the prior incidence was likely higher than previously thought which may represent our prior lack of identifying individuals who may have needed the additional services.  Let me be further clear: it is a good thing that we are identifying more individuals.  By identifying more children on the spectrum, they can access interventions to be more successful later in life for which they would otherwise be denied.

A study in 1998, published by Mr Wakefield (formerly a doctor who lost his credentials) was found to be fraudulent, and in 2004, ten out of the thirteen authors retracted their statement and the *Lancet* fully retracted it in 2010. Since then, multiple additional studies have demonstrated no epidemiological association with vaccination and autism.  In short, those receiving the vaccine and those who did not, had autism at the same incidence.  Other studies which have sought to demonstrate a biologic mechanism to demonstrate a causal link have to failed to demonstrate such.

* 1. *Thimerosal:*

Thimerosal is a mercury-containing preservative used in multidose vials for vaccines. The mercury it contains, prevents the growth of dangerous bacteria and fungus. In 1999, the FDA removed mercury and thimerosal for as many products as possible. The use of thimerosal has been removed from childhood vaccinations. Now, we use single-use vials for vaccines instead of multidose vials. Mercury in vaccines is not the cause of autism.

* 1. *Mistrust of science.*Several people will not believe in science, but discussing that may take a little longer.

1. **Question number 3:** Why is that knowledge important for you and your patients?

Vaccines are good and useful, but sometimes we do not do a good job at communicating to our patients due to long lists of complaints. Once there is a COVID 19 vaccination, we will face some resistance.

1. **Question number 4:** How did you get that knowledge?

As a general rule, I refer to multiple online sources like UpToDate to read articles and get suggestions for primary source citation. Check the bibliography from UTD to see their sources and see if you agree with their evidence for your evidence-based medicine and primary sources.  However, for this talk I wanted to get some additional sources to discuss.  My usual go to locations for additional broad information is to first start with important medical institutions including the Center for Disease Control, World Health Organization, and AAFP.

1. **Question number 5:** Where did that knowledge come from? See details below in the references.

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“Speaking Medical” (Medical word of the Week)
by Hasaney Sin

Have you even wonder how to say B.O. in medical terms? *Bromhidrosis* is a condition of abnormal or offensive body odor, to a large extent determined by apocrine gland secretion, although other sources may play a role. Apocrine glands are located on the axillae, perianal area, and some parts of the external genitalia. Perspiration itself actually has no odor, but when sweat comes in contact with bacteria, *bromhidrosis* can occur. So, next time when you encounter a patient with B.O., called it the right way, *bromhidrosis*. I am very thankful for my prescription strength deodorant, or else I would be dealing with *bromhidrosis*.

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 “Espanish Por Favor” (Spanish Word of the Week)
by Roberto Velazquez

“*Hey, muñeca, qué linda eres*”. This is compliment a man can say to a cute girl walking down the street. This is Dr Rava on your section Espanish Por Favor. Today’s Spanish word is *Muñeca*. *Muñeca* means doll, as in a toy such as *Barbie*, but it also refers to a body part, the wrist. Hearing this word is fairly common, and it is the appropriate word to use even in medical terminology. So, don’t get confused when people tells you that their *muñeca* is broken or twisted or that it hurts because they are talking about the wrist, not their Barbie doll. The way your patient will complain may sound, “Doctor, me torcí la muñeca,” meaning to say, “Doctor, I think I hurt my wrist.” Once a patient called me *muñeco*, but that’s a different story. Now you know the Spanish word of the week, *muñeca*. All you need to do now is to assess your patient’s *muñeca*.

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 “For your Sanity” (Medical joke of the day)
by Steven Saito

I delivered a beautiful baby in the hospital recently, the husband pulls me aside to thank me and asks: “So, doc, when is the soonest we can have sex again?” I looked at him, winked, and said: “I’ll meet you in the parking lot in 10 minutes”.

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Conclusion: Now we conclude our episode number 9, “Vaccine Hesitancy”. We reviewed how to deal with patients (or parents) who are unsure about their shots. We hope to have that kind of discussion when an effective and safe vaccine against SARS-CoV2 is created (fingers and toes crossed). We were reminded of the medical word for B.O., *bromhidrosis*, which is probably the “ultimate human fragrance” without deodorants; and then we learned how to say wrist is Spanish, *muñeca*. We’ll see you next week.

This is the end of Rio Bravo qWeek. We say good bye from Bakersfield, a special place in the beautiful Central Valley of California, United States, a land where growing is happening everywhere.

If you have any feedback about this podcast, contact us by email RBresidency@clinicasierravista.org, or visit our website riobravofmrp.org/qweek. This podcast was created with educational purposes only. Visit your primary care physician for additional medical advice.

Our podcast team is Hector Arreaza, Lisa Manzanares, Steven Saito, Roberto Velazquez, and Hasaney Sin. Audio edition: Suraj Amrutia. See you soon!

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