

STANDARD DEVAITIONS: Tis the Season

Greetings,

It's almost here, are you ready? There's only so much one can do to prepare. You might think that you've got everything covered and then, out of nowhere, you find yourself running around like crazy and wondering if it will ever end. And the problem isn't YOU, no, it's all those people out there who weren't prepared, waited until the last minute, or didn't even try. And it's not Christmas, it's Flu.

I was watching the Runnin' Utes get slaughtered by Kentucky Saturday (61-88) and thinking about influenza. The commentators were describing the forward for Kentucky, Reid Travis, and his dominance against Utah (16 points). No matter how well the Utes defended, this guy was going to beat them. "He's going to get his" is how they described it. And Flu works the same way. Influenza will get people sick despite our efforts at defense.

And our Flu defense isn't very strong. We know, for a fact, that vaccination is the best strategy for fending off the viral pathogen but we don't use it against this opponent as well as we could and should.

Because vaccination rates do not cover enough of the population, we know that exposure and transmission will occur. The reasons for not getting vaccine are many and varied. Complacency, distrust, fear, and misconception are biggies for individuals choosing not to vaccinate. And social media drives a lot of the skepticism seen. Here are several reasons posed for not getting a flu vaccine gleaned from a quick search:

- "There is little proof the flu vaccine is effective."
- "Vaccines contain harmful adjuvants and preservatives, and possibly viral proteins."
- "They don't work."
- "Flu shots can be more dangerous than the flu."
- "There are toxic ingredients- and not just Mercury!"
- "Flu shots cause immunosuppression."
- "Vitamin C outperforms vaccines."
- "Influenza is not a serious threat."

Sources: thewellnesswayclinics.com/5-research-based-reasons-avoid-flu-shot/, www.sophiahi.com/why-not-to-get-the-flu-shot/

There are some other considerations. CDC reports that 160 M doses are available in the U.S. this year. So, only ~50% of the American population has access to supply. This is a similar finding in the EU and areas of the world where monetary reward drives the demand for distribution. Influenza vaccine production and distribution are primarily private sector endeavors. Many of the world's most vulnerable (children and the elderly) are excluded from vaccination opportunity simply for economic reasons.

Despite the manufacturer's incentives or the social pressures, vaccination is still the responsibility of the individual. And here's an interesting statistic about our own little demographic. In hospitals that mandate vaccination, compliance runs around 88%, and in hospitals where it is not mandated only about 30% of Hospital Care Workers get vaccine!

We're better about vaccinating our children than ourselves. And by the end of the "Flu season" the rates will have risen. But this method of risk mitigation, vaccination, is not as widely used as experts would like.

Table 4. Flu Vaccination Coverage* by Sex, United States,† 2016-17 Season

Age Group	Male		Female	
	Unweighted Sample Size	% [‡] ± 95% CI [§]	Unweighted Sample Size	% ± 95% CI
All Ages				
≥6 months	215,954	43.8 ± 0.6	252,937	49.6 ± 0.7
Children				
6 months–17 years	74,533	58.9 ± 1.0	68,636	59.2 ± 1.0
6 months–4 years	22,901	69.3 ± 1.8	21,193	70.8 ± 1.8
6–23 months	8,508	76.5 ± 2.6	7,866	76.1 ± 2.8
2–4 years	14,393	64.8 ± 2.2	13,327	67.6 ± 2.2
5–17 years	51,632	55.6 ± 1.2	47,443	55.5 ± 1.2
5–12 years	32,814	59.9 ± 1.5	30,316	59.9 ± 1.5
13–17 years	18,818	49.0 ± 1.8	17,127	48.6 ± 2.0
Adults				
≥18 years	141,421	39.3 ± 0.8**	184,301	47.0 ± 0.8**
18–64 years	94,212	33.5 ± 1.0**	112,264	41.4 ± 1.0**
18–64 years with high risk conditions [¶]	22,049	43.4 ± 2.0**	32,685	48.7 ± 1.8**
18–64 years without high risk conditions	70,961	31.2 ± 1.0**	78,535	38.8 ± 1.0**
18–49 years	51,037	29.5 ± 1.0**	56,453	37.9 ± 1.2**
18–49 years with high risk conditions	7,243	34.9 ± 2.7**	11,840	42.5 ± 2.4**
18–49 years without high risk conditions	43,049	28.9 ± 1.2**	44,019	36.8 ± 1.4**
50–64 years	43,175	42.5 ± 1.6**	55,811	48.0 ± 1.4**
≥65 years	47,209	65.1 ± 1.8	72,037	65.4 ± 1.2

We know that the consequence of poor vaccine coverage leads to greater incidence of hospitalizations and mortality. It also promotes viral diversity and emergence of new viral strains by having a larger pool of incubators.

It would be fairly easy to refute the social media arguments for not vaccinating. But that would be preaching to the choir. Let's just put an answer to the last in my list; the threat of Influenza.

CDC estimates that from 2010-2011 to 2013-2014, influenza-associated deaths in the United States ranged from a low of 12,000 (during 2011-2012) to a high of 56,000 (during 2012-2013). During the 2017-2018 season, the percentage of deaths attributed to pneumonia and influenza (P&I) was at or above the epidemic threshold for 16 consecutive weeks. And, of course, the 1918 pandemic may have resulted in 50 million deaths, worldwide. As laboratorians, as hospital workers, as care givers, we know the threat exists.

2018 information points to similar numbers of vaccine participation. Which means, our workload is not going anywhere but up over the next little while. The interactive graphic located here: www.cdc.gov/flu/weekly/usmap.htm is a great tool for watching the surveillance unfold.

So, whether you use Veritor, Sofia, Alere or another rapid detection, dust 'em off, check outdates, and remember to practice good technique in testing. Using a biosafety cabinet, centrifuge cup covers, filtered pipet tips, careful vortexing, avoiding aerosols, splashes and spills, and proper PPE are recommended practices. You might give consideration to isolating the test space, impermeable front closed gowns, N95 or face masks, and double gloving as enhanced strategies to protect the lab staff.

Have a great week and be safe,

Bryan

p.s. Yeah, I could have used BYU-Utah (74-59) in my metaphor. Let's just say the Utes could use a "shot in the arm" this year.

References:

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