Travel-Free CME

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Disclosure

The planners and presenter have nothing to disclose

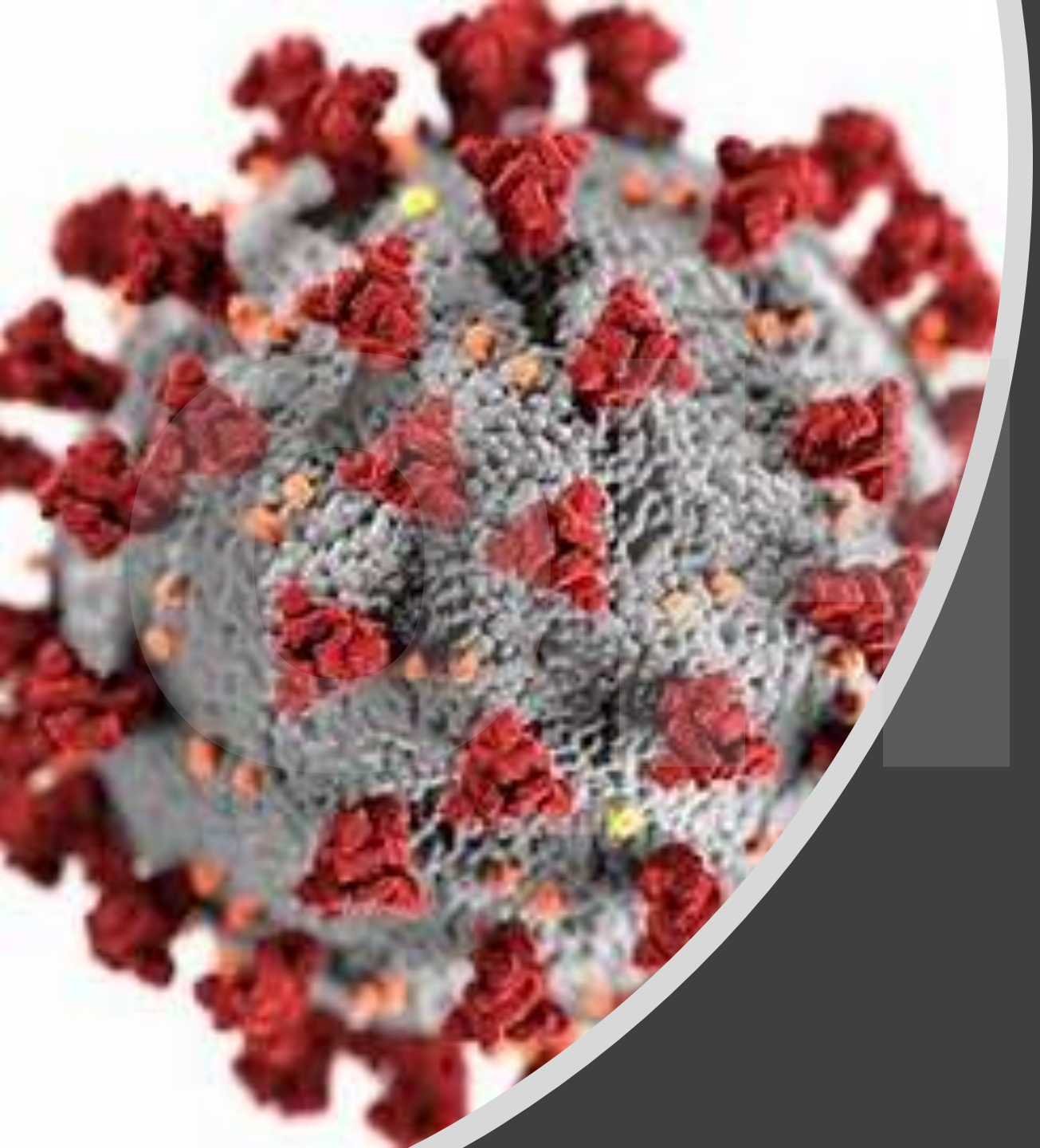
Upcoming webinars

May 27th: Comprehensive Care Models of Pain
Kim Mauer, MD

June 3rd: Treatment Options for COVID-19
Ellie Sukerman, MD

June 10th: Telehealth Primer: The Right Care at the Right Place at the Right Time
Anthony Cheng, MD, Miles Ellenby, MD, Amber Hoffman, MSN, RN

June 17th: Pediatric Primary Care Magic: Changing Toxic Stress into Tolerable Stress
Tamara Grigsby, MD



Testing and Personal Protective Equipment in the Era of Covid 19

Bob Dannenhoffer, MD

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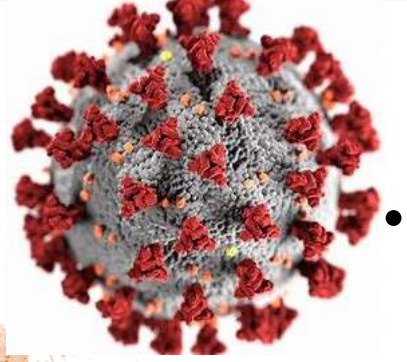
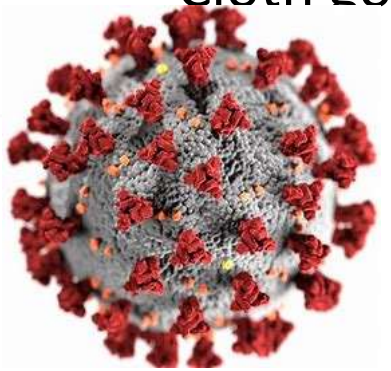
Financial Disclosures

- I have no relevant financial disclosures
- Practicing pediatrician
- Public Health Officer and Administrator from Douglas County
- Member of the Governor's Medical Advisory Panel
- Avowed Covid nerd

How did we get here?



- PPE involves gowns, gloves, masks and face shields.
- PPE went from an American industry of cloth gowns and domestically made masks- 90% US made
- In 90's and 2000's move to single use, synthetic gowns and masks.
- Most of manufacture went overseas to low cost production areas overseas. Now 95% made overseas
- Cloth gowns retired



National stockpile

- US strategic stockpile created in 1999.
- Filled with equipment that may be needed during emergencies
- Stockpile contains gloves, masks, gowns, drugs, ventilators
- Used during Swine flu in 2008 and 2009
- Stockpile dwindled to low amount, much expired
- Total number of N95 masks down to 12 million

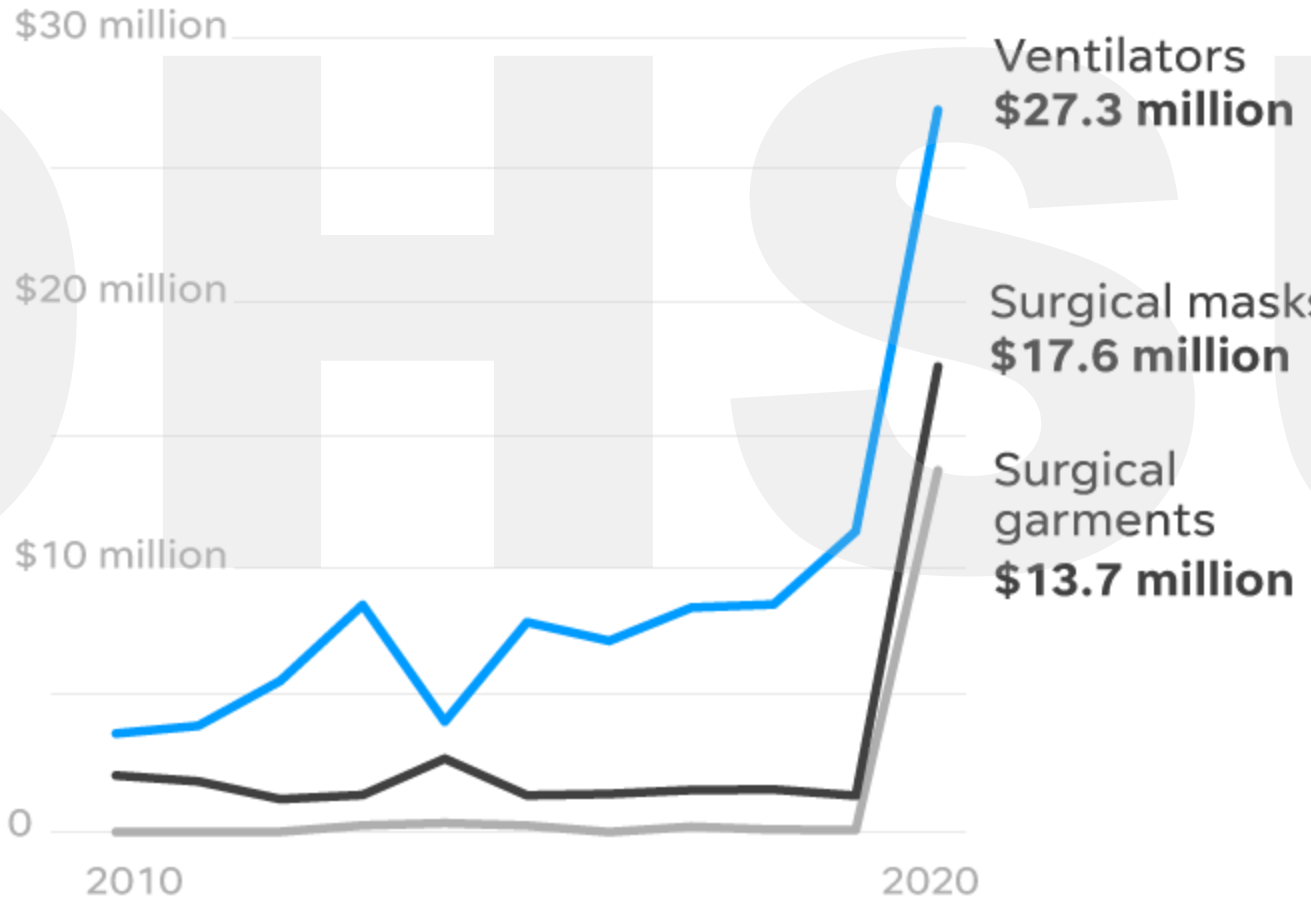
State and local stockpiles

- State had small stockpiles
- Counties had varying supplies, from slim to none
- Most facilities had 30 to 60 days… some in house and some in the pipeline, many systems using “just in time” inventory

What happened?

- In January, flow of PPE from China and Vietnam decreased, as they anticipated increased use.
- China sought to BUY PPE from around the world
- US encouraged sales overseas
- Cardinal recalled 9,000,000 gowns made in China
- US exports increased

US PPE Exports in January and February since 2010

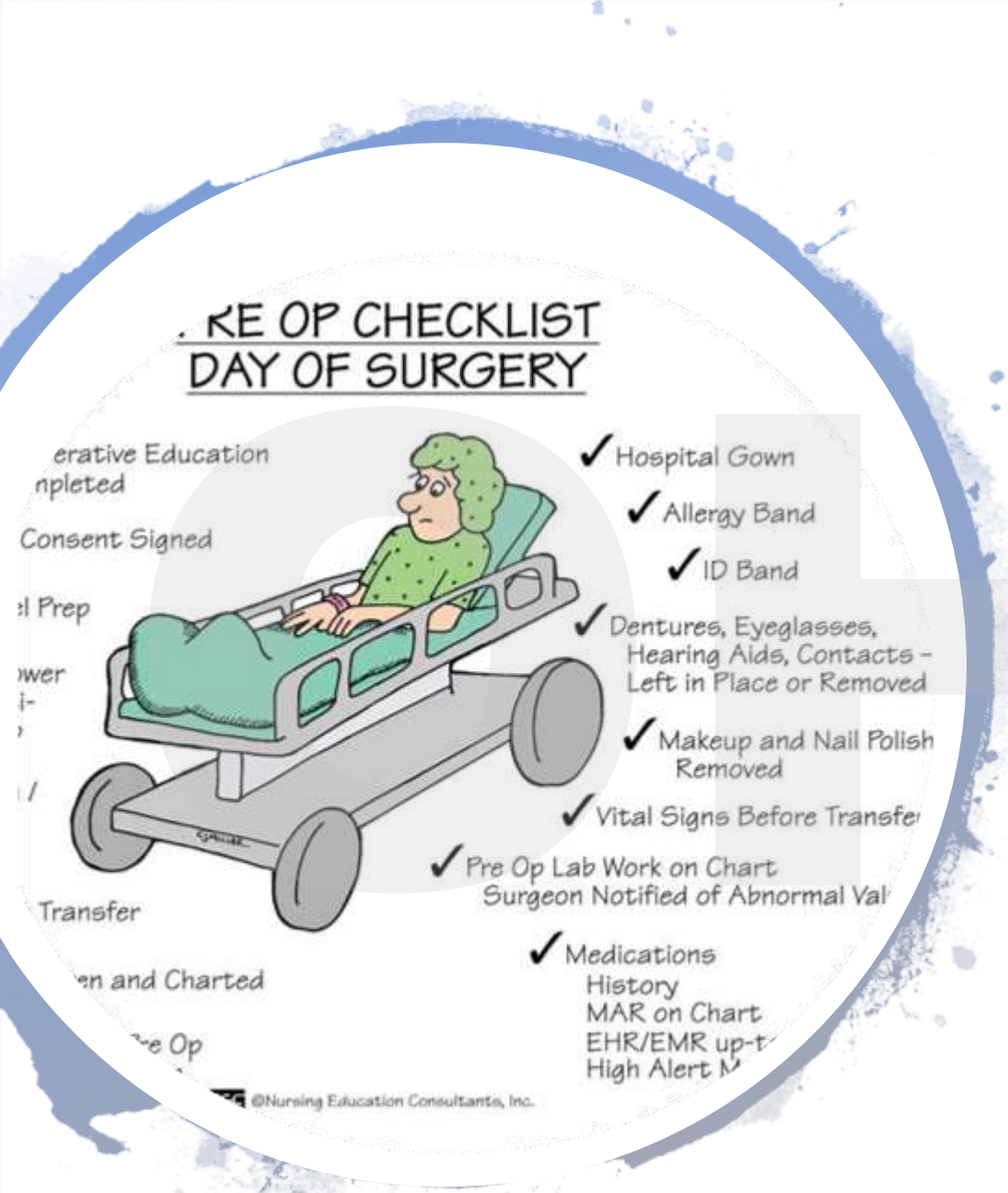


The shortage progresses

- By March, it is clear that the US will have severe impact from Covid
- Everyone at once tries to buy the same, scarce PPE
- Price gouging- tenfold
- Counterfeiting
- Intercept of PPE shipments
- CDC relaxes guidelines
- KN95 masks allowed to be used
- Many facilities down to days or weeks of supplies

And then

- Non emergent procedures stopped
- Dental shuts down
- Feds distributed supplies to states
- Oregon distributed locally
- Hospitals and others extend use
- Case count much lower than could have been expected
- Lots of help from mask sewists and others
- We squeaked by



And now

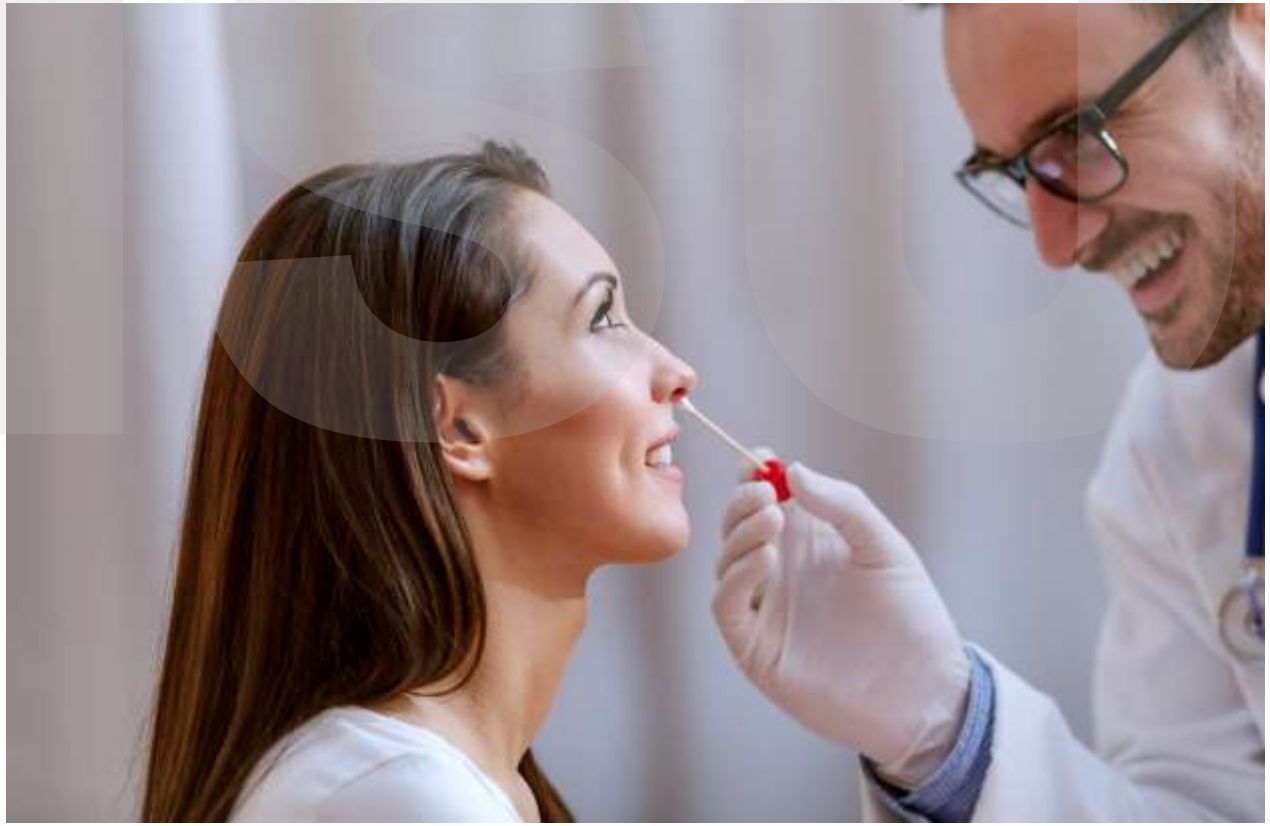
- Hospitals can open up to non-emergent and elective surgeries
- Must have adequate non-crisis levels of PPE
- Should take care not to overload ICU's, rehab facilities and blood bank
- Hospitals have slowly come back to elective surgeries
- Dental providers very negatively impacted
- KN95 masks not reliable and not to be used

Covid 19 testing

- With new organism, no pre-existing tests
- In January, CDC embarks on making tests
- CDC is in the business of making exquisitely elegant and sophisticated tests that will serve as the reference tests for the world
- Not usually in the business of making mass testing supplies
- Original test is a PCR test- still the “standard”
- Made tests for state labs- lots of manufacturing issues
- Commercial manufacturers relatively slow to get into the game- perhaps a slow FDA process

Early testing

- Paucity of tests led to severe testing restrictions
- Many early cases likely missed
- Shortage of many steps- swabs, transport medium and test cartridges
- FDA loosened restrictions and now many players in the market. "Went from DMV to Wild West"
- Traditional lab based PCR testing, CDC, OSPHL, Quest, LabCorp and others- very sensitive and very specific test
- Rapid diagnostic- Abbott ID, Cepheid, BioFire- very specific, less sensitive. FDA now recommends that negative Abbott tests be verified
- Antigen based tests- just coming out



Molecular Based Testing Issues

Except for pulmonary samples, RNA load may be small, so that in an infected patient with a positive lung aspirate, only 60-70% are positive in the nasopharynx or saliva. Only 30-40% in the oropharynx

As sensitivity of a test is degraded by both the test and the site, sensitivity of the Abbott test estimated to be only about 50%

Thus, a positive test almost certainly means you have it, a negative test doesn't tell much and shouldn't be a reason to avoid quarantine if exposed or to avoid social distancing

Antibody Tests

- Antibody tests could tell about previous exposure
- Could tell how many in community have had the disease
- Useful to know if those with antibodies get subsequently infected
- For any individual, of limited use
- Antibody testing allowed with Emergency Use Authorization
- Many makers to the field- APHA calls the tests “crap”
- Some with low sensitivity- tested against those with known disease
- Some with very low specificity- tested against serum from 2018

Current situation

- Tests themselves widely available
- Specimen collection kits becoming more available
- Testing strategies still vague- in descending order
    1. Test those with serious symptoms- cough, dyspnea, fever
    2. Test contacts with symptoms
    3. Test anyone with compatible symptoms until positive test rate is less than 5% or 2%
    4. Test asymptomatic people who are contacts or in high risk situations
    5. Test anyone (especially a randomized population for study purposes)

How much testing is needed?

- Best to learn from China and South Korea
- They used a similar testing approach and were able to squelch disease when positive testing rate became vanishingly small
- Would suggest against a "tests" per capita, and instead move to a "positive rate of less than 2%"
- Testing for pre-ops reasonable and logical

Questions