
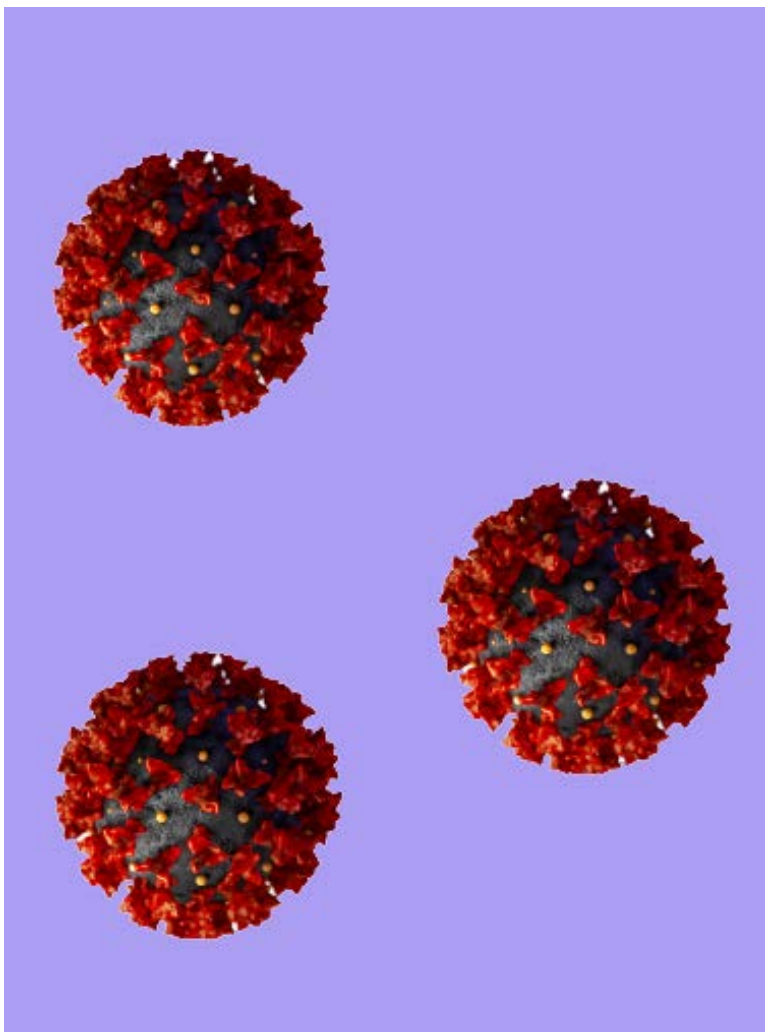


medgizmos

Medical Technology Reviews

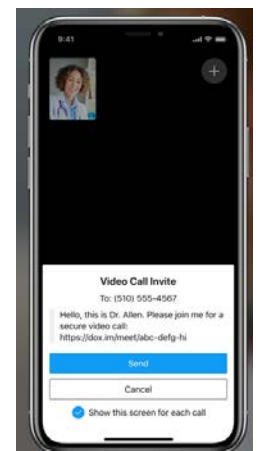
Vol:1 No:1 Spring, 2021

Special **COVID-19** Technology Review Issue



- Point of Care Covid Tests
- Wart Treatment
- Home wound closures
- Sanitizable Keyboards/Mice

..... and more !



Welcome to.....

medgizmos



Greetings and welcome to our new publication.

I'm Andy Schuman MD, a pediatrician who has been in clinical practice for over 30 years. During this time I've become enamored with office technologies that facilitate diagnosis, provide therapeutic options, expedite workflow, or just make office practice "fun."

I've been writing about practice improvement and medical technology in the pages of Contemporary Pediatrics for decades. During this time I've learned quite a bit about the nuances of integrating new technologies into office practice. Providers need to know which technologies to avoid, and how to determine whether a new technology is worth the investment of time and money. It does not matter if one is considering acquiring a device for point of care office diagnosis, or a simple thermometer, there are many wrong choices, and few excellent ones.

Medgizmos?

Several years ago I developed a "Gadgets and Gizmos" workshop for the American Academy of Pediatrics, which was presented at their yearly *National Conference and Exhibition*. Surprisingly the workshop sold out quickly, and in subsequent years we expanded to two sessions. Given the popularity of the workshops and the interest in my technology related articles, I decided to launch a website to bring the workshop experience to a wider audience.

I learned out to use a video camera to record reviews and edit these in a program called Camtasia. Reviews are uploaded to Vimeo and then posted on the Medgizmos.com web site.



Gizmos Workshop 2017

There are dozens of video reviews on Medgizmos, several webinars, and a number of interviews with "persons of interest" involved in new (and old) medical technologies.

COVID-19 Office Technology

The COVID-19 pandemic has devastated medical practice, and rapidly transformed our healthcare system. Physicians have adopted Telehealth to continue to provide services for patients, while safeguarding staff. Many physicians initially closed offices while formulating a battle plan to cope with the pandemic. Now we are seeing patients in our offices once again, exercising caution, with patients, staff and providers masked, and triaging carefully to minimize COVID-19 exposure. We are being challenged by the proposition of performing point of care tests in the office, re-using our PPE, and providing the best care we can under adverse circumstances.

This issue contains brief articles relating to COVID-19 office technologies with embedded links to related video reviews (and podcasts) on the Medgizmos.com web site. We discuss SARS-CoV-2 PCR and antigen tests, home wart treatment, and more.

Please stay tuned. The best is yet to come.

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FebriDx Point-of-Care Test Device

Rapid, point of care device that can identify an acute respiratory infection and differentiate viral from bacterial causes.

Dr. Rob Sambrusky, President and CEO of Lumos Diagnostics is a very patient man. His brainchild, the FebriDx point of care system can help providers



distinguish between febrile respiratory infections caused by viruses from those caused by bacteria. It is presently in use in Canada, Europe, Pakistan, Singapore, and Australia, and currently in clinical trials for approval by the Food and Drug Administration for release in

the United States. Unfortunately, the COVID-19 pandemic, has slowed enrollment in the clinical trials.

The development of the FebriDx Device is a journey that began over 10 years ago. Dr. Sambrusky is an ophthalmologist with training in infectious disease. He initially developed a product that could rapidly detect pathogens responsible for eye infections. This then led to an association with other researchers and eventually his interest in developing a rapid assay for Myxovirus resistance protein A (MxA), an interferon-induced dynamin-like GTPase, which is elevated in febrile respiratory infections.

The FebriDx test takes is completed in just 10 minutes, and is inexpensive (about \$15). A finger is prepped with an alcohol wipe and dried, the lancet built into the device is activated and applied to the fingertip. A plastic tube draws up 5 microliters of finger stick blood which is then transferred to the cartridge mechanism. A button is pressed, releasing reagents and a few minutes later, the device indicates whether the patient has elevated Myxovirus resistance protein A and/or CRP. An elevated CRP indicates bacterial respiratory infection, while an ele-

vated Myxovirus resistance protein A with or without CRP indicated viral infection.

Dr. Sambrusky discussed a variety of fascinating topics in a Medgizmos.com interview. First and foremost, when point of care PCR tests for identifying COVID-19 infected individuals are in short supply the FebriDX test may help identify those patients in need of testing. Myxovirus resistance protein A is elevated in non-novel coronavirus infections, and one would expect that it would be elevated in patients infected with the novel coronavirus. Obviously Lumos Diagnostics will need to demonstrate to the satisfaction of the FDA that Myxovirus resistance protein A is elevated in COVID-19 infections. Once this has been established in a large cohort of patients, the

FDA should consider fast tracking its release in the USA.

Pediatricians in the United States are already familiar with the CRP test and its utility in facilitating clinical decisions,

but to date there are no CLIA'88 waived POC CRP tests available. I can think of many potential scenarios where the FebriDx can be helpful - the patient who is well appearing and has diffuse rales on lung exam, the crying child who has suspiciously red ears, the well appearing teenager with a mild sore throat who tests positive for strep and may be a carrier. We will need to wait until the device is available to decide on its usefulness in clinical practice.



FebriDx Device

Sanitizable Keyboards and Mice and More....



Seal Shield Keyboard

In the midst of the COVID-19 pandemic medical practices are finding ways to keep their offices and exam rooms sanitized, protecting staff and patients from possible exposure to the dreaded SARS-CoV-2 virus. We are donning PPE, and cleaning rooms thoroughly between patients. Few physicians recognize that virus and bacteria can spread via keyboard and mouse contamination as well as on the surfaces of our smart devices that we touch hundreds of times each day.

Seal Shield has been providing sanitizable high quality mice and keyboards for medical practices for many years. These come in wireless and wired versions, are quite affordable. Not only can they be sanitized between patients using bleach containing wipes – they can also be put in a dishwasher!

In addition to mice and keyboards, Seal Shield also says sanitizable covers for smart devices that enables these to be cleaned with sanitizing wipes without fear of damage. These are available for popular smart



Monitor Cover

devices, but also can be cut to size so you can protect computer and monitor screens as well.



Seal Shield Electroclave

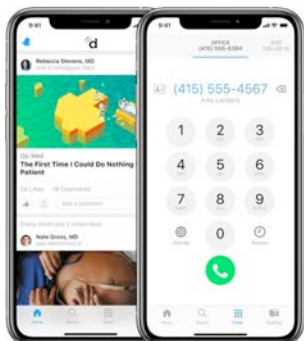
Lastly, large practices may consider purchasing the Seal Shield Electroclave, available for \$8000 and upward (depending on features), that uses UV-C light to clean smart devices and PPE.

In the interview Seal Shield's Marcus Pinto discusses all the products in detail. Consider purchasing these affordable products that will not only provide the ability to scrupulously sanitize your office and exam rooms computer input devices, and will provide priceless peace of mind as well.



Doximity Telehealth Application is Easy to Use..... and Free!

The June issue of [Contemporary Pediatrics](#) details my “Battle Plan for Combating COVID-19”. One of the topics discussed is the importance of selecting the best Telehealth (TH) application/platform for your practice. For many physicians and associate providers this is now a “no-brainer” as the Doximity Dialer Video application for IOS and Android smartphones was just released. Not only is the application (a sub-application within the Doximity application itself) free of charge, it is probably the easiest to use of all the TH applications I have used. Doximity provides a Business Associates Agreement to users, which permits practices to use the Doximity Dialer application as an official HIPAA compliant TH platform for their practice.



As Dr. Peter Alperin, Doximity’s Vice President, Product says in the video, “The application just works!” The application masks the phone number of your smartphone and presents the patient with a phone ID which presents the Practice name and phone number, so the patient will never view your

private number. To initiate a video call, you input the phone number, hit the video call button, and a text link is sent via message to the patient. They simply click on the link and the video visit begins. There is no need for the patient to load a web page or download an application.

In the future Dr. Alperin indicates there will be a desktop version of the Doximity Video Dialer as well as a version for Tablets. It’s great that Doximity has fast tracked the release of this essential tool during the COVID-19 pandemic when there has been a rush to integrate TH services into our practices. We have more than enough to worry about. If you trial the Doximity Video Dialer I am confident you will adopt it for your practice – because “it just works!”

Video Review:

Facilitate Home Treatment of Common Warts

We have previously presented videos discussing wart removal using liquid nitrogen as well as cantharidin products. Both methods require that patients return to the office every few weeks for debridement and re-application. The entire process from initial treatment to wart resolution may take many applications. This is expensive for the patient, as those with high deductible insurance will pay \$200 or more per office visit. Over the past few months my local dermatologists have been advising patients to purchase the \$10 WartSTICK to eradicate warts at home, providing instructions in its use. This is particularly appropriate during the COVID-19 pandemic as it minimizes return visits to a medical office. Patients should return only if warts persist after several months of use.



Wart STICK contains 40% salicylic acid, in a wax based medium. It should be applied once daily or every other day, with a band aid cover left in place for 8- 24 hours or until reapplication. For small warts one can use a cotton swab to apply the Wart STICK wax medium to avoid application to healthy tissue. Patients need to debride the wart with a pumice stone or emery board before re-application. As the device looks exactly like a ChapStick, parents need to be cautioned to keep the Wart STICK out of the reach of children.

By the way, I expect these would work well with molluscum as well.

Video Review:

SARS-CoV-2 PCR, and Antigen Tests: Point of Care Office Testing

Primary care providers, seeing patient in the office during the COVID-19 pandemic, often find it difficult to get patients tested for SARS-CoV-2. Many practices are sending patients to hospital or commercial labs for sample acquisition and testing. Other patients are being tested in the community - at drive through stations established by local health departments. *No matter where the tests are performed, results often come back days later due to an enormous backlog of tests.*



Abbott ID Now PCR POC System

Even when tests are performed using “reference” level assay systems” SARS-CoV-2 PCR tests produce many false negative tests. This phenomenon likely reflects errors in sampling techniques as well as “timing” i.e. when the sample was obtained relative to the course of the illness.

Office based physicians have traditionally performed point of care (POC) tests for Influenza and Strep. Advantages of rapid diagnosis is that results can be communicated to the patient at the time of the office visit, avoiding the need for callbacks, and treatment can be implemented immediately. Sensitivity and specificity depends on the type of test (PCR vs antigen tests), and in many circumstances the more expensive point of care PCR tests are not covered by insurance. In the case of Influenza and Strep infections there are false negatives, especially with antigen tests, and very few false positive tests. PCR tests are much more sensitive for detecting Influenza and Strep compared to antigen based tests. In many cases poorly executed sample collection accounts for false negative test results.

Now consider, the situation with SARS-CoV-2 assays. While there is no antiviral yet available to treat infections, an expedited diagnoses in the office would be extremely helpful in many ways. In the case of a negative test, it would



Quidel Sofia 2 COVID Antigen Assay System

expedite workup of patients who may have bacterial infections or influenza. One must realize that in the case of COVID POC antigen tests, there will be significant false negatives, as their sensitivities are in the 80% range. In the event of a positive test it would identify patients who need further medical care or need to quarantine to prevent spread. With expedited POC diagnosis, individuals who may have been exposed to COVID-19 infected patients could be contacted sooner.

However, one needs to consider that in office COVID-19 testing poses a potential hazard for office staff. Unlike obtaining influenza specimens via nasopharyngeal swabs or strep from pharyngeal samples, where staff usually wears a Level 2 mask and gloves, obtaining a COVID-19 specimen requires staff to don full PPE. Furthermore the room in which the specimen was obtained should be considered contaminated and sanitized according to CDC guidelines. Lastly, the test should be performed by staff who are wearing full PPE.

It is up to you to consider if you want to implement COVID-19 testing in your office. You may already have equipment to perform Influenza and Strep testing, and implementation would require obtaining appropriate test kits.

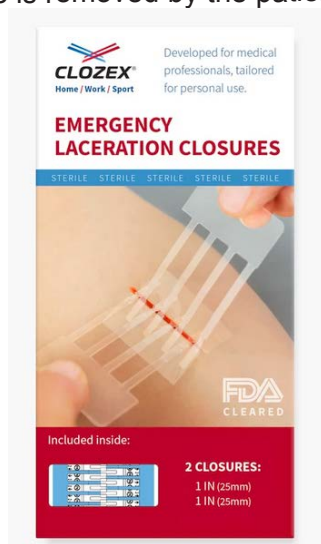
Your thoughts? Please send them along to me at andrew.schuman@ymail.com

Pandemic First-Aid: Patients can close simple lacerations at home!

It is a nuisance to seek medical attention for suturing of simple lacerations in a physicians office, urgent care facility, or emergency room. This is more problematic during the COVID-19 pandemic. Consider recommending either of the two products below for patients to keep on hand for emergencies.

Many years ago I used the Clozex wound closure system in my pediatric practice. It was inexpensive and allowed me to close superficial lacerations in children without infiltrating lidocaine. With a small amount of practice, I got pretty proficient in using the device to close wounds with gloved hands.

As shown in the medgimos video one preps the wound and dries the surrounding area, applies the Cozex adhesive panels to the wound edges and then uses pull tabs to approximate wound edges. Adhesive straps then secure the device and the pull tabs are removed. Very simple, quick and most of all – painless. The device can be covered with a dressing for protection, making sure the overlying dressing has no adhesive that sticks to the device. The device is removed by the patient in 7 to 10 days, lifting the device parallel to the healed laceration.



Clozex Laceration Kit



ZipStitch Laceration

About ten years ago 3M bought the Clozex system, but did not promote the product. About a year ago Clozex became independent again and is now promoting the device to healthcare providers and has even produced a version for home use by patients, called the Clozex Emergency Laceration Closures Kit.

Another painless, suture free wound closure system comes from ZipLine Medical. It was developed initially as a surgical incision closure system – but the device has been adopted by primary care providers as a method to close simple lacerations. The ZipLine system consists of an adhesive matrix of beaded plastic “zip ties” that are placed over a laceration and secured in place. One pulls on each tie to approximate wound edges then merely removes the excess with a scissor. Again, easy, quick, painless and less likely to scar compared to traditional suturing or stapling. Zipline Medical also produces a home care product called ZipStitch intended to be used by patients and parents to close simple lacerations on their own.



Back in the day....

Not all helpful medical gizmos survive the test of time. Such is the case of the “Acoustic Otoscope”



(also called the “Spectral Gradient Angle Reflectometer”) which was introduced in the early 1980s as an alternative to tympanometry to detect the presence of fluid behind the tympanic membrane. The Acoustic Otoscope was inexpensive (hundreds of dollars) compared to tympanometry devices (thousands of dollars). Best of all it was easy to use and did not require a seal to produce a measurement (this can be problematic with tympanometry devices), and displayed results in seconds. Numerous studies showed comparable sensitivity for detection of middle ear fluid. It was particularly helpful when the tympanic membrane was obscured by cerumen. A normal reading with this device, made otitis media unlikely, and played an important role in avoiding the inappropriate prescribing of antibiotics.

While many pediatricians used the device, and it remained popular for many years, companies that manufactured the EarCheck Pro (the last incarnation of the Acoustic Otoscope) could never sell enough of them to sustain its use. Once purchased the device could be used for years. In an effort to continue to generate revenue the manufacturer sold disposable plastic tips because they said these

should be replaced, but pediatricians in large measure did not replace the tips. There was also a consumer version, called the EarCheck (shown in the video), with the same internals as the more expensive professional device. Unfortunately, few parents bought this version of the acoustic otoscope.

It's such a shame that the acoustic otoscope did not find its niche in the market as it was extremely useful, as few pediatricians have tympanometry devices in their offices these days. It would help guide management of serous otitis, and reduce referrals for myringotomy tubes.

If you have some older devices hanging around your office considering donating these to Medgizmos, so we can present a review similar to this one!

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advancing
cardiac care
at over
1,000
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UV-C Sanitation for N95 Masks

Ideally N95 masks are disposable and should be used only once and then discarded. However, these masks are in very short supply during the COVID-19 pandemic and most providers are reusing their N95 masks for weeks at a time. Keep in mind that the SARS-CoV-2 virus is 0.12 microns in size and most bacteria are 3 microns in size. N95 masks filter 99.9% of particles at 0.1 micron in size. Practically speaking coronavirus are not transmitted as isolated virus particles but travel via airborne droplets (particles greater than 5 microns) or aerosols (particles less than 5 microns) from asymptomatic or symptomatic patients produced by breathing, talking, singing, coughing or sneezing. In general, N95 masks protect



Casetify UV-C Phone Sanitizer

against aerosol and droplet transmission, while surgical masks protect predominantly against droplet transmission. In turn surgical masks are considered by some as providing twice the protection as cloth masks. One of the best articles re: the transmission of COVID-19 virus by droplets and aerosols can be found here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7293495/>

With the above said, given that Personal Protective Equipment, especially N95 masks are in short supply – it is in everyone’s best interest to be able to sanitize them. Many hospitals utilize vaporized hydrogen peroxide sanitation systems to sanitize masks. An alternative method is UV-C sanitation which has been demonstrated to kill bacteria, molds and viruses, including coronavirus in a short period of time.

Affordable UV-C sanitizers are available for one item sanitation or micro-wave oven size cabinets that can sanitize multiple items at a time. The single item sanitizers are available as devices that are sold to sanitize cell phones, with sanitization times that can vary from 3 to 15 minutes. These are available from companies like PhoneSoap, Casetify, Totallee, and others. UV-C cabinets are more expensive, ranging in price from \$1200 to \$8000 or more depending on size and features. The cabinets have more light output than the single item sanitizers, but the articles I’ve reviewed suggest that phone sanitizers can effectively rid your N95 masks of contagious agents. Stay tuned as I intend to write a more detailed article on PPE sanitation and the use of UV-C cabinets in the weeks to come.