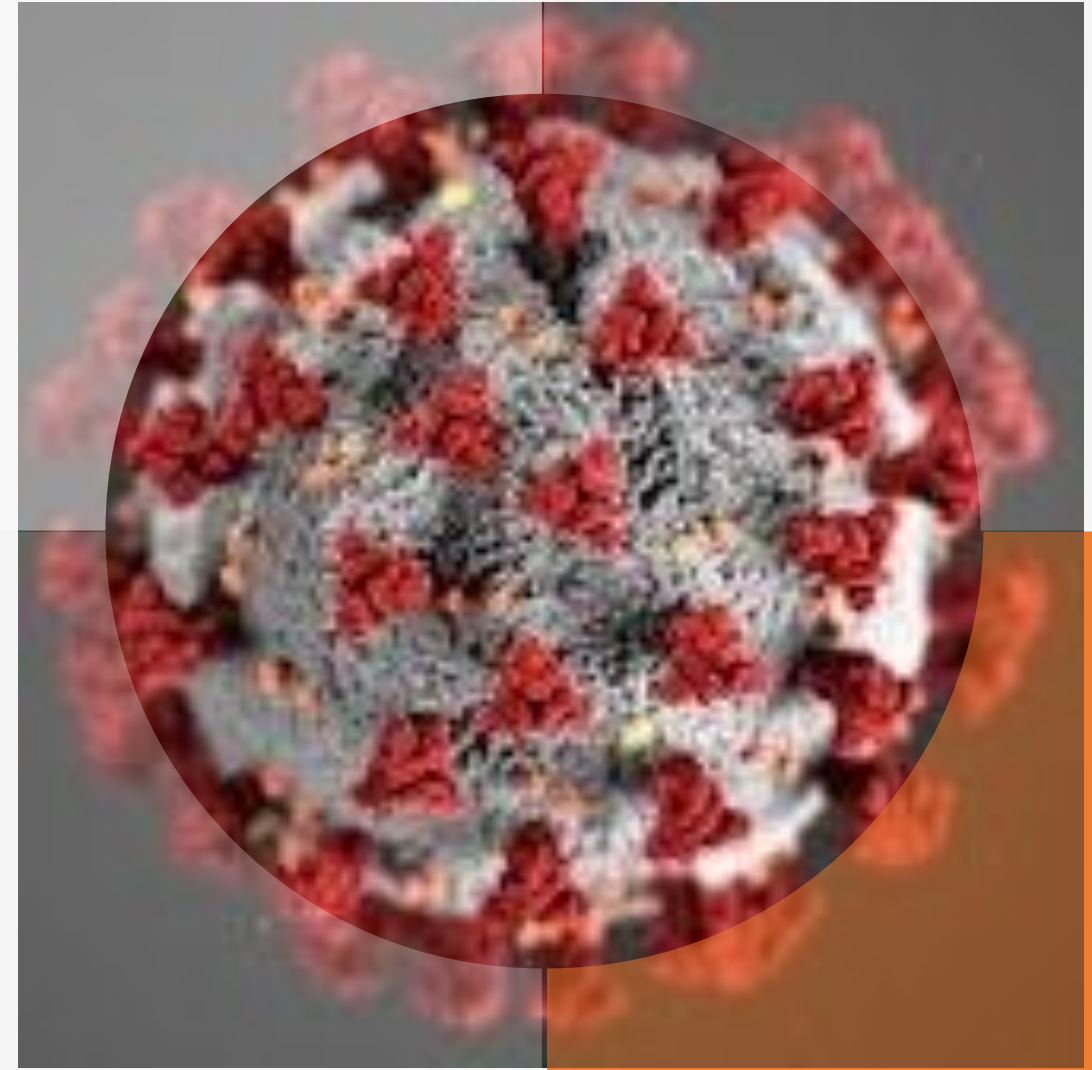


# Carpal Tunnel Release During A Pandemic

Tips and Tricks

Neil Harness, MD

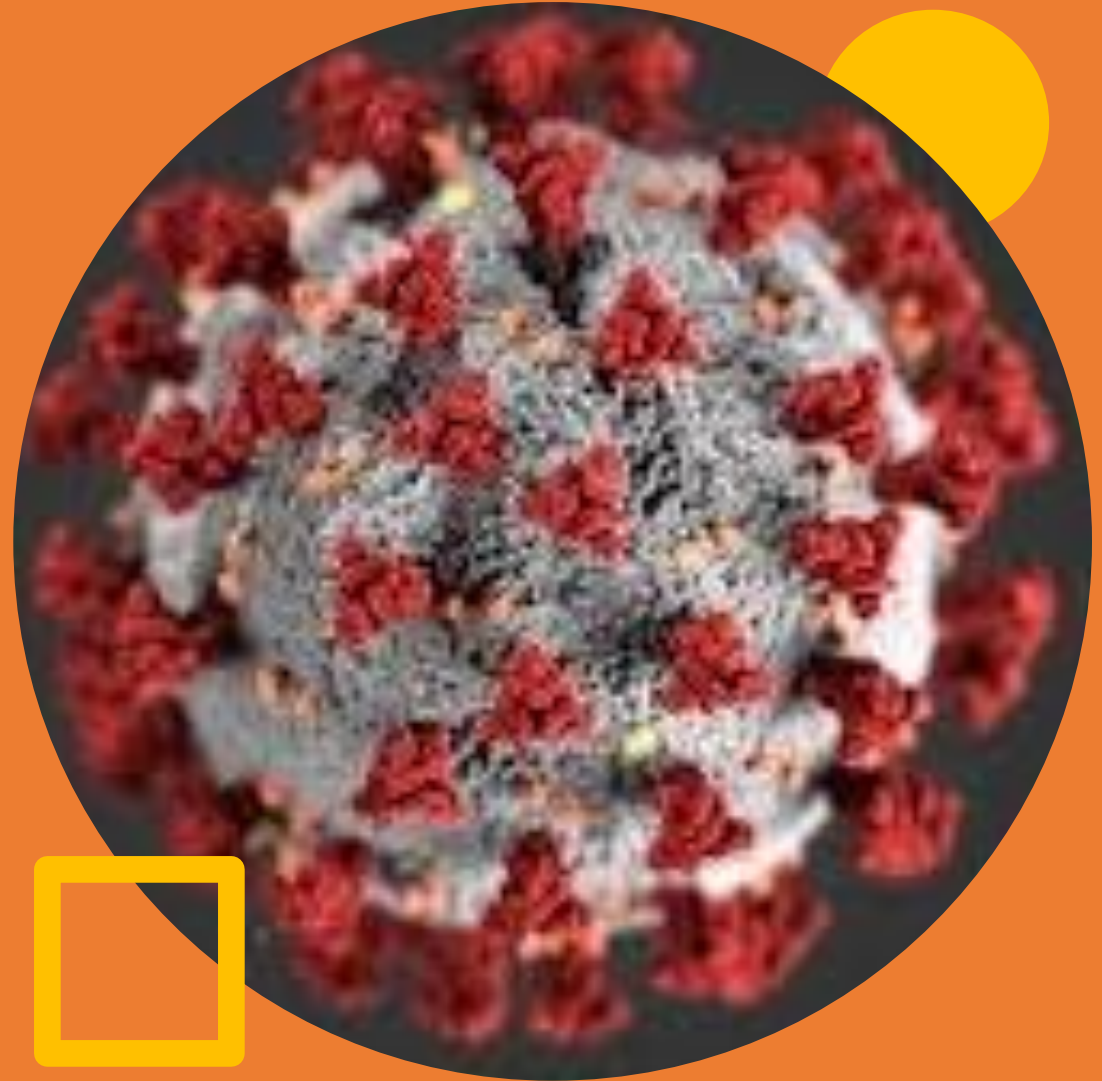
Kaiser Permanente Orange County





# Tips and Tricks

Show me the evidence



# Telehealth/Virtual visits

Prior to COVID-19

Video and TAV formats available but not widely used

Physician and/or patient resistance

- Generational issues
- Cultural difference
- Electronic Glitches
- Lost connections, Inadequate bandwidth
- Patient safety concerns

Generational/  
BOOMERS  
? X'ERS  
MILLENNIALS  
Differences



# Post Covid-19

- Requirement for social distancing
- Forced virtual care acceptance by patients and physicians



# Outdated model of care delivery

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- Multiple visits b/w pcp, pm&r, neurology, PA, hand surgeon.
- Consult, electrodiagnostic testing, preop/postop visits.



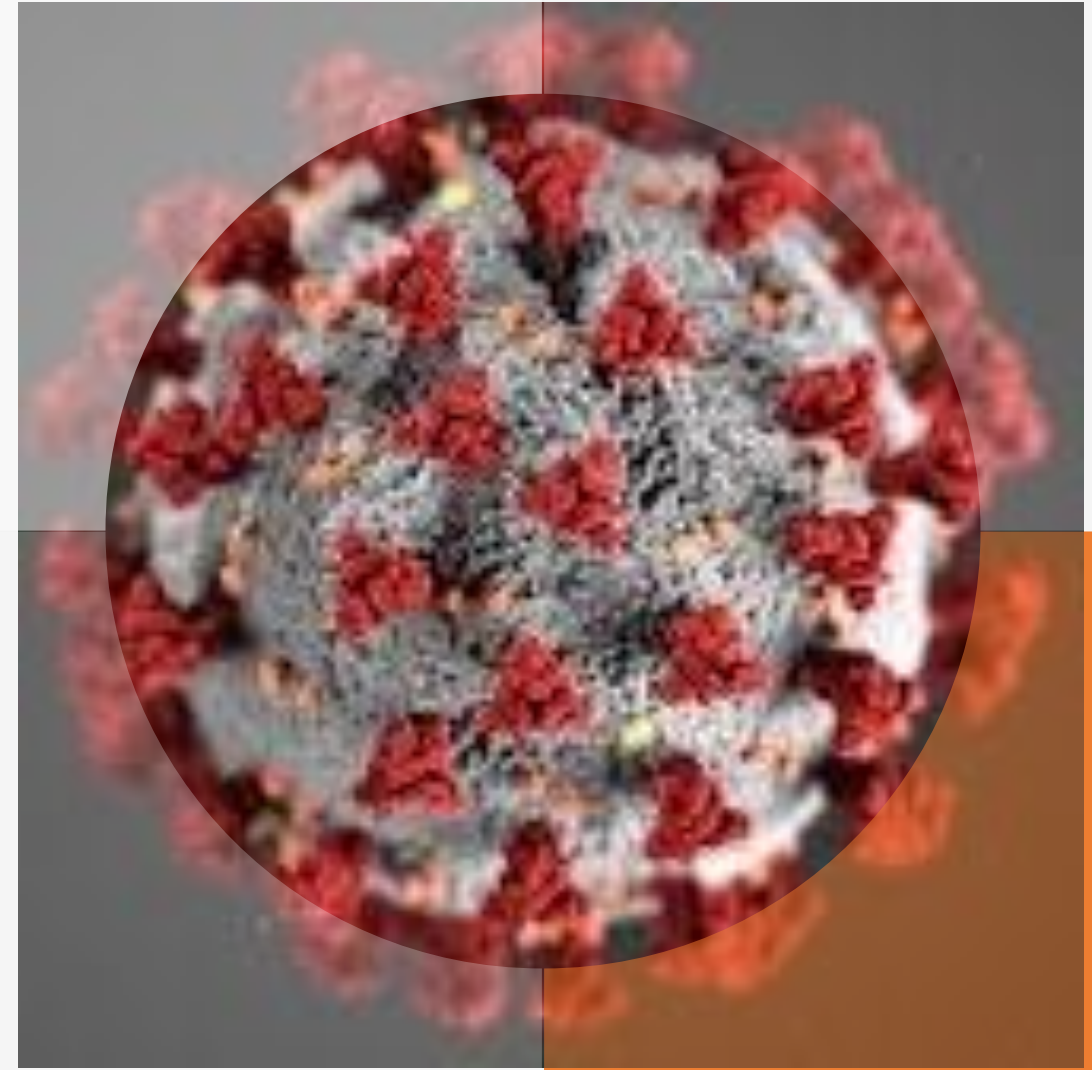


# “One-Touch” Carpal tunnel release

Can we provide high quality, virtual care for patients that need carpal tunnel release surgery?

# Preop

- Virtual Visits
- How can we streamline CTR care?





## **Telemedicine Consultation for Patients with Upper Extremity Disorders Is Reliable**

*Joseph A. Abboud, MD; David J. Bozentka MD; and Pedro K. Beredjikian, MD*

- CORR, June 2005
  - Prospectively evaluated 100 patients
  - Simulated telemedicine consult.
  - Intra-observer and inter-observer reliability was excellent for dx and treatment
  - Observers had difficulties with differentiation of some diagnoses.





# The consultation

- Is electrodiagnostic needed?
- Virtual physical exam?
- Is preop testing necessary?

# CTS-6

- Graham B. JBJS 2008
- Fowler JR. Orthopedics, 2017
- Lu, YT. JHS, 2019

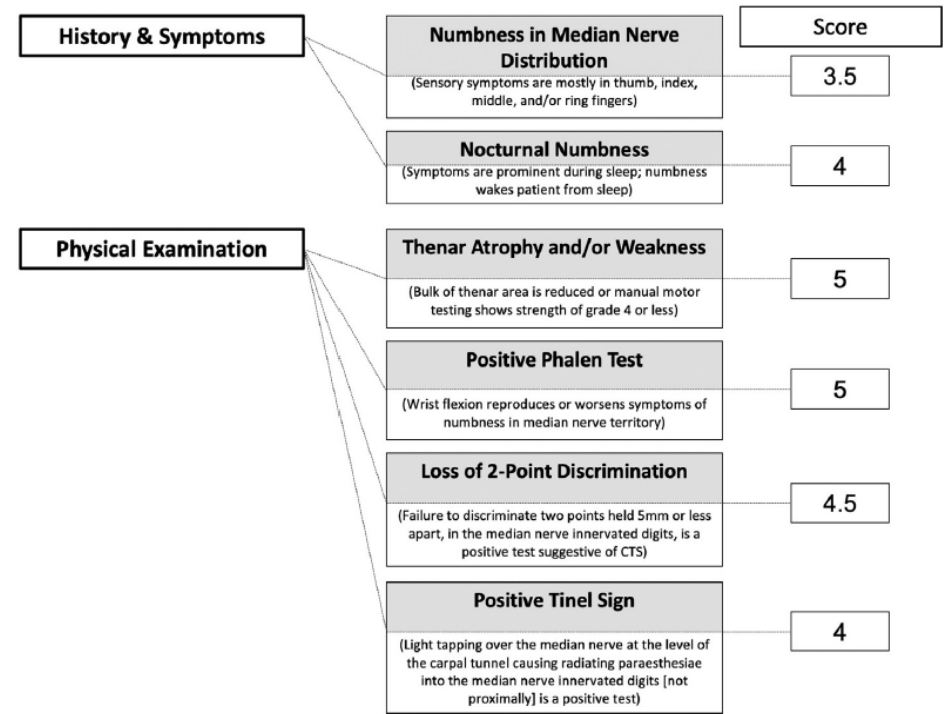
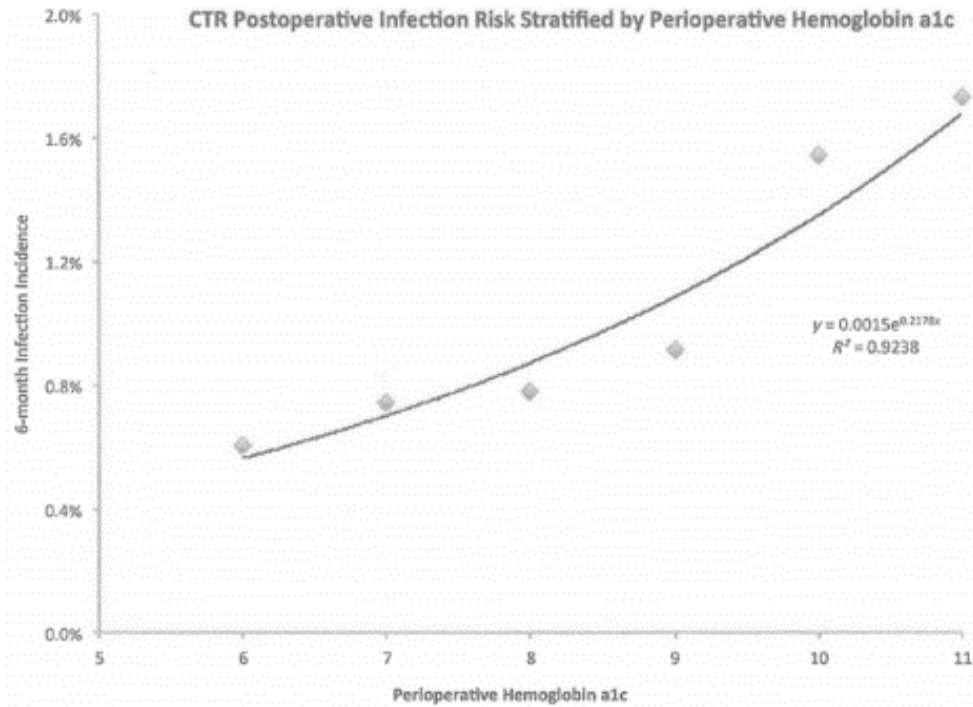


FIGURE 1: Components and scoring system of the CTS-6.<sup>3</sup>



## Diabetic control

- Should we avoid surgery in poorly controlled diabetic patient?

Werner BC. Hand 2019.  
Giladi A M. JHS 2021



# Intra op

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- Can we move cases into the office?
- Are antibiotics necessary?
- Endoscopic versus open release?
- Virtual reality?

# WALANT



Wide awake CTR

+/- Tourniquet

No sedation (+/- Xanax)

No Preop, pacu, nausea, admission

THE HAND SURGERY LANDSCAPE

## Incorporating Office-Based Surgery Into Your Practice With WALANT

Emily Tan, DO,\* H. Brent Bamberger, DO,\* James Saucedo, MD†



# WALANT

Cheaper for patients

No fasting (better for diabetics)

No IV line

No need for antibiotics



# WALANT

- Ideal for patients with comorbidities:
  - Morbid obesity
  - COPD
  - AV shunt
  - Multiple meds and allergies

# Technique

Lidocaine 1% with Epinephrine 1:100,000

Epinephrine is safe

- Wilhelmi BJ, et al Do not use epinephrine in digital blocks: myth or truth? Plast Reconstr Surg 2001
- Andrades PR, et al Digital blocks with or without epinephrine. Plast Reconstr Surg 2003

Lidocaine pH 4.7

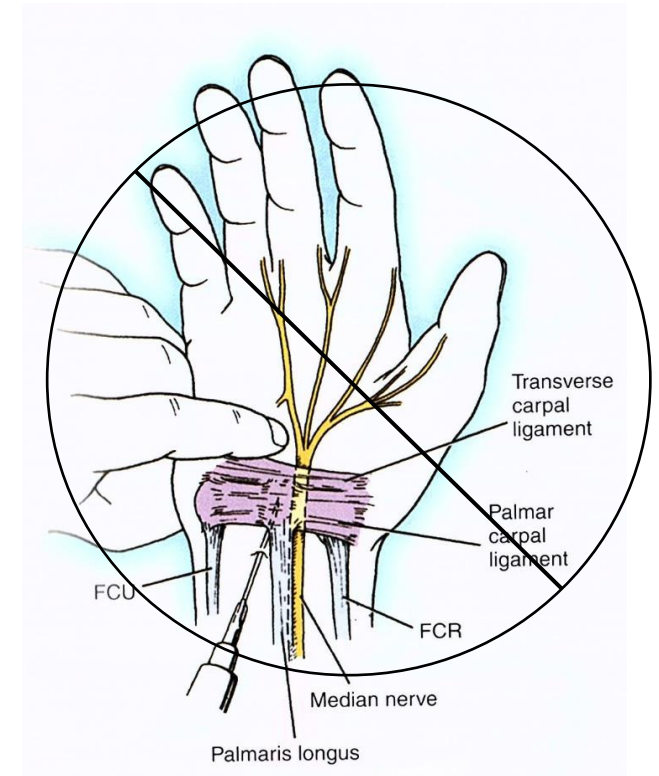
9 ml lidocaine with 1ml 8.4% sodium bicarbonate (effective pH 7.4)

- Bartfield JM, Ford DT, Homer PJ. Buffered versus plain lidocaine for digital nerve blocks. Ann Emerg Med
- Cornelius P, Kendall J, Meek S, Rajan R. Alkalinisation of lignocaine to reduce the pain of digital nerve blockade. J Accid Emerg Med



# Wrist block

- Avoid injection into carpal tunnel
- Injection through FCR tendon
- 10 ml



# Wrist block

- Inject additional 3-5 ml at incision site
- Injection 3-5 ml over palm





Antibiotics

## Rate of Infection After Carpal Tunnel Release Surgery and Effect of Antibiotic Prophylaxis

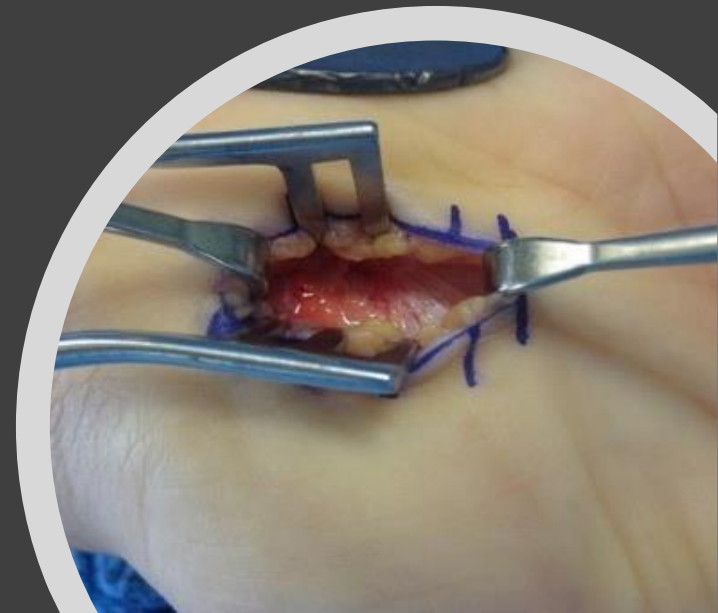
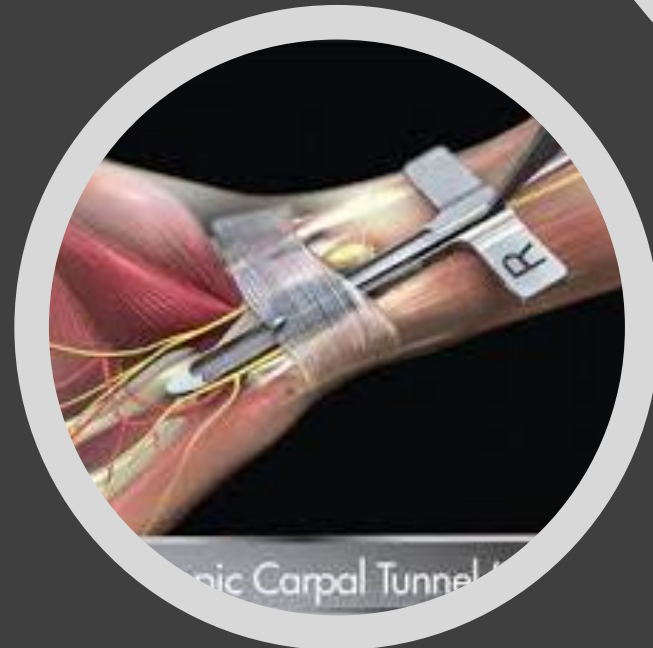
- Antibiotic prophylaxis did not decrease the risk of infection after carpal tunnel release (CTR) surgery
- 3003 patients underwent CTR
- No increased risk in diabetic patients
- **The routine use of antibiotic prophylaxis in carpal tunnel release surgery is not indicated.**

**TABLE 4. Study Group B Surgical Site Infection With Prophylactic Antibiotic Usage**

	Patients Without Prophylactic Antibiotic (n = 917)	Patients With Prophylactic Antibiotic (n = 1419)	Total (n = 2,336)	p Value
Surgical site infection	6 (0.7%)	5 (0.4%)	11 (0.5%)	.354
Organ/space infection	1 (0.1%)	3 (0.2%)	4 (0.2%)	1.00
Incisional infection	5 (0.5%)	2 (0.1%)	7 (0.3%)	.115

# Endoscopic versus Open

- “I do endoscopic CTR – I can’t move it to my office”
- Is there a difference in outcome? Safety? Cost?
- What does the evidence show?



# Endoscopic versus open

- Safety
- Efficacy
- Ability to perform in-office



# Comparison of the Costs of Reusable Versus Disposable Equipment for Endoscopic Carpal Tunnel Release Procedures Using Activity-Based Costing Analysis

Jeffrey Voigt, MPH, MBA,\* Daniel Seigerman, MD,\* Kevin Lutsky, MD,\* Pedro Beredjiklian, MD,\*  
Charles Leinberry, MD\*

Office versus  
operating room -  
ECTR

- Cost of reusable versus disposable equipment for ECTR
- Operating room time, preparation, processing factored
- \$917 for disposable
- \$1019 for reusable
- \$102 cost savings

# Disposable ECTR system





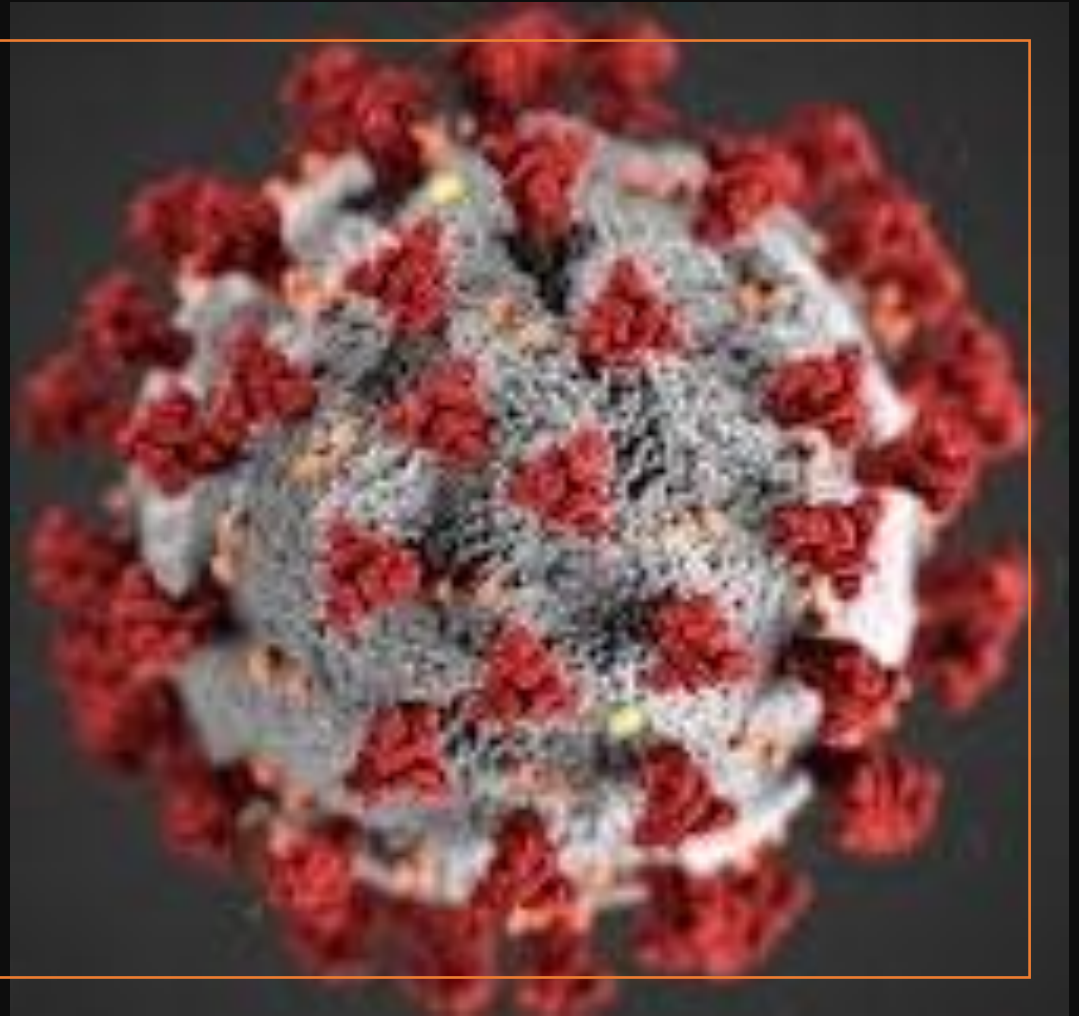
# Virtual Reality

- AAHS, Poster 2020
- KP San Diego
- 50 patients, 3 surgeons
- Anxiety decreased by 48.23%
- Anxiety decreased the most in high anxiety patients by 54.05%
- Complications: symptoms of vertigo (2 patients) and headset removal due to patient not liking content (1 patient)



# Postop – Tips/tricks

- Closure
- Splinting
- Dressings
- Rehab
- Pain meds



# Prospective, Randomized Trial of Splinting After Carpal Tunnel Release

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Tjerk F. Bury, MD\*

Edward Akelman, MD†

Arnold-Peter C. Weiss, MD†

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Splinting

- Prospective randomized study
- 2 weeks postop splint versus bulky dressing
- No differences in postop subjective satisfaction grip, pinch, motion or complications

# Duration of Postoperative Dressing After Mini-Open Carpal Tunnel Release: A Prospective, Randomized Trial

Andrew W. Ritting, MD, Robin Leger, PhD, Michael P. O'Malley, MD, Heather Mogielnicki, BS,  
Robert Tucker, BS, Craig M. Rodner, MD

Postop dressing

- 2 weeks bulky dressing versus removal at 48-72 hours in mini open ctr
- No wound complications or differences in short term subjective and objective outcomes

# Wound closure

- Topical skin glue versus absorbable sutures
- No formal in-person postop visit
- Achilles tendon repair
  - No difference in infection
  - Higher patient satisfaction



A comparison of three methods of skin closure following repair of Achilles tendon rupture

Young Hwan Park<sup>a</sup>, An Seong Chang<sup>a</sup>, Gi Won Choi<sup>b</sup>, Hak Jun Kim<sup>a,\*</sup>

<sup>a</sup> Department of Orthopaedic Surgery, Korea University Guro Hospital, 148 Gurodong-ro, Guro-gu, Seoul, 08308, Republic of Korea

<sup>b</sup> Department of Orthopaedic Surgery, Korea University Ansan Hospital, 123 Jeokgeum-ro, Danwon-gu, Ansan, 15355, Republic of Korea



# Outcomes of Carpal Tunnel Surgery With and Without Supervised Postoperative Therapy

Jay Pomerance, MD, Ilene Fine, BA

*From Arlington Heights, IL.*

Therapy

- Randomized controlled trial of 2-week formal hand therapy versus home exercise program
- No difference in return to work, DASH, pinch, grip, pain

# Pain

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- Opioid crisis
- Commonly overprescribed
- Double blind study
  - Narcotic v. non-narcotic
  - Pain greater with narcotic
  - Pill consumption equal



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EDITOR'S CHOICE

## **Pain Management After Carpal Tunnel Release Surgery: A Prospective Randomized Double-Blinded Trial Comparing Acetaminophen, Ibuprofen, and Oxycodone**

Asif M. Ilyas, MD, Andrew J. Miller, MD, Jack G. Graham, BS, Jonas L. Matzon, MD

Thank you

