# 342 What does the Department sign say?

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It's a new year, so let's call this a brief "Retreat" and a Call to Remember Our Mission. Why? As an advocate, I brought a patient to the ED who was an ESI 2 febrile pneumonia patient, geriatric with at risk pulmonary pathology, hypotensive, tachycardic, and room air SPO₂ of 92%. The patient did well and was discharged with follow-up but based on initial presentation could have gone either way. The room was a high-acuity room, in which resuscitation could be done but was not a primary resuscitation area. However, examine the photo.

The photo is focused on the room's deficiencies for high-acuity patients. Neither the suction, nor the BVM are set-up and connected for immediate use! If there was a sudden crisis, realistically, how long will it take to open the packages, assemble parts, connect tubings, adjust flowmeters, make the suction work, and be able to bag the patient? That wasted time could be a critical difference. It's no fun to do mouth to mouth because someone was negligent in preparing the room.

The Boy Scouts have always said "Be Prepared." Our Coast Guard's motto is Semper Paratus ("always ready"). Our signs say "Emergency" and our patients "rely" on that. "Rely", you must remember, is a LEGAL TERM, which can be explained by the
Hospital's lawyers and Risk Management people. The client has the right to a reasonable expectation and reliance upon our ability to deal with emergencies. If we fail them in that, not only do we fail in our mission, we are liable in damages for our neglect, notwithstanding other criminal or regulatory concerns. This might seem like a 'mountain out of a molehill' but in a worse-case scenario there can be an entire range of mountains ahead.

We must ensure that all staff will put equipment in readiness whenever the need is found. No one walks out of the room until fresh supplies are readied and tested. If the suction cannister has been cracked or poorly connected, there will be no suction to vacuum-clean the airway.

While ENPs have the chief role of diagnosis and management of patient care, they also model excellence and leadership in nursing. ENPs should call for everyone to always be ready, and to do the preparation to be ready. Your smartphone likely has a stop-watch function; gather a group and try a live-action test as a demonstration. Seeing, and doing, is believing.

# 343 Identifying the Cricothyroid Membrane

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Cricothyrotomy is a last-ditch life-saving airway maneuver in desperate circumstances to obtain an open airway in a CICO (Can’t Intubate, Can’t Oxygenate) situation, or primarily when facial and neck anatomy is so damaged or distorted that standard methods would be unlikely to succeed in safe and timely manner.

Yet in any career the opportunities to perform and gain experience in cricothyrotomy are few or nil. Present methods of training are largely lecture, simulation, and animal or cadaveric procedures. Several studies, either experimental or retrospective of cases, show ~30% likelihood of misidentifying the cricothyroid membrane (CTM), regardless of seniority. This is more likely in females, high Body Mass Index, thick short necks/"no neck", and distorted anatomy.

Prudently, one should find the CTM manually and with ultrasound before airway procedures or ‘deep’ sedation. Such practice may improve judgment. The sono machine should ‘live’ (be kept) in or adjacent to the resuscitation room. Consider marking the CTM when concerned. In critical cases, consider ‘double-set-up’ (immediate sequencing, or simultaneous efforts at head and neck, or preemptively in circumstances necessary to buy time to tolerate other measures).

When few ever gain significant experience and the stakes are so high, one should be diligent in preparing and testing oneself before the awful day.

Richard M. Levitan, MD FACEP. Tips and Tricks for Performing Cricothyrotomy. ACEPnow.com. February 6th, 2014. [N.B. Levitan’s tips for “the laryngeal handshake” to identify the laryngeal framework in difficult cases.]


# 344 Adrenal Crisis

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Adrenal Crisis is a sneaky one. Without emergency medical identification, history, or medical records, subtle physical signs may not be helpful. What is significant is that a stressed individual has relative or absolute hypotension persist until treated with parenteral corticosteroid after which it resolves in ~one hour, and symptoms resolve within ~2 hours. [Rushworth]

“Approximately half of patients will have no past medical history of adrenal insufficiency.” [Phipps]

“Adrenal crises arise from an absolute or a relative deficiency of cortisol, an endogenous glucocorticoid; in that circumstance, there is insufficient tissue glucocorticoid activity to maintain homeostasis.” [Rushworth]

UMEM Educational Pearls, from University of Maryland Dept. of Emergency Medicine, on January 7th, 2020 covered Adrenal Crisis, q.v., notes, as I have, “Adequate treatment of adrenal crisis (AC) is often delayed, even when a h/o adrenal insufficiency is known.” [Chan] (I’ve seen resident physicians note the hyponatremia, hyperkalemia, and treated hypoglycemia, say “Hmm, sounds like adrenal insufficiency” then work on the perfect admission note, then to be reminded to treat the adrenal insufficiency which is followed.
by prompt resolution of tachycardia and hypotension.) In that Pearl, Dr Chan also notes that the "most important predictor of AC is a h/o of AC."

Primary Adrenal Insufficiency (Addison’s Disease, and other primary causes) is a less frequent diagnosis, may more frequently be in crisis, be somewhat more severe in crisis, and crises may occur in 6-8% per annum.

Secondary Adrenal Insufficiency is acquired when the ability to make a normal amount of cortisol is hindered by events in the HPA axis, or exogenous suppression. It's possible that this may be underestimated due to prevalence of inhaled and topical steroid treatments suppressing endogenous corticosteroid production, especially if meds are duplicated or the patient excessively self-administers.

Patients with insufficiency may go into crisis with infections, fever, fluid losses (N/V/D), trauma and shock, especially if there is failure to take an adequate replacement therapy (2 X maintenance for mild cases, 3 X maintenance with severe cases). GI problems can lessen absorption of oral hydrocortisone. Drug interactions may decrease effectiveness of oral replacements. Immunotherapy, chemotherapy, thyrotoxicosis or initiation of thyroid replacement, can precipitate a crisis.

There is sometimes a concern that treatment shouldn’t begin until the problem is confirmed with an ACTH which may not be timely. There is no harm in providing a “stress dose” of corticosteroid, there may be prolonged shock or death if a stress dose is neglected.

Use an IV/IM dose of Dexamethasone (4 mg, adults) to give 24-hours coverage without affecting the test result. Do NOT delay giving a Stress Dose Steroid; give immediately when AI is first suspected. The definition for Adrenal Crisis is the patient’s improvement following the dose when there is reason to suspect AI.

Hydrocortisone (100mg IV stat. followed by 50 mg Q6H [adult doses]) is the ‘usual’ steroid for treatment; in primary AI, if hydrocortisone =|> 50 mg day is used, mineralocorticoid (Fludrocortisone) need not be added until changing to oral hydrocortisone.

Methylprednisolone (40 mg IV stat., then daily or change to hydrocortisone) may alternatively be used.

IV fluids and pressors should, of course, be given as needed. “Persistent shock despite specific treatment for adrenal crisis suggests another cause of hypotension.” [Rushworth]

{N.B. Review the references for choosing drug, dose, and pediatric usage, as well as comprehensive understanding.}

When recovering, patients should be strenuously counseled to get effective emergency medical identification to speak for them when they cannot. An adequate supply of drug, and possibly training in initiating a stress dose self-treatment while seeking medical care for serious illnesses should be considered.
Collected Clinical Tips from Advanced Emergency Nursing Journal, by The Editors.

Caleb Chan, MD. Adrenal Crisis. UMEM Educational Pearls, University of Maryland Dept. of Emergency Medicine, January 7th, 2020.

Kevin M. Klauer, DO, EJD, FACEP. Adrenal Crisis in Emergency Medicine. emedicine.medscape.com. October 11th, 2018. (The comprehensive article is in multiple sub-parts with unique URLs; use the sidebar links.)

Ashley Phipps, MD. Adrenal Crisis in the ED. emDocs.net. May 15th, 2015.


# 345 Warming Thoughts for Cold Patients

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The patient must be dried, covered, and insulated, from further heat loss. Minimize exposure during any exam or treatment procedure. Fold blankets for double layering and to cover separately the upper and lower halves of the patient’s body to limit what must be moved to look at something. Remember that typical hospital warmed cotton blankets cool quickly and should be replaced often. “Hood the Head & Neck” to minimize heat loss.

Check and maintain glucose levels to provide substrate for the body.

Consider important associated conditions: blood alcohol, myxedema, carbon monoxide, overdose, homelessness, or marginal subsistence (tea & toast), dehydration, injuries sustained, ‘down time’ and pressure sores.

Warming pads can be focused on the neck, axillae, and groin, for effectiveness.

Forced-air-warming units are an effective aid in rewarming the patient. Electrical heating pads may injure the skin due to pressure and vasoconstriction; avoid.

Heated infusion units or warmed and wrapped IV fluids can be helpful.

Cardiac monitor electrodes may not stick well to cold edematous skin; needle electrodes may be needed or puncturing the gel capsule with a needle.

Rectal temperature probes, inserted 15 cm, may lag from true core temperatures, especially if adjoining cold feces.

Bladder catheter thermistor readings may be altered by cold diuresis and fluid infusions.

Esophageal temperature probes, inserted 24 cm distal to larynx, are useful to estimate cardiac temperature especially with intubated patients. If placed too proximally, near the
pharynx, a false temperature may occur from heated gasses. This brings to mind that an esophageal stethoscope may be useful to hear beats of a bradycardic heart with poorly perceptible pulses. However, POCUS (Point-of-Care UltraSound) will give more information in more ways for most people.

Heated humidified respiratory gasses are useful to transfer some warmth closer to the lungs and heart and should be done as soon as possible; doing so with a CPAP unit in unintubated patients may minimize shunt physiology.

Trismus can occur with cold and very cold patients which may make things difficult or necessitate nasotracheal intubation.

Similarly, chest wall stiffness may make compressions difficult.

It has been suggested that the accuracy or pick-up of pulse oximetry finger probes may improve with a vasodilating cream applied to the finger.

Intraosseous infusion may be easier to start than a peripheral IV if considerable vasoconstriction is present.

Avoid or delay inserting a pulmonary artery catheter (for complex patients) as perforations of cold tissues may occur during the procedure.

In moderate to severe hypothermia, when the patient is intubated, a nasogastric tube is useful due to decreased motility and gastric dilation.

The use of immersion or invasive methods of active warming are not within the scope of this tip.

These tips of a practical sort were gleaned, in part, from “Chapter 5 Accidental Hypothermia” by Daniel F. Danzl, MD, in Auerbach, Paul S., MD MS FACEP, Wilderness Medicine. Fifth Edition. 2007. You should consult current references, policies, and protocols before changing practice.

# 346 Making it warmer inside

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When conventional efforts of drying the patient’s skin, heat conservation, passive and active external rewarming, heated humidified respiratory/ventilatory gasses are not going to be sufficient to rewarm your patient, you need to be aware of your resources and capabilities. Aggressive and invasive methods will be needed to rewarm the critical patient.

If one is still in the field, weather conditions, communications abilities, rescue and transport capabilities, distance and time to an advanced facility, are all powerful factors. At the medical facility, resources will be dependent on type, number, staffing and scheduling, physical location supporting the equipment, and necessary physiological support the patient needs. Additionally, the invasive measures may make it difficult to do CT/MRI concurrently. It is best to have worked out, in advance, the where done, how
initiated, by whom to be done, out-of-hours arrangements, the prerequisite work (cannulation, etc.).

Warmed irrigations of stomach, bladder, and as enemas have been done but can cause fluid and electrolyte shifts with limited heat transfer. Other cavities have had rewarming lavage: the peritoneum, the pleural spaces, the mediastinum, and the heart itself by thoracotomy.

Significant heat transfer can occur if the patient has bidirectional high-flow catheters placed, receives dialysis, continuous veno-venous rewarming (VVR), continuous arteriovenous rewarming (CAVR), ECMO/Cardiopulmonary Bypass. The complexities are obvious. The necessity of pre-planning is also obvious. If there are more casualties than one, how many can be treated? Are there other facilities that can share the burden.

Procedural specifics are not within our scope here as such will need to be particularized to your local requirements.


# 347 Pædiatric Fractures

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In caring for injured children, one is mindful that ‘orthopædic’ means “straight child”: the desired result of worried parent and caregiver alike. There are characteristics and concerns peculiar to the child and his state of growth. Fractures may be incomplete, as in ‘greenstick’ and ‘buckle fractures’ due to immaturity, and outcome may be less desirable if the break disrupts a growth plate.

Not only are kids likely to injure themselves due to impulsiveness and inability to perceive risk, they are testing themselves and the environment as they try new skills and build strength. However, it is also possible that injuries are inflicted from either schoolyard scraps, sport, or through abuse.

Children are likely to be poor at describing their symptoms or mechanism of injury. They can be restless and squirmy, and easily frightened by examination and injury. This can worsen parental anxiety. Early analgesia or an appropriate regional block, even a cold pack, can give cooperation. Sometimes, children will try to conceal their injury if fearful of being ‘in trouble’ from doing something forbidden.

Observation of activity, gait, usage vs. non-usage, appreciation of subtle swelling or contusion perhaps coupled with finding of point tenderness, are likely to be most useful in determining which areas to image. If the child can recount how it came to hurt; that’s a bonus.

Lars Grimm, MD, MHS. Typical Fractures Seen in Children: Slideshow. reference.medsape.com. {No Date, but website is Copyright © 1994-2020.}


# 348 I’ve got a Lot of Pressure

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“I feel really clogged up. I’m stuffy and congested. I can’t hear very well, and my ears pop. I’ve got a nasty headache – like a vise; it doesn’t go away. I’m just not at my best with this.”

“Do you get like this with hay fever or when you have a cold coming on?”

“Why, yes, I do! I hadn’t thought about that…”

“I notice that you have a thick-ish neck and are carrying some extra weight. Do you have sleep apnea and treat it with CPAP?”

“Yes. That’s IT! The pressure makes it hard to drain.”
“I think you’re right. Let me check a few things.”

“Well, your ears are clean, so it’s not wax. The glands in your neck aren’t swollen. You have thin drainage that you say is like your allergies rather than a cold. Your nose lining looks inflamed and swollen. You’re tender over the sinus in your forehead, cheek on this side, and your teeth are starting to hurt. All in all, with your nose as it is, I think that you have sinusitis from the pressure of your CPAP pushing the drainage inwards.”

“You’re using decongestants, already. I’m going to prescribe an antibiotic for the infection, and a short course of steroid to lessen the swelling and improve the drainage. We don’t give antibiotics for a viral sinusitis, but if your tubing and mask are none too clean, you may well have a bacterial infection, plus there maybe fungi or molds in unclean equipment. Try to really clear your nose with a steamy shower and using saline nasal spray several times a day; it won’t raise your blood pressure or give you rebound swelling as most decongestants do.”

“Does your CPAP have a heated humidifier and tubing? It needs it, as do you; thousands of liters of cool air at night are not normal; that, too, is linked with reactive swelling. I believe everyone should have a good heated humidifier and heated tubing. I won’t ask if you keep your gear clean; I will say, keep it cleaner, so that it doesn’t reinfect you. Talk to your Sleep Apnea people about these things.”

Obstructive Sleep Apnea patients with CPAP are at risk for pressure related problems, whether sinusitis, pulmonary colonization, dermal problems from mask contact, bags under the eyes from uplifting straps, or irritated conjunctivae from the slipstream of air from small leaks of the mask.

CPAP patients often have problems with allergic, or non-allergic, rhinitis, and the rhinorrhea of URIs. Some will try to decongest and antihistaminize themselves into sound sleep, or even forego CPAP therapy entirely, reverting to apneas-hypopneas, untreated sleep deficits, cardiovascular stress of nocturnal arousals, and dangerous microsleeps while driving.

It is wise to be aware of their special needs, and to help resolve issues promptly.

# 349 Be Fervid Against COVID-19

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“On February 11, 2020 the World Health Organization announced an official name for the disease that is causing the 2019 novel coronavirus outbreak, first identified in Wuhan China. The new name of this disease is coronavirus disease 2019, abbreviated as COVID-19. In COVID-19, ‘CO’ stands for ‘corona,’ ‘VI’ for ‘virus,’ and ‘D’ for disease. Formerly, this disease was referred to as “2019 novel coronavirus” or “2019-nCoV.” CDC FAQ
It is fair to say that the Public, in several countries, are greatly alarmed. There has been considerable disruption of travel, commerce, and navigation, with quarantines imposed, ships denied port, a growing number of cases with evidence of person-to-person transmission. Persons cleared by testing have later become positive. There are indications of, and media alarms for, the potential for the first truly global pandemic in a century. Indeed, CDC says “However, it’s important to note that current global circumstances suggest it is likely that this virus will cause a pandemic. In that case, the risk assessment would be different.” CDC COVID-19 Situation Summary

So far, the traditional and effective public health measures of screening, isolation, PPE for HCP, possible cohorting of patients (with same-strain, testing) when patient-volume is high, etc., are still expected to be effective.

For guidance and best practices, and current Situation Summary, visit CDC Coronavirus 2019 for vast resources to numerous to list here.


- Coronavirus Disease 2019 (COVID-19) Situation Summary
- Strategies for Ensuring Healthcare Systems Preparedness and Optimizing N95 Supplies (Slides)
- Information for Healthcare Professionals
- Information for Laboratories
- Interim Guidance for Preventing the Spread of Coronavirus Disease 2019 (COVID-19) in Homes and Residential Communities
- Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States
- Frequently Asked Questions about Respirators and their Use
- Interim Guidance for Discontinuation of Transmission-Based Precautions and Disposition of Hospitalized Patients with COVID-19
- Interim Clinical Guidance for Management of Patients with Confirmed 2019 Novel Coronavirus (2019-nCoV) Infection
- Flowchart to Identify and Assess 2019 Novel Coronavirus
- FAQ for Health Care Professionals
- LINK TO GET UPDATE BULLETINS FROM CDC

(Some links or titles may change after applying the new COVID-19 nomenclature (in progress).)

Randy S. Wax, MD, MEd, FRCPC, FCCM. Michael D. Christian, MD, MSc (Public Health), FRCPC, FCCM. Practical recommendations for critical care and anesthesiology teams caring for novel coronavirus (2019-nCoV)
# 350 Watchful Waiting. PAPRs.

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I know that you are tired of repeating yourself to folks: “I don’t know.” “We don’t have enough data yet.” “The best things to do, and have always worked, are stay away from sick people and crowds; wash your hands frequently, avoid touching your face, nose, and eyes; always cover when you sneeze or cough, and burn or discard tissues that you use.”

What inwardly worries us most is the apparent ability of COVID-19 is the ≥ 14-day period of infection without outward signs or symptoms, but with communicability while feeling in good health before signs become overt. This may cause rapid spread before detection. This is a fearsome potential.

Apprehension and fear are rising. With new cases within CONUS (48 contiguous continental states of USA) without apparent source contacts from known ill or susceptible travelers, the public have bought up available face masks & N95 respirators without any foreseeable replacements. Shoppers are clearing big box stores of paper supplies, cleaning materials, and food, anticipating a potential fortnight’s home quarantine.

We are all awaiting developments. As useful information becomes available, AENJ will make it known to you.

***** PAPRs *****

If you wear eyeglasses and have facial hair or are unable to secure a close fit with standard facial masks and N95 masks, you will likely be required to use a Powered Air-
Purifying Respirator. This is a more effective, higher-tier, higher cost, device with special considerations in the Emergency Setting.

In my institution, the ‘normal’ was to submit a requisition for an Isolation Cart (with PAPR); this is obviously suited only for an inpatient setting with advance warning! In order to have a unit (for me) on hand for immediate use, it was necessary to have it issued personally to me. You will also need to arrange for spare batteries; charger; hood + spares (that fit one’s own head –don’t accept “that’s all we have”); spare filter cartridges; storage space needs to be assigned in the ED.

The concept is a combined head cover with large viewing area (plastic, scratches) and large corrugated tubing which delivers forced air in excess of leak from a battery-powered air pump and filter cartridges worn behind the back on a waist belt. It’s not a full helmet (usually) and the ears, back of the head, and neck are exposed, unless a gown provides some partial coverage.

SPECIAL CONSIDERATIONS for PAPR use in the ED:

1. You will need a brief time to retreat to your storage place, assemble, test, and don your PAPR before patient care. This will take longer if there are any deficiencies or missing parts.

2. The viewing part is flexible non-optical grade plastic, easily scratched, limiting peripheral vision, and distorting vision. It can be awkward reading monitors, making observations, or making notations. A new one is covered with paper stitched in place that must be torn away to be usable.

3. The batteries must be kept charged; it is unacceptable to have the blower fail while one is still in the hazardous environment, as there is no fallback except to hold one’s breath and exit immediately!

4. Extra hoods must be available; if splashed or droplets land, it is easy to break technique and spread contamination. Be sure to have the right size or a tight headband can give a tight headache.

5. While the airflow can be refreshing, the hood may still feel hot. The noise of the blower interferes with hearing. The ears are exposed which allows for stethoscope use. If the hood gets hotter, airflow is slower, and it’s harder to breathe, leave immediately before the battery stops.

6. Make friends with the PAPR Supply Guy in advance of urgent needs.

7. Decontaminate or dispose of hoods, and other gear, according to procedure.

8. I always found it necessary to explain gently that this was the type mask that I was required to wear. I could imagine that children might think it made me like the “Science Police” chasing “ET, the Extraterrestrial”!
9. Remember, it is a Positive-Pressure system excluding pathogens by having constant airflow from inside the hood to the outside. It is not a strong pressure, nor is there a close-fitting mask, so if knocked askew, it is possible to lose protection if the rate of leak exceeds rate of inward airflow. This also includes your responsibility to not use it to diffuse your own respiratory pathogens if you are “getting over a cold.”

# 351 The ounce of prevention …

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In reading an airway article¹, I recalled several similar reports²,³,⁴ which brought to mine Benjamin Franklin’s adage “An ounce of prevention is worth a pound of cure.” In instances of predicted and actual difficult airways, a transtracheal oxygen catheter was preemptively placed as prophylaxis prior to conventional or specialized airway maneuvers. The added safety permitted a stepwise approach with less stress: rescue already placed.

This thinking is useful. Not just Plan A, Plan B, etc., but “if everything goes wrong, I’ll have Plan D already there.” It is the same cautionary thinking of planning for worse while proceeding carefully “without burning bridges”, as anesthesiologists say.

When hypoxic patients tore off their masks, we learned with DSI that we could use ketamine or etomidate sedation to tolerate a NIPPV or CPAP, correct their pulmonary status and other physiological stress to intubate under better conditions. This morphed into using sedative ± NMB to gain control of the airway with a 2nd generation Supraglottic airway, improving ventilation and shielding the glottis, yet with the right SGA one could intubate through it blindly or with flexible endoscope: RSA, Rapid Sequence Airway. Moving forward without burning bridges.

Blended concepts benefit patients when they advance safety as they improve the patient and control his distress.


While the Airway Manager is principal in choosing measures and equipment, and takes responsibility for course and outcome, the Airway Assistant has key responsibilities in effectuating the actions. Ideally, this person is senior and experienced, able to foresee and prepare for the next need independently. The Intubator should be able to open his/her hand and close it, unasked, upon the needed tool.

Video Laryngoscopy, if used, makes it easy for all to observe and co-witness tube placement. However, there are more elements in assisting the Airway Manager. Nearest at hand to help, the Airway Assistant has much to do.

The Airway Assistant constantly observes patient status, positioning, monitors and flow gauges, that two suctions are on and working, for needed tools or tasks, and for any sudden change or misadventure.

The patient may need customized positioning or Ramping. Having the ‘side view’ here gives advantage in judging alignment and flexion or extension of various joints towards an ideal airway view.

Call Alarms: He/she should alert the Airway Manager as to vital signs, desaturations, elapsed time, equipment malfunction, etc.
Tilt Table: Should the patient vomit or bleed into the airway, (depending on where the bed's controls are), the Assistant should call it out and lower the head of the bed to avoid aspiration. The patient may need to be turned on his side. An endotracheal tube can be placed in the esophagus for diversion, and the pharynx suctioned and dried. It is possible to intubate in the lateral position ± head-down tilt, (left lateral preferred with standard Macintosh geometry blades for easier tongue control).

Suction: Suctions should be ready at either hand of the Airway Manager and may be needed simultaneously. One may be joined in the laryngoscope hand for constant “sump” suction.

Help Hold Laryngoscope: At times, the Airway Manager may need additional strength or steadying of the laryngoscope while another tool is used. With an overhand grasp, the Assistant may provide this. If Inverted Intubation is used, (facing patient) the Assistant may be needed either to hold the laryngoscope or manipulate the tube according to circumstances.

Manipulate Larynx: Optimal visualization of the glottis may require manipulating the larynx externally (This is not ‘Cricoid Pressure.’ It is the Thyroid cartilage that needs moving). During this, one can trail a little finger into the suprasternal notch or infralaryngeal area to feel passage of the tube directly beneath.

Airway Lift: When the patient’s head is large and heavy, or is positioned to insufficient mechanical advantage for the Intubator (who may need a stool or to stand upon the lower parts of the bed), the Assistant may need to further prognath (advance) the mandible by hooking the mandibular rami and pulling ‘up and out’, or by an overhead grasp of the anterior mandible and lifting ‘up and out’ to create additional airway space.

If the tongue is swollen, or macerated, it might be necessary to firmly grasp it with gauze, rubber-shod tongue forceps, towel clip, or suture for anterior traction to create airway space.

Depress Sternum; Make A Bubble: With apneic patients, the glottis may be obscured by residual fluid in the airway, especially if the substance is dark: e.g. blood or charcoal. Sharply depressing the sternum may displace air from the lung and creating a bubble that shows where to go.

Transilluminate Larynx: In similar circumstances, or with a failing laryngoscope battery or bulb, transilluminating the Cricothyroid Membrane with an LED penlight or flashlight will literally show “the light at the end of the tunnel.”

Railroad Tube upon Bougie or Flexible Scope: When a Bougie (Introducer) or flexible scope has been placed within the trachea (easier to see around than a large ETT), the pre-mounted tube will need to be slid down and rotated (to pass arytenoids) into the trachea without disturbing the Intubator’s visualization and hold. The tube must then be held firmly during withdrawal of instruments and secured.

Cuff Inflation: When the tube is correctly placed, the cuff should be inflated to Minimal Occluding Pressure (no leak) and volume noted; ideally, this should be done with an inflating manometer to ~20-30 cm H2O pressure. The easiest way is with the opened syringe pre-attached to the inflation line of the lubricated cuff and tube.
**Tube Placement Confirmation:** The Airway Assistant must in every way confirm and validate correct placement of the ETT into the trachea and its good function. This includes feeling the passage of the tube; viewing the waveform capnograph, auscultating breath sounds, feeling inflation of the tube cuff, use of POCUS to check placement, or calling for CXR. S/he must diligently check for clinical deterioration until intratracheal placement is definitively proved.

**Retrograde Intubation:** If this is attempted, help will be needed in retrieving the guide wire or catheter from the mouth or nose by fingers or Magill’s Forceps.

**Hyperextend neck for eFONA (emergency Front of Neck Access):** If doing ‘double-setup’, anticipating Cricothyrotomy or Tracheotomy, placing a sandbag or towel roll under the neck, shoulders, and interscapular area, with the head hyperextended at C1-2 (barring cervical injury) will bring the larynx and trachea anteriorly for easier exposure.

**Put Scalpel in Hand:** When it’s time to cut (eFONA), have the knife and tools ready, this is the hardest decision and courage may be emboldened by preparedness and support. Viz., the “Elaine Bromiley case.” The team must clearly communicate any situation of distress.

ERRATUM: For a few hours, cuff inflation pressure was incorrectly stated as "20-25 mm H₂O pressure." It now reads "20-30 cm H₂O pressure." We apologize.

# 353 COVID-19 PRECAUTIONS FOR INTUBATIONS

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Dr. Ross Hofmeyer. COVID-19 AIRWAY MANAGEMENT RESOURCE.  


SIAARTI Poster for COVID-19 Airway Management. Italy. [English Version]


# 354 ‘The Spanish Flu’ of 1918

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In the month of greatest mortality of the Great Influenza Pandemic during The Great War, my mother’s half-brother died bereaving her, their mother, and “Father, away at the War.” A letter from then speaks of the heart-breaking grief and goes on to mention others who died. In that single month (October 1918) an estimated 195,000 Americans died. Father, a navy doctor, was to achieve the record of no serviceman under his care to die from ‘flu on the transport ship. One man broke the rules and got sick, but none died.

Then, as now, public leaders, ignored, minimized, pooh-poohed, and covered up the developing crisis, then being concerned with morale, war funding and production, mobilization, and fighting. Indeed, the sobriquet “Spanish Flu” arose because reports from neutral and uncensored Spain were the first to indicate that something very wrong was going on.

In the USA, 675,000 perished. Deaths generally cited as 50 million (some estimates as high as 100 million) were three or more times the world’s total war-caused deaths. It is thought that one third of world population was ill; 500 million, of the mere 1.6 billion on Earth. Curiously, mortality was greatest in young, healthy adults 18-35 years of age [a mortality curve by age shaped as a ‘W’ rather than the ordinary ‘U’]. This is thought, but not yet proven in viral genetics as due to evolution of the virus with older persons and younger persons having some immunity from exposure to prior and later variants in the years before 1918.

Things were worse, too, because 30% of physicians and many nurses were serving in the military lessening those at home. Exhaustion and close exposure dealing with overwhelming numbers of patients lowered effectiveness and some succumbed to the disease. Calls for volunteers with any nursing skills, shorter courses, new “practical nurses” helped somewhat, but reluctance to use African-American nurses was part of the times.

While influenza was a recognized entity, knowledge of viruses did not exist. *Haemophilus influenzae* was thought to be the causative bacterium; since it wasn’t, treatment wasn’t effective. Indeed, without antibiotics, the secondary bacterial pneumonias affecting the flu-weakened lungs and were the *modus exitus* for many, received only physical measures, if that. Death could come in mere hours for many. 72 of the 80 inhabitants of an Alaskan Inuit town died within days (but recovered lung tissue from permafrost protected corpses helped sequence the viral genome in the late 1990s.

Where truth was told, social distancing, isolation, and quarantine were used early and effectively, deaths were fewer and, in some instances, (Gunnison, Colorado), no cases occurred if there were no cases when instituted.

*Good Luck and Good Health!*  

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**CDC: The 1918 Pandemic Timeline.**

**CDC: The Deadliest Flu: The Complete Story of the Discovery and Reconstruction of the 1918 Pandemic Virus.**


Johns Hopkins University; Center for Systems Science & Engineering. *Coronavirus COVID-19 Global Cases.* Real-Time Dashboard

**# 355 In This Time of COVID-19, What Shall I Do Now?**

Tom Trimble, RN  
**ORCID ID: 0000-0003-2516-8443**

Not going out so much anymore? Spending what little off-work time that you have at home with the family? We can certainly understand the innate exhaustion that you may have from working with PPE, the increased stress trying not to miss anything when stakes are so high, the fatigue of longer intervals (must plan ahead) for bathroom breaks, nourishment, and to clear one’s head.

We can’t erase existentialist fears of bringing disease home from work or concerns that family might break ‘protocol’ when you’re not there. Nor, make it easier to make time with family be quality time. Free time, now, isn’t so free, with additional cleaning and sanitizing, laying in food stores or take-out, and organizing some homeschooling so the kids don’t fall far behind.

If your circumstances allow, it’s good to reach out with videocalls to distant or lonely family, friends, or school chums.

Catch up on continuing education online. Do research for your next paper. Expand horizons of your professional reading with foreign journals; subscribe to electronic tables of contents for specialties in which you’re interested. Articles will be English, or translatable by browsers. Try some online foreign language learning for the common languages in your area.
Teach your family first aid and other emergency skills. There’s time for practicing resuscitation, bandaging, splinting, tourniquet use. “Tales from work” can explain points and create respect for your career. “What ifs” can extend discussions. Even meal preparation can be a cooking lesson or planning for emergency supplies and storage: useful knowledge not likely to be gotten from school.

Too serious? Intersperse lessons with Internet travel to famous locations, art galleries, museums, or episodes in history. Watching a movie? Ask what happened then, really? Learn more, while practicing critical thinking and judgment without realizing it.

Don’t be too serious too often for yourself. Catch up on personal projects, games, or sports. Sleep in to lessen the sleep deficit. Read the beach novel you’ve put off. Lounge in the tub, instead of the shower. Watch a special movie or binge-watch old favorites. Taking care of yourself and family helps take care of everyone. Good Luck and Good Health! We salute you.

# 356 Animal Bites & Rabies

Tom Trimble, RN
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Animal bites are common; in the USA, ~20% come to the ED, ~1,000 per day. “It is estimated that 250,000 human bites, 400,000 cat bites, and 4.5 million dog bites occur in the United States each year in both adults and children.” Bula-Rudas & Olcott This is about 5% of all wounding injuries.

Infection rates vary due to generally small studies. Dogs: ~5%; Cats: up to 50%; human bites: 10%. Wound care and irrigation seem to be more important than antibiotic prophylaxis. Prophylaxis should strongly be considered with large complicated wounds, especially hands, and in immune compromised patients. Older dogma regarding antibiotics is yielding to thoughtful consideration and close follow-up in less complicated wounds and patients.

Adults are more likely to be bitten on legs or hands/arms. Children, due to their smaller stature and incautious impulsiveness, are likely to be bitten on the face or buttocks. With children, it’s important to give analgesia promptly, e.g., intranasal fentanyl, to facilitate examination and diligent repair. Parents are often upset being concerned for their child’s trauma and potential scarring.

Morgenstern, Fox, and Swaminathan, below, each bring an update, and review of dogma and myths.

- Good history of event, self-care since, wild or pet animal, type of animal, (Small teeth, e.g., cat, may break and be foreign body. Larger animals = increased crush. Horses, “long in the tooth” have leverage and great crushing strength. Falls, or animal on top, may indicate greater trauma.)
- Careful exam and functional check of all involved tissues.
- Scrupulous pressure irrigation. Safe tap water is OK. Soap. Povidone or Benzalkonium.
• Primary Closure is OK for uncomplicated wounds that are <8 hours old, not of hands or feet, but including simple wounds of the face. Deep wounds of neck or needing eyelid/orbit repair. Swaminathan; Morgenstern; Fox.

• History and exposure determine Rabies post-exposure prophylaxis. Ensure intramuscular deposit of vaccine. Immune Globulin should be infiltrated around the wound, and surplus given IM in location remote from wound. Kapitanyan

• Review and update Tetanus immunization status. Hepatitis B vaccine for human bites. Fox.

• Consider antibiotics. Fresh, non-complicated, well-irrigated wounds, or those left open either for Delayed Primary Closure or loosely closed, do not need antibiotics but do need follow-up. Swaminathan; Morgenstern; Fox.

“No postexposure vaccine failures in the United States have been reported since HDCV was licensed in 1980. Of 13 cases of postexposure treatment failure that occurred outside the United States, all were from not cleaning wounds, not giving rabies vaccine, or giving rabies vaccine into the gluteal region rather than the deltoid region.” Kapitanyan (Italics, ours)

Read the references. Check your local protocols.


# 357 It’s just a stone

Tom Trimble, RN
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Hmm. Sudden flank pain. No fever. Uncomfortable. Ahh, it’s a stone. “Would you get a urine, start a line, give 100 mcgs fentanyl? I’ll order imaging.”

Sometimes, common complaints seem like ‘more of the same’. The hoofbeats are horses. No zebras here. Imaging will pick up the rare stuff. Confirmation bias sucks. It sucks you in. Of course, it’s a stone; it all fits.

When learning arrhythmias, our cardiologist seemed to end each analysis with “And then, again, it could be Atrial Fibrillation with aberrancy!” This none-too-subtle reminder emphasized to examine other possibilities.

In applying Occam’s Razor, we must avoid getting a painfully close shave. Common things being common, it’s most likely a common problem, but disasters of aortic proportion do exist.

POCUS can give good rule-in information in real time at the bedside before imaging can be done. But technique and interpretation are operator-dependent and there is inter-operator variability. POCUS requires one to focus.

Try these reference links and sharpen your differential acumen.


A distinguishing characteristic of an Emergency Department is that it is an inherently mobile environment. While not continuously so, as are the prehospital and interfacility providers, there are so many arrivals and departures, trips to the Medical Imaging Department, higher acuity areas or specialty rooms, transports to Intensive Care, Operating Room or other disposition, that every patient is either moving or in a transitory state awaiting such a move. Emergency Staff are not unlike, and certainly comprehend the focused intensity of skilled jugglers who keep five juggled axes in the air simultaneously.

When a patient needs respiratory support, each journey may mean several disconnection and reconnection episodes of the respiratory circuit. If there is pressure or flow in the system, this may mean dispersal of secretions into the atmosphere that you are sharing. With COVID-19, there is additional risk.

When possible, use high grade Viral Filters on inspiratory and expiratory limbs of the respiratory circuit. Disconnection of the circuit should be proximal to the filters (which remain connected to the airway).

- {Weingart urges filters that filter “99.999% filtration of viruses” and that filters must be verified as adequate.
- A commenter thought that the filter should be sufficient but was warned to “reread” or “watch the video.”
- Another commenter cautioned for full paralysis in re potential for Negative Pressure Pulmonary Edema, but was told “I hear ya re clamping, but there is no choice.” In any case, clamping should be brief ~5 seconds.
- Another commenter stated “We started using this https://flussobypass.com/how-to-use/
If done correctly no break in circuit and no loss of pressure."
No endorsement was added.
- Brown says “HEPA filter” immediately next to mask or tube.
- Nickson includes Chan’s poster saying “viral/bacterial filter.”

Be thoughtful, careful, and communicate well each step, with feedback before action.

Minimize all changes and disconnections. Prefer automatic ventilator or transport ventilator over BVMs; although suggested configurations for BVMs, CPAPs, NIPPV, etc., are included by Weingart for each situation, with comment and analysis. If transport is imminent for the just-intubated patient, go directly to the automatic transport ventilator that can remain in situ throughout test ventilation and placement confirmation, travel, imaging, and onward transport thereafter.

The ventilator should be placed in Stand-By. The actual clamping should be done at end-expiration (to avoid barotrauma or BP drops) with some PEEP left to minimize derecruitment of alveoli and atelectasis. A smooth-jawed large forceps (for good leverage and prevent tube crushing or breaking of the clamps jaws) {ECMO clamps are best.} The ETT can be guarded with tape or gauze if ideal forceps are not available. The changeover is made smoothly and swiftly with two persons working together and verbalizing while done. Go off Stand-By and resume ventilation. There should have been NO discharge of the patient’s exhalation.

Transport smoothly with caution to avoid errors resulting in accidental disconnection of apparatus or accidental extubation. Motions should be coordinated, and no equipment should be dropped.

Confer and brief the receiving staff at the final disposition.

(N.B. Author is Emergency Medicine Critical Care Intensivist, noted for providing/teaching “Upstairs Care, Downstairs.” Extensive Resources in this document and EMCrit.org: discussion, references, photos, videos, podcast, free subscribe for updates.)
DOI: <https://emcrit.org/emcrit/covid-airway-management/>

(N.B. Author is academic Pulmonologist-Intensivist, allied with EMCrit.org. Ongoing Updates; free subscription to updates. Great Resources.)

DOI: https://doi.org/10.1002/jemp2.12063

Turbil, E., Terzi, N., Schwebel, C., Cour, M., Argaud, L., & Guérin, C. (2020). Does endo-tracheal tube clamping prevent air leaks and maintain positive end-
**expiratory pressure during the switching of a ventilator in a patient in an intensive care unit? A bench study.** *PloS one*, 15(3), e0230147. [PDF] (Bench study of different clamps; ECMO clamp best.)

DOI: [https://doi.org/10.1371/journal.pone.0230147](https://doi.org/10.1371/journal.pone.0230147)


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# 359 Hands: The Tools of Man

Tom Trimble, RN

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"Nature, red in tooth and claw"

*In Memoriam A.H.H.*

Alfred, Lord Tennyson.

Our hands are our tools, and as Hollywood often shows, sometimes are our weapons. Many have been the patients whose fractured or wounded hand has collided with someone’s jaw, or an unoffending wall, window, or mirror. The impact can break, crush, cut, deaden nerves, harm tendons, or open the body to subsequent infection that worsens healing or deprives the limb or corpus of life.

Fist impacts are delivered with intention and intensity of both physical and psychic forces, not only of interpersonal actions, but often of self-directed rage and self-injury. One should listen carefully to the offered history to discern whether defensive, aggressive, a marker for domestic violence, or of psychiatric origin. It isn’t always “I got jumped from behind by two dudes while I was minding my own business, I didn’t see who they were, and don’t know why.”

Fists in proximity to teeth acquire wounds with polymicrobial contamination, at risk for hepatitis, HIV if donor saliva is mixed with blood of an HIV positive source, and tetanus. Appropriate antibiotics, post-exposure prophylaxis and immunization, should be provided.

As the hand flexes and extends, the injury tract inoculates complex tissues with microbes and conceals injury to tendons and joint capsules. Thorough inspection, irrigation, and function testing is important to a good outcome. Complicated injuries are best treated in an operating room, especially if there are violated capsules and divided tendons. Close follow-up is essential in worrisome cases and unreliable patients who do not have secure housing or food, or who have significant comorbid disease. The hand should be rested and splinted (position of function) and elevated as much as possible.

Our use of hands helps distinguish us from other creatures, even if not always in desirable ways. Excellent care is important to successful healing and good function.


Kevin Kaucher, PharmD, Deborah Vinton, MD And Dr. Peter Pryor. **Fite Bite.** Emergency Physician’s Monthly. August 8th, 2011.


# 360 Life-Changing but not Life-Ending ...

Tom Trimble, RN 
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Upon entering the patient’s room, it was easy to see that she, a heavy-set woman, was troubled by her left leg which was red to below the knee, very swollen, and looked uncomfortable. Introducing yourself, and washing hands, you say “It looks as if your leg is bothering you. Can you tell me about it?”

“Well, we’re travelling, and my big toe began looking pink and hurting a little yesterday, but we flew here. This morning, I woke up and my leg was as you see it, all hot and red and swollen—it’s as big as an elephant’s trunk! I couldn’t put my shoe on but a slipper instead.”

“From where did you come? Is that your home?” The patient names a place about seven hours flight away. “Have you had any bites, stings, or injuries?” “No.” “Do you have diabetes?” “No, I do have a little high blood pressure. I had my checkup before leaving but I don’t know any lab results.” “Did you get up and walk around on the plane?” “No. We flew in Coach; could hardly move to get to the bathroom.” “Are you peeing a lot, and feeling thirsty?” “Yes, now that you mention it, I have been.” “Would it be okay if I talk with your doctor?” “Certainly.”

You examine the leg and find a blood spot under the medial and distal angle of the Great Toe where the nail has been cut and torn deep into medial side, from this emanates the infection’s march up the foot and leg. Rubor, tumor, calor, dolor, but afebrile at Triage. Equivocal pain at posterior mid-calf on deep palpation. Negative Homans’s Sign (“But, that doesn’t mean anything either way. Hmmph!”) “What happened here?” “I like my
nails short, but when I cut it, it tore.” “OK. A nurse will start an IV and draw some blood. You’ll have an ultrasound exam of your leg. Afterwards, I’ll talk with you after speaking with your doctor.”

“Hi, I’m glad that you’re back. Are you still comfortable? Good. I have some good news for you and some important useful news. The good news is that you do not have a blood clot in your leg, as you might have had after such a long, cramped flight. Yes, you have an infection from injuring your toe, so we’ll give you an intravenous dose of antibiotic and a prescription to take through the week.”

“The important and useful news, is that your blood sugar is high which corresponds with your doctor’s testing that your blood sugar is high and has been for some time.” “She and I agree that you are now diabetic. This is life-changing, but not life-ending, so you now will know to manage it and control it to limit future problems. We will start you on some Metformin until you see your doctor on your return. You are now, with your doctor, the most important person to control the diabetes, make some healthy changes, and prevent injuries to your feet. It is important to learn as much as you can so that by controlling the diabetes you will control your future. The nurse will return with your medicines, diabetes information, and our advice until you see your doctor. Good Luck and take good care of yourself.”

# 361 The living victim of hanging

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Hospitals rarely receive patients who have been hanged. Most hangings occur in circumstances of maximum efficiency or of intended delay in discovery. The manner of death may either be Accidental, Suicidal, or Homicidal. Discernment may be confusing requiring investigation of the totality of circumstances in which found, how accomplished, and other investigative findings.

Some Myths & Facts:

- Full suspension is not required for death to occur.
- Loss of Airway is not needed for death to occur. Death has occurred with a noose above an open tracheostomy.
- Several mechanisms, to greater or lesser degree, contribute to death:
  — Closure, compression, or disruption of the airway.
  — Obstruction of arterial circulation to the Brain.
  — Congestion of the Brain and obstructed outflow from venous obstruction.
  — Bradycardia from stimulation of Carotid Baroreceptors.
  — Mechanical Neural compromise of the Cervical Spine or Brain.
  — Acidosso from apnea and failed homeostasis.
• Homicidal or suicidal hangings may be staged as the other.

• Accidental hangings may occur by positional restraint in custody; child’s head or neck caught in inappropriately sized furniture; as a result of autoerotic sex games gone awry; when the victim or fastenings are caught in machinery as in Isadora Duncan’s notorious scarf.

• Intentional suicide can occur with as little as a pair of underpants, a fixed point, and minimal suspension.

• Care for those surviving initial hanging should not omit checking for intoxicants, drugs of overdose, or other self-inflicted injury.

• A running noose, like a lasso, applies pressure quickly and may tighten if movements occur.

• A Hangman’s noose with a very large knot to the rear or side of the head, will not tighten the noose, but is intended with a “long drop” to fracture-dislocate the cervical spine. This is usually a “judicial” hanging, to imitate such, or if jumping from a height.

• Homicidal hangings are more likely to have full suspension, unless the suicidal victim wishes to ensure success, feels he must be punished, or wishes to shock his finders.

• Notes may indicate suicidal intent or may be used to feign such intent in a homicide.
  1. Arriving victims should be assessed rapidly, the airway secured, an ENT or Trauma Surgeon should, if possible, be present.
  2. SPO₂ immediately with ECG and ABG to follow as soon as possible concurrent with other efforts.
  3. If there is airway distortion, there may well have been a “drop” or pull on the neck. When unknown, support of the cervical spine should be provided during intubation. Cervical injury is rare in non-judicial hangings and partial suspension.
  4. If intubation is difficult or there is distorted anatomy, consider primary or early cricothyrotomy or tracheotomy.
  5. Elicit as much history and observational findings as possible from prehospital crew.
  6. Do not neglect specimens for toxicological analysis.
  7. CT/A or MRI should be done to determine associated injuries and presence of anoxic encephalopathy.
William S Ernoehazy, Jr, MD, FACEP. **Hanging Injuries and Strangulation.** [emedicine.medscape.com](emedicine.medscape.com). Updated: December 3rd, 2018. (Use sidebar index; multiple URLs)

Angela Hua, MD. **Managing the Hanging Injury.** [emDocs.net](emDocs.net). February 16th, 2016.


A 7-year retrospective review was performed to assess the complications of near-hangings injuries. Thirty-nine cases of near hanging were seen during this period. There were no hanging drops greater than 5 feet and no cervical spine fractures. One patient required intubation for soft tissue swelling. The adult respiratory distress syndrome (ARDS) occurred in three patients. All victims with field Glasgow Coma Scale levels > 3, and three of eight with GCS = 3 survived to discharge with a normal mental status. We conclude that aggressive resuscitation and treatment of postanoxic brain injury is indicated even in patients without evident neurologic function in the field, as full recovery may still occur. Cervical spine fractures have not been reported in near-hanging victims and should only be considered if there is a possibility of a several foot drop or if a focal neurologic deficit is present. Injury to the anterior soft tissues of the neck may cause respiratory obstruction. Close attention to the development of pulmonary complications is required.

**# 362 Herpes Zoster (HZV) “Shingles”**

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Shingles can be a truly miserable affliction. Those who have had Varicella, “Chicken Pox”, or been vaccinated with Varicella vaccine will have the virus dormant in their bodies in dorsal root ganglia. If immunocompetency is compromised or upon aging to older years, the virus may spontaneously reactivate.

“Approximately 1 out of 3 people in the United States will develop herpes zoster during their lifetime. Most people have only one episode of the illness in their lifetime, however, multiple episodes are possible.” CDC Shingles “Doctors diagnose more than 1 million cases of shingles in the United States every year.” AAD “If you were born before 1980, you have a greater than 99% chance of having had chickenpox, according to the Centers for Disease Control and Prevention (CDC).” AAD

A prodrome of fatigue, headache, and light-sensitivity may occur with painful, pruritic, numb or tingles along one or two dermatomes, after three to five days,
maculopapular lesions becoming vesicles appear in the affected area. Communicability continues until all crops of vesicles are crusted over. Dissemination of three or more dermatomes can occur in immunocompromised persons. Most often located on the trunk, lesions usually do not cross the midline of the body, but may, sometimes appear on both sides.

The rash may be soothed by cool compresses for 5-10 minutes several times daily. The vesicles should be gently cleaned twice daily and covered with a no-stick dressing daily until all vesicles are crusted to prevent viral shedding that infect susceptible persons with varicella. Zoster isn’t ‘caught’ directly, one’s own dormant virus must be reactivated. After scabbing over, calamine lotion can be applied to the vesicles. AAD

A 48-year old man presented with severe left-sided headache but had negative CT. Upon further questioning, “headache” was clarified as scalp pain. Close examination of the scalp showed a single vesicle in the parietal area which was diagnosed and treated as zoster including follow-up. Approximately 1 to 4% of people with herpes zoster get hospitalized for complications. Older adults and people with compromised or suppressed immune systems are more likely to get hospitalized. About 30% of all people hospitalized with herpes zoster have compromised or suppressed immune systems. About 1 in 10 adults with herpes zoster develop PHN. CDC Shingles

Pain may persist for several weeks after the rash resolves but > 90 days after rash onset may become Postherpetic Neuralgia which may last for years. The risk of PHN increases in older adults: ~ 10 to 13% of people ≥ 60 years.

Upper facial rash may involve the periocular area potentially threatening eyesight and must be treated with antivirals and ophthalmological consultation as soon as possible, thus out-of-hours patients most likely will come to the ED (the only 24-hour Slit Lamp in town).

Herpes Zoster Ophthalmicus (HZO) requires detailed exam, consult, and follow-up. Treatment with Acyclovir, Famciclovir, or Valacyclovir, possible topical prednisolone, control of intraocular pressure, and multi-modal analgesia.

Other complications of zoster may be pneumonia, hepatitis, meningoencephalopathy, transverse myelitis, Ramsey-Hunt (sic) Syndrome (HZ oticus), or vascular problems. Gill

“Other complications of herpes zoster include:

- ophthalmic involvement (herpes zoster ophthalmicus) with acute or chronic ocular sequelae, including vision loss;

- bacterial superinfection of the lesions, usually due to Staphylococcus aureus and, less commonly, due to group A beta hemolytic streptococcus;
• cranial and peripheral nerve palsies; and
• visceral involvement, such as meningoencephalitis, pneumonitis, hepatitis, and acute retinal necrosis.” CDC Shingles

Two vaccines are available: “zoster vaccine live (ZVL, Zostavax) and recombinant zoster vaccine (RZV, Shingrix), are licensed and recommended in the United States to prevent herpes zoster.” CDC Shingles

For those exposed to varicella without evidence of immunity, varicella vaccine can be given, and if high risk susceptible Varicella zoster immune globulin (VZIG) may be given to lessen severity only, as post exposure prophylaxis. CDC Shingles

CDC. “Shingles (Herpes Zoster)” [HCP]. Content source: National Center for Immunization and Respiratory Diseases, Division of Viral Diseases. Page last reviewed: August 14, 2019.

CDC. Information for Healthcare Professionals about Shingles (Herpes Zoster) Vaccines. Content source: National Center for Immunization and Respiratory Diseases, Division of Viral Diseases. Page last reviewed: August 14, 2019.

CDC. Provider Education. CDC shingles podcast, courses, broadcasts, webcasts, and slide sets. Content source: National Center for Immunization and Respiratory Diseases, Division of Viral Diseases. Page last reviewed: November 22, 2016.


American Academy of Ophthalmology EyeWiki® (Multiple Authors) Herpes

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Stephen Gill. (Medically reviewed by Elaine K. Luo, M.D. on March 15, 2018.) Can you have internal shingles without a rash? Medical News Today.


American Academy of Dermatology Association. SHINGLES: OVERVIEW. © 2020

American Academy of Dermatology Association. SHINGLES: TIPS FOR MANAGING. © 2020
Getting Rid of Carbon Monoxide When the Pressure Is On

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We have long known that carbon monoxide competitively and vigorously clings to hemoglobin to the disadvantage of the cells that need it. We also know that oxygen in profusion and time will reclaim its lifesaving hold on hemoglobin. Further, very little excess oxygen will be dissolved in plasma. Heretofore, the best we could do was to give a fast flow through a so-called ‘100% Nonrebreather Mask, which not being a closely-fitted mask could not give 199% but 60-70% instead.

The alternative to this lengthy process was and is a hyperbaric “dive” chamber which by increased pressure would create a more rapid exchange than “sea level.” There are very few medically suitable dive chambers and are poorly located to medical facilities, often involving air transportation. There are unresolved questions as to long-term neurocognitive benefits and role of free radicals.

A shame, because apart from diving problems (“bends”), hyperbaric treatment can help high-altitude pulmonary edema, high-altitude cerebral edema, and large volume aeroembolism. Small inflatable air-tight tents have been devised to help mountaineers on their way down.

Medical opinion is divided and controversial as to ultimate benefit of HBO in CO poisoning. All this, perhaps, distracts us from the common need to treat CO poisoning when and where it is found.

Roth reported the treatment of a couple with CO poisoning wherein one received NRB mask conventional treatment and the other with a CPAP mask with more rapid elimination of COHb by CPAP.

Turgut studied the rate of COHb elimination in 45 individuals using noninvasive CPAP NIMV on a ventilator using 10/5 cm H₂O (apparently arbitrary but safe and normal values chosen; the study did not investigate other settings) and found more rapid elimination of COHb with positive pressure.

Delvau experimented in the swine lab with NRB, CPAP, and two modes of PSV (open & closed) and found the closed PSV gave the most rapid COHb elimination.

It appears that increasing the partial pressure of oxygen in CO cases more rapidly dissociates CO from Hb in a significant and probably clinically valuable way with relatively simple equipment available to EDs. Decreasing the time of exposure to toxic levels of CO is probably beneficial and shortens the clinical course. Translating this to clinical practice appears simple and efficacious.

[N.B. the Roth and Tergut papers were only available to me in abstract form.]

Dear Readers,

It has been a pleasure and honor to be your Online Editor for AENJournal.com for the last eight years. Looking at the ‘Likes’ and ‘Follows’ that we have received over the years impressively shows how lucky we have been to be enjoyed and be part of your readings in emergency literature and to be read in so many countries. This amply demonstrates the world’s interest and needs for advanced emergency nursing to be part of health care everywhere. We are proud to be your partner in this great movement.

The range and diversity of topics covered in those writings has been wide and has sought to support you in the many roles of Advanced Emergency Nurses, whether as Nurse Practitioners, Clinical Specialists, Educators, Administrative, Patient Advocate, Mentor, and in care areas from large universities, rural Critical Access Hospital, austere locations, or the mobile environment. This is because we are Emergency Nurses; not ‘E.R.’ or ‘E.D.’ Nurses, but Nurses on a Mission of helping Emergency needs wherever they are.

# 364 Goodbye

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©Advanced Emergency Nursing Journal 2020
AENJ’s web offerings are being reorganized and should bring you some exciting changes. With you, I look forward to those changes and to watching the growth and successes of Advanced Emergency Nursing in improving the future. Thank you for all that you do and will continue to do.

Good Luck. Good Health. Keep Advancing Emergency Nursing!

Sincerely,

Tom Trimble, RN