# 290 “The Twin Pillars of Success!”

If you follow AENJ’s tweets, on December 26th, 2018, we responded to discussion of BVM mask techniques by principals who urge two-handed mask usage essentially differing in terminology [officially, C-E vs V-E in one; and C-E vs TE in the other], but colloquially as “thumbs down” or “thumbs up”. We proposed “The Twin Pillars of Success!” as a better choice that avoids the direction of thumbs but gives a goal-directed term implying the strength and support of the architecture of structures (head & face, neck and upper airway) whose integrity is essential to patient survival.

“C-E method” is a modern term to describe one-handed (unassisted) mask hold by anaesthetists while also operating a gas machine place to the right of the patient and squeezing a breathing bag thereon, keep notes, etc., before the patient was ‘deep enough’ for intubation. They were said to grow hypertrophied forearms, and powerful claw-like grasp. Sometimes, a head-harness, e.g., Clausen’s would be used to assist or to be able to keep a finger on a facial pulse. This art-form requires experience, deftness, aptitude, and may not work with unparalyzed patients who are restless or have structural leaks.

Outside the hospital, as regulation grew driven by distrust and bias from hospital based providers, rescuers lost harnesses previously used (not trusted in case of vomiting); rubber masks (concealing vomiting and exhalations) for hard transparent plastic shells; oral airways, if any, became softer, instead of metal. ‘Automatic resuscitators’ (can’t use with compressions) or ‘Demand Valves’ (too much pressure & flow – many medical staff thought patients received the line pressure of 50 psi) were junked in favor of BVMs, which are not easily used in the mobile environment of head-wrestling an agitated semi-conscious patient; where help was not always available.
In awkward circumstances or a difficult airway, help is needed, two hands are needed for mask control, another person is needed to actuate the bag or ventilator; more for chest compressions, and if an ‘advanced’ airway is needed, so is staff for that and resuscitative measures. Airway control is the most essential prerequisite, so it’s 2, 3, or 4 hands needed to make a leak-proof mask seal.

Two (or more) hands allows balanced symmetrical mask seal to the face by thumbs or thumb-bases (thenar eminence); better grasp of the mandible; avoids pushing in under the jaw/tongue or of the neck; allows the lift & thrust of the mandible (instead of just a ‘little finger’ under the ramus of the jaw). Tensioning of the neck and pharyngeal tissues also occur. Lifting and positioning the head (beware: cervical spine injury) can open the airway further as the pharynx changes diameter.

So, until you are able to insert a supraglottic airway, intubate, or do emergency front of neck access (E-FONA); use 2 or more hands to control the mask. It’s not a sign of your failure, it’s the sign of a professional using help to prevent failure of the airway and resuscitation. Thumbs down or thumbs up: the “Twin Pillars of Success!”


# 291 My finger snaps and gets stuck!

A patient may say to you: “Sometimes, when I'm asleep or waking up, or my hand is overtired, this finger may just snap into a locked position. It hurts, and it hurts at the base of the finger when I touch it.” You do a short confirmatory exam. You tell the patient: "This is Trigger Finger Syndrome" (sometimes called 'stenosing tenosynovitis'). The diagnosis is clinical, not usually needing X-Rays.

Inflammation of the tendon and its sheath leads to a 'catching' sensation and a painful snapping as it is released from flexion. A nodule may form on the tendon which is palpable and tender at the base of the finger. Commonly females>males, ring finger (but others may be involved), may be associated with diabetes, RA, gout, which can affect prognosis. Age is commonly in 50s and 60s. ~200,000 cases per annum in the USA.0

You ask how it's been affecting him/her and give several options and assurances. Most conservative course is rest/splinting/NSAIDs. Steroid injection into the tendon sheath, sometimes repeated after three months, gives excellent results. Difficult cases (especially of the thumb) progress to one of several operative release procedures.

Clifford R. Wheeless, III, MD. Trigger Finger / Tenosynovitis. Wheeless" Textbook of
# 292 Are you getting hungry?

Have you noticed whether the eating facility where you work tends to run out of food? Does it have much storage space? Just how many days of food does it have stockpiled? Does it rely on a logistical plan of "Just-in-time" deliveries? Is roadway access such that it might be disrupted during unusual weather or community emergency?

Answers may not be revealed outside of some ‘small meeting rooms’. Frankly, if there is a disaster, demands for food may go way-y-y up! Staff will hold over. Off-duty staff and neighbors may volunteer. Patients may not be easily be discharged if there is road or outside facilities disruption. Displaced families of patients and volunteers may camp in the hospital and need food. When neighborhood supplies are consumed (two days), the public will line up hoping for a soup kitchen. Their estimates of how much food is stored may not accord with reality.

Unfortunately, running a good emergency facility necessitates butting our noses into the planning of other departments and administrators who want to tell us that "we’ve got it covered." But, hard questions must be asked by those on the "tip of the spear" or the "bleeding edge." Yes, other departments must execute, but they need to have the same sense of urgency as we. It is likely that they expect to get extra deliveries from their regular suppliers under good conditions, and are unlikely to have considered broken roadways, electrical lines down, water contamination, and gas leaks. If the kitchen is unserviceable, do they have a satellite location prepped to pick up the slack? Will it keep crowds away from functioning buildings? Are there long-storage foodstuffs laid away to last for a week or two with a feeding population thrice normal capacity?

California Wildfires. Earthquakes. Hurricanes (e.g., Katrina or Sandy). Floods & landslides (may follow fires or earthquakes). Large explosions. Terrorist attacks. In the Tokyo Sarin Release, one hospital received 600 patients in the first hour.

We have to think big. We have to be clever. With increasing urbanization, the populace are unaccustomed to "laying up supplies for the winter." Supply and service shortfalls are expected to be made up by the government, which does not have a good track record of prompt response. Needs unmet, lead to looting and disorder, compounding other problems.

How many of your department’s people will serve on the needed committees and press for ample and urgent preparation?

# 293 Unsafe Speed

When a patient is critical or decompensating rapidly and is being moved on a wheeled stretcher; if you find yourself being bumped or pulled by the stretcher, it is most likely that your ‘helpers’ are caught up in the moment and going too quickly. It’s not uncommon to have a “What's going on?” moment, not realizing it is your helpers making things go awry. Hospital staff seldom train as teams or partners in transports as prehospital care crews do. Variability of staffing may mean
that those assisting may not have worked together before. Prehospital crews may be happy to assist in lifts in urgent moments without waiting for a hospital ‘Lift Team’.

Rapid stretcher movement and sudden stops or alterations, may not only injure staff, but may alter the patient’s position, physiology, and emotional equilibrium. Disregard for cross-traffic, stability during turns, and jolting over door sills, elevator gaps, and building joins, may increase pain, add to injury, or dropping important equipment. It is possible for thoughtful quick transport to be smooth and pain-free, with care for controlled motion and good leadership.

Physical assistance to patients who are upon the floor, should not be the common ungainly pulling upwards. It should be preceded by assessment for new injury. A hand stretcher or blanket lift can with teamwork can bring the patient into bed without hurting him or the team.

A straight chair can be slipped under or rolled against the fallen patient as a means of bringing him to a sitting position with the help two staff.

When no wheelchair is available and a patient must be promptly brought to a treatment room, either an empty stretcher can be brought to the patient or the wheeled office chair of the Triage Nurse can ‘roll’ the patient to treatment. (Be extra careful with the office chair as its wheels are small, center of gravity higher, and not purpose-built as would be a proper wheelchair. Rolling it with the patient facing rearwards may help if the patient cannot be relied upon to keep the feet lifted.)

If you’re fortunate enough to have a little extra ‘slack time’, a brief practice session with staff can be a fun and worthwhile break in routine.

# 294 Elder Fall

A 71-year-old man awaits you in the cubicle.

“Hi, how can we help you today?”

“My right leg hurts from a fall, yesterday at 3:30 pm.”

{Wow. What a great ‘chief complaint.’ Looks normal; acts normal; speech clear.}

“How did that happen?”

“My wife put up a board to confine our old dog, who has diarrhea, to the kitchen. I didn’t see the board because of a bill I was looking at and tripped over the board when it blocked me at the feet and knees. I was able to ‘roll’ and not hit my head.”

{Clearly mechanical fall: no syncope/TIA to rule out; no head injury or amnesia; this simplifies things; happened at home: no Workers Compensation or reporting to do. Gives great history.}

“Do you hurt anywhere else?”

“No, just one injury. I put a cold pack on it right away and elevated it. Later, I took some Naproxen.”

{Gee. I wish I could get him to type the chart, too.}

“May I take a look? Is there any numbness or tingling?”

“No, it just pulls and hurts when I move. It’s a stretching or tightness from the lower back of my thigh to the upper third of my calf, —as it did when I went over the board, but no snap or pop. It does give way from pain when it’s bent, but I can stand on it with full weight or pound on the bone okay.”

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{Exam confirms statements. Mild swelling. Tenderness at junction of posterior middle & distal thirds of the thigh. No ecchymosis or palpable hematoma. Contour and range of motion OK. Patient appears comfortable at rest, but painful limp when stressing the injury, leaning harder on cane than from his usual chronic back pain.}

“I’m not here for pain medicine. I haven’t had an injury like this, nor a friend who’s had this: I just want to be sure that I don’t make it worse. It seems like a strain, but I don’t want it to rupture.”

{That’s a relief. So much anti-opioid pressure. Meds review shows patient has adequate meds.}

“You’re right. It is a strain. People call it a hamstring strain. It’s going to hurt for a while, perhaps four to six weeks until it heals. Keep using cold and heat to relieve it. NSAIDs, but protect your stomach. Graduated exercise, and some careful stretching, like this …”

“Say, you’re pretty good at telling your story; why?”

“I come from a medical family. They taught us to organize it. They said, “it should be a school requirement!””

“They were right!”

# 295 Handcuff Injuries

One way of distinguishing the ‘socioeconomic’ class of your facility or activity is how often it must deal with patients who are handcuffed or manacled. Generally, ‘public’ ie government operated facilities will, more likely, interface with authorities and those in their custody, than ‘private’ or upscale facilities. You might also be in an area where ‘sweeps’ or large-scale arrest and detention operations are occurring.

Patients in custody may be brought to you for care due to: exacerbation of their own health problems; for mandatory medical clearance because of health, intoxication, arrest injuries or exposure to chemical agents; or injuries received as a victim or combatant. While in your care, they will usually be supervised by an officer, and if deemed a flight risk will be handcuffed to the bed.

Regardless of reason for exam, the patient should be checked for injuries or latent injuries, as the consequence of being in custody. The history given may be limited or unreliable, as the prisoner may not feel able to speak freely and incur ‘punishment’ from the authorities, other prisoners, or even his own confederates. At times, officers have been known to minimize the ‘event’, or say they “weren’t there” or “he fell.”

You should be able to ask for periodic repositioning of limbs and rotation of cuff site, just as any patient who is immobile needs repositioning. Inspect for abrasions, lacerations, neuropathy or apraxia. X-ray when necessary to clarify potential injury.

Handcuffs are of several types: chain-linked traditional style; rigid bar; hinged cuff; or disposable ‘flex-cuffs’ similar to large and sturdy cable ties. All are capable of injury, either in application, or after. Additionally, as the population increases in size, so too, special large-size restraints have been made, or if not used, one prisoner may have two handcuffs: one on each wrist, and then to the other, so as to allow for the greater span between shoulders, which may be strained if confined too closely, and compression plexopathy or impaired circulation might be encountered.
Most metal cuffs have a swing-through ratchet that moves through the stationary bow so that it may be quickly fastened. If not ‘double-locked’ by a special pin or key so that the ratchet cannot move in either direction to minimize injury, continued pressure on the bow increases the tightness and compression. Likewise, if the cuffs were inadvertently double-locked when snapped against the wrist, it would act as a hammer; this can also happen if in the struggle the cuff was inverted when snapped against the wrist. The moments of greatest struggle or attempt to escape are when one wrist is cuffed and the other is free; freedom is to be lost and great resistance may occur (even if just repositioning on the bed).

Bulky dressings should not be used on the area where the handcuff will be affixed. They may be picked apart to try to slip the wrist free, or if long enough used as a means of suicide. Medical staff at the custodial facility should be informed prior to transfer and may have useful suggestions. If restraints, transport, and medical needs are incompatible, the patient may need further consultation or admission.

Excellent documentation is essential to protect all parties should there be contention as to what ‘really’ happened.


# 296 Most Important Staff Member?

Absolutely; every staff member, from cleaner or transporter to Chairman of Department, has importance and value, but, in some moments the importance of individual thought and action can be decisive in a case or the success of the department.

Very often, that person is the Triage Nurse. Similar to a patrolling soldier leading at the ‘point’, the triageur or triageuse is likely the first to recognize to recognize danger. Until active treatment begins, that person is the ‘face’ of the department and the hospital to the patient and family, and certainly the words of Maya Angelou apply: “I’ve learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”

The complex job of Triage calls for the talented extraction of signs, symptoms, and usable information of history and events while also evaluating the mental and emotional status of the patient and adapting this process dynamically to persons of disparate comprehension, ages, disabilities, language capabilities, while always under time pressure of new arrivals being aware of activity in the waiting room.

This person must have a wide and deep knowledge base of disease, injury, medicine, and surgery. This informs a remarkable ability to ascertain problems, skip to other details, find pertinent positives and negatives, and convey data and suspicions to others. The notes will often say “Consider … “ “Concern for …” Possibility … “. This does not replace the full diagnostic process but heightens it by avoiding neglect of considerations. Brilliant Triage Nurses also have “the eye”: the ability to look at a patient, take instant action, bypass the routine triage process, bring the person ‘straight back’ and alert staff of a critical patient.

How do we recognize and diffuse these abilities among the staff? The department’s charts have a review process. This doesn’t need to be an anxiety-fraught Morbidity & Mortality Review, or a
“Risk Management would like to talk with you” event. When Triage Notes have an unusually high concordance with the patient’s diagnosis, course, and outcome, the author should be recognized among staff at a staff meeting, and the contributing elements shared in discussion.

In such manner, we can help ensure that the person on duty at the ‘point’, whoever of the staff it may be, is the best person for the job at the most important place.

# 297 How to get what you need

Once upon a time, in a far-off fabled land, The Ruler provided free emergency care to his people. Clinics and ambulances were provided, and if the problem was very severe, one could be taken to The Really Big Hospital for Really Big Problems, which was another thing altogether. At the small places, one was never asked for payment in money or kind. Naturally, these were run with a small and strict budget. Basic needs came from an office; larger items and drugs came from The Really Big Hospital. It worked, but they never had our government’s problem of "Hurry up and spend all the money before the end of the Fiscal Year, or we'll never get an appropriation of that size again!"

Squeaking through like this whenever supplies were ordered, sometimes left them a little short of suture, medicines, or maintenance needs. Clever chaps found that by changing a letter code on the request for suture meant instead of getting a measly dozen sutures from the office meant that TRBH would have to fulfill the order and a box of three dozen would arrive. Problem over. This principle inspired many necessary corrections which improved the care delivered.

In another nearby land, the ordinary supply requests were supplemented by a night shift nurse, who became known as "The Midnight Quartermaster." This person ensured that there were always spare bulbs for laryngoscopes and slit lamps, deficiencies were made good, and that daytime requests not answered by busy daytime staff ("We can't find that) were found by going downstairs at night and hearing "Yeah, sure, help yourself" from the single worker, otherwise busy. With knowledge thus gained, TMQ could solve problems, find new and better instruments or trays, expand clinical use of products previously unaware, and more. Relations with "downstairs" and services improved, and liaison solved needs before problems occurred. Nursing time was saved: to prep for chest tubes switched from one skinny tray and a lot of looking for drainage sets, tape, thoracic catheters, disinfectants, suture, etc., into one complete bundled set.

Is your mind now alive with possibilities? To deal with logistical inadequacies, clinical people must own the problem, learn the system and resources, and interface on a human basis with the supply side, know their storage and capabilities better than they do, and be aware of new offerings from vendors which better suit one's needs. (No one will offer you a better product, unless you help them to know how and why it is needed/better and what value is provided in the switchover.)

Problems with the supply department are our problems until we help them find shared reasons to make changes.

# 298 A blue girl feeling blue

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It was a cold, blustery day with intermittent downpours of rain. Two young women came in, from their shopping excursion, one very concerned about herself, and her companion very concerned about her friend.

“My hands have “turned blue!” exclaimed the patient. Indeed, they had turned an even shade of lightly Smurf-blue. A few minutes of registration had passed, so they were not cold, nor wet, or wrinkled. Measured temperature was normothermic. Medical history was unremarkable, without other complaint, and denying any physical distress. No history of Reynaud’s Phenomenon.

Central cyanosis was absent. Peripheral sensation normal. Skin temperature normal and equal in each digit. Digital Pulse Oximetry of each digit was normal and equal. Skin proximal to the hands was normal. The nailbed color seemed to have been spared. The friend was completely unaffected eliminating shared exposures to toxins.

Having regarded the weather and the patient’s garments, a clinical experiment of applying an alcohol wipe vigorously to the affected skin removed the color, thereby demonstrating a stain rather than pathology.

Whilst shopping, a pair of skinny jeans in ‘overdyed’ Indigo had been bought and worn out of the store. Another downpour had soaked them causing dye transfer to the hands stuffed in pockets for warmth. The patient was directed to a restroom to inspect her legs for dye transfer, and the ability to remove it, which proved true, to the patient’s, and friend’s, relief.

# 299 Airway Obstructed, or is it?

You are working with a youth group that you support that is making camp on a weekend overnight hike. You’re a few rural miles out of town, in a mountainous area from the nearest suburban town. There is no cell phone service, but there is a landline phone at the Ranger’s cabin, one mile away plus a 200 yard hike uphill to the dirt road.

Your name is called for an emergency. A 13-year-old lad was walking and talking while popping a large "hot cinnamon" hard candy into his mouth. You are told “he is choking!” As you approach him, he is walking towards you with normal gait, looking uncomfortable but without distress. He is not cyanotic, and is talking. You are asked if he should be given “a Heimlich.” You gently suggest that he "doesn't seem to need one, right now." The lad reports that the candy (~3.5 cm diameter) is "stuck"; he localizes it under the manubrium, doesn't have excessive salivation, and speech is clear. You conclude that the blockage doesn't presently threaten the airway, but a sip of water can’t seep past into the esophagus.

You deputize another leader to escort him uphill to the juncture with the dirt road, and proceed to the Ranger’s cabin to notify him, the parents, and the ED a few miles away, and to retrieve a vehicle in which to transport the lad. (The rural road would be difficult for an ambulance, and while stable, —he doesn't need it, nor would it have Advanced Airway abilities & cricothyrotomy is not within their permitted skills). You return to the boy and transport him. With this plan, he is calm and without panic.

As you meet the parents at the ED entrance, their son gives a gulp and says that "it's gone down.” Apparently, the diameter of the candy has decreased in the interval from a slow melt. He no longer localizes any pain along the esophagus. There is some residual irritation but seems
fine. You urge the parents to have him checked in the ED, but they exert their parental rights and
decline to have him examined; they want to take him home as he would also like. You explain
the risks and cautions, which they accept, and affirm that they will have him checked if there are
problems. During the overnight, you teach the others the what they need to know, improving their
first aid knowledge, and why "a Heimlich" would not have been helpful or indicated. You find
later that the lad made an uneventful recovery with irritation dissipating.

# 300 When you gotta’ go, and can’t …

An interesting study has been published from China, that examines “Four hundred eligible
operating room nurses in five hospitals” who were surveyed as to stress and toileting behaviors.
This group would be substantially similar in some aspects to emergency staff, who, likewise,
might be expected to work through a stressful period of work.

The finding was “Overactive bladder was highly prevalent in both male and female nurses
working in operating rooms. Approximately one of three nurses reported experiencing an
overactive bladder.” It was common for male and female nurses to hold their urine or to strain at
voiding when able to do so. It was felt that this contributes to the likelihood of overactive bladder.
This would be a significant finding.

Expectation is often given that emergency staff will work on through peak periods and be
‘resilient’. “Suck it up” and ‘you have to expect that’. This now suggests that there are physical
consequences that may be lifelong. I think such stress adaptations are common in our field, and
one would think that among our fellows there must be some who have suffered such damage.

‘Resiliency training’, work stress, healthcare professional suicide, work-life balance, “beauty to
death ratio”, are popular subjects of concern currently. Surely, many deleterious aspects of our
work are not fixed with ‘training’, but by changing the system, its environment, and adequate
staffing to provide coverage, even at peak periods. Missed and hurried ‘meals’, ‘breaks’ that
never come, decompression time that is needed but not available; all contribute to the worst
aspects of what we do. When we provide human services, we must do so humanely for those
who do the work.

occupational stress, toileting behaviors, and overactive bladder in nurses: a multiple
Paywall]

9 June 2018.
https://twitter.com/airwaycam/status/1005606368869412864
22 October 2018, and others, *passim.*
https://twitter.com/airwaycam/status/1054593339134238720.

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# 301 “You should have seen the place …”

You and your special response team are in the home of an chronically ill elder, who has a severe acute exacerbation of COPD. Access to the patient is awkward and difficult due to immense clutter occupying every surface; seemingly there is only a narrow path to the bathroom and kitchen. If anyone starts to move something in the two to three foot (60-90 cm) high piles near her (within the one meter range of an outstretched arm with torso leaning), she snaps angrily “Don’t touch that, it’s important. I need it!” There isn’t even space to sit with her.

What do you make of this? Why is she crotchety about ‘her things’? As debility increases, the ability to do household maintenance and organization becomes ever more difficult and exhausting, leaving tasks incomplete or undone, yet like spam in an email inbox, more accumulate continuously. Frustration and depression mount, burdening the soul with guilt; ‘helpers’ are forestalled with intention that cannot be realized, and the patient becomes defensive to criticism: “I can’t help it!” Essential needs from eyeglasses to unpaid bills remain in the hemicycle of reachable piled clutter at the head of the bed. This is the patient’s ‘span of control’, the defensible space where things are found. When the disease cannot be controlled, nor the environment mastered, the patient’s world shrinks to the space of reach, and possibly that within earshot of a caregiver.

One patient refused to allow caregivers to turn the home hospital bed 90° to give 3-sided access; instead, it was transverse in a bay window with the head and fit blocked by furniture and boxes. This frustrated the caregivers but let the patient read in good light and gaze contentedly at the nearby gardens to achieve some serenity.

Concessions to the felt concerns may be needed to examine and treat the patient. “I’ll put them right here where they’ll be safe, and you can see them.” There may not be room for all monitors and equipment; gear may have to be passed by hand from outside the circle of care. Patient removal may be by log-roll and hand-stretcher, carrying canvas, or scoop stretcher. In urgency, if the patient is unable to take assisted steps to an emergency cot, hand-lifts and carries will be needed, such as two or three lifting the patient in arms and curling to their chests while side-stepping to an open area. At times, lifting straps may have to be passed under the patient to have handholds for removal, from the bed or bathtub. If the patient has pets, beware of animal excrement, or even an overly protective guarding behavior, or simple fright-bites.

Locking-up or arranging custody of the premises, and any animals, must be done. Neighbors will certainly notice the emergency activity and note no one being home. This puts the victim’s home at risk for burglary. It may be necessary in some circumstances to not only lock-up but also have the premises “Sealed.” Make sure that your team have obtained the patient’s personal and medical identification, health plan cards; listed the medications or bagged them; keys; personal valuables that are needed or can’t be safely left. Authorities, Conservators, and Medical Social Workers ought to be informed, especially if post-hospital disposition may be difficult.

# 302 What kind of ‘Dizzy’ do you feel?

Signs require a practiced perceptive observer who records findings. Symptoms need an auditor, sometimes a translator, but certainly an interpretive communicator. When communication can’t
occur, we compare it with ‘veterinary’ medicine but must elicit signs and empathetically understand the response.

Elders from the earlier 20th century; late-life immigrants still fully living their original culture; the very young; the neuro-impaired, may have conceptual as well as lingual difficulty in describing sensations they never thought they would have. Our own concepts are defining and steer our diagnosis to different systems and processes; we, too, must translate to make our question understandable.

We want to know if ‘dizzy’ means syncopal/presyncopal, whether there were changes in heart rate or rhythm; if faint, is it worse standing and better lying down? What is the skin color, temperature, diaphoresis? Did it mean vertigo, disequilibrium, unsteady station or gait? Is there tinnitus, nystagmus, nausea? Is there headache or neck pain? A bruit? What can ECG, POCUS, CT/MRI yield?

These questions, and more, are familiar and frequent in assessing the patient’s events. Astute listening, non-verbal cues, family help with dialect and whether speech is normal, translation phone lines, analogies suggested for concepts not clearly understood, are the most readily available aids. These may help you avoid the response “You know, d-i-z-y!”

# 303 Bad Things Come In Threes

It’s your weekend shift. The patient is a 70-year-old man, brought in by his out-of-town daughter who has flown in to give ‘Mom’ some respite in caring for ‘Dad’. Aghast at his six-months deterioration, she has brought him because she “can’t reach his primary care.” He has had bladder control problems for some while, but his gait has considerably worsened, requires a good deal of care, and seems distracted and illogical at times.

You spend time taking careful history and reviewing medications. General exam is not remarkable. There’s more than “just a whiff” of stale urine from his clothes. Neuro exam is symmetrical. However, he has trouble rising from the chair, has a wide-based shuffle with some forward truncal leaning, struggles to lift his feet from the floor, and takes incremental steps to ‘About-Face’, and return. Basic labs show no acute problems. Due to some falls, you suggest a head CT. It shows Cortical Atrophy and Ventriculomegaly.

You explain. “I share your concerns. Dad doesn’t need to be admitted today. He does need to see a good Neurologist. I say this because he has a triad of problems that may be related, but if no other explanations are found, can be treated. This triad: the gait problems (usually first and worst); the incontinence; and dementia; is called Normal Pressure Hydrocephalus. These things can be greatly improved for most people by surgery to divert the excess spinal fluid from around the brain. The problem isn’t thought of often because it worsens slowly, —people think it’s ‘just old age’ and don’t want to talk about ‘failings’. It has to be sorted out from other things, so we can’t fix it today, but there’s a good chance that his primary care and the neurologist can get him on the path to improvement.”

Six months later, a thank-you note is waiting at work. The daughter “was grateful for what you found and said. His doctors said it was an excellent referral. He’s recovered from his shunt surgery and is so much better. His mind has cleared, his walking is back to where it was before last year, and there is less incontinence than before.”


Williams MA, Malm J. Diagnosis and Treatment of Idiopathic Normal Pressure Hydrocephalus. Continuum (Minneap Minn). 2016;22(2 Dementia):579–599. PMID: 27042909 PMCID: PMC5390935 [PDF] DOI: 10.1212/CON.0000000000000305

# 304 ‘At your back door’ Sweaty & Confused

It's 11:00 a.m. The local Basic Life Support ambulance service (not permitted to give drugs other than oxygen) gives an 'at your back door' radio call (will arrive in less than a minute) of a patient with altered mental status and who is very diaphoretic. He is able to stand and be 'steered' in the correct direction. Your workplace is only 'a block and a half' away from the bank in which he was found; thus, the short notice and abbreviated history.

Before the monitors are completely affixed, you have in your mind a likely diagnosis (having felt a regular pulse or heard the sounds of it from the pulse oximeter. What's your guess? You ask for an immediate glucometer reading, which at 28 mgs/dl, confirms your hunch of hypoglycemia. After correction of the blood sugar, the patient is completely recovered. You have correctly reasoned that AMS + profuse diaphoresis + a cool day, is more likely hypoglycemic in origin than cardiac (although you sort through all possibilities).

What is your principle activity to be? There are two: 1) investigating the reason for the hypoglycemia, 2) and patient education.

What happened? Took insulin; no breakfast, only ate a piece of lettuce. Why? May be a simple "I was rushed-interrupted and forgot"; might be going heavier on insulin for 'weight control' (I've got to lose a dress size before the prom). Is awareness to onset of hypoglycemic symptoms are being blunted over time, or masked by a beta-blocker?

There are no identification documents on the patient ... was he already hypoglycemic when he left the house? Was he driving? Is mandatory notification to the health department (and, through them, to the Department of Motor Vehicles) required? Was a wallet left behind at the place where he was found?

Circumstantial confirmation occurred in that his only pocket contents was a plastic cap from an insulin syringe package. A strong conversation should take place over the value of wearing Emergency Medical Identification, such as a wrist band or necklace, preferably one backed by a system of medical files, identification of the patient (unlike "drug & variety store devices" that do not identify the patient) and his contacts. As it is possible to be separated from cards, wallets, and purses, it is wise to have something that remains on the person!
This patient, though he may be discharged in the company of someone who can look after him, should definitely have a firm follow-up set with his primary care, preferably when you have had a talk with the primary before discharge. The patient and his companion should be strictly warned that he should not drive or do risky activities, until cleared by his primary care clinician. In less firm circumstances, one or more follow-up calls to the patient to assure that no recurrences have happened, and an appointment has been made. It would be good if a message left for the primary includes a request for a call-back to verify that the patient has been seen.

Do not omit any mandatory reporting paperwork.

# 305 Honey-Related Infant Botulism

Parents are now routinely cautioned to not give honey to their infants until after one year. Honey has remarkable properties and is also used medicinally. However, if the honey is contaminated with spores of Clostridium botulinum, and less often, Clostridium butyricum, or Clostridium baratii bacteria, the immature intestinal biome allows colonization and growth. The toxin released from the spores causes the neuromuscular paralysis in botulism. The spores have been isolated from diseased patients in several countries. The disease may occur without finding organisms or a source.

Therefore, once the disease is suspected, due to its severity and possibility of death, notification of authorities, and treatment with BabyBIG-IV® (Baby Botulism Immune Globulin, IV) begun before any laboratory confirmation is obtained. If started early enough, the BabyBIG-IV® can shorten the course, lessen its severity, and make death infrequent.

The descending paralysis may be preceded by constipation, poor feed, lethargy, hypotonia (floppy baby, initially head and neck weakness), cranial nerves, respiratory failure, paralysis of torso and extremities. Not all symptoms may occur.

Botulism is a rare disease, rarer still to be caused by ingestion of honey. The connection with honey and infants has been shown since 1976 and is an avoidable cause. To think of the disease when indicated, advances the possibility of recovery.

Consult the references for further details, protocols, ordering of globulin, additional sources, and consultation services.


*Infant Botulism Treatment and Prevention Program*v (California Department of Public Health) © 2010

# 306 Recurrent Dislocation of Total Hip Arthroplasty
If your facility has an active Orthopaedics Department, and a population of elders and “Broken-Down Baby-Boomers”, then there are a fair number of hip replacements at large, some of which fail.

Typically, the patient flexes the leg in medial adduction or rotates the body while the surgical leg is abducted (as on a toilet seat, or car seat) dislocating the hip replacement. Conducing conditions include: surgery not fully healed; slippage or mismatch of components; change in bone length; alcoholism; morbid obesity or change of weight; spinal fusions; or previous dislocation has occurred.

Clinical examination, neurovascular checks, and basic X-rays should suffice to confirm the diagnosis which the patient will probably have already told you. Provide pain relief. Listen carefully to the patient as to the number of recurrences, if any; how much time has elapsed from this incident; what has previously been successful in reducing the hip; whether any hardware issues are known to exist (loosening, cement problems, etc.; any infections; and what the Orthopaedic Surgeon has said would happen on the next occasion. It may be that a revision or replacement of the THA is thought likely.

While you may be thinking that “I'll call the Orthopaedist and support his efforts at reduction with my Procedural Sedation and Analgesia”, the patient may know that previous attempts have failed outside of the operating room. This may be so if there’s a lot of spasm, or impingement.

If the department is busy, it’s not wise to be stuck in a protracted procedure. Consider calling Anaesthesiology to provide Monitored Anaesthesia Care. This frees you, provides focused care for an older and complicated patient, and a higher level of resources such as a small dose of Neuromuscular Blocking Drug to overcome spasm, while monitoring for weakness, respiratory insufficiency, and recovery from the NMBD. Remember, too, that associated inflammatory disease in the neck may lead to airway problems or difficult intubation.

A C-Arm Fluoroscopy Unit will be useful, and you should also check for needed supplies e.g. a wedge abduction pillow to be on hand for the patient. Disposition may be to home, rehabilitation facility, or hospital admission, according to your consultant.


# 307 Irreversible Pulpitis

It’s 3:00 A.M. (0300 hrs.). You’ve gotten the patients out of the ED. No Bar-Closing Fights have shown up, so you’re hoping for a little sleep before the 6:00 AM Cardiac arrives (either CHF in shock, or “I woke up, and he was dead right next to me.”) Instead, the Triage Nurse is leading a man to the ENT room, which doubles as a dental room.
The man is miserable. He’s been taking Ibuprofen and whiskey to ease a toothache for two days, and it’s not working for him now. His right lower second molar [#31 American; #47 International] is aching intensely as he holds his jaw. There is a large discolored cavity of the occlusal surface and the filling is missing. The tooth has exquisite ‘tap tenderness’. “Yeah, I lost the filling about 6 months ago, but it stopped bothering me. Now, it’s awful!”

Such is the characteristic account of Irreversible Pulpitis; pulpitis is the inflammation of an exposed nerve within the tooth, which progresses downward to create a periapical abscess. If pain from a stimulus of hot, cold, sweet, or percussion, persists after the stimulus is removed, this favors the distinction of irreversible.

What is needed now? Pain Relief. Antibiotic. Referral to affordable dental care.

Pain Relief: Ideally, you will have practiced dental regional blocks, and have a long-lasting agent. A short course of opioid & NSAID may be needed only until first available dentist visit.

Antibiotic: Evidence for use of oral antibiotics is low. Standard of care is removal of the pulp from the effected tooth. Cochrane

Referral: Maintain an up to date list of local Dental Schools, local Dental Societies, Municipal Clinics, Outreach programs, that offer minimal cost care. Homeless shelters may have a list. This problem would not have arisen if the patient could have afforded care earlier.


AN URGENT CARE PROVIDER’S GUIDETO MANAGING DENTAL EMERGENCIES. TheJournal of Urgent Care Medicine. ©2019 - The Journal of Urgent Care Medicine - All Rights Reserved. [No author cited.]

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# 308 Ludwig’s Angina & AFOI, Awake Trach, Retrograde Intubation

Ludwig’s Angina is a rapidly progressing life-threatening usually odontogenic infection that spreads between tissues causing massive brawny edema of the floor of the mouth, submandibular and submental spaces which elevate and retropulse the tongue towards the roof of the mouth and towards the airway, the swelling also tracks into the spaces of the neck, swelling pharyngeal and pre-tracheal tissues. Extension can occur even into the mediastinum. Airway closure can occur within minutes during observation. Before the antibiotic era, the fatality rate was >50%.

The name “angina” harks back to the original meaning of the word as an intense strangling and smothering sensation.
Recognition of advancing Ludwig’s Angina in a patient should put alarm in your soul and galvanize a full-on response from all resources available. Anesthesiology and Otorhinolaryngology should evaluate and plan airway measures. Flexible nasendoscopy may give you an early look at the glottis to estimate ability to intubate. If the airway is threatened, (things can worsen in minutes), the choice will be between Awake Tracheotomy or Awake Flexible Endoscopic Intubation; set-up for both simultaneously.

Read the references with commitment, imprinting in your mind the appearance, anatomy, course of illness, treatment goals and methods, so that you are armed with acumen and resolution should you encounter a case. Descriptions here are space-limited. Review references and local policies.

Your consultants may want to secure the airway in the Operating Room “where we have everything.” However, do not transport without all the team and the equipment; don’t be caught alone in an elevator. Do not scan the patient without a secured airway unless all agree that it is safe, but do not send the patient to the scanner unaccompanied by a qualified airway person.

What may be surprising is the implacable density and firmness of the swollen tissues which will not give way, constrained as it is, with increasing pressure, against fascia.

**Attaining Airway Control**

Keep the patient upright. Give an antisialogue early to avoid puddles of secretions. Preoxygenate and give supplemental oxygen throughout.

Maintain spontaneous breathing. Needing to ventilate an apneic patient with a precarious airway greatly complicates what must be done. Apnea, or paralysis, add flaccidity and collapsibility to the problem list. Now, there is no opposing tone to resist the swelling or to keep open the only space through which a breath manually given, or a feeble recovering breath must travel.

**Emergency Front of Neck Access**

If Cricothyrotomy or Tracheotomy is most likely inevitable, have the best qualified person do so first, rather than wait. Do not allow the infection to crawl over where you must cut while dithering. It is better to not cut through septic tissues.

**Sedation?**

Procedures can be done with verbal anesthesia and local or topical anesthesia. Awake patients can cooperate, but if need be, ‘awake’ does not necessarily mean aware: Consider Anxiolytic, dissociative, or amnestic medications. Avoid inducing unconsciousness or loss of muscular tone. Adrenergically driven muscle tone may be all that is keeping the airway open.

**Plan**

Have as many expert airway helpers as possible. Have a Shared Plan (Model) that everyone understands. Be multimodal. *Burn no bridges behind you.* Always be simultaneously prepared for “the next step” as you start the present step.

**AFOI**

The Standard Preferred method is “Awake” Flexible Endoscopic (fiberoptic or ‘chip on a stick’ camera type scope) to see where you’re going, ‘drive’ (guide) direction, suction, spray meds, or
give oxygen, through a ‘working channel’, then slide an introducing catheter or the ETT itself through the glottis; and be able to confirm intratracheal placement by seeing tracheal rings and carina, and sensing waveform capnography.

DL/VL?

While the inverted use of a DL laryngoscope or VL videolaryngoscope may work, it is awkward and adds its own complexities. It is more stimulating to threatened tissue. It is harder to use the nasal route which naturally aligns the approach with the glottic opening. The ability to continuously inspect, suction, spot-spray the vocal cords or spasming tissue with lidocaine, oxygenate, or even slide a guidewire through the ‘working channel’ makes the flexible method the champion.

Have respect for the tissues; it is easy to cause trauma. Do not ‘force’ your way through.

Hollow Catheter Jet Rescue

Consider a “hollow” catheter (e.g., Frova or Airway Exchange Catheter) as your bougie or introducer; that is easier to manipulate, less likely to block vision, and may be used to “jet” oxygen with a manual jet ventilator; apart from its value to ‘railroad’ an endotracheal tube.

Have smaller sizes of ETTs than those expected to be used. Consider an ‘armored’ or ‘flexometallic’ endotracheal tube.

Observed Tracheostomy of Intubated Patient

Once the flexible scope has traversed the airway, or a partially inserted endotracheal tube over the scope holds the cords apart, if it is decided to use the safety thus given to facilitate a percutaneous tracheotomy under more controlled conditions, the scope can continuously observe the tracheotomy attempt from within the trachea to check for position, angle, or injury.

Lower-Tech

The method of Retrograde Wire-Guided Intubation has worked, especially when the costly flexible technology is not available, it is less certain, takes longer and ought not be tried in one who is apneic, has risk, and it lacks the safety and luxury of seeing conditions as one goes. It is considered sub-standard in modern areas.

Briefly, one must puncture the cricothyroid membrane with an IV cannula or Tuohy needle into the trachea (confirmed by aspirating free air through 4 ml of 4% Lidocaine within the syringe; having done so, the lidocaine can be squirted into the trachea). The cannula, directed cephalad, is to pass a guidewire or epidural catheter until it exits the mouth or nose; or is seen in the pharynx and grasped by forceps.

Current recommendation is to pass the wire into the distal endotracheal tube and out the Murphy Eye; the wire is held taut (or clamped at the neck entry) to allow the tube to be slid down the wire past the cords into the trachea. Hang-up can occur at the arytenoid cartilages, so the bevel should be rotated 90° or 180° leftwards to pass over the bumps. Alternatively, a long catheter passed over the wire can enter the trachea and ease the passage of the tube a bit further into the proximal trachea. Once the tube is confirmed in correct position and is secure, the wire can be drawn outwards. In the past, the wire would be tied to the Murphy Eye and used to ‘pull-down’ the tube. This offers less control, and the wire cannot be released.
Reference Readings:

Dr Chris Nickson. **Ludwig angina.** LITFL-Life In The Fast Lane. Last update April 23rd, 2019.

Dr Ella Burden. **The True Angina.** LITFL-Life In The Fast Lane. Last update March 16th, 2019.


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Dr. Laura Duggan on Twitter: "Ludwig’s Angina. Cannot open mouth ...
https://twitter.com/drlauraduggan/status/923026027298693120?lang=en

Oct 24, 2017 - **Ludwig’s Angina.** Twitter discussion of Airway Management in Ludwig’s Angina; emphasizing AFOI, minimal to no sedation, verbal sedation, topicalization, etc.

https://www.ecronicon.com/ecan/anaesthesia-ECAN-02-00007.php


AL HARBI, Mohammed, THOMAS, J., Khalil, H. N., Said, H. N., Wannous, S., Abouras, C., ... & Dimitrou, V. (2016). **Anesthetic management of advanced stage Ludwig’s angina: a case**
report and review with emphasis on compromised airway management. *Middle East journal of anaesthesiology*, 23(6), 665. [Open Access] [PDF]


# 309 The Master Gland

“This is so crazy. I can’t believe it. My periods were erratic and stopped; I thought that it was the IUD. I’m really close with my sister, she got pregnant, and my breasts got larger and leaky: I thought it was a sympathy thing. I’ve been having headaches, so I went to the Optometrist on my lunch-hour, ‘cause my eyes are bothering me, to get my glasses checked. And, she sends me here because I might have a tumor in my head! What’s going on? “Did she give you a note for me?” “Yes, here it is.”


You say to the patient, “You have a very good eye doctor.” “Tell me about your vision right now. What is it like? ‘Well, if it were a TV screen, each eye is only seeing the center-part where my nose is, and missing the outside of each screen.” “Let me do a quick exam, and then make some phone calls.” “Do you need to make any phone calls?” “I’m OK, my sister is on her way.”

“I’ve made some calls. Your exam is consistent with what you’ve told me and what the eye doctor told you. We’d like to do a CT scan of your head; it doesn’t hurt.”

“The CT shows growth in the front part of your pituitary gland that controls a lot of hormones. This is probably an adenoma which, likely, is benign. It has probably been secreting Prolactin that makes your body feel a little pregnant and accounts for your periods and leakiness. It sits underneath where the eye nerves cross and having grown upward is putting pressure on that which accounts for your vision changes, and headaches. With the change in peripheral vision, it would be wise to not drive until you’ve been cleared by a Neuro-Ophthalmologist.

“We’d like you to see a Neurosurgeon; which doesn’t necessarily mean you need surgery, but they know a lot about these things. We’ll draw some blood for basic labs, and some hormone levels. There’s more that you will need to do to decide the right plan, but these things will get you started. Good luck to you. It was a good thing to get your eyes checked today.”

# 310 “Strangely Altered”

You are momentarily the “Provider In Triage” when an ambulance arrives with a sixty-five year old woman who is said to be “We were called for ‘Weakness.’ (She’s) strangely altered —It’s some weird stroke, maybe? Her speech is funny, but there’s no facial droop or limb weakness …
she talks really slow, is that a word-finding problem? She talks like a 78 RPM record played at 16 2/3rd RPM." Vital signs are low and slow. She appears unwell, but not circling the drain. "Bring her into my exam room; I’ll take care of her myself."

Nurses and Techs help with settling the patient, attaching monitors, doing an ECG, placing an IV lock and withdrawing blood samples from it for point of care testing and to the laboratory. During this, you note that she is oriented, replies appropriately with normal sentence structure, and knowledge, but slowly spoken. You decide that there is no stroke-like dysarthria or speech area malfunction; it is a low-pitched gravelly sound column being articulated.

You’ve noticed that the gray disheveled hair is thin, dry, and brittle (with patchy loss), as are the nails, the skin is puffy in a brawny way, but decidedly cold despite blankets. She admits to chronic constipation. Vocal cords by mirror inspection show a swollen bumpy appearance. The neck shows a faint thyroidectomy scar. "How have you been getting food and groceries without going out." "My neighbors bring me what isn’t delivered. I don’t eat much since my husband died a year and a half ago; sometimes I just have tea and toast. They talked me into calling the Doctor; I haven’t seen him in years." You say to her, "I’d like to have you stay in the hospital for a few days. I think that your Thyroid Gland is running very low. With some medicine for that, you should feel like a new woman!"

Knowing that there are important principles and comorbidities to take care of, you recheck the patient and progress by nurses, lab results, and consider potential etiologies, occult infection or stresses, new arrhythmias, glucose, hyponatremia, hypokalemia, warming strategy, thyroid replacement, treating likely adrenal insufficiency.

You pick up the telephone, and when answered, say “Come on Down! I’ve got an interesting case of myxedema for you; —yes, and probably some clinical depression to sort out when you get her euthyroid again.”


Wilmar M Wiersinga, MD, PhD. **Myxedema and Coma (Severe Hypothyroidism).** [Updated 2018 Apr 25]. In: Feingold KR, Anawalt B, Boyce A, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. {Endotext is a “comprehensive free online endocrinology Book}"

**A New Look at Thyroid Emergencies Part I: Myxedema Coma.** Emergency Physicians Monthly. EM:RAP presentation in March 2010. This summary, by Stuart Swadron, MD FRCPC, is of that interview with Mel Herbert, MD of Dr Jonathan LoPresti.


Bethany Cadman. **What is myxedema and how is it treated?** Medical News Today. Last reviewed Tue 22 May 2018. ©2019.


# 311 A Case of a Weak Merchant Seaman

The Paramedics appear extra cheerful. Instead of waiting for hours by a fire hydrant hoping for a call, their adventure was to meet a “water taxi” that took them to a coastwise freighter, anchored in the bay, to pick up a merchant seaman and bring him to the hospital. The complaint is “weakness”, now about a week’s duration. The ship does not have a Medical Officer.

Normally healthy. No apparent stroke signs. Mentation normal, speaks some English. Two days ago, was seen for this complaint at a hospital in the adjacent foreign country, given IV fluid, and released as “exhaustion.” Had a minor viral illness about six weeks ago. Initially noted some sensory changes in his feet which also began to ache. This progressed upwards leading to difficulty in rising from a chair or walking distances. He became alarmed and asked to be put ashore when his genitalia lost normal sensation and function.

“You know, there’s been no head injury, no one else is sick, he hasn’t eaten any funny wild carrots that could have been hemlock. He’s got a bilateral symmetrical ascending polyneuropathy that’s typical of Guillain-Barre’ Syndrome. If you have him do a Rapid Verbal Count on a single breath, he only gets to about thirty –which starts to be iffy. Can we follow up with you to see how things turn out?”

When next you see the Paramedics, you tell them “Say, that was a really good call that you made on the Guillain-Barre’ Syndrome. His reflexes were either absent or greatly diminished, there was high protein in his CSF, imaging showed no other cause, and EMG & Nerve Conduction Studies confirmed it. He’s stabilizing on a course of Intravenous Immuno-Globulin and managed to avoid intubation.”

# 312 Will you talk to the family?

It’s generally accepted that it’s useful and beneficial to invite family members to view the resuscitation efforts for their loved one. Indeed, when there is an effort to witness, even if by one representative of the group, that the transparency lends credit to the team’s sincerity, and lessens doubt as to ‘they just wanted to harvest the organs.’ The pre-declaration conference recapitulating the failed cycles, asking for suggestions, and polling for agreement to terminate, establishes palpable consensus. Families might ask “Were they sure?” “Yes, they all agreed nothing further would work.”

The Code Director or appropriate representative should visit briefly to affirm what has happened, offer condolences and support services, identify the spokesperson who will help with the documentary information and ‘arrangements’.

Is there a personal style that you can bring to this? Use it. Nothing is more helpful than your own genuine kind nature. There is no perfect script for all occasions. Being measured in your responses, seeming not to be in a hurry, even if time is short, promotes calm, indicates respect, and permits family to think and plan. “I will have people come to help you, but I must now return to my other patients.”
# 313 Life-Threatening GI Bleeds

Among the ‘Uh, Oh’s of emergency care is confronting a critical patient who is actively bleeding from the gastrointestinal system, a situation which can call for maximum effort, many helpers and consultants, and can drain the resources available. Best results occur when there is preplanning among the working elements: *e.g.*: the ED team, resources, and readiness; the Blood Bank, and messengers; available services and places, *i.e.*, GI and their endoscopy lab; OR, surgeons, anesthesiologists; Intensive Care team and unit beds; Laboratory & Blood Bank; Imaging services and Interventional Radiology.

‘Maximal effort’ may deplete your staff resources slowing the care and flow of the department until the patient is successfully moved to an appropriate care area ‘upstairs’. Even the cleanup of the used (and contaminated) code room will take longer than usual. Appropriate Personal Protective Equipment must be worn by caregivers within ‘spewing’ range lest spatter, droplets, and aerosolization, infect those trying to help.

Make lists of supplies that must be at hand: suction, airway control, resuscitation equipment; vascular access supplies (lines/labs/rapid infusion & warming tubing); rapid infusors with warming capability; Balloon Tamponade setup; active warming blankets (versus cold coagulopathy) (*minimize exposure*, also!).

Your ‘Massive Transfusion Protocol’ should be a posted and practiced reference.

Human resources include the call-list of specialist services, but also messengers to fetch blood supplies, telephone/computer folks for calls, taking results, keeping higher-ups and ED patient flow informed, holding elevators; etc. Portable X-Ray often needs to confirm ‘big line’ placement.

Family in the waiting room need to be interrogated, informed, allowed to visit when feasible.


Angela Hua, MD *Intubating the Gastrointestinal Bleeder*. emDocs.net. January 14th, 2016


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### # 314 Myasthenic Crisis

Myasthenia Gravis is a fascinating autoimmune neuromuscular junction disorder that leads to neuromuscular weakness, sometimes respiratory failure when in crisis, and assorted ocular and bulbar symptoms. It can be managed but not cured. It is subject to crisis when stressed by infection, deprived of medication, other stressors, or idiopathic.

"**MC can be differentiated from other neuromuscular junction diseases by the presence of normal reflexes, normal sensation, lack of autonomic symptoms, lack of fasciculations, and worsening weakness with repetitive motion. Treatment should target the inciting event and airway support.”** [Roper]

Salient Points:

- Consider impending crisis in any ill myasthenic patient.
- Monitor respiratory status and closely observe. SPO$_2$, ETCO$_2$ continuously; MIF/MEP interesting, but effort dependent; FVC most reliable and consistent.
- When treating crisis, also find and treat cause!
- Avoid anchoring bias, Myasthenics are subject to *ordinary* ailments also.
- Choose antibiotics carefully, with pharmacologic consultation. [c.f., "farkas" for brief list to avoid.] Aminoglycosides; Fluoroquinolones; Tetracyclines, clindamycin; Macrolides (e.g. azithromycin, erythromycin)
- Myasthenics may be adrenally insufficient due to chronic steroid treatment.

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• May need high-dependency or intensive care hospitalization.

• Try noninvasive respiratory support or high-flow cannula first, if possible, unless ETI unavoidable or likely prolonged.

• If intubating, **NO Succinylcholine; use -50% nondepolarizing NMB** (Rocuronium). [Farkas IBCC]

• Have Neurologist see patient, especially if pt. known to him/her.

• Inpatient management may include plasmapheresis or IVIG.

• If weakness severe: HOB 30°, comfort, Turn Q2H, avoid pressure injuries or shearing forces. Consider Aspiration Precautions.


Josh Farkas, MD. **Five pearls for the dyspneic patient with Guillain-Barre Syndrome or Myasthenia Gravis,** PulmCrit. (EMCrit.org.) February 22nd, 2015.

Kumar Ghandi, MD. **Management of Myasthenia Crisis in the ED,** NUEM Blog. {Northwestern Univ.} November 5th, 2018.


N.B. There is a sequence of pages with question-answer format, separately linked and **not** listed here, but distinctly part of this resource, increasing its utility.

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**# 315 “I'm going to wash that air right outta' my man!”**

All procedures have some risk, of which, one of the most dangerous is air embolism. Attention to detail, monitoring, and careful technique usually prevent iatrogenesis. Faulty devices, patient agitation, sudden large-volume rapid-rate inspiratory breaths, may exceed the pressure gradient causing air to enter the vasculature. In trauma patients, wounds to great vessels may allow air to enter. Most emboli are venous.

Detection may occur if the air leak is noticed, or by the patient’s distress and collapse. Immediate action for venous air embolism is steep Trendelenberg’s Position (entry point below heart level), left lateral position, and attempting to aspirate the air. It is hoped that the bubble rises to the ventricular apex where it may have less of an ‘air-lock’ effect. [Durant] There is some work that suggests either lateral position may be detrimental. [Simon] If the embolism is arterial rather than venous, the patient should be supine and level to minimize travel of the bubble.
If you were using ultrasound to prepare for the line, it can now be used to visualize the heart for confirmation. A low-tech means of procedural monitoring (when the machine is otherwise being used) is the classic anesthesiologist's monaural earpiece connected to a precordial stethoscope with an adhesive ring. Commonly called a “Mill Wheel murmur”, the sound of an air-blood mix being churned, to me, sounds like an old washing machine. CT may be necessary to determine effects on the brain or other organs which may be infarcted.

Oxygen should be given and cardiovascular supportive treatment. There may be a role for Hyperbaric Oxygen Therapy, if available.

Call for help: Anesthesiology, intensivists from Critical Care, Pulmonary, Cardiac, or Neuro, as indicated. There may be a lot to do until the patient is stable and the situation is controlled.

*{Apologies to Rogers & Hammerstein}*

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# 316 ‘There’s a whole lotta shaking going on’!

California has been having a series of earthquakes. California lives under the constant apprehension of ‘when will be The Big One?’ ‘The Big One’ – a fearsome cataclysmic temblor of the earth being thrown up; Man’s mightiest works and infrastructure being thrown down, fire and chaos all around; and a lack of water, resources, shelter, or food; perhaps on the very edge of social disorder. It is the nightmare that is hoped will never become real. Remarkably, California has been very fortunate over the years with the earthquakes that have occurred never qualifying in experts’ views as The Big One,

With relative scarcity of large earthquakes in California, the population has greatly increased. In 1910, four years after the San Francisco Earthquake and fire, 2.377,549 persons lived in the state. [Census] Currently, ~forty million people live there. “One of every eight US residents lives in California. By 2050, California’s population is projected to reach 50 million people.” [PPIC]

Few recent residents have practical experience with earthquakes. Largely urbanized, people are dependent on employment and wages for subsistence, (and may be living ‘paycheck-to-paycheck’ and on ‘credit debt’). Unlike a subsistence population of yore ‘putting up (farm surplus) for winter’, it is probable that very few Californians have made substantial preparations for disaster and hard times. Many look to the government to come to their rescue when the supermarket is empty. Remembering Hurricane Katrina, this may be trust without worth.

Injuries and deaths are directly related to the closeness of the earthquake to population densities and built-up areas. Sparsely settled areas are not similarly impacted. All states have had earthquakes. In US history, the largest area affected (Dec. 1811- Feb 1812 New Madrid Seismic Area) and the most intense (1964 Alaska) were in rural areas. 1906 San Francisco,1989 Loma Prieta, 1994 Northridge, and 2014 Napa earthquakes, are examples of moderate-large earthquakes in built-up areas surrounded by regional resources left relatively intact.

So, what do you and your family need to do? Preplan and talk out contingencies, how to communicate, alternate reunion points. Extra water, food, household supplies, stocked over time. The government suggests a three-day supply and a backpack; in reality, you may need two weeks supply before potential relocation, possibly longer. Know what your children’s schools will do. Consider keeping copies of important documents encrypted in cloud storage, safe-deposit boxes, and flash drives.

Your car should always have at least a half-tank of fuel in your car. Remember, gas stations or charging stations don’t work without electricity. If roads are impassable, or your car is disabled, you will be glad to have a “Get Home Bag.” You will need sturdy shoes or boots, a map, communications, batteries and solar charger, flashlight, money, some water and snacks, essentials for one to two days to walk home.

At work, if you have a locker, keep some extra uniforms and personal items if you are ‘held over’ for several days before you can leave. If using public transit, this might be where to keep the “get home bag” or something similar for your circumstances.

So, apart from immediate actions such as sheltering under a sturdy arch or heavy furniture, staying away from falling wires or falling buildings, there are worthwhile plans to make and things
to prepare. We never know when an earthquake will affect us, but we do know when we have
failed to prepare.

[Census]
https://www.census.gov/population/www/censusdata/PopulationofStatesandCountiesoftheUnited
States1790-1990.pdf

[PPIC] https://www.ppic.org/publication/californias-population/

# 317 RELAX!!
(It can't be done.)
Whenever a patient is anxious, agitated, or actively resisting the procedure, count on it, someone
will firmly say, or bellow, Relax! Does it work? No. Does it ever work? No. Never.
One cannot command a person to relax.

Put yourself in the mind of the patient. You are in pain or anticipate pain. You are frightened and
fearful. You are, or anticipate being, restrained and forced to endure something that seems
awful. Would you, could you, should you relax because some oppressor commands you to?
In fact, isn't it that one of your tormentors really means “Submit!” “And, quit bothering us!”

The game is already nearly lost and may be potentially irretrievable without a ‘time-out’ and a
meeting of minds, or by resorting to pharmaceuticals.

It’s better to start, beforehand, building a relationship, explaining from the patient’s point of view
why he/she wants what is to be done. Express to him/her the goals he/she is likely to have (the
why of presentation). Alternatively, draw these forth with a series of questions that are likely to be
answered “yes.”

Tell what sensations to expect, and how to minimize them; say what you’ll do to minimize or
control them. Suggest, e.g., “you may be tempted to tighten up if you’re getting uncomfortable,
but that just pulls against the parts that hurt. If you stay loose instead, you can breathe through it.
Breathe all the way out and your body can’t be tight.” Keep drawing out acknowledgements and
agreements that can only be answered “Yes.” Each sequential “yes” builds a rapport and
inclination to follow your suggestions as you talk him/her through the procedure.

Anticipatory guidance and adjustment of expectations de-stresses the patient and lessens the
startle effect of any surprises. Suggesting coping hints helps the patient to feel more in control.
Providing a distractive focus can do much good. “If it’s really bothering you, you can squeeze my
fingers as hard as you want (offering three fingers in a cone will prevent injury). Staying with the
patient, continuing to talk through it, helps preserve the spell while it is needed. Be sure to offer
that they should heal quickly and well carefully following the instructions and advice that will be
given them. “You will do that, won’t you? —To get the best possible healing, will you do that?”
“You’ve done so well with this; I think you won’t have a problem again.”
#318 The *Quiet Code Room*

Code Rooms, with a patient *in extremis*, are notorious for being *noisy* places with a maelstrom of activity and rapid verbal exchanges. Messy, too, as we often see, with photos thereof posted as testimony of effort. I’ve always been powerfully impressed by instances of codes that were quiet and calm; it is a fine thing towards which to work and to achieve.

When purposeful activity is done by a well-practiced team, familiar with each other, their roles, and protocols, little needs to be said, and when said is calm, there ensues an awesome serenity in which the mind works freely, and noise pollution does not drown out mental activity at work on continuous assessment, task-direction, diagnosis, and treatment. Too often, this is only in the minutes before declaration of death and terminating resuscitation.

We forget that the noise *increases our* stress and depletes our reserves. We can reduce some of the ambient noise, and moderate our own utterances and activity, so that not only *this* code is smoother, but our own lives are healthier with fewer catecholamine surges stressing our bodies and souls.

When the patient is on a ventilator instead of a BVM, the room is quieter because high flow open oxygen sources can be turned off. Suction sounds are less when a closed-circuit suction unit is attached to the patient’s airway device. Monitor and alarm sounds, while never being off, do not have to remain at full volume.

Sounds of ripping packages, clanking of equipment, dropping of side-rails, clatter of instrument trays, the slamming of cupboards and drawers, require a little personal thought with tasks, and can become prevalent by sharing a culture within the department of quiet whenever possible. It’s not always easy to be consistent, but when it’s successful it will be noticeable and should be commended and reinforced.

We don’t do less for the patient, or with less haste, only how we do it. Having tranquility is therapeutic to the patient, and to us!

#319 The *Classic 'Exquisite Pain' … Gout*

*A swollen and inflamed foot: gout is represented by an attacking demon.*

When tremendous inflammation, swelling, and pain occurs in small joint spaces, great pain results, so intense that patients often cannot bear the weight of a single bedsheet on their toe. When naturally occurring uric acid from purines accumulates in the body, the needle-like crystals can deposit in any joint, or many, (often the base of the great toe, but foot, ankle,
knee, fingers, elbow, or shoulders, or into skin as tophi. In 90%, this happens because they are 'under-excretors' often due to renal insufficiency, only 10% are 'over-producers'. Other factors can be obesity, alcoholism (especially beer-drinkers), eaters of "red meats, internal organs, yeast, shellfish, and oily fish." Males>Female 10:1. British Men vs other nationalities: 5:1. Classically, a sudden nocturnal monoarticular inflammatory arthritis usually in the base of the great toe but can occur elsewhere.

- Rule out Septic Joint.
- Treat the Acute Attack.
- Consider comorbidities and risks before prescribing.
- Serum Uric Acid levels are not helpful during acute attack.
- Colchicine is a drug with toxicity to be avoided. NSAIDS may worsen kidney status & upset stomach. Trend to Steroids for quick resolution, and short course less likely to worsen stomach, if cautious (other considerations may apply). New drugs have appeared for complicated cases.
- Follow up essential.
- Serum levels of Uric Acid, ~2 weeks after resolution of symptoms.
- Controlling Hyperuricemia is a chronic issue.
- Patient must learn to prevent attacks (if >1) by prophylaxis

Wellcome Collection. A swollen and inflamed foot: gout is represented by an attacking demon. Coloured soft-ground etching by J. Gillray, 1799. Credit: Wellcome Collection. CC BY. Article & Large Images.

Gordon K. Lam, MD, FACR. & Daniel P. Evans, DPM, FACFAOM. Evidence Based Medicine and the Treatment of Gout. PDF of PowerPoint presentation at 2018 Annual Scientific Meeting of American Podiatric Medical Association by a Podiatrist and a Rheumatologist.


FDA Drug Safety Communication. FDA adds Boxed Warning for increased risk of death with gout medicine Uloric (febuxostat). Content current as of: 02/21/2019.


# 320 Sharing the airway during GI endoscopy
The Unprotected Airway (EGD vs Meat Bolus)

~0200 hours, a patient came in with “something stuck in his throat,” —an esophageal food obstruction of meat that wouldn’t move. Some secretions may have been able to drip past, nonetheless, the patient was uncomfortable.

A Gastroenterology consult came to the ED to see the patient. They decided to do endoscopy in the ED due to the hour, so as to remove the impaction and inspect for injury. No doubt, they also thought of how the Emergency Physician could give propofol anesthesia (perhaps not available to them, then), provide nursing staff, and to arrange disposition at the end.

The patient was moved to a Code Room, and the space available then filled with the GI “Tower of Toys” (large procedure cart) two Endoscopists; the EM physician barely had room at the
side of the bed to give IV propofol. Access to critical resuscitation equipment to the airway position at the head of the bed would be sharply limited.

The endoscopy would be done without an endotracheal tube: an unprotected airway. Fortunately, this bed was one that had two ways of moving to Trendelenburg’s Position to drain the airway. Most people just pump the bed higher and lower the head. This had a foot bar that could be hand-lifted to do this tipping instantaneously. Watching the patient and monitors would be from here. *How do your beds work?*

The procedure went well, (patient asleep, stable vital signs) but vulnerable. The instruments worked at the bolus, … *when* a firm tug upon the meat dislodged it! Suddenly, the patient vomited copiously (a great risk for an unprotected airway in unconscious sitting patient)!

The head of the bed was put down (flat) and the suction tip (already running) was picked up by GI to suck out the airway; with warning the foot bar was strongly raised giving steep tilt. The EM physician gave more propofol to deepen the anesthetic, suppress the vomiting reflex, and prevent laryngospasm from stimulation of the airway if less unconscious.

Squeezing past the Tower of Toys, the patient’s airway was suctioned, BVM ventilation by Triple Airway Maneuver, with two-persons inflated the lungs easily, and slight desaturation of oxygen corrected within a few breaths. The patient was raised to ↑HOB and as his own breathing returned, managed his own airway.

The patient awoke without memory of the incident, in no distress, breathing easily. All was explained to him. A chest X-Ray was done to check for aspiration or perforation. He was observed until ready to go home, and follow-up was arranged. His follow-up was without issue. A potentially fatal event was controlled and prevented by pre-planning, anticipation, preparation, and immediate action with equipment ready.

Response to ‘medical’ therapies: *i.e.*, Glucagon, Nitroglycerin, Benzodiazepines, is variable, unpredictable, and often unreliable, yet sometimes a ‘trial’ of Glucagon may be attempted before endoscopy to lessen the grip of spasm.

Consider carefully the implications of a polite request for out-of-hours procedural assistance. It can be wise to invoke Anesthesiology for Monitored Anesthesia Care, or simply go to O.R. and intubate. Likewise, the patient can be induced with a target-controlled infusion to avoid the peaks and valleys of bolus dosing.

*What’s the quickest way to lower your beds to an airway drainage position?*


American Society for Gastroenterological Endoscopy: Guidelines.

KO Kragha. Complete gastroesophageal obstruction by food bolus. *ApplRadiol*. 2016;45(9):40-44. [PDF]


**# 321 Retinal Artery Occlusion**

The TV on the waiting room wall began a few minutes ago with the Late Evening News of the day, and the receptionist waves you over. Your facility has a policy against giving telephone advice, but the receptionist looks worried. The caller asks if he should call his eye doctor in the morning for an appointment. The vision in his right eye has suddenly gone dark, but it doesn't hurt!

"Where are you now?", you ask (calculating travel time). "This can't wait until tomorrow, —Is there someone who can bring you here right now?" "Ten minutes? Good, be careful." You make quick calls for expert help and imaging, and for Triage to expedite the Patient direct to the Eye Room. (Beware of multiple little time-sucks). You quickly examine with slit lamp and POCUS, and your consultants arrive.

The critical emergency to vision is, essentially, an ischemic stroke of the eye. Permanent damage occurs rapidly, while some treatment attempts have resulted in less-severe damage, there is seldom complete restoration. Ophthalmologists have previously differentiated that if the patient was stable without other neurological signs, then follow-up was less urgent. Increasingly, it is felt in EM, Neurology, and Neuro-Ophthalmology, that is an ocular manifestation of systemic disease, and that for same a full-on evaluation for TIA/Stroke processes is indicated.

Efforts have been made for intravenous thrombolysis, but results have been disappointing and studies have been halted due to bleeding risk. Hyperbaric Oxygen Therapy has also been tried, with the usual limitation of scarcity of HBO facilities and inability to randomize for trials.

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Consider the resources below and consult your facility’s policies and specialists:

Joe Walter, MD; R. Eric Minnihan, MD; Tom Masters, MD; Chris Logue, MD; Bjorn Westgard, MD; Stephen Hendriksen, MD. Edited by: Alex Koyfman, MD; Justin Bright, MD. Central Retinal Artery Occlusion. emDocs.net. February 4th, 2016.


Jennifer I. Lim, MD. Retinal Artery Occlusion. EyeWiki, the Eye Encyclopedia. American Academy of Ophthalmology. This page was last modified on May 15, 2019, at 14:39.


# 322 Using a Microphone Well

You’ve often given little talks, lead a meeting, or introduced a speaker. But, without a background in acting, singing, broadcasting, or military signals, you most likely have never been instructed in using a microphone. “Well, shouldn’t the microphone take care of everything?” It can, but only if it’s used well; it can ruin your presentation, also. At some point, your abilities will put you into a larger venue where a sound system is used, or a podcast/video is to be made.

- Prepare well and be rehearsed; avoids nerves, gives confidence.
- Your show should also have a recorded narration in case of laryngitis or other problem.
• Your show should be saved in various formats & multiple devices, for AV difficulties, or loss.

• Be briefed by “the AV guy (sound engineer)”. Be early. He’ll be happy to tell all that you need to know. Do ‘sound checks’ if asked.

• Ask what **pick-up pattern** for mic. Omnidirectional (speaker phone). Cardioid = narrow heart-shaped near mic, slightly to side, rejects other. Clip-on or Lavalier = body-worn for your voice. Position self for good pick-up. Not too close.

• If you’re using a body-worn microphone, find out how to mute or remove the gear *before* having a private conversation or going to the restroom.

• If using own or borrowed equipment: Extension cords, outlet adapters, spare bulbs/parts, flashlight, Murphy’s Law.

• If you have a speech problem that embarrasses you, rewrite your talk, or rehearse it well to lessen it. There may be a different way to express your thought. Sibilant S’s, percussive P’s, clicking dentures, wheezy nostrils, are notorious problems; a ‘wind-sock’ or screen may help, and a bit of distance from the mic.

• *Don’t* put mic in front of mouth/face. People want to see you, read your lips, avoid ‘pops’. Don’t go ‘rock-star’ as if you’re eating the mic like a banana.

• Use mic *as if you don’t need it*. Have good light upon yourself. Stand up. Speak up. Speak out. Make voice *somewhat louder* (don’t shout-distort). Be *clear* (good diction). Modulate voice and tone a bit more than normal. Singers'/Orators’ voices can fill hall without amplification; you can too; practice. Avoid speaking rapidly; harder to understand sounds.

• Wait for audience to quieten before speaking. If audience drifts into chit-chat, wait for quiet, and perk up your talk.

• With continuing practice in ‘public speaking’, if mic fails, you will still be heard.

• If planning to speak softly, for effect, or whisper, test and practice first. Avoid is best.

• If mic is on stand, *always adjust!*

• If sharing hand-held mic, pass without dropping or extraneous noises. Hold for another in correct pick-up pattern. Wait for finish before changing.

• Avoid feedback! (The horrendous squealing when the microphone is out in front of the speakers; the circle of sound created will destroy the talk and the audience.)
Collected Clinical Tips from Advanced Emergency Nursing Journal, by The Editors.

- Watch audience for signs of frustration from not hearing. Ask if being heard well.
- While working with mic to maximize its capabilities; seem to ignore it for a naturalistic appearance.
- Don’t “drop the mic” for dramatic effect. It’s loud and annoying. If accidental, apologize and move on.
- Rehearse, record presentations with microphone, to become adept.
- Be a critical listener studying how ‘personalities’ use mics to their advantage.

# 323 Tourniquets —Times are Changing

In the days when a tourniquet for extremity bleeding was a 'last resort', I leaned to carefully and effectively apply a 'cravat and stick' ‘Spanish Windlass’ tourniquet. I used every skill to control bleeding. In a very long career, as chance has it, I’ve never applied one. I don’t regret it. I’ve removed some that were ineffective and not helping; I’ve removed some that were making things worse. Generally, amateurs “improvise’ tourniquets very badly.

The military has researched why troops die of survivable injuries and how to treat them. Massive hemorrhage from limbs is #1. Every soldier now carries a tourniquet as the most effective, rapid, and surest way to stop torrential bleeding. Limb survival with tested and recommended tourniquets may be as long as eight hours.

Armed agencies and public facilities, learning the military’s lessons have, in response to mass shootings and IEDs (Boston Marathon), started issuing tourniquets and “Stop the Bleed” kits for officers, schools, response units, and public AED cabinets.

There are some differences in military and civilian violent trauma. Heavily armored troops are more susceptible to penetrating and blast trauma of the extremities. Civilians are less likely to encounter blasts, and deaths from shootings are largely GSWs of head or torso. Head GSWs are more likely to be unsurvivable, and torso injuries are survival-dependent on time-to-surgery.

Military Survivable injuries are a relatively small number of all deaths and injuries, but most of them have potential to be saved. Each person is trained and equipped to help. Considerations for aggressive measures include: Care Under Fire, Tactical Field Care (by a medic), so that the casualty survives to, and through, Tactical Evacuation (to hospital).

Civilian Survivable injuries suffer from ignorance, apathy, and unwillingness to be involved; in most situations, care has to wait for a responder to safely enter the trauma area. Consider how rare it is to see mouth-to-mouth artificial respiration given. Hands-only CPR is insufficient for apnea and hypoxia.

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While cravats and dowels, skillfully applied and distal pulses checked, do the job, it's better practice to use recommended tourniquets as more rapid and reliable (check the distal pulse) so that you can move on to the next casualty. Likewise, while I take pride in my bandaging skills, I'm switching to field trauma dressings of the “Israeli” style that are complete, rapidly applied, have compression ability, and don’t require expert skills and knots; they are more likely to be effective for minimally trained citizen rescuers. Also keep wound packing material to tamponade bleeding at the source and fill the cavity, helping an over-bandage to work better.

Cost of recommended military-grade goods is, not surprisingly, expensive. Tourniquets run ±$30 USD; if what you’re offered is much less, then it’s one of many counterfeit clones, often faulty. For reliability and peace of mind, buy authentic ones from the manufacturer or verified sourcing.

CoTCCC is the military health agency that disseminates recommended care, which is influenced by field exigencies and the military population.

CoTECC, Committee on Tactical Emergency Casualty Care, in the civilian world establishes guidelines for prehospital care in the tactical or adverse circumstances. Training providers include the National Association of Emergency Medical Technicians.

**Tactical Casualty Care Mnemonic**

**M**assive Hemorrhage: Tourniquets, Dressings, Compress Accessible Bleeding.  
**A**irway: Nasopharyngeal airway if altered consciousness.  
**R**espiration: If Tension Pneumothorax, decompress.  
**C**irculation: Give Tranexamic Acid. Replace lost blood with whole blood, blood products, or colloids; avoid crystalloids.  
**H**ypothermia: Cold blood doesn’t clot; keep warm, apply warmth.


**Care Under Fire – Hemorrhage Control.** DeployedMedicine.com. Excellent Summary, Background, Video Demos, Tips, Common Errors.

DeployedMedicine.com. Many free resources.


Hartford Consensus – ACS. A consensus of organizations, after the Sandy Hook School shooting, to decrease loss of life from bleeding.

Stop The Bleeding Coalition. A charitable initiative to promote public access bleeding kits. “. . . to train and equip the nation to reduce the loss of life due to traumatic bleeding.”

BleedingControl.org. A federal interagency workgroup to better prepare the public to save lives.

# 324 Bee and Wasp Stings

Victims of bee stings, that popular topic of cartoons with schadenfreude overtones, do not commonly come to an E. D., but may when fearful of anaphylaxis, concerned with Africanized bees, or whose parents are dealing with an unhappy child.

Intensity of response seems related to number of previous stings and to aging. Lower body mass (babies and toddlers) may have worse symptoms. A large number of stings in the same event can be fatal from total dosage of venom.

The Honey Bee, with a barbed stinger, eviscerates itself with the sting and dies. The ‘poison sac’ is usually present in the wound and its muscle contracts for ~30 minutes squeezing more venom into the wound. Conventional advice is to avoid grasping and squeezing the sac with forceps but instead to ‘scrape it out’ teasing with the edge of a plastic credit card or a fingernail. This should be done immediately to limit the injection. The stingers of other Hymenoptera insects are barbless and may be used repeatedly in the attack.

The most serious diagnostic and prognostic question is whether it’s an entirely local reaction (even if large swelling) to the sting site, or are there systemic effects suggesting an anaphylactic reaction?

Anaphylaxis is the most feared concern in sensitized individuals. “This severe reaction to bee stings happens in 4 out of a 1,000 children.” (sic) {Seattle Children’s} “During 2000–2017, a total of 1,109 deaths from hornet, wasp, and bee stings occurred, for an annual average of 62 deaths. Approximately 80% of the deaths were among males." (CDC) Highly sensitive persons should carry the means of self-injection of Epinephrine/Adrenaline, a repeat dose, and activate 911 at the beginning of anaphylaxis symptoms.

Professional treatment of Anaphylaxis will include: Epinephrine/Adrenaline, Glucacon if also beta-blocked, Corticosteroids, H1 & H2 antihistamines, bronchodilators, early intubation if airway swelling occurs or respiratory distress.

The envenomation effects will be present for some days to come; the patient and family should be told this. Subsequent cellulitis is also possible from scratching fingernails.
In self-care of ordinary stings without hypersensitivity reactions, an antihistamine is useful versus itching and an analgesic lessens pain. Applying cold to the wound eases pain and swelling. Various topical remedies have been suggested for relief. It is good to know what public advice is offered by professional organizations and popular health sources and several are included below.


Centers for Disease Control and Prevention. USDHHS. 140 search results returned for bee stings.

American College of Allergy, Asthma, & Immunology. Insect Sting Allergy. https://acaai.org/allergies/types/insect-sting-allergy [Public Advice Page] “This page was reviewed and updated 2/5/2018.”

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# 325 One Blade To Rule Them All?

It’s common to find that many emergency clinicians prefer using a MAC4 blade for most/all intubations, whether in DL fashion, VL manner, or a combined unit (i.e. not hyperangulated). Generally, a ‘German’ (low-profile, flatter) contour rather than the deeply flanged ‘American’ contour, or ‘English’ (more curved) blade. [Levitan, RM] The thinking being “I don’t want to have to switch if I need a longer blade.”

Errors can still occur, e.g., “Just sink it to the hilt in the esophagus then pull back until you see cords.” This is implicated in iatrogenic airway trauma or, as with other blades, excessive lifting force can ‘tent’ the esophagus into a triangular shape that is mistaken for the trachea (instead, look for vestibular structures: arytenoids, anterior commissure, view of true & false cords). It’s preferred to identify structures progressively as you march the blade towards epiglottoscopy.

Over-insertion is a bane when the VL camera makes the view too large by being too close (>50% of screen) leaving little room to manipulate the tube or bougie.

Caution in smaller persons, children, and infants, may still allow success, though sometimes Mac used as Miller is needed with Ω-shaped or long floppy epiglottis. The use of only the distal end of a MAC4 in an ‘average adult’ or smaller airway has different leverage, angulation, and requires a finesse.

Sydney HEMS has excellent videos from its AiR Registry.

“The CMAC Mac 4 blade was used to team satisfaction recently in a 7-year-old, a 4-year-old, a 3-year-old and now an 18-month-old. Teams used this Mac 4 in preference to a direct laryngoscope Mac 2 blade, citing the team benefits of the video screen:

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allowing optimal external laryngeal manipulation by an assistant using VL
ensuring both team members can maximally contribute to troubleshooting of any difficulties”

Sydney HEMS. Paediatric intubations with CMAC Pocket Monitor Mac 4 blade. [From AIR – Learning from the Airway Registry (July 2019)]

Sydney HEMS. Really Long Epiglottic Tunnel. (Blade not used as Miller.)

Sydney HEMS. ELM Closing the Cords

Levitan, RM. in Farkas, Josh. 10 Pearls from the Levitan Airway Course. October 13th, 2014.


“Demystifying Pediatric Laryngoscopy by Rich Levitan, MD on January 19, 2011”

“Avoiding Common Laryngoscopy Errors, Part II by Rich Levitan, MD on April 7, 2011”

# 326 Alternative Universe

As a practitioner, whether you are also a CNS, or simply by virtue of your advanced preparation, it’s likely that you have some teaching duties. Everyone who teaches struggles with “How can I present things differently?”

You want to work with clever colleagues who are resourceful. Try giving them opportunities to test themselves. Challenge them to discover or demonstrate alternative uses for ED equipment and supplies.

How to contrive this? Popular choices might be surveys; the old ‘treasure hunt’; labeling objects in the ED to be discovered and answered; a workshop brainstorming session with a ‘bag of tricks’ displayed; secret spy assignments (answers supposedly not shared); different teams given different categories of objects.

- Defibrillator pads. Chest wound seal. Consider snipping off wire to avoid confusion. Label as GSW, etc. N.B. “Everyone” suggests this, but it may be hard to find high-grade EBM or Mfr’s instructions saying so.

• Persistent leak of LMA. Radiology lead shield for thyroid gland. 

• How to mask ventilate a baby or child with a larger mask. [Invert mask, broad part 
  across nasion - avoid eye pressure- pull chin into mask apex] 
  How to use adult mask on toothless patient? [Seat inflated cuff of mask into mouth, pull 
  lips & chin into cuff]

• Cuffed endotracheal tube. Esophageal Diversion of emesis or UGIB hematemesis. 
  Thoracostomy tube. Tracheal tube for cricothyrotomy or laryngectomee. Use as 
  pharyngeal tube if face too distorted for mask. [Oral cancer or surgical changes, trauma]

• Bivalve Nasal speculum to open phimosis before catheterization.

  Splinting and padding. Pelvic Binder or abdominal wrap. Cover wet spots on floor. Sky 
  hook. Drapes for emergency delivery. ‘Horse Collar’ neck support.

• Empty IV Bag or Evacuated Bottle. Extreme volume overload or CHF. Paracentesis of 
  ascites. Hemochromatosis.

• Flashlight used to transilluminate larynx for visualization with soiled airway or dim 
  laryngoscope.

• Carbon dioxide fire extinguisher to chill escaped rattlesnake “We brought the snake.”

• Sugar to reduce swelling of prolapsed stoma, hemorrhoids, rectal or uterine prolapse.

• Elastic head strap from oxygen mask to reduce swelling and release trapped ring.

• An airtight clamped sphygmomanometer cuff can be used to maintain steady pressure 
  on an extremity wound.

• Malleable aluminum splints or stylets used as cable hooks for monitors.

• Skin marking pencil or felt-tip marker to ID cricothyroid membrane before difficult 
  airway.

• Plastic oxygen tubing can be used as endotracheal tube ties.
# 327 A Weighty Matter with Massive Risk

Accuracy of charted patient weights is a recurring problem in the emergency setting where data is scant, and a felt need to ‘guess’ is assumed, wherein lies the danger of incorrectly calculated weight-based medication dosage. Authors from the Institute for Safe Medication Practice present excellent examples in this month’s Journal of Emergency Nursing.

Not a new issue, the ENA Position Statement, now three years old, combines prior statements for pediatric and adult patients. We know what best practice is but must more fully incorporate it so that each patient receiving a weight-based medication, e.g., anticoagulants, anesthetics, pressors, has a recorded timely actual weight in metric units. Triage staff especially, and bedside caregivers, must assure such a weight in any patient who is likely to have an accelerating worsening of their status.

Experience shows that patients lie or can be mistaken, and ‘guesses’ aren’t good enough or safe enough. Small errors can be dangerous, ‘decimal’ errors are dangerous, large errors can be devastating; the only safe “weigh” is actual measured weight.

It is important that providing adequate various scales and scale-equipped stretchers must be supported by the entire institution as part of clinical support and risk prevention. Monies not spent upon legal damages or fines is valuable money, indeed.

Advanced practice must be supported by an impeccable and consistent foundation of basic nursing expertise. This cannot be from a “we’ve got to do it, or we’ll be blamed” but instead, “this is what we do to do our best for this patient’s problem now.”

DOI: https://doi.org/10.1016/j.jen.2019.06.004


# 328 Dry Tongues, Dry Brains

“The Dictum of Dry” is “Placing a container of water near a patient does not ensure hydration.” This may be so because the patient:

1. May not comprehend its need.
2. May not have timely received needed interpersonal reminders.
3. His medications or activity level may preclude perception of thirst or fluid loss.
4. Natural thermoregulation may be impaired by medications.

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5. Air Conditioning may make temperature tolerable, but less humidity worsens dehydration.

6. With incontinence issues, oliguria may be thought a ‘lucky benefit’.

7. The vessel may be too heavy or awkward to lift.

8. Tremor or palsy may discourage self-serving by the patient. Straws or ‘Sippy Cups’ may be needed.

9. The vessel was moved for another task and not replaced within reach.

10. Flavor additives may be needed to enhance palatability of water.

11. Impaired elders may not inspect excreta for signs of dehydration.

My metropolitan regional area is, or in this era of ‘Climate Change’ ... was, a temperate climate. Rarely air-conditioned buildings insufficiently designed to moderate high temperatures prevail. When there were heat waves, ambulances would steadily remove patients from nursing homes throughout the region and further afield who were suffering from heat stress and dehydration as “failure to thrive” and “altered mental status.” Unable, then, to start IVs, EMT’s had to transport for longish distances but would note patients to improve in mental status by the ambulance air conditioning. Also noted were dry mouth and tongues, with tongues often reduced in size and ‘pruned’ from decreased fluid volume.

As climate change evolves, we will see more dehydrated dependent elders. Their age and conditions creating dependency make it hard to ensure adequate hydration. An active program to track and improve intake by caregivers is important. Skin turgor is not a reliable sign. Checking the tongue is a helpful clue in the physical exam. Correction of fluid and electrolyte balance is the goal and to rule out other causes that may be less obvious within the overall clinical picture.


# 329 Oktoberfest Season & Beer Potomania

Beer is exceedingly popular, so much so that there are many ‘holidays’ declared for it. Perhaps not official, and whether celebratory or marketing ploy, it shows the interest in it. Benjamin Franklin reputedly said, “Beer is proof that God loves us and wants us to be happy.” Nonetheless it is also a very common ‘gateway drug’ to alcoholism. Beer Potomania, the excessive consumption of alcohol, has an unusual zinger, hyponatremia.

Simple hyponatremia is a common chemical finding in drinkers with numerous causes to exclude. Beer Potomaniacs are heavy chronic or binge drinkers of large quantities of beer (with little sodium and no

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protein) with scant food intake, leading to an hypoosmolar dilutional hyponatremia. An acute binge-on-chronic, or infection causing fluid loss may be the precipitant. If prolonged, or treatment overcorrects the sodium too quickly, a state of inappropriate antidiuretic hormone occurs which leads to pontine and extrapontine osmotic demyelination. This possibility must be recognized and used to plan care for avoidance.

Management must be very close, guided by labs of blood and urinary chemistry every few hours, limiting increases of sodium to 10-12 mEq/L per day, fluid intake restriction, matching losses of excessive urination with IV D5W to prevent further rise in sodium. Desmopressin may be used if unable to match urinary excretion with D5W.

NB: This is a very brief skim of the topic because of limited space. Thoroughly review references, consultants, and policies to guide your practice.


# 330 Sudden Sensorineural Hearing Loss

You feel that you, and the patient before you, are fortunate because, working nearby, he presented about half an hour following the sudden onset of unilateral tinnitus, fullness, and marked loss of hearing. You explain this to him and say that it favors possible improvement or recovery of hearing if he takes a course of steroids and follow up with an Otologist. Prompt presentation is not as common as it should be. That it is an emergency needing prompt treatment is not always realized by patients.

90% of cases are idiopathic. “Sudden sensorineural hearing loss affects 5 to 27 per 100,000 people annually, with about 66,000 new cases per year in the United States.” [Executive Summary] Tinnitus, which can be loud, diminished hearing, loss of aural directionality, vertigo and dizziness, can be stressful and discouraging to patients, possibly even impairing their livelihood.

Contact your consultant, be guided in management, and refer for follow up. Some patients may recover spontaneously, but it is considered best practice to initiate steroids promptly.

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Changes to the key action statements (KASs) from the original guideline:

- KAS 1: When a patient first presents with sudden hearing loss, conductive hearing loss should be distinguished from sensorineural.

- KAS 2: The utility of history and physical examination when assessing for modifying factors is emphasized.

- KAS 3: The word routine is added to clarify that this statement addresses a nontargeted head computed tomography scan that is often ordered in the emergency room setting for patients presenting with sudden hearing loss. It does not refer to targeted scans such as a temporal bone computed tomography scan to assess for temporal bone pathology.

- KAS 4: The importance of audiometric confirmation of hearing status as soon as possible and within 14 days of symptom onset is emphasized.

- KAS 5: New studies were added to confirm the lack of benefit of nontargeted laboratory testing in sudden sensorineural hearing loss.

- KAS 6: Audiometric follow-up is excluded as a reasonable workup for retrocochlear pathology. Magnetic resonance imaging, computed tomography scan if magnetic resonance imaging cannot be done, or, secondarily, auditory brainstem response evaluation are the modalities recommended. A time frame for such testing is not specified, nor is it specified which clinician should be ordering this workup; however, it is implied that it would be the general or subspecialty otolaryngologist.

- KAS 7: The importance of shared decision making is highlighted, and salient points are emphasized.

- KAS 8: The option for corticosteroid intervention within 2 weeks of symptom onset is emphasized.

- KAS 9: Changed to KAS 9a and 9b; hyperbaric oxygen therapy remains an option but only when combined with steroid therapy for either initial treatment (9a) or for salvage therapy (9b). The timing is within 2 weeks of onset for initial therapy and within 1 month of onset of sudden sensorineural hearing loss for salvage therapy.

- KAS 10: Intratympanic steroid therapy for salvage is recommended within 2 to 6 weeks following onset of sudden sensorineural hearing loss. The time to treatment is defined and emphasized.

- KAS 11: Antioxidants were removed from the list of interventions that the clinical practice guideline recommends against using.

- KAS 12: Follow-up audiometry at conclusion of treatment and also within 6 months posttreatment is added.

- KAS 13: This statement on audiologic rehabilitation includes patients who have residual hearing loss and/or tinnitus who may benefit from treatment.

https://doi.org/10.1177/0194599819859885

Clinical Practice Guideline: Sudden Hearing Loss (Update) Executive Summary [PDF]

Plain Language Summary: Sudden Hearing Loss. [PDF]

Julia Belluz. Sudden hearing loss is a health emergency — but few people know it exists. VoxMedia.com September 27th, 2018.


# 331 Pepper Spray Exposures

“Pepper Sprays” of oleo capsaicin are available throughout the USA for personal self-defense and are commonly used by law enforcement as a ‘less lethal’ alternative to other weapons. The burning irritation to eyes, mucus membranes, and skin, is painful and incapacitating. Clothing, nearby surfaces, and touch-transfer contaminates of the oily residue, can worsen or spread to others. Presence of contact lenses makes things worse. There are instances of death occurring from the same event but it’s difficult to assign exact causality, especially if there are factors of asthma, cardiovascular disease, obesity, drug use, etc. Complications should be looked for and treated.

Choosing the best treatment for the spray is difficult as literature is diverse. Most commonly flushing with water or saline is offered as it is presumably the most commonly available. A different tip is found at Medscape.com from Dr. Amy Faith Ho of Fort Worth, TX. She suggests that Milk and Mayonnaise are excellent for removing the oil as she says capsaicin is lipophilic. Review her article of tips for details.


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Recently, we were fully packed pending emergency evacuation orders. That didn’t happen but we had to ‘shelter in place’ due to unhealthy air from wildfires and respiratory conditions.

Currently we are under ≥48° power blackout with another 48°-72° to follow after a short gap (so-called “Public Safety Power Shutdown” and concurrent water conservation with potential shut-off if need exceeds pumping capacity limited to rented pumps because of the power shut-down.

“These are times that try men’s souls.” Electricity the most efficient power source as it can do all work, can be generated by any other source, can be transmitted and distributed. However, the infrastructure is costly, old, frail, and a frightening example of the unwise danger of “deferred maintenance.” Shortages are met by tweaking and rerouting the “grid”, rather than any inherent redundant capability.

In California, the power is being turned off to a million people at a time because in tinder-box conditions and high winds, it is not possible with the neglected system to ensure to assure the prevention of fire should the electricity get ‘loose’ from the system, as is said to have happened previously.

Some Insights:

- We are dependent upon electricity: lighting, cooking, microwaves, communications, machines, heating/ ventilating/ air conditioning, traffic signals and controls, charging portable devices.

- Landline telephones are essential as they are powered separately from the grid.

- Yes, for cell phones, it was “no service.” Reception, if any was weak, spotty, slow, and variable. I had “no service” while standing next to someone talking on her own phone. Cell towers presumably ‘Out’. Let’s say service was 90-95% unavailable. Wi-Fi is unavailable, even where usually provided, as even if there are backup generators, Wi-Fi is not usually so powered. Automated answering may not work accurately nor obtain a human alternate. Overworked employees may simply not answer the volume overload.
• Automation of telephone “Directory Assistance” by computers without human local knowledge or ability to answer an open-end question, and the “Internet-ization” of other directories and databases, means the absent access to these data when phones and computers aren’t working. How can one, dealing with a machine, find a phone number without knowing the exact name, location, and details of whom to call in order to tell the machine.

• Direct Dial International Roaming was easier to use than local essential services.

• Obviously, extra batteries, chargers, and an alternate source, e.g. solar charger, will be needed. Minimizing onscreen time, lowering brightness of display, dark theme, turning off Wi-Fi search, when fruitless, will conserve batteries. Resist the temptation to use multiple lights, or constantly listen to the radio, to avoid feeling in the dark or alone. Stay with others and rotate duties.

• Chemlights work well and safely, without heat or flames, to provide personal illumination for tasks, walking through low-light areas, keeping track of kids, or equipment, An ‘8 hour’ glow-stick provided me with some light for more than 48°.

• Understand your equipment and how it’s intended to be used. Typically, combustive sources, candles, camp stoves, barbecues, propane, etc., should not be used indoors, or without good ventilation, or where it may set other things alight. Appropriate fire-fighting supplies should be on hand. In my family’s history, an infant was fatally asphyxiated when a teenager ‘blew-out’ the gaslight as if it were a candle lantern, and failed to turn off the gas flow.

• Keep track of changing notices, shelters, and resources. Delegate and rotate the task.

• Be aware as food in your cooler ages to avoid eating spoiled foods.

• Be polite and cautious on roads without working traffic controls. Respect evacuation routes and evacuees. When signals resume, be wary of customary bad driving behavior resuming also.

• Nixle.us provides “The 5 Ps of Evacuation” priorities: People/Pets; Prescriptions; Papers; Personal Needs; Priceless items.”

• If not done already, plan to put papers, and priceless items “in the cloud” if possible and in a flash drive around your neck. Consider permanent storage of truly irreplaceable items while displaying a replica. Don’t forget to video each room to help jog your memory when filling out claim forms.

# 333 A Leopard-Spotted Boy

Parents are getting their 4-year-old child ready for bed after a bath and as he scoots from bathroom to bedroom, they catch a glimpse of purple spots below his waist on his legs but sparing his buttocks. He has no explanation of them, but isn’t bothered by them, although his ankles are a little sore. He thinks they have been there for two days prior. He’s a bright and active child but is going through his modest toddler stage.
The spots, initially reddish then becoming purple, do not blanch, but may become palpable and even bullous, are the hallmark in nearly all cases of Henoch-Schönlein Purpura which is an autoimmune IgA vasculitis that typically strikes children or young adults, and rarely adults. The crops of purpura pass within four to six weeks, and may be accompanied by edema, arthralgias (75% Long) without lasting deformity, but can have nausea, vomiting, and abdominal pain (65% Long), perhaps with intussusception (2-6%, but, 70% ileoileal Long), hematuria, nephritis (40% Long), heart, or brain problems. It is often preceded by a viral or streptococcal infection by one to three weeks.

After establishing the diagnosis, treatment is based upon severity and any complications. Mild cases may need only OTC analgesics or NSAIDs if no renal insufficiency, worse cases may need glucocorticoids and fluids. Cases are unlikely to recur (33% Long).

"Obtain CBC (normal platelets), chemistry, coagulation panel (normal), urinalysis, ESR/CRP (elevated), stool guaiac (>50% positive). Abdominal US should be considered if intussusception is a possibility. Concern for testicular torsion requires testicular US." (Long)

Parents are apt to be shocked and frightened by the signs and symptoms, particularly if not seen for some days before discovery but may be comforted by likely resolution, especially if the course is mild.

YouTube Search for Henoch-Schönlein Purpura. {Random, not evaluated.}

Rajendra Bhimma, MB ChB, MD, PhD, DCH (SA), FCP(Paeds) (SA), MMed (Natal). Henoch-Schonlein Purpura (This is the opening URL for the several segments comprising the entire topic. Be sure to progress through each for the comprehensive discussion.) emedicine.medscape.com. Updated: March 14th, 2019.


# 334 Aortic Aneurysm, Dissection, and Rupture.

“Sir William Osler was referring to the difficulties of diagnosing AAD when he stated that "[t]here is no disease more conducive to clinical humility than aneurysm of the aorta."” Mattu 2017

Wise words. If the disease is not known or is mistaken for another problem, the result may be spectacularly and suddenly fatal. Unfortunately, ‘classical’ signs and symptoms are too variable to rule in or rule out with certainty.
In a 2003 case of Type A (ascending aorta) dissection, the actor, John Ritter, died just before his 55th birthday. Subsequently, “Ritter’s Rules” (q.v.) was promulgated to increase awareness and action.

A ‘high index of clinical suspicion’ is the “sine qua non” essential requirement. Point of Care Ultrasound is a vast improvement from conventional radiography. CTA/MRA, used if the patient is stable, gives definition and elegance to the diagnosis, but, a POCUS finding of aortic dilatation with a concerning clinical appearance is sufficient to obtain EndoVascular Aortic Repair or open surgery.

A very brief summary of dissection management is in Emergency Department Care. The Guidelines [Hiratzka] will, for thoracic disease, give greater detail. A recent series of ruptured AAA is reviewed by Spencer. In any instance, consult your specialist immediately.

Saum A Rahimi, MD, FACS. Abdominal Aortic Aneurysm. emedicine.medscape.com. January 8th, 2019. {Multipart comprehensive discussion with separate URLs; review sidebar index.}


The John Ritter Foundation For Aortic Health. Ritter Rules. Columbia University Irving Medical Center Aortic Center. John Ritter’s Life-Saving Rules. {Background of Ritter Rules.}


Robert D McBane, MD; Thomas C Bower, MD; Alberto Pochettino, MD; Randall R De Martino, MD. Type B Thoracic Aortic Dissection: When to Intervene. Medscape.com. March 2nd, 2015. © 2015 Mayo Clinic. [Multipart comprehensive discussion with separate URLs]

Robert D. McBane, MD; Randall R. De Martino, MD; Gustavo S. Oderich, MD; Thomas C. Bower, MD. Abdominal Aortic Aneurysms: Update on Surveillance and Repair. Medscape.com. October 8th, 2014.


# 335 “Jaws of Steel” - Masseter Muscle Rigidity

Jaws of Steel is the nickname for Masseter Muscle Rigidity which most commonly occurs from using succinylcholine (suxamethonium) in rapid sequence intubation or anesthetic induction, especially of
small children and with volatile anesthetics. This blocks access for an oral approach to airway management. More ‘Sux’ doesn’t help.

It’s considered normal to have transient (20-30 seconds) of trismus before fasciculations from succinylcholine subside. If it persists for a minute or more, or is accompanied by rigidity of other peripheral muscles, than it is MMR.

If it progresses to generalized stiffness, tachycardia, rising excessive EtCO₂ and acidosis (despite adequate airway and minute ventilation), hyperthermia, generalized rigidity, myoglobinuria and rhabdomyolysis, then it is considered Malignant Hyperthermia requiring treatment with Dantrolene. About 20-30% of MMR cases may progress to MH. [Chapin] The relationship is not clear as to MMR leading to MH, even on subsequent surgeries; 25% will test positive for MH susceptibility.

Despite excluding patient or family history of MH or myopathies, or even prior successful anesthesia with known ‘trigger-agents’, it’s not possible to predict susceptibility without genetic or specialized biopsy testing. All places/personnel using trigger-agents must be able to recognize and treat MMR/MH. Further, MMR has been known to occur with non-depolarizing NMBDs, Propofol, Fentanyl. MMR has occurred in Emergency Departments [Bauer, Suen] and prehospital care [Luckey-Smith].

Fortunately, MMR patients usually can be ventilated by mask until the airway is secured by flexible endoscopic nasotracheal intubation, blind nasotracheal intubation, retrograde intubation or cricothyrotomy/tracheostomy. Generally, a dose of Propofol or a nondepolarizing NMBD will be tried to dissipate the spasm. [Lafferty] Any inhaled anesthetics will be stopped and a TIVA (Total IntraVenous Anesthetic) will be substituted.

Airway management should maintain ventilation and oxygenation with bag and mask (or modified nasopharyngeal airway). For a definitive airway, the best choice is a flexible endoscope guided nasotracheal intubation. Failing nasal intubation, or in extremis, emergency front of the neck access is needed by cricothyrotomy or tracheostomy.
Collected Clinical Tips from Advanced Emergency Nursing Journal, by The Editors.


# 336 Thorns, Prickles, & Cactus Spines

There are many gardening injuries annually, from trivial to life-changing or lethal. Those with foreign bodies are uniquely challenging to fully discover and treat successfully. Thorns, prickles, and cactus spines retained in the wound are a nidus for infection, joint-capsule violation, or necrotizing fasciitis,

✓ Full narrative of mechanism of injury. When did injury occur? (Document.)

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✓ What self-care has already been done?
✓ Exclude other injuries.
✓ Ascertain tetanus immune status.
✓ Plant(s) involved; chemicals used; infestation or plant disease; samples available.
✓ If FB at risk for migration, put at rest or splint prior to treatment.
✓ Patient’s estimate as to presence of FB. Experienced gardeners can tell you much.
✓ **Believe** the patient who says there is still something inside.
✓ Consider X-Ray, Fluoroscopy, Sonogram, CT to localize FB.
✓ Surgical light, magnification, palpation, during inspection; DOCUMENT.
✓ Other FB materials to consider: Glass, ceramic, or metal also?
✓ Give Verbal and Written of Residual FB caution; despite *itemized* search, some FB may remain.
✓ Return for strict close follow-up. Convince Administration that in these cases, one price to cover all follow-up, even daily, is cheaper than MedMal Defense.
✓ Consider and warn of possible Mold, fungal, spores, nocardia, manure, pond and fish water, chemicals; other wound inoculants, which may lead to osteomyelitis, necrotizing fasciitis, sepsis, death.
✓ Remember that Children, immunocompromised, Elders, Diabetics, those with reduced circulation and/or neuropathy, are at higher risk.
✓ Consider clinical photographs, especially if different providers will see in follow-up.
✓ Refer early to Surgery, Infectious Disease, Ortho, Dermatology for any concern or complication.
✓ Documentation of all.


Casadei, G. F., Romero, K., & Gomez, V. (2011). *Soft-tissue foreign bodies: Diagnosis and removal under ultrasound guidance.* *age.* [PDF]
You’ve probably worked out which of your clinical tools can substitute for others. Getting the right swing of your stethoscope head to elicit a deep tendon reflex, or a pair of shears to do the same.

You probably are also mindful to remove non-essential objects, and have one’s hair ‘back’, when entering the room of a potentially violent patient. Recalling jail/prison “shank” attacks from TV/movies should encourage a thorough removal and a heightened awareness of situation and of assault indicators (while remembering that career criminals and psychopaths will not show indicators).

Think, too, of the defensive applications of these tools/objects should a situation go beyond merely ‘controlling’ a patient to saving yourself from an assault that may maim or kill you. It is not a failure of ethical principles to have foreknowledge and practice in self-defense so that you are able to continue caring for others. Yes, avoid, evade, deceive (“Let me get the medicine that you want.”) to prevent an assault. You may not be able to scream in time, nor might there be time enough for rescuers to reach you.

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If security arrangements are inadequate, insist to administration that it is cheaper to prevent or control, than to suffer injury, tort damages, and irreparable damage to the institution’s reputation as a desirable place to work. This should include self-defense training to preserve their investment in you and your ability to protect other patients. If they will not, then, at minimum, seek out qualified training yourself.

As we age ‘and are comfortable in our own skin’, we increasingly believe the persona that we try to project. While that persona may be ‘protective coloration’, it is not armor. It will not deflect a blow or lessen the impact. We are softer, slower, less capable of effective counterattack. It’s always wise to review and revise for truly threatening situations. Most ED scuffles are countering delirium or an escape, but if malevolent violence is purposefully directed at you, have your sidesteps and parries preplanned.

# 338 Is it Mening_ _ _ _ ?

Triage was the easy part. A man brought his visiting friend by wheelchair; the friend was slumped, torpid, very flushed, quite diaphoretic, obviously quite ill. The man spoke with intense clarity: “He has a fever, a headache, and a stiff neck!” “I’m taking him straight back. Please register him there.”

The patient was brought to an isolation room in which a high level of care could be provided. His delirium and agitation were such as to require sedation and respiratory support in order to safely establish lines, obtain cultures and CSF, give antibiotics, etc., without endangering staff.

Everything was correctly done, but the fulminating course ended with inevitable death. The culprit was *Naegleria fowleri*. The pathology was Primary Amoebic Meningoencephalitis (PAM). The victim had recently swum in a natural hot spring in the southwest; this is the likely point of entry for the amoebic parasite that would have entered his nose, traveled in the olfactory nerve to his brain.

It can be acquired from warm freshwater sources including municipal tap water (even by ‘Neti Pot’ nasal irrigations), water slides, and bathing. It is thermophilic and chlorine resistant. Its prevalence is widespread, and it is thought that warming climate and aging infrastructure are extending its range and occurrence.

“As PAM cannot be distinguished from acute bacterial or pyogenic meningoencephalitis by physical or CSF findings, soliciting a history of freshwater exposure is critical to diagnosis, outcomes, and epidemiologic reporting.

Once a history of freshwater exposure is elicited, CSF must be promptly examined via lumbar puncture. Opening pressure should always be measured and is usually high. The triad of raised CSF white blood cells, negative Gram stain, and history of freshwater exposure should raise suspicion of PAM.” [Gompf & Garcia] {Emphases added}

The references are useful, interesting, and provide good understanding.


# 339 Superior Vena Cava Syndrome

The Triage Nurse personally brings back a patient to an acute area and catches your attention. “This cancer patient is complaining of progressive fatigue, headache, and shortness of breath, but, he looks odd and worrisome!”

Physical findings may have been insidiously progressive due to extraluminal compression of the SVC by a mass in the lung or mediastinum, or by intraluminal obstruction, or more acute if due to thrombus from hypercoaguability or previous catheterization or pacemaker within the SVC. The obstruction leads to retrograde engorgement and collateralization over time. C.f, [Flounders] for signs/symptoms; [Beeson] for DDX; [Beeson] & [Nickloes] for treatment and imaging details.

Pemberton’s Sign, elicited by eponymic maneuver may demonstrate within sustainment of two to three minutes of the raised arms “against the ears”, the facial plethora, venous engorgement, dyspnea, perhaps even syncope, in advanced cases. It is indicative of SVC Syndrome, but may occur with large goiter, retrosternal or mediastinal mass. It is thought to occur from blockage of the thoracic inlet by the mass moving upward or downward, but has also been shown to occur from a “nutcracker” effect of the medial clavicles against the vasculature. [De Filippis] Image Search will find other examples.

After history and exam, the patient is imaged (CT with contrast/MRI-MRA). Treatment is mainly supportive and specialists to direct treatment choices; classically for patients in extremis, this would be emergent irradiation ± chemotherapy; now, 70% may be treated with endovascular stenting, or thrombolysis. Unless the patient presents de novo, in extremis, it is currently felt that SVCS is not generally an emergency, that prognostic course and outcome is consistent with the underlying disease, and that it is desirable in almost every case to obtain a tissue diagnosis first. [Cohen; Nickloes; Nam; Talapatra]


Todd A Nickloes, DO, FACOS. Superior Vena Cava Syndrome. emedicine.medscape.com. March 26th, 2018. [There are multiple sections with unique URLs; consult sidebar index.]


Collected Clinical Tips from Advanced Emergency Nursing Journal, by The Editors.

PMCID: PMC2728369 DOI: 10.1055/s-0031-1278280


Jo Ann Flounders, MSN, CRNP, APRN, BC, OCN®, CHPN. Superior Vena Cava Syndrome. Oncology Nursing Forum – Vol 30, No 4, 2003 E84-E90. [PDF] ©2019 Oncology Nursing Society. DOI: 10.1188/03.ONF.E84-E90

# 340 Reverse or Inverse Jaw-Thrust & Mask Techniques

It is useful for you and your helpers to be well-practiced in performing jaw-thrust (or jaw-lift) and mask ventilation techniques from a position facing the patient’s head (cephalad direction) from the side or feet. Hospital staff are not always familiar with this if their only experience is ‘in-house’ or certification courses. Prehospital roles (HEMS or EMS) are more likely to be experienced in this.

Not all patients are supine on a raised table, nor are they plastic or cooperative fellow testees!

1. A visitor, seated in the waiting room or patient area, has a loss of consciousness or seizure; the chair back is firmly against the wall.
2. A toddler is having a forehead laceration repaired, now pain-free slips deeper into the sedation, being ‘chunky’ and still has tonsils, may obstruct the airway. Only a few minutes are needed to complete the procedure.
3. A neurosurgery outpatient returns with an unrelated complaint but now needs respiratory support while with a HALO vest in situ, making access to the airway difficult.
4. A co-worker returning hastily from a coffee run, slips on the staircase and lies unconscious near the wall or stair with concern for cervical spine injury.
5. A new physician, small of stature and having not-enough upper motor strength is struggling to do laryngoscopy for intubation on an obese man with a large head, thick neck, and small mouth.
6. You are doing a ‘ride-along’ with EMS, and the victim is entrapped in a seated position in a car.

Sometimes, with the awkward and un-ergonomic approach, it may take two or three persons as a team to manage the airway and bag effectively. Visualize the HALO patient with one holding the mask to the face but not able to advance the jaw or insert an adjunct, another to pull the jaw up and forward (behind the mandibular rami), while a third inserts some extension tubing between the patient and BVM and provides the ventilation and giving room for the airway support.

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With small children, if a simple chin lift is insufficient, holding the mask in place between either middle and ring fingers, 0000000000 or index and middle finger, while the thumb and lower finger(s) provide a lift to the jaw. Without contraindication, a pad beneath the head or head/shoulders can ease the work.

The would-be intubator can be aided by reviewing and optimizing patient position, providing a step-stool for height-advantage, lowering the table slightly, and taking some of the patient’s weight by the reverse jaw-thrust or seizing the mandible with a sky-hook jaw-lift to provide additional viewing and manipulation space within the oropharynx. If the mouth opening is too small, it helps to suggest a bougie-aided technique, or “POCPOM” (pulling out the cheek and stabilizing by pressing against the maxilla).

These are situations of patient position and access for the airway manager, of concern for cervical spine integrity, and need to control the airway from a position other than the traditional behind-the-vertex of a controlled situation. Be prepared, and flexible!

# 341 Post-Tonsillectomy Hemorrhage

Recently, Zaf Qasim tweeted a case of bleeding after tonsillectomy initiating a brisk discussion thereupon. All agree that risk is great and fraught with peril. Primary hemorrhage (<24 hrs.) is a smaller grouping but may be more severe, as in the tragic Jahi McMath case which may have involved an “abnormal artery” [Wikipedia] leading to cardiac arrest and “death by neurologic criteria.” Secondary hemorrhage occurs in patients (>24 hrs., often at POD 5-10) who usually have been discharged to home and may not be near suitable care. [Sobolewski]

“Tonsillectomy is said to be “the ultimate test of hemostasis.”” [Fox] Therefore, call for help, marshalling resources, ENT consult, Anesthesiology, alert the OR and blood bank, depending on availability.

You will need personal protective equipment for eyes and face, gown, gloves, headlight, and Magill’s forceps, etc. The patient should be sitting up, leaning forward with basin and suction in hands.

Bleeding may be concealed by swallowing (frequent swallowing may disclose a patient at risk). Antiemetics may help (swallowed blood is very emetogenic). There is risk of pulmonary aspiration or airway obstruction. Intubation may be riskier thereby and due to poor visibility or covering the light or lens. Rapid sequence induction is usually preferred, with ample suction; head-down left lateral recumbent position has been used to intubate but it doesn't guarantee that aspiration will not occur. Cricoid pressure to minimize blood arising from the stomach has been common. How critical and resources available are factors in deciding whether to intubate first versus ketamine sedation. Preoxygenation is important. Shock may need lower doses of RSI sedation. [Morgenstern]

Good vascular or intraosseous access is needed with rapid infusors and Massive Transfusion Protocol ready. An operating room is clearly the best place for critical patients. Resuscitation with fluid (preferably blood), airway protection, hemostasis, and NPO, are the priorities. Temporizing measures include direct pressure to the bleeding source with gauze sponges (in forceps) soaked in a vasoconstrictor and topical anesthetic blend; Silver Nitrate cautery is an old measure. [Sobolewski] “Remember to push out laterally onto the tonsillar fossae (do not aim posteriorly).” [Fox]
There is growing evidence of value to Tranexamic Acid, (10-15 mg/kg up to 25 kg for children) intravenously and 500 mg for >25 kg in 20 ml NS over 10 minutes; nebulized [Schwarz; Guyther], or on direct pressure pledgets, to achieve hemostasis rapidly. [Morgenstern; Rezaie]

Most cases are likely to be less severe requiring only treatment, discussion with ENT, observation, and discharge home with cautions and to return if worse. However, caution and mindfulness of worst-case-scenarios is always wise.

Zaffer Qasim, MBBS, FRCEM, FRCP(C), EDIC. @ResusOne. Twitter Post-Tonsillectomy Hemorrhage Thread. December 21st, 2019.


Amelia F Drake, MD. Tonsillectomy. reference.medscape.com. Updated: October 5th, 2017. The comprehensive multipart article has several URIs; follow the lefthand sidebar.

Salim Rezaie, MD. (@serazaie) Tranexamic Acid (TXA) for Everything that Bleeds? REBELEM blog, March 25, 2019. Available at: https://rebelem.com/tranexamic-acid-txa-for-everything-that-bleeds/. [Review of multiple studies, especially of military wounded, but also other settings. +Section for Post-Tonsillectomy Hemorrhage (but not T&A), also includes Nebulized TXA.]