# Learning About Wound Care

The sun rises over the San Joaquin Valley, California, today is April 9, 2020.

This week, for pregnant patients who are not at increased risk for preterm delivery the USPSTF recommended AGAINST screening for bacterial vaginosis (BV). This is a D recommendation. So, do NOT screen for BV in these patients.

For your patients who actually ARE at INCREASED RISK for PRETERM delivery, the data is INSUFFICIENT to recommend screening for bacterial vaginosis. This is an I recommendation. So, you may or may not screen.

To recap: Not at risk for preterm delivery = No screening for BV. At risk for preterm delivery = Insufficient data.

This week, smiling to our patients has become a little harder to do through a surgical mask. We don’t know how long we will be required to wear a surgical mask to see all patients in clinic. This is the week of “Spring Break”. Movie theaters, museums, parks and many public places are now closed. However, the flowers and trees seem to be unaware of the pandemic and are not in quarantine. They rebelled against the rules and are blooming beautifully this time of the year. The Spring season surely brings optimism for a brighter future. May the Easter weekend be a time of reflection and renewal for you. Our message is: Keep blooming wherever you are planted!

Welcome to Rio Bravo qWeek, the podcast of the Rio Bravo Family Medicine Residency Program, recorded weekly from Bakersfield, California, the land where growing is happening everywhere.

The Rio Bravo Family Medicine Residency Program trains residents and students to prevent illnesses and bring health and hope to our community. Our mission: To Seek, Teach and Serve.

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“Do not correct a fool, or he will hate you; correct a wise man and he will appreciate you.” Adapted from the Holy Bible.

Correction, or how we like calling it in education: Feedback, is a good tool to get trained as residents. As a resident, you can decide how you will take that feedback, will you take it as an offense? Will you make a plan to correct the mistake instead? I’ll let you think about it.

Dr Manuel Tu is a talented man who is a great asset for our residency program. He has brought an interesting topic to the table today and I am excited to receive him today. Dr Tu is known by his friends and colleagues as Manny. As you know we ask 5 questions, and let’s start with question number 1.

**Question Number 1**: **Who are you?**

Hello everybody my name is Dr Manuel Tu Jr. and presently I am a First-year Family Medicine resident here in Bakersfield, California. I was born and raised in the Philippines, finished my bachelor's degree in Nursing from Perpetual Help College in Manila, and graduated in Medicine from the University of the City of Manila, Philippines.

Dr Tu also worked for some years as a nurse for Clinica Sierra Vista and did a fantastic job before his residency.

**Question number 2**: **What did you learn this week?**

This week I would like with you some things about WOUND MANAGEMENT, specifically about the types of wounds, factors that inhibit wound healing and general principles on how to heal a wound.

A wound is a disruption of the normal structure and function of the skin and underlying soft tissue. It may be acute like trauma to the skin or chronic like a venous stasis or diabetic ulcer.

1. ACUTE WOUNDS
   * Typically, due to some form of trauma.
   * May be blunt or penetrating causes with different array of sizes, depths, and locations.
   * Abrasion, puncture, crush, burns, gunshot, animal bites, surgery, and other etiologies that cause initially intact skin to break down.

1. CHRONIC WOUNDS
   * Any mechanism that decreases blood flow in the skin for a prolonged period of time has the potential to cause ischemic breakdown of the skin.
   * Skin perfusion may be impaired due to:
     + proximal arterial obstruction (peripheral artery disease)
     + vascular compression (hematoma, immobility causing focal pressure)
     + microvascular occlusion or thrombosis (vasculitis, cholesterol crystals)
     + venous or neuropathic ulcers like in diabetic patients.

FACTORS THAT INHIBIT OR AFFECT WOUND HEALING:

1. Infection: Bacterial infection produce multiple inflammatory mediators that inhibit wound healing. The inflammatory phase of healing is prolonged and disrupted, there is depletion of the components of the complement cascade, disruption of the clotting mechanisms, disordered leukocyte function, less efficient angiogenesis and formation of friable granulation tissue. New tissue growth cannot occur in the presence of inflammation or necrotic tissue, and the presence of necrotic tissue promotes bacterial proliferation. A wound that is infected has an unbalanced host-bacteria relationship, because you cannot get rid of all the bacteria on the surface of a wound, but you can establish an equilibrium to promote healing. In 1980 Bucknall published an experiment with rats showing how the granulation tissue looks in an infected wound: There is an increased in hydroxyproline (collagen) and abundant new vessel formation(1). It was interesting for me to know that because I thought those processes ere inhibited but actually, they are increased but are disorganized, resulting in a granulation tissue that is disorganized and friable.
2. Smoking: Nicotine and other chemicals in tobacco impair wound healing by inducing vasoconstriction causing relative ischemia on tissues, also by reducing inflammatory response, impairing bactericidal mechanisms, and altering collagen metabolism. Smoking is associated with postoperative wound healing complications, which occur more often in smokers compared with non-smokers as well as in former smokers compared with those who never smoked(2).
3. Aging: Likely due to comorbidities such as diabetes, peripheral artery disease, chronic venous insufficiency, and lower serum protein levels causing lower collagen. Lower collagen in the body slows down wound healing. For example, Kennedy pressure ulcer.

*Kennedy Ulcer: It is a dark sore that develops rapidly during the final stages of a person’s life. Not everyone experiences these ulcers in their final days and hours, but they’re not uncommon. They are different from pressure sores or bed sores; because they develop rapidly; they are typically located in the sacral area are necrotic(3).*

1. Malnutrition: Patients with hypoalbuminemia tend to be more prone to infection, and infection as we said, affects wound healing. Prealbumin and albumin are not perfect markers of wound healing but helpful specially for patients with non-healing wounds.
2. Diabetes mellitus: Causes several factors that contribute to impaired wound healing: Decreased or impaired growth factor production, angiogenic response; macrophage function, collagen accumulation, quantity of granulation tissue, dysfunctional keratinocyte and fibroblast migration and proliferation. Also, diabetes causes neuropathy and vasculopathy. Trying to explain the pathophysiology of slow und healing in diabetes would take a lecture by itself.
3. Obesity: The cause of wound complications in obese individuals may be secondary to decrease vascularity of the subcutaneous tissue which may impair antibiotic delivery and increased wound tension. Poor skin circulation also makes obese individuals prone to pressure injury which can be aggravated by difficulties in repositioning and increased shearing during movement.
4. Others: Vascular disease (PAD, CVI), immunosuppressive therapy, edema, size and depth of the wound, autoimmune diseases, vasculitis, and many medications.

It is impossible to cover all the factors but my message to residents is: When a wound is not healing, think about the most common factors interfering with healing and take them out of the way! Mainly infection, smoking, diabetes and malnutrition.

DIFFERENT WAYS TO HEAL WOUNDS:

1. Wound Debridement: It is the removal of non-viable tissue, contaminants, or foreign body to expose healthy wound bed to assist with wound healing. Devitalized tissue refers to slough or eschar. The body normally uses phagocytosis and autolysis to get rid of devitalized tissues, but in some instances those processes are impaired, so we have to assist with debridement. These can be accomplished by different means: surgical (scalpels, scissors, electrocautery), irrigation, chemical (soaps, detergents), enzymatic (collagenases, fibrolysin, DNAsses, i.e. Santyl), and biosurgical (maggots). The point is to eliminate all the dead tissue because it is basically “on the way” and can potentially be an environment where bacteria can thrive. These “excess” tissues are not going to regenerate and need to be removed. Another way to put it is: “Debridement is turning a chronic wound in an acute wound with more potential for healing.”
2. Moist-to-dry dressings: Mechanical debridement can be accomplished by moist-to-dry dressings. We need the proper amount of moisture to promote moist healing environment. Too much moisture or “wet gauze” provides more than needed moisture and it may cause more harm than good, for example, maceration. Get the gauze wet and squeeze it and that should be enough moisture for the wound.
3. Irrigation: Irrigation is a way to remove bacteria and debris. It should be a part of routine wound management. Low-pressure irrigation is done with a syringe or bulb, and high-pressure irrigation is typically performed in the OR with a commercial device. There is no high-level evidence to support the use of any particular additive to the irrigant, nor any particular additive over another. The act of irrigation and the volume of irrigant probably provides the positive benefits. Warm, isotonic (normal) saline is typically used; however, systematic reviews have found no significant differences in rates of infection for tap water compared with saline for wound cleansing. The addition of dilute iodine or other antiseptic solutions (eg, chlorhexidine, hydrogen peroxide, sodium hypochlorite) is generally unnecessary. Such additives have minimal action against bacteria, and some, but not all, may impede wound healing(4).

Certification in wound care: As residents, you can start by taking elective rotations on wound care, or attend wound care trainings available for doctors, nurses, physical therapists and other health care professionals. The process results in a *Wound Care Certified Certification*, but you need an unrestricted license as an MD or RN, or other profession. You need FIRST education and SECOND experience before you can sit for the certification exam. You can find more information on the website of the National Alliance of Wound Care and Ostomy (<https://www.nawccb.org/>).

**Question number 3**: **Why is that knowledge important for you and your patients?**

Healing wounds is very rewarding. This knowledge is important for me because I want to help my patients with acute and chronic wounds. We encounter patients in the hospital and in the clinic with multiple kinds of wounds, and I feel I can help many people with this knowledge.

**Question number 4**: **How did you get that knowledge?**

I got this knowledge from attending wound care trainings here in Kern County, from reading lecture notes and books, and from years of experience caring for patients with various and complex wounds.

**Question number 5**: **Where did that knowledge come from?**

The information I shared with you came from the books “Skin and Wound Care” by CT Hess, Wound Care Guides, and Uptodate, and you, Dr Arreaza also shared some information with me.

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“Speaking Medical” (Medical word of the Day)   
by Lisa Manzanares

The word of the day is *proctalgia fugax*. What IS that? Well, it’s a pain in the butt. Literally. *Proctalgia fugax* is a functional anorectal disorder characterized by severe, intermittent episodes of rectal pain that are self-limited. In Latin, *fugax* means “fleeting.” Patients with *proctalgia fugax* have attacks of severe anorectal pain that lasts from seconds to minutes, with an average duration of five minutes. The patient with *proctalgia fugax* is completely asymptomatic between episodes. The diagnosis requires that all other causes of rectal or anal pain are excluded. *Proctalgia fugax* is estimated to affect 4-18% of the general population, but only about 20% of those affected actually report their symptoms to a physician. *Proctalgia fugax* usually affects those between 30 and 60 years of age and is more common among women. Some studies have suggested that the pain may be precipitated by stress, sitting, intercourse, defecation, or menstruation, but in many cases is unknown.

So there is a term for a temporary pain in the butt, and no, it’s not your ex-boyfriend or girlfriend: it’s *proctalgia fugax*.

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“Espanish Por Favor” (Spanish Word of the Day)   
by Claudia Carranza

Hi this is Dr Carranza on our section *Espanish por favor*. This week’s word is “ronquera”. “Ronquera” means hoarseness, or if you want to get more technical it is called dysphonia. In Spanish, people usually use this word when they are complaining of having a hoarse voice. So you may have a patient coming to you saying “Doctor, tengo ronquera,” or “Doctor, estoy ronco,” meaning “Doctor, my voice is hoarse or I have a raspy voice”.

At this point you can ask the usual questions of how long? Any precipitating factors? And more. Some people might come in and sound hoarse, in which case you can always ask: *Tiene ronquera?* To find out if this is abnormal for them or if this is their baseline.

Now you know the Spanish word of the day, *ronquera* or *ronco,* all you have to do is go and assess your patient’s hoarse voice. Have a great week and take care!

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“For your Sanity” (Medical joke of the day)  
by Lisa Manzanares, Claudia Carranza, and Terrance McGill

-What type of jokes are allowed during the coronavirus? Inside jokes!  
-What do you call an acid with an attitude? A-MEAN-O-ACID  
-Why are nails used to seal coffins? To prevent oncologists from cracking them open to give another round of chemo… and What do oncologists see when they finally open the coffin? A note from Nephrology: “Patient taken to dialysis”  
-I could not decide in med school between proctology and neurology, so I flipped a coin, heads or tails.

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This was our Episode number 6, Learning about Wound Care. During this episode, we learned some basic principles of wound care. It was a good reminder of how infections, smoking, malnutrition and diabetes can affect wound healing, and of the importance of debridement and moist-to-dry dressings to promote healing. *Proctalgia fugax* made us think of a common condition that may go undiscussed during our clinic visits. The Spanish word *ronquera* reminded us of hoarseness. And remember that according to psychologists, humor is a MATURE defense mechanism, so we are trying to be “mature” with our jokes. Stay tuned for more interesting topics every week.

This is the end of Rio Bravo qWeek. We say good bye from Bakersfield, California, a special place in the beautiful Central Valley of California, United States, a land where growing is happening everywhere.

If you have any feedback about this podcast, contact us by email [RBresidency@clinicasierravista.org](mailto:RBresidency@clinicasierravista.orhg), or by visiting our website riobravofmrp.org/qweek. This podcast was created with educational purposes only. Visit your primary care physician for additional medical advice.

*Our podcast team is Hector Arreaza, Lisa Manzanares, Manuel Tu, Claudia Carranza, and Terrance McGill. Audio edition: Suraj Amrutia. See you soon!*

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1) Cutaneous Wound Healing, Edited by Vincent Falanga, 2001, Martin Dunitz Ltd, a member of the Taylor & Francis group, Florence, Kentucky, USA.

2) Armstrong, David G and Andrew J Meyr, “Risk factors for impaired wound healing and wound complications”, UpToDate, <https://www.uptodate.com/contents/risk-factors-for-impaired-wound-healing-and-wound-complications?search=smoking%20consequences&source=search_result&selectedTitle=5~150&usage_type=default&display_rank=5> , accessed on April 9, 2020.

3) Kennedy Ulcers: What They Mean and How to Cope, <https://www.healthline.com/health/kennedy-ulcer#symptoms> , accessed on April 4, 2020.

4) Armstrong, David G and Andrew J Meyr, “Basic principles of wound management”, UpToDate, <https://www.uptodate.com/contents/basic-principles-of-wound-management?search=wet%20to%20dry%20dressing&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1> , accessed on April 9, 2020.

5) Skin and Wound Care by CT Hess 7th Ed, 2012, United States of America