The road to becoming an orthopaedic surgeon is long and difficult. For medical students interested in orthopaedics, the road can be even more difficult, as it is among the most competitive of specialties.

Following college, future doctors head to medical school for four years. With some of the best and brightest student applying, it’s very difficult to gain acceptance in residency. In addition, the whole process is very expensive. The students and/or families need to take out loans. They learn the importance of tightening their belts and making sacrifices.

After medical school passes, students enter residency. The sacrifices continue as they take calls, delay time with their families and delay having kids or spending time with their children. By the end of residency, they learn and refine their skills in a specific sub-specialty.

Finally, they become independent orthopaedic surgeons. They begin to realize there are struggles at this level as well. They have to worry about health-care regulations, research regulations and patient needs. In addition, they have to worry about the business aspect of their practices and systems. As soon as they solve one problem, they are on to the next problem.

All of this may sound negative, but it usually doesn’t deter anyone from going to medical school. More and more people are applying to the medical school. Why? Because being a doctor is the best profession. We are given a special gift and talent, and we are able to use them for the betterment of mankind. Patients come to us to ease their pain and suffering. To be given that opportunity is rare.

There will always be people second-guessing our treatment decisions, our handling of matters, our working hours and our lifestyle, but that comes with the job. We are fortunate to have this opportunity as doctors. Millions and millions of people want to be in that position. Whether you are a medical student, resident, fellow or doctor, you are fortunate to be in that position; you should be proud of yourself and your profession. You should all get up in the morning with smiles on your faces and a sense of purpose. For when there is a pulse, there is a purpose.

Our specific residency program has selected some of the brightest and most intelligent students from our own University for the forthcoming year. We are delighted to have our own University of Toledo students return for orthopaedic residency. I’m thankful for the opportunity to make a positive impact in the lives of my patients and am thankful we have the opportunity to participate in teaching the doctors of tomorrow. What a great feeling!
**Sternal Fractures**

The sternum is the t-shaped bone located at center of the chest (thorax). It is responsible for connecting, via cartilage, the rib bones to form the framework of the thorax and minimizing friction between ribs and lungs. The sternum is triangular in shape with two points, one pointed and one flat, and a broad base.

Vertebral fractures
- Myocardial and pulmonary contusions
- Bronchial tears that may impede breathing
- Aortic disruptions

If a patient presents with a sternal fracture, physicians should suspect multiple severe injuries, possibly to the heart, lungs and major blood vessels. A sternal fracture refers to a fracture of the sternum. Specific injuries include:
- An indirect sternal fracture is a mechanism of flexion-compression injury to the thorax with the manubrium displaced posteriorly on the body of the sternum by traction exerted by the strong attachments of the first and second ribs. This injury is accompanied by one or more thoracic vertebral compression fractures secondary to severe hyperflexion. Sternal fractures also manifest in high-contact sports.

For isolated sternal fractures, the outcome is usually very good. However, there are several associated injuries that may increase complications and the mortality rate.

If a patient presents with a sternal fracture, physicians should suspect multiple severe injuries, possibly to the heart, lungs and major blood vessels. Specific injuries include:
- Aoic disruptions
- Bronchial tears that may impede breathing
- Flail chest
- Myocardial and pulmonary contusions
- Vertebral fractures

Reiter’s Syndrome

Reiter’s syndrome, also known as reactive arthritis, is a group of symptoms that result from gastrointestinal, viral or genitourinary infection. The joint and tendon inflammation is common in patients with Reiter’s syndrome. Achilles tendinitis, plantar fasciitis and pubis symphysis syndrome are common, specific conditions associated with Reiter’s syndrome.

Reiter’s syndrome is referred to as reactive arthritis because the joint symptoms are caused by another infection in the body. The inflammatory symptoms are caused by bacterial infection. Classic symptoms for Reiter’s syndrome include: inflammatory arthritis of the joints, conjunctivitis (inflammation of the eyes) and urethritis (inflammation of the urethra). To accurately diagnose Reiter’s syndrome, a physician utilizes a combination of history, physical examination, imaging and blood work. During physical examination, physicians look for localized pain over the fracture site that is reproducible. In addition, physicians assess for signs of the associated injuries listed above. Diagnostic imaging, utilizing X-ray and CT scans, is utilized to confirm sternal fracture diagnosis. Since cardiac injuries are commonly associated, physicians also may order an electrocardiogram to assess the heart health.

In most cases, a sternal fracture can be treated conservatively by limiting movement and reducing pain. If the fracture is displaced or has associated injuries, surgery may be necessary. Displaced fractures will need to be realigned surgically.

**Clostridium Difficile and Perfringens**

**Clostridium Difficile**

Clostridium difficile (C. difficile) is a gram-positive bacterium that causes diarrhea and serious intestinal conditions, such as colitis (swelling of the colon). In the body, there is a healthy balance of helpful and harmful bacteria, including the C. difficile bacterium. When this balance changes, C. difficile may enter the colon and release chemicals that cause inflammation of the colon’s lining.

Patients with C. difficile will likely present with the following symptoms:
- Abdominal tenderness and pain
- Diarrhea (at least three bowel movements per day for two or more days)
- Fever
- Loss of appetite
- Nausea

To diagnose C. difficile, physicians utilize several different modalities. First, patients undergo a thorough history and physical examination. Physicians also may perform blood tests or take stool samples. There are several risk factors for developing a C. difficile infection. They include:
- Being elderly (65 years or older)
- Prolonged hospital stays or sharing a room with a C. difficile-infected patient
- Prolonged use of antibiotics
- A weak immune system

Since antibiotics are utilized to kill bacteria, including helpful bacteria, patients with prolonged use are more susceptible to C. difficile infection. Prolonged use may upset the balance of helpful and harmful bacteria in the colon. Antibiotics that most often lead to C. difficile infections include fluoroquinolones, cephalosporins, clindamycin and penicillins.

Treatment for C. difficile infection aims to replenish fluids and prevent dehydration. Patients may be asked to stop or change their current antibiotics. Specific antibiotics, such as vancomycin or metronidazole, may be given. In addition, patients may be given oral or intravenous therapy to replenish fluids.

There are methods to prevent C. difficile infection. Patients should wash their hands with soap and water, especially when visiting healthcare facilities. In addition, they are advised to use antibiotics only when their doctor recommends them and for the recommended time.

**Clostridium Perfringens**

Clostridium perfringens (C. perfringens) is a gram-positive bacterium that is the most common bacterial agent for developing gas gangrene. Usually occurring at the site of trauma or recent surgical wound, gas gangrene produces toxins that cause tissue necrosis and related symptoms.

Patients with gas gangrene will present with the following symptoms:
- Air under the skin
- Blisters filled with brownish-red fluid
- Drainage from tissue
- Fever
- Increased heart rate
- Pain around skin injury
- Pale skin color

To diagnose a C. perfringens infection or gas gangrene, doctors begin with a thorough history and physical examination. Physicians likely acquire laboratory studies, including a blood culture and a gram stain of fluid from the infected area.

Antibiotics are needed for treatment. Penicillin prophylaxis is usually utilized, as it is helpful in killing clostridia. Prompt surgical attention is essential for removing dead, damaged and infected tissue. This is done through an operation referred to as an irrigation and debridement. Amputation of an arm or a leg may be necessary to control the spread of the infection.
YouTube Educational Materials for Doctors and Patients

Dr. Nabil Ebraheim recently added three orthopaedic educational videos to YouTube for patients and doctors. The videos can be viewed at the following links:

- Fracture Fixation: [youtube.com/watch?v=2IplYYnaxi8](https://www.youtube.com/watch?v=2IplYYnaxi8)
- Compartment Syndrome: [youtube.com/watch?v=bDHyrbwq-M](https://www.youtube.com/watch?v=bDHyrbwq-M)
- Cervical Spine: [youtube.com/watch?v=_WEb-cT76xw](https://www.youtube.com/watch?v=_WEb-cT76xw)

Please check them out.