Trauma — Life in the ICU 2015

Charles Bruen, MD

[TITLE SLIDE]

Hello I am Charles Bruen.

[Objectives]

We will cover these objectives today.

[Disclosure]

I have no disclosures, and will not be discussing any off label uses.

[Blank]

Everything in medicine is changing. Hospitals, Insurance, Technology.

(Ideal)

It was clear though that there was a tool that could have helped us. Ultrasound is immensely powerful at visualizing the internal structures of the body. It is a way of performing internal physical exam. Echocardiograms provide us immense details of heart. Radiology uses it for invasive procedures. We all awe at fetal ultrasounds. But it

was only available to specialists…in special labs…during the day. We needed it at the bedside during the code. We could attack the H's and T's directly. If we could make the diagnosis, it could direct our treatments. But it turned out that ultrasound is so powerful, so useful, so beneficial to patient safety and quality, that I have joined others evangelizing the need for routine bedside ultrasound available for everyone, physicians, nurses, respiratory therapists.

(Resistance 1)

We would have to overcome the silos, training, and tradition.

(Vascular Access)

Nurses first to realize the some of benefits of ultrasound. Patients with difficult IV access are frustrating more nurses, and painful for our patients.

[PIV]

As nurses learned to utilize ultrasound to place IVs using ultrasound to identify veins, patency. Then directly visualization of the process.

We found out the IV placement was faster. Less wasted supplies. Patient higher satisfaction and decreased pain. No one wants to be poked with a needle over and over. Safety improved with well placed lines, that infiltrated less. Lower infection (cellulitis/thrombophlebitis). The IVs even stayed patent longer. But we found that these benefits extended to even routine placement.

[CVC]

This all applied to central lines also, where the complications of a procedural error were could be more serious. Multiple attempts, pneumothorax, hematoma, arterial placement.

(Resistance 1)

The silos were OK with this. They had no interest in placing IVs. When you have the probe, it was inevitable were going to turn it to look at other structures.

(Procedures)

But once we saw the power, we couldn't help but notice the power in other needle procedures. Paracentesis, thoracentesis any where a needle was used could be made safer if the structures were looked at with ultrasound first.

[Thoracentesis]

(Resistance 2)

That was OK. The Cardiologists and Radiologists had no interest putting in lines.

(Code/Shock)

There power comes clearly into focus when we are evaluating our patients in shock or cardiac arrest. But if it helped sortng out codes, then we could use it in our sick patients

before they coded. In the ICU where out partients are in shock. When they are hypotensive. Our treatments also depend on the cause, and ultrasound can help sort this out. Is it the pump, pipes, or fluid.

Hypovolemia, hypoxia, hydrogen, hyperkalemia, hypokalemia, hypothermia, hypoglycemia, hyperglycemia.
Toxin, Tamponade, tension pneumothorax, thrombosis, thromboembolism, trauma

[Normal PLAX]

[Cardiac standstill]

[PE clot in transit]

[PE]

[Tamponade]

[Low EF]

[Hypovolemia]

[PTX sliding sign]

[PTX lung point]

[MI]

[Hypovolemia/Shock]

[Positve FAST -- abdomianl catastrophe]

[Aortic dissection]

[Ruptured ectopic]

(Resistance 3)

This really caused a problem. We were really cutting into their territory now. We were looking at the heart, at the abdomen, at the lungs. But they weren't bedside.

(Future)

[Lung Consolidation]

[Lung pulmonary edema]

[Appendicitis]

[Vitreous hemorrhage]

(Resistance)

They claim we don't have their expertise. That we may miss the subtlties. But they are not arguing to set up special stethoscope labs. Send your patient down to get them listened to. Of course not.

(Routine)

We are at the point that ultrasound is not just for IV access, or procedures, or code situations. It should be part of our routine assessment of patients. It should be part of physical exam. There is nothing you can do with this [stethoscope] that you can't do better with this.

(Call to action)

Stop using the tools from the 1800s. [Cut stethoscope]. The data is there. Go ultrasound. Make it part of your practice. Reveal the hidden. Your patient will benefit.