



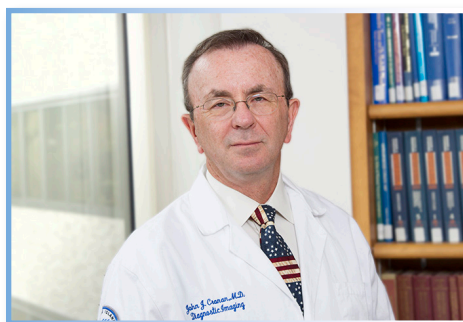
A Picture is Worth a Thousand Words

Photo Assistant

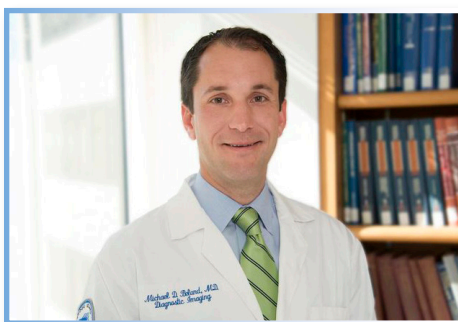
Photo Assistant helps clinicians confirm findings, document clinical symptoms, and provide comprehensive reports.

Photo Assistant enables seamless integration of anatomical photos into an ultrasound study. Clinicians can use an Android™ smartphone or tablet to photograph relevant scanned areas that may influence the exam and give anatomical context. These photos are transmitted to the LOGIQ™ ultrasound system and are included with the diagnostic images sent to the reviewing/reading physician.

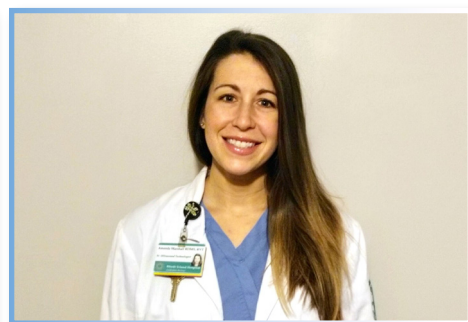
Photo Assistant has been in use at Rhode Island Hospital in Providence since spring 2017. In this report, two radiologists and a sonographer share their experiences and observations.



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Challenge

In the past, all ultrasound studies at Rhode Island Hospital were read on site. Today, images from half of the hospital's ten ultrasound systems are read remotely. In those cases, the radiologist does not have face-to-face contact with the sonographer or the patient. Finding a way to close this "communication gap" was a driving force in the radiologists' interest in Photo Assistant.

General workflow

The hospital currently uses Photo Assistant in one exam room at a remote imaging clinic and exam reviews are done at the hospital. Sonographers use Photo Assistant on approximately 20 percent of the cases seen in that room, a number that the radiologists expect will increase in the future. When Photo Assistant is used, Dr. Cronan estimates that the clinical context provided by the photos can save the radiologist as much as 10 minutes per case by reducing the need to communicate with the sonographer and/or see the patient in person.

"When the radiologist is not directly in contact with the patient or the sonographer, a picture is worth a thousand words in communicating."

Dr. John J. Cronan

How Photo Assistant works

The Photo Assistant app is downloaded to an Android smartphone or tablet. Clinicians can then use the device to photograph relevant scanned areas that may influence the exam and give anatomical context. Examples include ulcerations, discoloration, scars, swelling, or 'lumps and bumps.' These photos are wirelessly and securely transmitted to the LOGIQ ultrasound system and are included with the diagnostic images sent to the reviewing/reading physician. No photos are left on the smartphone or tablet.

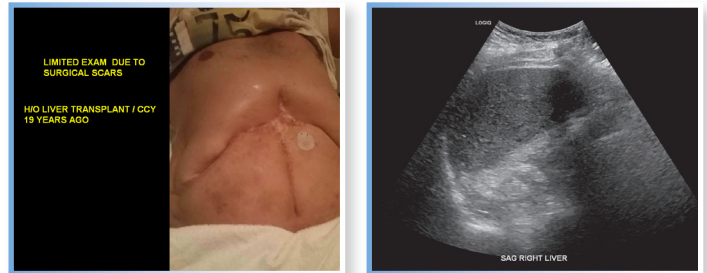
The photos from Photo Assistant in combination with the ultrasound images give the radiologist valuable anatomical context for diagnostic decisions, especially in remote read settings. They also enable comprehensive clinical documentation and reporting to referring physicians.

Clinical advantages

Demonstrating exam limitations

Marshall: One patient had multiple abdominal surgeries including a liver transplant, so I took a photo of his **surgical scars** that showed the limitations of the exam.

Cronan: That's very helpful. The sonographer shows you this picture and it looks like a battlefield and you go, "Okay, I get why you can't scan it." The picture allows me to see what the sonographer sees and understand the potential limitations of the exam.



Abdominal ultrasound for pre-renal transplant evaluation. Difficult exam due to multiple abdominal scars from prior liver transplant, as seen in the Photo Assistant photo. Scarring caused an imaging artifact that is evident as shadowing on image.

"The pictures taken get automatically added to the patient study, making it easy to use."

Amanda Marshall

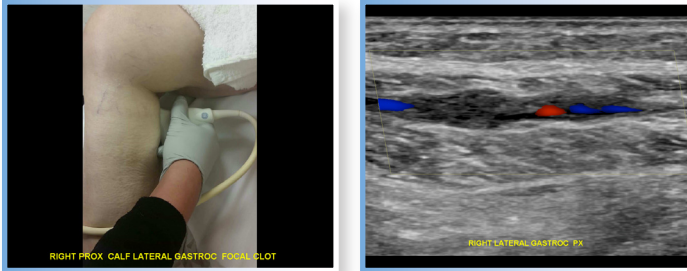
Documenting clinical symptoms

Sonographers frequently use Photo Assistant to document clinical symptoms, such as edema, discoloration, ulceration, pain or lumps.

Marshall: One patient's paperwork said **left lower leg swelling**. It was actually the ankle, so I used Photo Assistant to show a comparison of the patient's lower legs. Using an annotation arrow from the machine, I could point out the area that was swollen on the lateral aspect of the patient's ankle. That way the radiologist could actually see the swelling.

Cronan: We've had several cases of suspected **gallbladder**; the referral says right upper quadrant pain and a positive Murphy sign. In the exam room, we find that the patient's pain is nowhere near the gallbladder. The sonographer takes a photo of the probe placement over the umbilicus, which the patient says is the point of maximal pain. That picture shows me, and the referring doctor, exactly where the pain is.

Cronan: We had a **gastroc** patient. The internist came down and wanted to know if the study was positive, and I said, “Well, it’s a muscular vein,” and I showed him the picture. I said, “It’s right here; it’s the gastroc.” It was so helpful. The picture really solidified it for the doctor.



Leg ultrasound. Indication was pain, short segment DVT within gastrocnemius vein. Photo Assistant shows location of clot with probe on patient.

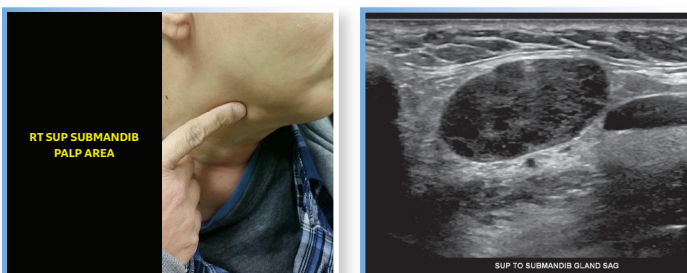
Diagnostic corroboration

Beland: **Leg swelling** covers a huge range. Sometimes we see a massively swollen single leg with skin color changes. Sometimes we look at a picture and the legs are not swollen at all — they’re symmetric, they look the same, and it’s a very subtle finding. With a negative exam, questions arise: Are we missing something? Did we do the right exam? Do we need to recommend a different test? The pictures help guide the next step and make us feel more confident in the findings.

Communicating with clinicians

Cronan: We do a lot of ‘**lump-or-bump**’ scans. The sonographer takes the picture at the beginning of the exam: the patient points to the spot and you take a picture of it. Now you have a picture to show the doctor which area was scanned. The photo confirms everybody’s on the same page.

Beland: Sometimes patients come in with multiple lumps. Trying to describe their location and size in a report without seeing the patient would be difficult. But now we can show them pictures: here’s bump one, left shoulder blade; bump two, lower back; and so on. You can communicate much faster.



Palpable lump submandibular region. Photo Assistant shows lump.



Indication for exam was prior laceration of hand with palpable lump, evaluation for foreign body. Photo Assistant shows area in correlation with foreign body seen on US.

Cronan: It’s another point of input to **help clinicians understand the situation**. For example, a probable DVT that is actually fulminating psoriasis of the leg with sloughing skin. When you show the clinicians the Photo Assistant picture they understand better why the DVT study is negative.



Indication for exam was redness upper leg. Photo Assistant shows upper leg redness. Exam was negative for DVT.

Patient satisfaction

Marshall: It’s part of our everyday routine now. We explain to patients that we’re taking photos to assist the radiologist who cannot be in the room. We emphasize that Photo Assistant is from the same company that makes the ultrasound system. I’ve never had a negative reaction. In fact, patients are appreciative and find it interesting, especially when they see the photos on the ultrasound monitor.



Imagination at work

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