

Emergency Triage using cellphone or digital camera pictures

Emergency telephone triage is a system where nurses answer phone calls of people with urgent medical problems. They have protocols to follow and are reported to be often helpful to the patients. We propose to add pictures taken by the patient to the telephone triage system.

Many people have cell phones with a camera or a digital camera. They are able generally to take pictures, but frequently uncertain how to transmit the pictures to someone else. Our approach has been to simplify the transmission procedure as much as we can to enable the (often excited) patient or parent to send in useful pictures of the wound, rash or other visible sign. This picture is intended to make the telephone discussion more effective. It has the additional benefit of allowing the telephone nurses to schedule their calls, rather than waiting for them to come in.



Telephone Photo Triage

"a picture is worth a thousand words"

Self Help Websites

Health Line/
Medicine Plus
Web MD
Mayo Clinic
Medicine.net

Send in Pictures through the web.

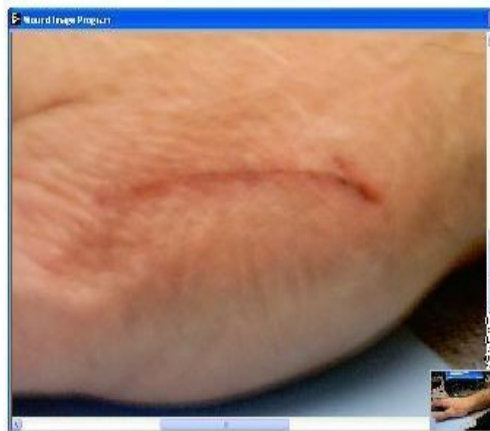
Send in the photos that will help the nurse see what's wrong. You can send in two or three pictures and even leave a voice message. Take a picture up close and also showing the location on the body

Clinic Clinic: [hzi]Herzl Family Practice Clinic

Phone Number:

No file chosen

Comment or Question.



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This is a Web form easily linked from a Family Practice or Emergency room web site to include the possibility of sending pictures by web upload to the photo triage system.

How the photo-triage system works.

Identification of the patient. We use the cell phone number as the primary Patient-Id . This data item is available with the photo in the system, and is the obvious number for the nurse to call back .There are four avenues for a patient to send in a picture, two for cell-phones and two for digital cameras and computers. Often this will be a first contact with the system.

- MMS Picture messaging from a cell phone to the service picture message phone number
- Email from a cell phone
- Web upload for a digital camera picture from the institution's own web page
- Email attachment for a digital camera picture

Cell Phone

Cell phones have a way to take and send a photo. In principle you snap the picture and then choose to send it and then enter a phone number or email address, and press OK.

Some phones and service providers do not allow picture messages, or require that the email service be subscribed to before emails can be sent. These are serious technological drawbacks to the proposed system, but will become simpler with the passage of time. Still, there are some people can send pictures from their cell phones!

The triage service will have its own phone number and email address so that it can receive the messages and send them to the triage nurses who will use the Wound Image Program to manage and keep them

Example 514 995 3749 is the testing triage service in Montreal (no nurses here, just programmers!).

Example your_phone_number@wfuemail.com To send to this address you enter your own phone number for example 5145551234@wfuemail.com if your phone number is (514) 555 1234

You send a picture message to the service phone number and your phone number is part of message.

Digital Camera and Computer.

You presumably know how to get your digital camera pictures onto your computer. Some cameras allow you to see their memory card as another disk drive. Some computers allow you to put the SD card into a slot to become another removable disk drive.

Enter your 10 digit phone number and select the picture and send it in, perhaps with a written or voice comment.

To send an email, use the email address explained for the cell phones and attach one or more pictures.



The Nurse or Doctor view of WoundFollowUp.

Front Panel of the Wound Image Program. If a patient sends in several pictures they are all grouped together in the one file. In this case the pictures are taken from web sites claiming to show chicken pox cases.

It's easy to check the next and the next patient; and to get any new ones that have been sent it. In principle the triage nurse or doctor would call back the phone number and discuss the case with the patient. It is easy to send the pictures to another specialist or just to archive them in the patient file.

Cell phone pictures are small and often blurry. The common standards of photography are low. It is expected that this tool, though imperfect is better than just a verbal description. What is "a lot of spots" How big are the spots? How swollen is the ankle? The diagnosis is made in conversation with the patient.

It is expected that this telemedicine photo triage project will result in less emergency visits, and faster healing patients, not to mention the cost savings of dealing with the cases at home and by phone. Of course not all cases can be dealt with this way, but by skimming off some cases, the load on the system is reduced.