Chapter VI
Imaging and Communication Systems in Obstetrics and Gynecology

Graham Parry
Middlemore Hospital, New Zealand

ABSTRACT

Information technology and communication systems have made imaging in women's health easier at many levels. There are now many commercial systems on the market, which improve the management of appointment systems, digital storage, and reporting of images, transmission of reports, teaching, and consultation particularly in large departments. This chapter discusses the use of communication technology for many aspects of imaging including transfer of images, data storage, teaching, and training as well as audit and accounting or budgeting, information sharing and research. Ultrasound imaging is used within the examples for this chapter, although many of the comments apply equally to other imaging modalities such as Xray, CT scanning, or MRI.

INTRODUCTION

Information technology and communication systems have made imaging in women's health easier at many levels. There are now many commercial systems on the market, which improve the management of appointment systems, digital storage and reporting of images, transmission of reports, teaching and consultation particularly in large departments.

Computer technology is also used as post processing to digitally manipulate the data acquired to look at the images in a different format.

I will use Ultrasound imaging as my examples for this chapter, although many of the comments apply equally to other imaging modalities such as Xray, CT scanning or MRI.

APPOINTMENT SYSTEMS

Computerisation of appointments allow:

- Appropriate allocation of time for different examinations. Many manual systems are rigid in time scheduling. Many computerised appointment systems can have an expected time for a particular examination customised into the software and therefore automatically generate the correct time allowance.
- Allocation of appointments from different clinics or receptionist sites. If different sites can access the computer program, rather than a manual system at one site, time can be saved by reducing the need for telephoning that site as well as reducing error from mishearing the time that is spoken.
- Generation of appointment letters
- Reappointments for patients who DNA (Do Not Attend)
- Generation of worklists on ultrasound equipment. When the worklist is on the ultrasound screen then patient data can be selected.
- Allocation of staff and equipment depending on the workload of the day.
- Integration with systems such as the electronic health record.

DATA STORAGE

Image Storage

In medical imaging, **picture archiving and communication systems** (PACS) are computers or networks dedicated to the storage, retrieval, distribution and presentation of images. The medical images are stored in an independent format. The most common format for image storage is DICOM (Digital Imaging and Communications on Medicine). For more information on DICOM refer to chapter 3.

PACS systems handle images from various medical imaging equipment, including ultrasound, MRI, CT and Xrays.

PACS replaces hard-copy based means of managing medical images, such as film archives.

Figure 1. A first trimester scan as stored on PACS