

Glossary

Here are some helpful terms that may make researching radiographic systems a little less scary.

Bit Depth

Bit depth is a computer graphics term describing the number of bits used to represent the color of a single pixel in a bitmapped image or video frame buffer. This concept is also known as bits per pixel (bpp), particularly when specified along with the number of bits used. Higher color depth gives a broader range of distinct colors.

Lines per Millimeter or Line Pair

One common measure of image quality or image detail.

DICOM

DICOM (or Digital Imaging and Communications in Medicine) is a standard developed by the American College of Radiology and the National Electrical Manufacturers Association. The standard was established to meet the needs of manufacturers and users of medical imaging equipment for the exchange of data on standard networks.

Already accepted across all medical fields, DICOM simplifies the development for all types of medical imaging. "DICOM-compatibility" simply means that different users of different imaging devices will be able to smoothly exchange information.

(More info at <http://medical.nema.org>)

Grid Ratio

When a radiograph is taken, some of the x-rays are scattered. When the object being radiographed is ≥ 10 cm thick, scattering becomes a problem by causing unwanted exposure of the x-ray film. A grid, which is a thin plate made up of alternating thin strips of lead and plastic, can be placed between the animal and the film to reduce the scattered x-rays from exposing the film. The ability of a grid to remove scattered radiation is measured by the grid ratio. The grid ratio is determined by the height of the lead strips divided by the distance between them. A grid with an 8:1 ratio will eliminate more scattered radiation from exposing the film than will a grid with a 6:1 ratio.

Health Level 7

Health Level Seven (HL7) is a not-for-profit volunteer organization, dedicated to creating unified standards for the exchange, management and integration of electronic healthcare information. In an atmosphere of consensus, openness and balance of interest, HL7 has developed compatibility specifications for medical software and equipment that enables a smooth exchange of clinical and administrative data. In short, the HL7 Standard was established to increase the effectiveness and efficiency of healthcare data delivery for users of different technologies. (More info at <http://www.hl7.org>)

kVp

Kilovoltage potential (kVp) is the highest potential voltage achieved at a certain kV setting. Higher kV settings produce more penetrating beams in which a higher percentage of the x-rays produced penetrate the subject being radiographed. There is also a decrease in the percentage difference in absorption between tissue types. This results in a decrease in contrast (long-scale contrast) on the final film. High kVp techniques are most useful for studies of body regions with many different tissue densities (eg, thorax). Higher kVp techniques are appropriate for larger and thicker animals. Increasing kV is not a linear function, and small increases in kVp settings may substantially increase the number of x-rays penetrating the animal. However, this effect is much less dramatic above 85 kVp.

PACS

PACS (or Picture Archive and Communication Systems) is used by the radiology and diagnostic imaging industry to manage information and images electronically.

The system is responsible for acquiring, transmitting, storing, retrieving, and displaying digital images and related patient information from a variety of imaging sources, and communicating the information over a network.

PMS - Practice Management System or Software

A Software system that aids in running a physicians practice or clinics with software modules such as billing, patient scheduling, patient records, etc. Using DICOM Modality Worklist, patient data can be transferred to the modality automatically thus reducing errors and increasing productivity.

Pixel

Picture element

Resolution

A measure of the number of image pixels per one square inch.

mA

Increasing the mA setting on the machine increases the number of x-rays produced. The energy spectrum of the x-ray beam is essentially unchanged, as is the relative numbers of x-ray photons penetrating tissues of different densities such as bone, soft tissue, and fat. However, the amount of darkening on the film is related to the total number of photons reaching it. Therefore, increasing mA increases film contrast. Changes in mA settings are relatively linear. Increased contrast is desirable where tissue densities are similar (eg, musculoskeletal system).