TERMINOLOGY USED IN DENTAL RADIOLOGY & RADIATION PROTECTION

Absorbed Dose (D) - Quantity of energy imparted by ionising radiation to unit mass of matter such as tissue. Unit grey, Symbol Gy. 1 Gy = 1 joule per kilogram.

Absorption - The reduction in intensity of a beam of radiation incident in the medium through which it is propagated.

Acceptance Test - A regime of tests that must be carried out on X-ray equipment before it can be clinically used. The testing is designed to ensure the equipment meets an acceptable performance standard and to set baseline values to compare future routine tests against.

Air-Kerma - Quantity of energy imparted by ionising radiation to unit mass of air. Unit gray, Symbol Gy. Gy = 1 joule per kilogram.

ALARP (As Low As Reasonably Practicable) - The ALARP principle is that the risk of radiation exposure shall be kept as low as reasonably practicable. In practice, this means that the risk arising from the radiation exposure should be weighed against the trouble, time and money needed to control it.

Alternating Current ('AC') - An electric current that reverses direction in a circuit at regular intervals.

Approved Code of Practice (ACoP) - HSE document providing guidance on achieving compliance with IRR17.

Bremsstrahlung Radiation - X-rays covering a continuous energy range generated when high energy electrons (such as those generated in an X-ray tube) are slowed down in a medium. Also known as continuous or braking radiation.

Cephalogram [CEPH] - X-rays of the facial structures.

Characteristic Radiation - The generation of X-rays by the movement of an electron from a higher to lower energy state within an atom.

Collimator - A device used to limit the size of an X-ray field.

Contingency Plans - A set of written instructions specifying the actions to be taken following an incident to rectify the situation and make it safe. See local rules.

Controlled Area - An area designated in accordance with the Ionising Radiations Regulations 2017 where special procedures are followed to restrict exposure, or to prevent or minimise the effects of a radiation accident. Must be physically demarcated, have access to it restricted and be described in the local rules. Entry into the controlled area is allowed for classified persons or non-classified persons who enter under written arrangements. See classified person.

Direct current ('DC') - An electric current flowing in one direction only.

Electromagnetic Radiation - Radiation with both electric and magnetic field components which can be described as waves propagating at the speed of light. Examples are X-rays, gamma rays, ultraviolet radiation, light, infrared radiation, and radiofrequency radiation.

Electromagnetic Spectrum - Electromagnetic radiations shown graphically in order of frequency or wavelength. The spectrum includes short wavelength radiations such as X-rays, visible radiation and longer wavelength radiations of microwaves, television and radio waves.

Inherent Filtration - An amount of filtration present in the X-ray beam due to the construction of the X-ray tube (e.g. glass, beryllium).

Intensity - The amount of X-rays per unit area or volume.

Ionisation - The process by which a neutral atom or molecule acquires or loses an electric charge. The production of ions.

Ionising Radiation - Radiation that produces ionisation in matter. Examples are alpha, beta, gamma and X-radiation and neutrons. When these radiations pass through the tissues of the body, they have sufficient energy to disrupt molecular structures via the ionisation process.

IRMER17 - The Ionising Radiation (Medical Exposure) Regulations 2017.

IRR17 - The Ionising Radiations Regulations 2017

Local Rules - Set of working procedures written in accordance with the Ionising Radiations Regulations, 2017, to enable work with ionising radiations to proceed safely, providing a good standard of protection for workers. Required for every Controlled area.

Medical Physics Expert (MPE) - A person who holds a science degree or its equivalent, is experienced in the application of physics to the diagnostic and therapeutic uses of ionising radiation, and has been formally recognised as competent (e.g., by being included in the list of MPEs maintained by RPA2000). The MPE provides advice on, among other issues, patient dosimetry and quality assurance.

Non-Ionising Radiation - Radiation that does not cause ionisation. Examples are ultraviolet radiation, light, infrared radiation, and radiofrequency radiation.

Operator - A person undertaking any practical aspect of a radiographic exposure (e.g. pressing the exposure button, developing X-ray films or identifying patients prior to radiography).

Orthopantomogram (OPG) - X-rays that produce a panoramic view of the jaw.

Peak Operating Potential - The X-ray tube peak voltage during an exposure. Also commonly referred to as just 'Operating Potential' or 'kilovoltage' (kVp).

Primary Beam - The useful part of the X-ray beam that is directed from the X-ray source towards the patient and image receptor.

Radiation Protection Supervisor (RPS) - Person appointed in accordance with the Ionising Radiations Regulations, 2017 who is responsible for day-to-day supervision of work with ionising radiation (e.g. ensuring that local rules are followed).

Radiation Risk Assessment - Defined in the Ionising Radiations Regulations 2017, an assessment made by the employer to determine whether any further steps should be taken to restrict radiation exposures.

Radiograph - The image obtained by using an X-ray machine.

Routine Test - A test carried out at least every 3 years (or every year for hand held X-ray units) to ensure the X-ray equipment still meets an acceptable performance standard.

Scattered Radiation - Radiation that is produced when the primary X-ray beam interacts with matter (e.g. the patient and image receptor, or the surgery wall).

X-Ray - A discrete quantity of electromagnetic energy, without mass or charge. Generated in an X-ray tube (see X-ray tube) or resulting from changes in the position of the orbiting electrons around an atomic nucleus – also known as characteristic X-rays.

(Public Health England & Faculty of General Dental Practice., 2020)