RADIATION PROTECTION AND SAFETY: 
THE PRINCIPLES

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Introduction

Radiation protection:
- Still a much discussed / debated aspect
- Fukushima Disaster
- The use of Medical Imaging
- Present training avenues for medical imaging practitioners
Meaning of “principle”:

- a fundamental truth or proposition that serves as the foundation for a system of belief or behaviour or for a chain of reasoning; fundamental source or basis of something (oxford dictionaries.com).

Based on the above premise / basis the objectives of the presentation is hereby outlined.
Objectives of the presentation.

- To highlight the basic principles of Radiation Protection as applied to healthcare
- To examine the application of these principles to various aspects:
  - practitioner (Radiographer)
  - profession / practice / peers
  - the administration
  - the technologies
- To align the application of these principles in the above aspects to Islamic perspectives
A Revision: The principles of Radiation Protection

- General principle of Radiation Protection
  - To reduce the effects of radiation to man and the environment

- Specific principle of Radiation Protection in Medical Imaging
  - To reduce the effects of radiation to patient, staff and general public.
The rationale for radiation protection

External Factors
- The role of IT
- Changes in healthcare scenario
- Observing the ‘Rights of the Patients’
- Profession and professionalism

Internal Factors
- Patient characteristics
- Different modalities
- Different equipment specifications with a given imaging modality
General guidelines of Radiation Protection

General guidelines:

- Concept of Justification of Radiological Examination.
- Concept of Optimization and ALARA / ALARP
- Benefits against the Risk.
Challenges to Radiation protection

To examine from the following aspects:

- Radiation Protection Guidelines
- Practitioner / radiographer
- The professionals / Peers
- The professionalism / practice
- The technologies
- The Administration / Administrators
- Other Healthcare practitioners
Radiation Protection Guidelines

- Practice guidelines
- Dose Reference Levels (DRLs)
- Concept of Maximum Permissible Dose
- Some questions concerning MPD
Individual perspectives / commitment towards embracing Radiation Protection.

- Personal indifferences / attitudes to RP
- Not accommodating to the recognition to practice
- Not accommodating to professional standards
- Not accommodating to the rights of patients
- Not accommodating to customer satisfaction
- Not accommodating to the impact of accessibility to information
The professionals / Peers

- Highly influential group of people
- Avoid conflicts and confusions
- Cohesiveness among the group
- Promoting safe practice
The professionalism / practice

- Different professionalism among the professionals themselves.
- Differences in practice that creates confusion or doubts between the practitioners themselves.
- Different centers practicing different radiation protection approaches.
The technologies

Over – dependence on pre-set imaging parameters (CT Scanning and Digital Imaging)

Present Digital technologies do not suggest lower radiation dose
The Administrators / Administration

- Accept the responsibility to use the “authority”.

- Adhere to the Concept of “R and R”.

- Ensure enough accessories to support and observe RP.

- To continuously identify, plan, implement, monitor, evaluate and sustain RP initiatives.
Other Healthcare Practitioners

- Knowledge towards Radiation Protection.
- Perceptions towards Radiation Protection.
- Behaviours towards Radiation Protection in their area of work.
Radiation Protection from Islamic Perspective

Examine from Islamic Worldview

Examine from Maqasid (Objectives) and Qawaid (Principles) Al-Shari’ah
"Worldview” is derived from the German word “Weltanschauung”.

The American Heritage Dictionary describes it as “the overall perspective from which one sees and interprets the world” and “a collection of beliefs about life and the universe held by an individual or a group.”
Submit to the Oneness / Unity of Allah

The Aqeedah:
- The Pillars of Islam
- The Pillars of Iman

Vicegerent on earth
Accept the fact that Allah has assigned him as a Vicegerent on earth.

Responsible to utilise all available resources as well as the knowledge.

Guided by the values, ethics and theological standards as encompassed in Islam.
Man as the Vicegerent on Earth

- enjoining good and forbidding bad

- not to do destruction on earth

- preserving religion, life, wealth, progeny and intellect

- human rights and justice
Islamic worldview: what it should be.

Islam do not reject the current practices, which might be associated with secular practices.

It is the duty of the Muslim to use the Allah given intellect to differentiate what constitutes the acceptable and what does not.
Desired application of Islamic Worldview

In all aspects of life; self, community, professional and non-professional.

In the profession, a thorough re-examination of the various aspects of the profession to enable the assimilation/integration of the worldview.
Preservation of life
Preservation of *Diin* / religion
Preservation of wealth
Preservation of mind
Preservation of progeny
A Quranic verse that could relate to concept of shielding.

- They said: "O Zul-qarnain! the Gog and Magog (People) do great mischief on earth: shall we then render thee tribute in order that thou mightest erect a barrier between us and them?

- He said: "(The power) in which my Lord has established me is better (than tribute): Help me therefore with strength (and labour): I will erect a strong barrier between you and them:

- "Bring me blocks of iron." At length, when he had filled up the space between the two steep mountain-sides, He said, "Blow (with your bellows)" Then, when he had made it (red) as fire, he said: "Bring me, that I may pour over it, molten lead."
Examining from Qawaid Al-Shariah

- Harm must be eliminated (Ad-dararuyuzal)

- Harm may neither be inflicted nor be reciprocated (la darara wa la dirar).
Important notes:

To examine from Maqasid Al-Shari’ah is to align the discussion to an approach taken by Muslims scholars such as Al-Ghazali, As-Shatibi, Ar-Razi and a host of other Muslim Scholars at least 1000 years ago.

Maqasid Al-Shari’ah and Qawaid Al-Shari’ah are based on Islamic Revealed Knowledge and the interpretations of Muslim Jurists
The principles of Radiation protection has been revisited.

The Practice of Radiation Protection needs continuous monitoring and evaluation in order for the objectives of Radiation Protection be achieved.

To view the principles / objectives of Radiation Protection from the Islamic Perspectives could help direct Muslim practitioners of the religious obligations towards Radiation Protection.

Accept the fact that the recognition to practice radiography has its religious roots.