Improving Quality Management and Clinical Practice in Nuclear Medicine, Radiopharmacy and Diagnostic Imaging
QUANUM Meeting/ Workshop

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"I am trying to change the widespread perception of the Agency as simply the world’s ‘nuclear watchdog’ because it does not do justice to our extensive activities in other areas, especially in nuclear energy, nuclear applications, and technical cooperation.

Yukiya Amano
Director General
IAEA
Scientific Forum 2010
“The Agency shall seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world”

Article II of the Statutes of IAEA
Division of Human Health (NAHU)

- **Objective**: to enhance the capabilities in Member States to address needs related to the prevention, diagnosis and treatment of health problems through the application of nuclear techniques:
  - NMS (Nuclear Medicine and Diagnostic Imaging)
  - ARBR (Applied Radiobiology and Radiotherapy)
  - DMRP (Dosimetry and Medical Radiation Physics)
  - NAHRES (Nutritional and Health-related Environmental Studies)
Nuclear Medicine Section

• Specific mission of fostering the application of nuclear medicine techniques as part of the clinical management of certain types of diseases.

• Enhancing Member States’ capability to address health needs by the use of Nuclear Medicine techniques in both imaging and therapeutic applications, complementary to conventional techniques.
Three specific programs within the Regular Budget

- Nuclear Medicine Database (NUMDAB)  
  http://nucmedicine.iaea.org

- Quality Management of Nuclear Medicine Practices (QUANUM)

- Human Health Website  
  http://humanhealth.iaea.org
The Quality Management Audits of Nuclear Medicine Practices project QUANUM is a means by which nuclear medicine facilities can demonstrate the level of patient care they provide by following a process of self- and external evaluation (audits)

Cycle of Constant Improvement leading to Better Futures: Interplay of the Past and Present. (modified from Deming Cycle)
Thinking on the Concept of Practice?

Critical reflection on:

- Practice (Nichomachean Ethics)
  - Theoretical
  - Productive: Techne
  - Practical: thinking about purpose and value: PRAXIS
- Professionalism
- Professionalization
- Life Long Learning Process
A PESTLE analysis helps to identify some of the key pressures and demands made on NMP:

- **P**: the political demands: how do the dominant political ideologies shape policy in NMP?
- **E**: the economic demands:
- **S**: the social trends: how do changing demographic profiles, how does greater diversity in lifestyle, culture, belief, shape NMP?
- **T**: technological developments: how is the rapid growth in technology including ICT shaping the NMP?
- **L**: legislative frameworks: the key legislation that underpins the purposes and practices of NMP?
- **E**: environmental concerns: how are issues related to the environment impacting on the purposes and practices of NMP?
Essential prerequisites

Local team
  Trust and openness

Audit team
  Respect and discretion
QUANUM: What is it?

• QUANUM: “Quality Management Audits in Clinical Practices in Nuclear Medicine”

• Philosophy: Routine audits of individual institutions are essential.

• Goal: To encourage a routine conduct of annual systematic audit processes in the clinical area for better patient care.

• Aim: To apply good clinical practices by identifying improvements which can be implemented using their own resources.
Quality Audit

Aim

Assist the local team in maintaining and improving the quality of service to patients to increase the satisfaction of patients, referring physicians and all staff members.
Quality Audit

Audits within the QUANUM programme of the IAEA are not inspections!

They are performed on the request of the corresponding department after a thorough self-evaluation according to the QUANUM method.

They complete but do not replace regular internal audits.

IAEA
Such audits will not evaluate the clinical performance of the team in terms of diagnosis and therapy.

But

check the presence and content of standard operation procedures (SOP)

and identify deficiencies and potential corrective actions.
Steps

• Familiarise with the local environment organisation, human resources, equipment, environment
• Check SOP’s
• Observation of daily work from a different perspective
• Discuss findings with the local team
• Make proposals for appropriate changes
• Set a timeline for implementing changes together with the local team
QUANUM: Checklists - 1

- 1) Strategies & Policies
- 2) Administration & Management
- 3) Human Resource Development
- 4) Radiation Regulations & Safety
- 5) Radiation Protection of Patients
- 6) Evaluation & Assurance of Quality Systems
- 7) Quality Control for Imaging Equipment
- 8) Computer System & Data Handling
- 9) General Clinical Services
10) Assessment of Diagnostic Imaging Procedures
11) Assessment of Non-Imaging Diagnostic Procedures
12) General Radionuclide Therapy
13) Assessment of Therapy
14) Radiopharmacy (Op Level 1)
15) Radiopharmacy (Op Level 2)
16) Radiopharmacy (Op Level 3)
17) Hormone & Tumor Markers
Prioritization of Non-Conformance

• **Critical priority**: issues impacting safety of patients, staff and/or environment that should be promptly addressed (within days or weeks).

• **Major priority**: issues impacting the capacity of the NMS to adequately perform its activities that should be addressed in a timely manner (e.g. 3-6 months).

• **Minor priority**: issues that may be object of optimization, to be accomplished within a defined time period and re-evaluated during the next audit.
What to expect this week...

Implementation of:
- Home_page
- Colour code for conformance/non-conformance
- Scoring system
- References
- Checklist summaries
- Clinical checklists:
  - 5 subparagraphs
  - Spreadsheet sets linked to one scoring spreadsheet
- Radar plots
Conclusion

- Content extended
- Distinction between external and internal audits
- Holistic approach to quality management in nuclear medicine

Contribution to on-going process of improving nuclear medicine practices in IAEA’s Member States

→ Technological process is still prevailing
   → future adoptions and modifications
   → constant culture of reviewing → Lifelong Learning Process
Checklists Reflective Questions

- Review the checklists given and reflect on the following questions.
- You will present your reflections as a group in the next few days:

1. What are the items in the checklists that you find (a) challenging to accomplish and (b) least important to address?
2. Why do you think these issues are important/ least important to be addresses
3. Propose a mechanism to resolve the challenging issues you have identified.
Implementation of QUANUM

- Regional Projects:
  - RAF 2008
  - RLA 6065
  - RER 6017
  - RAS6078

- Inter-regional Projects
  - INT 6056

- National Projects
  - ISR 6019
House Rules

1. 100% attendance throughout the course is mandatory
2. Attendance sheet should be signed in the am/pm
3. Bring your laptop as advised