**Introduction**

The result of the audits carried out by the Nuclear Medicine Software Working Party between 1997 and 2003 demonstrated that there is an ongoing quality problem in many aspects of computer processing and quantification in Nuclear Medicine procedures.

The group also successfully established an audit system in the UK and acquired a degree of expertise in preparation of validated test data for distribution.

It was therefore agreed by the IPEM Scientific Committee in 2003 that such a Software Quality Group should be established under IPEM to build on this work and continually monitor processes and revisit areas where problems have been demonstrated.

1. **Purpose**
   1. The purpose of the group is to promote good practice in UK Nuclear Medicine by highlighting current guidelines and improving accuracy and precision in computer processing.
   2. The name of the group is the Nuclear Medicine Software Quality Group (NMSQG), and it is established as a sub-committee of the IPEM Nuclear Medicine Special Interest Group (NMSIG). As a sub-committee it is on-going.
   3. The NMSQG is accountable to the IPEM through the NMSIG.
   4. If the NMSQG has specific issues it wishes to raise with IPEM then the SIG Chairs’ representative can do this via the Science, Research and Innovation Council, or the Professional and Standards Council, as appropriate. If special funding is required for a publication or other activity then the SIG Chair can take this forward for consideration through the usual routes.

**2. Functions**

2.1 This will be achieved by:

• Establishing standard datasets of data routinely processed by UK NM centres;

• Facilitating frequent audits to be conducted by the group.

• Allowing NM centres and manufacturers to evaluate new equipment, set local normal ranges, establish and assure quality control and enhance training.

• Making the NM community aware of deviations from guidelines and errors in processing both locally and nationally, and

• Encouraging harmonisation of NM data analysis across the UK.

2.2 Performance Criteria

* At least one audit per year will be carried out and reported.
* An annual report to the Science, Research and Innovation Council (SRIC) will be produced by the Chair via the Nuclear Medicine SIG.
* Regular links will be maintained with the NMSIG, with a NMSIG member attending one meeting per year and a NMSQG member attending one SIG meeting per year.

## **Frequency and conduct of meetings**

3.1 The Group will meet three times each year, with a maximum of two face-to-face meetings, and one or more teleconferences or videoconferences.

3.2 A quorum is one third of members of the Group.

3.3 The Chair of the Group will chair all meetings. In his/her absence, the meeting will be chaired by another member of the Group.

3.4 The Chair shall ensure formal minutes are made of the meeting.

**4. Communications, decision making and records** (this section contains standard wording for all IPEM groups and is not for amendment)

4.1 An electronic copy of the agenda and agreed minutes and key papers for each meeting shall be:

a. sent to all committee members

b. sent to Institute’s secretariat for archiving, and to the Secretary of NMSIG

c. placed on the committee’s section of the Institute’s website.

4.2 During a committee meeting the Chair will seek to achieve a unanimous agreement on each action/decision. If consensus cannot be reached then decisions may be made by a “show of hands” using a simple majority decision, subject to a quorum being present. The Chair has the casting vote if there is a tie.

4.3 When electronic communications and decision-making are required prior to the next committee meeting:

a. the discussion will usually be initiated by the Chair sending an email simultaneously to all committee members. The message may initially seek advice. All discussion responses should be sent “reply all”.

b. When the Chair judges it to be appropriate, a specific proposal will be circulated electronically to all committee members requesting a vote (agree/disagree/abstain) and a deadline for responses will be set (usually a minimum of 3 working days). The Chair has the casting vote if there is a tie. The deadline for decision may be extended if fewer than the quorum have responded. The resulting decision will be formally noted at the next committee meeting.

c. The electronic discussion/voting may be run by another person on behalf of the Chair, however the Chair remains responsible for ensuring that the decision-making process is transparent, robust and accessible by all committee members.

4.4 The Secretary shall ensure that:

a. all the committee’s website communications to the general public and members are informative and accurate and are prepared and approved in accordance with relevant Institute policies.

b. the content of the committee’s web-pages are updated and regularly reviewed for accuracy (at least every six months)

4.5 The Chair shall ensure that a brief report of the committee’s activities is provided annually (usually in February) to the office for inclusion in the Institute’s Annual Review.

4.6 The Chair will make the committee aware of issues relating to Data Protection to ensure that the committee complies with the IPEM Data Protection and Confidentiality Policy. Any queries relating to Data Protection will be referred by the Chair of the committee to the Data Protection Officer.

# Reporting arrangements

## The Nuclear Medicine Software Quality Group reports directly to the Nuclear Medicine SIG.

# Membership *(sections 6.2 and 6.3 contain standard wording for all IPEM groups are not for amendment)*

* 1. The membership of the Group shall consist of:
* Up to eight members, with a minimum of three to allow a quorum to be established.
* Membership of the group is open to members of the IPEM with relevant experience.
* Normally two members will be replaced each year. This should be sufficient to allow each member to manage at least one audit including reporting and writing up for publication.

6.2 In addition, the Group may invite any member of the Institute, or others as appropriate, to attend part of all of a meeting of the Committee for discussion of specific items of business.

* 1. Appointments to the committee/group/panel shall be for a period of 3 years, which may be extended for one period. Appointments normally start from the Institute AGM in September. Members taking up appointments during the year will be eligible for election for the full term from the following September
  2. The group will internally nominate the chairperson and secretary, who will normally serve for two years.
  3. New group members will be recruited through the current IPEM volunteer role recruitment process. The final choice of new members should be determined by the NMSQG. The choice will be based on the needs and skill mix requirements of the future audit programme.
  4. Upon request, previous chairpersons of the group may be retained as corresponding members.

1. **Operation of the Group**
   1. The group will identifyprocedures in Nuclear Medicine, in consultation with other bodies as appropriate, where routine computer processing of data is used to generate numerical parameters, graphical displays or derived images and where there is potential for error.
   2. The group will maintain communication with Nuclear Medicine software manufacturers and other relevant stakeholders. Prior to the release of an audit, the software manufacturers will be contacted by the audit lead to inform them of the upcoming audit details.
   3. Typically, raw data will be acquired and distributed to Nuclear Medicine centres throughout the UK so that comparisons of processed results may be compared and analysed. This may be anonymised patient data, phantom data, or software simulated data.
   4. The data and results summary will also be made available for NM centres or manufacturers to download and process as part of their own QC procedures or local process validation.
   5. The group will recruit Regional Co-ordinators to assist with distribution and collection of results. The Regional Co-ordinators may also provide technical assistance to participating centres within their Region if particular problems are identified.
   6. Each participating centre will receive an indication of their performance with respect to the rest of the UK via their regional co-ordinator but the remainder of the individual results will remain anonymous. The group may also issue guidance as to how results may be interpreted with respect to the "real" value or national mean.
   7. Similarly, manufacturers of gamma camera systems and NM computer systems will also receive summaries of their UK customers' performance with respect to the remainder of results in the UK.
   8. Results will be published and presented at national and international meetings to promote good practice within the nuclear medicine community.
   9. Results will also be submitted for peer-review publication. All group members (past and present) who contribute to the draft paper will be eligible for inclusion as an author, in accordance with the authorship guidelines of the target journal. The authorship order will be determined by each member’s contribution. Where appropriate Regional Co-ordinators will be acknowledged in any published and presented work.
   10. All reported results will remain anonymous outside of the group and the group will not divulge results obtained from individual operators, or centres, to other parties.
   11. Results relating to different manufacturers may be published, where appropriate, with the permission of the manufacturers.
   12. The group will make recommendations for improvements in software design and/or nuclear medicine acquisition and processing protocols if appropriate.
   13. The group will encourage and may be involved in the production of guidelines for analysis of nuclear medicine studies and the development of standards of performance for software used for this purpose.
   14. The group will endeavour to maintain a link with the British Nuclear Medicine Society.
   15. The group will endeavour to collaborate with similar audit groups in other countries if appropriate.
2. Data Processing

8.1 The Group will process data in line with IPEM’s information governance and IT policy, and all members of the Group will be required to sign the IPEM Data Protection Agreement for volunteer contributors.

8.2 In addition, the Group will work to a data handling policy and procedure agreed with the Professional and Standards Council to ensure compliance with relevant legislation and good practice regarding the use of patient data for audit.

1. Inclusiveness and diversity

## Inclusiveness is one of IPEM’s strategic values and is understood as meaning *“enabling a diverse and inclusive professional community”*. This principle should be considered in all decisions, actions and areas of the organisation including the membership of its committees. Diverse groups make better decisions and by being more representative of patients and the public we can achieve our charitable objective.

[*IPEM’s EDI policy*](https://www.ipem.ac.uk/about/equality-diversity-and-inclusion/)

1. National Office contact

*The dedicated contact in the national office for this committee is the Professional Knowledge and Innovation Manager. Their* [*name and contact details*](https://www.ipem.ac.uk/about/contact-us/ipem-team/) *are listed on the IPEM Website.*