COST Action BM0607

"TARGETED RADIONUCLIDE THERAPY"

Dosimetry & Radiobiology Working Party

March 2009

Report on the results of the Questionnaire

A questionnaire on pre-clinical imaging and dosimetry was sent out to all members of the COST Action BM0607 in November 2008. Seven research teams answered the questionnaire. The questionnaire consisted of in total eight questions, although the eighth question was an exclamation for further comments and questions related to imaging and dosimetry.

A brief summary of the results gives that:

- Each team has, in general, more than one piece of imaging equipment (7 teams, 14 cameras) and majority of these are of a multi modality type.
- 71% of the teams performed some kind of performance measurements upon arrival of the new equipment.
- About 50% of the teams perform the Quality Control procedures suggested by the manufacturer, whilst 14% (1 team) do not perform any QC procedures at all.
- About 50% interpret the acquired images by both a qualitative and a quantitative approach.
- About 50% of the teams use their equipment for both therapeutic and diagnostic applications.
- About 50% determine the pharmacokinetics for the investigated radiopharmaceutical.
- About 70% answers that they do not perform dosimetry, but would like to.

The detailed results are presented in the attached Appendix, showing 1) the question as it was written in the questionnaire, 2) the answers in numbers and percent and a diagram displaying the results and 3) any added comments.

The dedication of the teams concerning Quality Control procedures varies highly amongst the teams, from nothing to in house developed procedures. The performed QC procedures seem to concentrate more on the PET and the SPECT, than on the CT part of multimodality equipment. No team reports any specific procedure to test the software for multimodality function, reconstruction and file transfer.

The majority of the research teams report that they do not perform any dosimetry for their conducted studies although there is an interest to perform it. One reason for not performing dosimetry could be lack of knowledge, which could be met by the working group by publishing a paper including a review over small animal dosimetry models and guidelines on data acquisition.

Glenn Flux (chair)
Mark Konijnenberg
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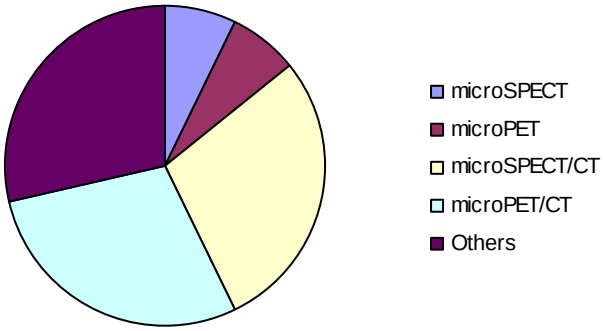
1. What small animal imaging cameras do you have in your department?

__ microSPECT
__ microPET
__ microSPECT/CT
__ microPET/CT
__ other, please specify _____

	Answers	Percent [%]
microSPECT	1	7
microPET	1	7
microSPECT/CT	4	29
microPET/CT	4	29
Others	4	29
Total	*14*	*100*



Comments:

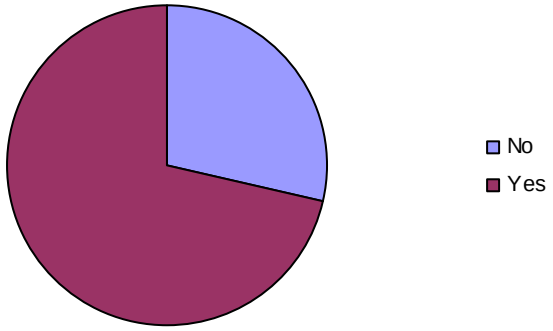
- We use human scanners (SPECT/CT, Symbia, Siemens and PET/CT, Discovery STE, GE)
- MR and MR/PET

2. Did you perform Performance Measurements upon arrival on the new equipment?

__ No

__ Yes, please specify_____

	Answers	Percent [%]
No	2	29
Yes	5	71
Total	*7*	*100*



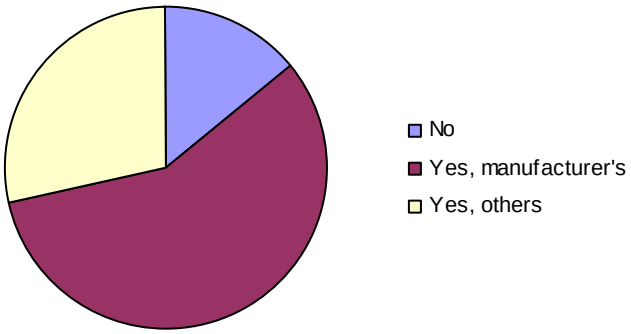
Comments:

- Still to be done – SPECT just arrived, PET to be delivered early 2009
- As legally requested
- spatial resolution, sensitivity, image quality
- SPECT studies as performed by XXX, On the PET we looked at uniformity, sensitivity and resolution
- Sensitivity and spatial resolution over the whole FOV, count rate performance, Hounsfield units

3. Do you perform regular Quality Control procedures on your equipment?

__ No
__ Yes, the procedures recommended by the manufacturer
__ Others, please specify_____

	Answers	Percent [%]
No	1	14
Yes, manufacturer's	4	57
Yes, others	2	29
Total	*7*	*100*



Comments:

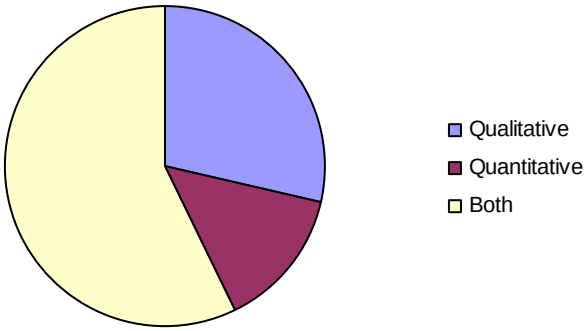
- We will dedvelop in house procedures, input from this exercise will be welcome
- Procedures are under development

4. How do you usually interpret the images you acquire?

__ Qualitative assessment of the images

__ Quantitative assessment of the images

	Answers	Percent [%]
Qualitative	2	29
Quantitative	1	14
Both	4	57
Total	*7*	*100*



Comments:

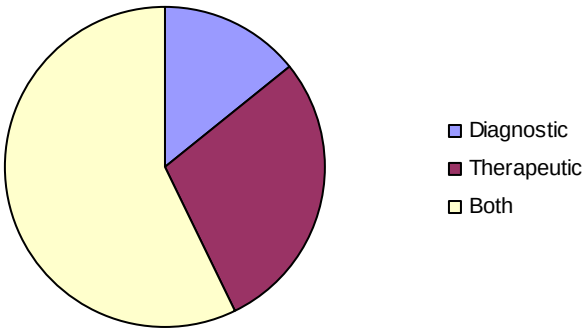
- Both, depends on the kind of test

5. What is the main interest in your department?

__ Diagnostic procedures

__ Therapeutic procedures

	Answers	Percent [%]
Diagnostic	1	14
Therapeutic	2	29
Both	4	57
Total	*7*	*100*



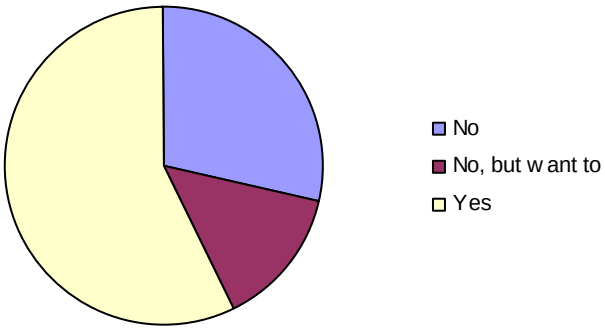
Comments:

- Certainly both

6. Do you perform any studies to determine the pharmacokinetics of the radiopharmaceuticals you investigate?

__ No
__ No, but I would be interested in doing so.
__ Yes

	Answers	Percent [%]
No	2	29
No, but want to	1	14
Yes	4	57
Total	*7*	*100*



Comments:

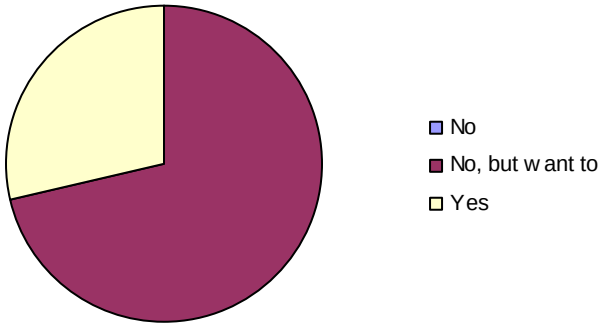
- We have tried to do quantitative dynamic studies on the SPECT with limited success due to count rate– we will be doing quantitative dynamic acquisitions on the PET in due course.

- Will develop quantitative imaging when the equipment is operational.

7. Do you perform any studies that include dosimetry?

__ No
__ No, but I would be interested in doing so.
__ Yes

	Answers	Percent [%]
No	0	0
No, but want to	5	71
Yes	2	29
Total	*7*	*100*



Comments:

- We do “ex vivo” dosimetry
- Will apply both S values for small animals and voxel based dosimetry.

8. We would welcome any further comments you have, whether or not related to small animal imaging and dosimetry:

Comments:

- We are in the process of setting all this up so the questions do not quite match our context. Answers reflect our aims rather than current practice. This is a sensible initiative and we would like to help, subject to the experience of staff we are able to recruit. We would welcome the opportunity to input from this exercise into our QC programme.

- How would you comment the use of clinical scanners (hybrid) for animal studies especially dosimetry