Collection of “Dose Calibrator” Settings

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Motivation

- Review of existing radionuclide calibrator calibration figures
- Comparison of figures determined at different NMIs
- Guidance for users

What to collect

- Measurements related to primary measurements
- Type of ionization chamber
  - NPL
  - Other
- Monte Carlo simulations – not collected
- Brachytherapy?
- Future – measurements by other than NMIs

What to record

- Excel spreadsheet (Other calibrators)

NMI	Manufacturer (MF)	Model	S/N	Radionuc	Solution	Container	Soln Vol (mL)	MF Cal Factor (CF)	NMI CF	NMI CF Unc	NMI CF Unc (%)	Diff at MF CF (%)	A_{NMI}/A_{MF}
ANSTO	Capintec	CRC-712M		18F	FDG, 0.1 mol/L HCl	10 mL Wheaton Vial	0.1	439	443	12	2.7%	0.8%	1.008
ANSTO	Capintec	CRC-712M		18F	FDG, 0.1 mol/L HCl	10 mL Wheaton Vial	1	439	446	12	2.7%	1.4%	1.014
ANSTO	Capintec	CRC-712M		18F	FDG, 0.1 mol/L HCl	10 mL Wheaton Vial	4.5	439	459	11	2.4%	4.0%	1.040
ANSTO	Capintec	CRC-712M		18F	FDG, 0.1 mol/L HCl	10 mL Wheaton Vial	9	439	473	15	3.2%	6.5%	1.065

Comment	Year	Ref
	2006	Mo, L., Reinhard, M.I., Davies, J.B., Alexiev, D., and Baldock, C. (2006) Calibration of the Capintec CRC-712M dose calibrator for 18F. *Appl. Radiat. Isot.* **64**, 485
	2006	Mo, L., Reinhard, M.I., Davies, J.B., Alexiev, D., and Baldock, C. (2006) Calibration of the Capintec CRC-712M dose calibrator for 18F. *Appl. Radiat. Isot.* **64**, 485
ANSTO reccomended setting for 0.1-9.0 mL for unc <6.3% (k=2)	2006	Mo, L., Reinhard, M.I., Davies, J.B., Alexiev, D., and Baldock, C. (2006) Calibration of the Capintec CRC-712M dose calibrator for 18F. *Appl. Radiat. Isot.* **64**, 485
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Reporting

- Factors reported in many ways
  - Calibration figure
    - Dial setting
    - Current/Activity
  - Nuclide efficiency
  - Correction factor
  - Geometry correction factor
  - Geometry correction components

Reporting, cont.

- Response at incorrect setting occasionally given
- Manufacturers recommended setting not always given
- Geometry usually well documented
- “Guidance/Calibrate your own” statement not always included
- Uncertainty not always given

Reporting Recommendations?

- Calibration figure *vs* Correction factor *vs* Nuclide efficiency?
- Include Manufacturers Setting
- Include bias introduced by using incorrect setting
- Uncertainty
  - In calibration figure
  - In activity

What to do with the information

- Submit to ICRM meeting
- Journal of Nuclear Medicine
- Journal of Nuclear Medicine Technologists

- Publish NPL calibration figures seperately?

The collection so far

- NMI publications
  - 32 pdf documents
  - 4 paper copies
  - 5 identified, but don’t have
  - 4 brachytherapy
- 10 non-NMI

- Bibliography included in meeting CD

Questions?
Comments?
More references?