UNM HOSPITALS

Applies To: **UNM Hospitals**
Responsible Department: Radiology – Nuclear Medicine
Revised: 04/2016

Title: **Radiology – Identification and Instruction of Breast-Feeding Patients**	**Procedure**

Patient Age Group:	( ) N/A	( ) All Ages	( ) Newborns	(x) Pediatric	(x) Adult

DESCRIPTION/OVERVIEW

To establish procedures, in accordance with general radiation safety principles and New Mexico Environment Department regulations, to insure that:

1. Breast-feeding patients are identified before radiopharmaceutical administration. If the total effective dose equivalent (TEDE) to a breast-feeding child might exceed 100 mrem, the patient is given both verbal and written guidance regarding interruption or discontinuation of breast-feeding in order to maintain the TEDE to the breast-feeding child below 500 mrem and as low as is reasonably achievable.
2. The records required by NMAC 20.3.7.703I are maintained to document that instructions on interruption or discontinuation were provided to a breast-feeding patient if the TEDE to her child from continued breast-feeding could exceed 100 mrem, along with information on the potential consequences, if any, for failure to follow the instructions.

REFERENCES

- New Mexico Radiation Protection Regulations, Part 7 (Medical Use of Radionuclides), NMAC 20.3.7.703I
- US Nuclear Regulatory Commission, NUREG-1556, Vol. 9, Rev. 2 (January 2008), Consolidated Guidance About Materials Licenses, Program-Specific Guidance About Medical Use Licenses

AREAS OF RESPONSIBILITY

Nuclear medicine technologists
Attending radiology physicians
Radiology resident physicians

PROCEDURE

1. Signs are posted in the nuclear medicine department to alert female patients to notify the nuclear medicine staff if they are breast-feeding.
2. Before a radiopharmaceutical is administered to a female patient between 10 and 60 years of age, the administering technologist must ask whether she is breast-feeding or lactating (i.e., pumping breast milk), and document the patient's answer in the free-text section of the technical comments in Radnet.
3. Before the radiopharmaceutical is administered, the technologist must notify an attending radiologist or radiology resident physician if any female patient indicates that she is breast-feeding or lactating.
4. Upon such notification, the physician must interview the patient and determine whether it is appropriate to continue with the nuclear medicine study or procedure; this may be done in consultation with the patient's licensed independent provider (LIP), if appropriate.
5. If it is determined by the physician that the nuclear medicine study or procedure should be

performed in a breast-feeding woman, the patient must be given both verbal and written instructions ("Instructions to Breast-Feeding Patients") regarding actions the patient can take to minimize the radiation dose to her infant.

   a. After review of the included table, the radiologist and nuclear medicine technologist should write in the appropriate duration of cessation on the "Instructions to Breast-Feeding Patients" form.
   b. Both the radiologist and nuclear medicine technologist should initial this section,
   c. The radiologist shall sign the bottom of the form.

6. The patient will be asked to sign a duplicate copy of the "Instructions to Breast-Feeding Patients," indicating that she has received the instructions and has had her questions answered.
   a. This signed copy will be scanned into the PACS and will be maintained in the Nuclear Medicine Department for three years as required by regulation.

The following table indicates the recommended duration of interruption of breast-feeding for radiopharmaceuticals used in UNM Hospitals Nuclear Medicine (largely based on NRC Regulatory Guide 1556, Vol. 9, Appendix U). The assumptions used to derive the NRC recommendations are conservative in that they assume that: (a) the breast feeding individual is a newborn infant; (b) there is maximum excretion of the radiopharmaceutical in the milk; and (c) there is maximum absorption of the ingested radiopharmaceutical by the infant.

Instructions to patients should be individualized by the physician. What is simple and easy for one patient to do may be difficult for another patient. Given the conservative assumptions used in the calculation of the infant's TEDE, the physician should use his or her discretion in deciding what recommendations to make to an individual patient. **Special attention is warranted for the radiopharmaceuticals bolded in the table.** Additionally, special caution should be taken in administering radioiodine to patients who have recently ceased breast feeding, as recent lactation (e.g., within 6-8 weeks) increases radiation exposure to breast tissue.

Activities of Radiopharmaceuticals that Require Instructions and Records When Administered to Patients Who Are Breast-Feeding an Infant or Child

(Modified from NRC Regulatory Guide 1556, Vol.9, Appendix U)

INTERRUPTION OF BREAST FEEDING USUALLY OR ALWAYS REQUIRED			
Radiopharmaceutical	**Activity above which instructions are required (mCi)** (Because TEDE may exceed 100 mrem)	**Activity above which a record is required (mCi)** (Because TEDE could exceed 500 mrem without interruption)	**Recommended duration of interruption of breast-feeding** (To limit TEDE to less than 100 mrem)
F-18 fluorodeoxyglucose (FDG) (1,2)	N/A	N/A	8 hr for 15 mCi
Ga-67 Citrate	**0.04**	**0.2**	**Complete cessation**
Tc-99m MAA	1.3	6.5	13 hr for 4 mCi 9 hr for 2.5 mCi
Tc-99m pertechnetate	3	15	24 hr for 30 mCi 12 hr for 12 mCi

Tc-99m in vivo RBCs	10	50	16 hr for 30 mCi
Tc-99m sulfur colloid	7	35	6 hr for 12 mCi
Tc-99m sestamibi/tetrofosmin (3)	30	150	9 hr for 60 mCi 6 hr for 45 mCi
Tc-99m leukocytes	4	15	66 hr for 30 mCi 56 hr for 12 mCi
In-111 leukocytes	**0.2**	**1**	**1 week for 0.5 mCi**
In-111 pentetreotide (2)	**N/A**	**N/A**	**Complete cessation**
I-131 NaI	**0.0004**	**0.002**	**Complete cessation**
I-131 MIBG (4)	**N/A**	**N/A**	**Complete cessation**
I-123 MIBG (3, 5, 6)	2	10	**6 days (any amount)**
I-123 NaI (3,7)	**N/A**	**N/A**	**Complete cessation**
Tl-201 chloride	**1**	**5**	**2 weeks for 3 mCi**
Sr-89 chloride (Metastron) (8)	**N/A**	**N/A**	**Complete cessation**
In-111/Y-90 Zevalin (9)	**N/A**	**N/A**	**Complete cessation**

(1) UNM Department of Radiology - Nuclear Medicine recommendation.
(2) J Nucl Med 2001; 42:1238-1242.
(3) J Nucl Med 2000; 41:863-873
(4) Nucl Med Commun 1989; 10:15-27.
(5) I-123 MIBG (Adreview) Prescribing Information, rev. 9/2008
(6) $^{131}I/^{123}I$-Metaiodobenzylguanidine (MIBG) Scintigraphy – Procedures Guidelines For Tumour Imaging, European Association of Nuclear Medicine (2010)
(7) I-123 NaI prescribing information, Cardinal Health, issued May 2003 (up to 2.9% I-125 at calibration time and up to 12.4% I-125 at expiration time)
(8) Metastron Prescribing Information, rev. 2/2006.
(9) Zevalin Prescribing Information, rev. 5/2010.

INTERRUPTION OF BREAST FEEDING USUALLY NOT REQUIRED			
Radiopharmaceutical	**Activity above which instructions are required (mCi)** (Because TEDE may exceed 100 mrem)	**Activity above which a record is required (mCi)** (Because TEDE could exceed 500 mrem without interruption)	**Recommended duration of interruption of breast-feeding*** (To limit TEDE to less than 100 mrem)
Tc-99m DTPA	30	150	*
Tc-99m mebrofenin or disofenin	30	150	*
Tc-99m glucoheptonate	30	170	*
Tc-99m sestamibi	30	150	*
Tc-99m MDP	30	150	*
Tc-99m *in vitro* RBCs (*in vivo* not recommended	30	150	*

due to free pertechnetate)			
Tc-99m DTPA aerosol	30	150	*
Tc-99m MAG3	30	150	*
In-111 DTPA intrathecal (1)	N/A	N/A	*

*Interruption not required with usual administered activity of radiopharmaceutical.
(1) J Nucl Med 1995; 36:1723-1724.

SUMMARY OF CHANGES

Removed references to pregnancy; update age ranges; updated process by which patients are informed of risk and how the hospital documents; Charts and chart references updated; minor formatting revisions made; Patient instruction form updated and made patient-friendly.

DOCUMENT APPROVAL & TRACKING

Item	Contact	Date	Approval
Owner	Radiology Executive Director; Nuclear Medicine Director		
Consultant(s)	Joanna Fair, MD, Nuclear Medicine Section Chief Chris Wallace, CNMT, Nuclear Medicine Supervisor Meaghan Carey, DNP, RN, Director Nuclear Medicine Greg Chambers, MS, DABR, Diagnostic Medical Physicist		
Committee(s)	Radiation Control Committee, Clinical Ops PP&G Committee		Y
Nursing Officer	Sheena Ferguson, Chief Nursing Officer		N/A
Medical Director/Officer	Steven Eberhardt, MD		Y
Official Approver	Michael Chicarelli, Professional and Support Svcs Administrator		Y
Official Signature		Date: 1/21/2011	
Effective Date		1/21/2011	
Origination Date		1/2011	
Issue Date	Clinical Operations Policy Coordinator	1/25/2011	ar

ATTACHMENTS

UNMHSC Radiology Instructions to breast-feeding patients

What To Do If You Are Breastfeeding And Getting A Radioactive Drug

You have been given a radioactive drug that can go into your breast milk.

The name of the drug you have gotten is _____.

You have been given this amount: _____.

For most radioactive drugs, the amount of radiation that your child will get will be small. This is true even if you continue to hold and nurse your child. Follow the three steps below to make the dose to your child even smaller.

What steps can I take?

- ✗ **Stop breast-feeding completely for _____ hours / days**
  (Staff fill in and circle one)
- ✗ Do not hold your child for more than 1 hour during this period.
- ☑ Make sure to **pump and dump** milk during this period. This will help to get the drug out of your body.

For Staff Only
Cessation duration confirmed by both:
____Technologist initials
____Radiologist initials

Note: For a few drugs, your child could be exposed to a large dose of radiation. We **would not** give these drugs to a woman if we **knew** she was breast-feeding. In most cases, breast-feeding must be stopped completely before taking one of these drugs.

For you:

I understand these instructions and I have had my questions answered.

_____	_____	_____
Patient Signature	Patient Name (print)	Date/Time

For the doctor:

I have explained this information about breast feeding to this patient.

_____	_____	_____
Radiologist Signature	Radiologist Name (print)	Date/Time

Questions? Call Us!
Nuclear Medicine (505) 272-2421 Monday-Friday 8:00AM – 4:30PM
Ask to speak to a radiologist.

UNM HOSPITALS
Nuclear Medicine Department

HLO Approved
1/15
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