I. PURPOSE

This document provides guidance for IRB human use study applications involving ionizing radiation. Such applications are reviewed by the Human Use Subcommittee of the Radiation Safety Committee (HUS-RSC).

II. SCOPE

This document applies to Principal Investigators (PIs), and their respective study teams/coordinators, who are preparing studies for Institutional Review Board (IRB) review. Studies involving ionizing radiation are under the scope of the HUS-RSC. HUS-RSC committee members conduct reviews of each such study and their approval is necessary.

Sources of ionizing radiation under this scope are from radiation generating machines and/or radioactive material, which is approved for use on/in humans by the United States Food and Drug Administration (FDA). Such use of ionizing radiation is categorized as either standard of care or exceeding standard of care. A study may have radiation use in both categories.

Non-ionizing radiation procedures (e.g. Magnetic Resonance Imaging (MRI), ultrasound, etc.), or studies which only involve data analysis from other studies, are outside the scope of the HUS-RSC to review. It is also outside the scope of the HUS-RSC to review or approve studies conducted outside of the University of Utah's Covered Entities or Affiliated Entities, as defined by the University of Utah's IRB.

III. DEFINITIONS

A. Standard of care

Standard of care (a.k.a. standard care, standard clinical care) is care and treatment a subject would receive regardless of their participation in a research study.

B. Exceeds standard of care

Exceeds standard of care (a.k.a. research, study related) is care and treatment a subject would receive only because of their participation in a research study. Research care and treatment could be:

- alternate types of scans and/or procedures; or
- scans and/or procedures given at time points, frequencies, and/or intensities that are different from standard of care

C. Responsible User

A Responsible User (RU) is a knowledgeable individual who is authorized to oversight ionizing radiation use in or on human subjects by the University of Utah Radiation Safety Committee. RU study acceptance is required for all studies which involve procedures that exceed standard of care.

D. Late Stage Cancer Study Review

A Late Stage Cancer Study review is performed by the HUS-RSC for studies qualifying for this review type as indicated in the main body of this document.

E. ERICA (Electronic Research Integrity & Compliance Administration)

The online system used by the University of Utah for human use research under the Institutional Review Board (IRB) and Ancillary Committees.

F. Committee

The Committee, unless otherwise stated, for the purposes of this document shall refer to the Human Use Subcommittee (HUS) of the Radiation Safety Committee (RSC).

G. Application

The Application, unless otherwise stated, for the purposes of this document shall refer to the Application for Ionizing Radiation Use in Human Research Studies.

IV. CONTACTS

Table 1: HUS-RSC Contacts

Committee Role	Representative	Email
Committee Chair	Scott Miller, Ph.D.	scott.miller@hsc.utah.edu
Radiation Safety Internal Reviewer	Mario Bettolo	mario@rso.utah.edu

Table 2: Dosimetry Report Contacts

Support Service	Representative	Email
Dosimetry Calculation for External Diagnostic procedures conducted at University of Utah's Covered Entity Locations*	Peter Jenkins, Ph.D.	peter.jenkins@hsc.utah.edu
	Online Dosimetry Calculator: http://medicine.utah.edu/radiology/medical-physics/dose-information.php	
Dosimetry Calculation for Injection of Diagnostic and Therapeutic Radiopharmaceuticals at University of Utah's Covered Entity Locations*	John Hoffman, M.D.	Contact Dr. Hoffman's Administrative Officer, Kelly Smith, at: Kelly.smith@hci.utah.edu
Dosimetry Calculation Services for facilities other than at University of Utah's Covered Entity Locations	Appropriate Responsible User (RU) Refer to Table 3	

* *These services cannot be replaced by a substitute dosimetry calculation service.*

Table 3:	**Responsible Users (RUs)**			
3.a.	**For Scans/Procedures Performed at the University of Utah**			
Affiliation	Responsible User	Phone (Area Code: 801)	E-mail	Facility
Cardiovascular Medicine	Frederick Welt	213-4060	fred.welt@hsc.utah.edu	University of Utah SOM
Clinical Radiology	Ulrich Rassner	581-4624	ulrich.rassner@hsc.utah.edu	University of Utah SOM
Interventional Radiology	Ryan O'Hara	581-7553	ryan.ohara@hsc.utah.edu	University of Utah SOM
Nuclear Medicine	Kathryn Morton	585-9068	kathryn.morton@hsc.utah.edu	University of Utah SOM
Nuclear Medicine (PET/CT)	John Hoffman	587-4064	john.hoffman@hci.utah.edu	Huntsman Cancer Institute
OB/GYN (DEXA)	Matthew Peterson	581-3834	c.matthew.peterson@hsc.utah.edu	University of Utah SOM
Orthopedics	Timothy Beals	585-5400	timothy.beals@hsc.utah.edu	University of Utah Ortho Center
Orthopedics	Alan Stotts	662-5622	alan.stotts@hsc.utah.edu	University of Utah Ortho Center
Pediatric (DEXA)	Mary Murray	587-3905	mary.murray@hsc.utah.edu	University of Utah Ped. Admin.
Radiation Oncology (Central Nervous System)	Dennis Shrieve	581-8793	dennis.shrieve@hci.utah.edu	Huntsman Cancer Hospital
Radiation Oncology (Gastrointestinal, Head & Neck, Prostate & Genitourinary, Bladder, Kidney)	Shane Lloyd	581-8793	shane.lloyd@hci.utah.edu	Huntsman Cancer Hospital
Radiation Oncology (Gynecological, Breast, Lymphoma)	David Gaffney	581-8793	david.gaffney@hci.utah.edu	Huntsman Cancer Institute
Radiation Oncology (Head & Neck, Sarcoma, Lung)	Ying Hitchcock	581-8793	ying.hitchcock@hci.utah.edu	Huntsman Cancer Hospital
Radiation Oncology (Lung, Breast, Prostate & Genitourinary, Bladder, Kidney)	Kristine Kokeny	581-8793	kristine.kokeny@hci.utah.edu	Huntsman Cancer Hospital
Radiation Oncology (Pediatrics, Breast)	Matthew Poppe	581-8793	matthew.poppe@hci.utah.edu	Huntsman Cancer Hospital
Radiation Oncology (Prostate & Genitourinary, Bladder, Kidney, Gastrointestinal, Central Nervous System)	Jonathan Tward	581-8793	jonathan.tward@hci.utah.edu	Huntsman Cancer Hospital

3.b.	For Scans/Procedures Performed at Facilities other than the University of Utah			
PCMC Medical Imaging	William Winters	662-1900	william.winters@imail.org	Primary Children Medical Center
VAMC	Chris Davidson	584-1207	hans.davidson@va.gov	Wahlen VA Medical Center

V. HUS-RSC APPLICATION PROCESS

A. Primary Process:

1. Identify all procedures within the study that will use ionizing radiation. For those procedures, identify the types of procedures, when they will be performed and/or their frequency/intensity. It is recommended that this step is completed at the beginning of the Application development process. All scans in a sponsor protocol should be included in the ERICA application. If a particular scan will not be performed, then include a comment in the application indicating so.

   Note that if there are no ionizing radiation procedures, then HUS-RSC review is not needed.

2. Determine, with PI concurrence, whether or not each ionizing radiation procedure is standard of care or exceeds standard of care (i.e. research), or is a combination.
   a. For procedures that are standard of care, the consent documents must explicitly state that study subjects would receive these standard of care procedures regardless of their participation in the study.
   b. For procedures that exceed standard of care:
      i. Include a dosimetry report* which include the maximum research scans a study subject might have from participating in the entire study. Table 2 is contact information needed to obtain the dosimetry report.
         *Note: Dosimetry reports are not required if:
         1. The study subjects qualify for Late Stage Cancer Study Review; or
         2. The ionizing radiation procedure is radiation therapy.
      ii. Contact the Radiation Safety Internal Reviewer and provide the dosimetry report in order to obtain the ionizing radiation-related risk language that must be included in consent documents.
      iii. In the ERICA application, select an RU, or RU's, based upon the type of procedures and the location where the procedures will be performed. Table 3 contains an RU list.
   c. Regarding studies that have scans or procedures that are a combination of both standard of care and exceeding standard of care:
      i. Complete requirements of Sections V.A.2.a and V.A.2.b, as applicable for each procedure
      ii. Ensure that the designation of the scans as to whether they are standard of care or research are clearly indicated in the consent documents, the application, and the study protocol
      iii. Ensure that the dosimetry report includes only the maximum research scans a study subject might have from participating in the entire study.

3. Include language in the consent document related to standard of care procedures and risk language related to procedures that exceed standard of care, as applicable.

4. Complete the ERICA IRB Application and the ancillary application "Application for Ionizing Radiation Use in Human Research Studies" in its entirety, and ensure that all documents that are included are consistent.

5. Submitting the study application in ERICA:
   a. Ensure all required documents are attached.
   b. If any ionizing radiation procedures exceed standard of care, the appropriate RU(s) must be selected. There may be more than one RU that must review the study for acceptance.
   c. Once the study has been submitted it will be reviewed. Revision requests may come from the RU(s), the Radiation Safety reviewer, and/or HUS-RSC members. Resubmission from the PI will be required for the review to continue.
   d. Notifications, including study acceptance or disapproval, are sent via email from ERICA. If any action is required, the action and response mechanism will be included in the notification.

B. Special Considerations

1. Amendments and Other Reviews
   a. Study Amendment Applications

      Changes to an approved or exempted study that includes ionizing radiation (e.g. adding standard of care or research scans, adding a different participating age group, etc.), requires a study amendment and Committee review. It is strongly recommended that amendments to ionizing radiation-related scans/procedures are completed separately from the Continuing Review process, in case the amendment review process takes longer than the deadline for a continuing review.

   b. Continuing Reviews

      Continuing Reviews are managed by the IRB. It is recommended that amendments to ionizing radiation-related scans/procedures are completed separately from the Continuing Review process, as it is possible that the amendment review process can take longer than the deadline for a continuing review.

2. Adverse Events (AEs) and Protocol Violations

   Should an adverse event or protocol violation occur, it is the responsibility of the PI to immediately report this event. If the event involves ionizing radiation, indicate this when making the report in ERICA. This will trigger the required review to the Committee.

3. Late Stage Cancer Review

   To provide an abbreviated review of late-stage cancer studies in adults, studies whose participants meet the inclusion criteria and do not meet any exclusion criteria (listed below) can qualify for the Committee's Late Stage Cancer Review. Study participants will continue to be informed of general radiation-related risks for research procedures; however, the application and review process for late-stage cancer studies do not require dosimetry reports, and the risk language (below) is tailored for this purpose. Indicate all diagnostic research procedures for the first year, as well as the expected frequency

of the procedures after the first year for more open-ended studies.

a. Inclusion and Exclusion Criteria

   i. Inclusion Criteria (study must meet all 5)

      - Late stage cancer subjects; and
      - Median survival equal to or less than 24 months; and
      - Diagnostic radiation only; and
      - Adult studies only; and
      - Responsibility accepted by a Responsible User (RU)

   ii. Exclusion criteria (must not meet any of the 4)

      - "Umbrella" or "Match" protocols that might include a range of different kinds of cancers or diagnoses; or
      - Pediatric studies (less than 18 years of age upon entry into the study); or
      - Pregnant or breast-feeding; or
      - Studies proposed under RDRC authority (21CFR361.1).

b. Standard of Care and Research Risk Language for Late Stage Cancer Reviewed Studies

   i. Standard of Care Language:

      Language required for Standard of Care scans/procedures in Late Stage Cancer-reviewed studies is the same as in other study types.

   ii. Exceeds Standard of Care Risk Language:

      The required risk language for the research scans/procedures is not be based on dose-related lifetime cancer risk estimates, as they are for other research studies. Instead, the risk language to be used is:

      > "This research study involves exposure to radiation *(indicate types of procedures and how many for the first year and frequency if study will continue beyond one year).* This radiation exposure is not necessary for your medical care and is for research purposes only. This radiation may involve a low risk of a later cancer, however, we believe that this risk is not clinically relevant. If you have any questions regarding the use of radiation or the risks involved, please consult the physician conducting this study."