Avera St. Luke's Hospital

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Avera.org

September 6, 2019

To: NRC Inspection Review Team

From: Tony Kallas, Radiology Director

Subject: Radiology Action Plan

Actions taken since the NRC Inspection on July 31st

1. Findings: Several of our documents and policies used old outdated references. Need to update to new references.
   Action Taken: The outdated references were removed from the binder immediately during the inspection. All other old references were removed or updated. Waiting final report to ensure all references have been corrected.
2. DMS Contract with Avera Health did not specify responsible party for the FDG material if spilled or lost. Also authorized user of FDG. NRC will contact DMS for update.
   Action Taken: None required by Avera St. Luke's. NCR Inspector will contact DMS to notify of the findings, the contract is an Avera Health System contract.
3. Y-90 directives did not consistently identify the target site, example right or left lobe of the liver.
   Action Taken: Staff were immediately educated the day of the finding on the requirements for the directives.
4. Physician's radiation badge monitoring was not consistent with normal readings and reached levels which should have been reported to the NRC if believed to be appropriate exposure doses.
   Action Taken:
   i. The Radiology Director immediately reviewed monthly dosimetry reports going back to January 2018. It was noted that there were several months where it was obvious that the dosimetry badges were improperly worn. Noting the chest dosimetry was the same dose or similar to the collar badge readings. In one month it appeared the badge was left in the room or exposed to a large amount of radiation. Another badge (collar) was noted missing and found on the physicians desk. This badge was sent in to Landauer immediately and tested. This badge report also came back with extremely high read. It is believe this lost badge stayed in the cathlab for several months before finding it. Unable to determine what happened to badge. The Radiology Director also immediately pull physicians patient dose history/procedures from 2018 and 2019 (interventional, fluoroscopy and CT biopsy procedures) and had the Healthcare System physicist review and calculate the estimated dose for this particular physician noted in in your findings. Our physicist calculation report was e-

mailed to the NRC inspector on 8/13/19. Our physicist's calculations estimated the physician's dose was less than 1 rem for 2018. These calculations have been forward to Landauer for changes in the physician's dosimetry records.

ii. Other items have been e-mail to document annual review of dosimetry by staff. Physicist notes/logs/education made by contracted Medical Physicist of his quarterly review of our nuclear medicine program.

iii. The Radiology Director conducted a review of staff in the cathlab by observing and asking several question pertaining to ALARA practices and procedures associated around radiation safety measures and practices. Some ideas were given to director on how to improve and reduce radiation dose to the patient and to all in the room. These ideas have been implemented and expressed to the physicians perform the IR procedures and will be practiced in future procedures. One Example is to include dosimetry checks during "Time Out" procedures before the start of each procedure. Others include using last image hold when possible and use the lead shielding guard plate on the equipment more frequently when it does not interfere with the procedure.

iv. The radiology director is also putting together a training plan focused specifically to IR procedures. Will get assigned to staff once approved by Avera Education and the Radiation Safety Committee.

v. We have added several new items to our Safety Committee agenda to address the concerns of documentation and follow-up of "Exposure Notifications" in accordance to our policy of reportable exposures.

We believe that the action we have taken and the education that has been provided and that will be provider to our staff and providers will make immediate changes to our dosimetry program. We have seen a dose reduction in our one particular physician badge reading since making several simple suggestions. One particular change was the placement of his collar badge. I noticed it was being clipped to the pocket of the lead apron, I moved it to the thyroid collar. Moving it about 10" to 12" further away from the radiation source. This could reduce his dose by 3-4 times.

I appreciate the lessons learned and we are dedicated to improving our ALARA practices and protecting our staff from the harm of radiation. Please feel free to contact me with any request or details of our action plan. Thank you for your time and cooperation.

Sincerely,

Tony J Kallas

Tony Kallas, Radiology Director
Avera St. Luke's Hospital
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