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ISM I

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Synthesizing the Final Product and Interventional Oncology

Assessment 14 - Research

Date: 5 February 2021

Subject: Interventional Radiology

MLA 8 Citations:

Meira, Marcio dos Santos, et al. "Retrospective Analysis of Computed Tomography-Guided Percutaneous Nephrostomies in Cancer Patients." *Radiologia Brasileira, Colégio Brasileiro De Radiologia e Diagnóstico Por Imagem*,
www.scielo.br/scielo.php?pid=S0100-39842019000300148&script=sci_arttext.

Assessment:

The main goal for this assessment was to start researching information more directly relevant to my Final Product design while also implementing factors of interventional oncology. Percutaneous nephrostomy was perfect for this goal because it uses wires and catheters for drainage and it is used to treat cancer, so it is a perfect combination of one of my main topics of interest and my Final Product. The article was extremely informative and useful, and it was exciting to read.

The first goal of this assessment was to analyze how this article affected the general understanding of interventional radiology thus far. One exciting thing that was noticed in the

article was the fact that the article included many visuals (pictures, diagrams, etc.) of the specific materials and of how the actual procedure is performed. These were useful for brainstorming ideas on how to really incorporate this procedure into the Final Product, but more details on that incorporation will be discussed later in the assessment. One surprising thing was that the article listed all of the possible complications that could result from the procedure. Most articles previously analyzed did not list out the specific complications and seeing the actual list was a little frightening to see. A lot of the effects of complications looked extremely painful, but the article assured that they were not a big deal and often did not result in death. One disturbing fact mentioned was that there is a 10% complication rate in these procedures, but the article assured that the complications were not due to the procedure itself, nor the equipment or techniques used. That rate seemed high, but the relative mortality rate was low in comparison to the complication rate, so that was reassuring. The fact that many of these facts resonated with me in an emotional and stand-out way will allow me to better remember them in the future for research or discussions with my mentor. There were many interesting things to note in the article as well. For example, it was mentioned that performing procedures without general anesthesia is not ideal for patients and that they prefer local anesthesia, which is used in interventional techniques. This is another reason why interventional radiology is on the rise and it had not been mentioned in any other articles, so it captured interest. Another really interesting thing mentioned was how the interventional radiologists choose image guided techniques based on certain patients' conditions and factors. Again, this had never been mentioned in other articles and answers many questions that previously arose in other assessments. There were also many connections made between this article and other background knowledge gained from past research on the topic of interventional radiology. For example, it was mentioned that percutaneous nephrostomy is becoming more

popular due to its lower morbidity and less patient discomfort than the traditional surgical procedure used to treat the same thing that percutaneous nephrostomy treats. This was recognized as yet another way that interventional oncology is becoming increasingly popular. It was also mentioned that this procedure uses the same imaging guiding technology as in other interventional radiology procedures, such as CT, ultrasound, and fluoroscopy; all of which are extremely familiar at this point.

Another goal for this assessment was to think about any potential uses this article could have, related to the Final Product. This article was essential in developing ideas for the Final Product since this procedure was a one related to cancer, which is a topic of high interest, and it uses needles and catheters used for drainage, which is a key part of the project. What percutaneous nephrostomy essentially does is play an important role in creating an alternate path for urinary drainage to bypass obstructions typically caused by neoplasms. As one might be able to tell, this combines drainage with cancer treatment, which is highly interesting since it combines the two highest topics of interest in the interventional radiology field and presents an interesting procedure that can be implemented into the final product. As stated earlier in the assessment, this article provided visuals for materials and the specifics of procedures, so it was easy to visualize how the Final Product would be useful in a procedure like this. There were also some ideas for future study that arose from questions. One question was ‘why was the Seldinger puncture technique the most chosen?’ Further research into this topic can answer this question. Another one was ‘what really causes the 10% complication rate on the procedure?’ This question may be harder to answer because the article was so vague, leading me to believe that there is no clear answer. This may be a topic of discussion for meeting with my mentor. The more that I

read about this topic, the more I discover how much I like it. This article was really interesting since it synthesized drainage and interventional oncology and it was quite fun to assess.

The last goal for this assessment was to recognize some trends pointed out in the article. One trend noted was that, since the procedure was established in 1955, technology trended upwards with uses of imaging to guide the procedure and equipment improvements that made new techniques possible within percutaneous nephrostomy. Another trend noted was that, because of its minimally invasive nature, percutaneous nephrostomy was becoming more popular than its corresponding surgical procedure, which was a trend pattern noted in many previous articles. Additionally, it was found that the way in which urology patients are approached has been altered by advances in the field of interventional radiology.

In conclusion, this research assessment accomplished all of the goals set for it. This assessment was able to analyze the information and how it related to my understanding of the topic, to brainstorm ideas for the Final Product, and to recognize trends noted in the article. This assessment was able to successfully incorporate an interventional oncology procedure into the Final Product and that is a huge accomplishment. Further research will look into more specific drainage procedures and how they can relate to the Final Product.

Notes:

[Retrospective analysis of computed tomography-guided percutaneous nephrostomies in cancer patients](#)