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Mr. Speice

Independent Study and Mentorship- 3A

6 February 2018

Five Day or Six Day?

Product Proposal

Introduction and Statement of Purpose

The overarching goal of my final product is to focus on research that will positively impact the field of reproductive endocrinology. I have decided to narrow in on the research field because it provides the perfect opportunity to challenge myself and expose myself to a world I plan to pursue in college. Moreover, I hope to use my research to further the productivity of the Frisco Institute of Reproductive Medicine (FIRM), which is Dr. Marius Meintjes's office.

The problem that my research will be aiming to resolve is the lowered rate of success when it comes to in-vitro fertilization (IVF) pregnancies at FIRM, which has been more apparent as the years have gone on. I plan to research the differences between the day five and day six embryos from a multitude of patient records at FIRM. The results of Preimplantation Genetic Screening on these embryos will determine whether they are normal or abnormal. Once all of the patient records have been analyzed, Dr. Meintjes and I will be able to recognize which day of the embryo is more ideal for implantation. Furthermore, the two of us will also look at other factors, such as the success rates of other physicians working at the office. This will allow Dr. Meintjes and I to recognize whether or not other Reproductive Endocrinologists are providing too much trigger medication to patients prior to IVF. The final product itself will be a final abstract I write

up with the assistance of Dr. Meintjes. This abstract will be submitted to the American Society of Reproductive Medicine in May for evaluation. If accepted, I may be able to write a full publication and travel to Denver, Colorado, which is where I would give a ten minute presentation over the research conducted. Along with the abstract, I will be turning in a paper documenting the events of the last few months and all of the time put into my research. Supporting documentation will also be turned in, but with patient identifying information marked out.

Through this final product I will be able to assist Dr. Meintjes in making FIRM a much more productive facility. Successful research will provide the office with the ability to raise their pregnancy success rates. Overall, patients who meet with fertility doctors have one end goal: a healthy pregnancy and baby. By improving the success rate, FIRM will attract more patients and allow the business to flourish.

Review of Skill and Research

The biggest research topics that will be instrumental in the creation of my final product are understanding key medical terms and learning the proper formatting for my abstract and future paper. The focal point of my research is focusing on the embryos Dr. Meintjes and I are looking at. As a result, a basic understanding of terms, such as embryos and Preimplantation Genetic Screening, is necessary. Also, other factors will also be looked at throughout my research, so an understanding of the factors that may be involved are also necessary. Lastly, an understanding of formatting, which is more of a logistical issue, is necessary in order to successfully submit my abstract. All of this research and background knowledge can be determined through the internet or Dr. Meintjes himself throughout the research process. Overall,

having a clear understanding of what you are doing will pave the way for a clear and concise abstract as an end result.

The whole process of complex scientific research is quite new to me. High school courses may provide programs such as ISM, but the sort of research I am conducting now is normally done by students in graduate school or beyond. As a result, the skills I am currently learning will establish a basis for me before I enter college. I will be learning how to create a scientific hypothesis and test it, and the research will also teach me how to properly analyze data. My mentorship experience has already exposed me to the importance of data analysis, for Dr. Song, an embryologist at FIRM, explained the necessity of education in statistics and even computer science. These are areas I have never focused on before, but I am slowly recognizing their importance and hope to further pursue them in college. These overall analytical skills will allow Dr. Meintjes and I to answer our hypothesis and create a successful abstract to submit in May.

Methodology

My final product has already begun, for I have printed out over 100 patient records that show the results of embryo screening. From there I have recently finished the process of determining whether each embryo tested was a five day or six day embryo. This process required access even more records found in FIRM's e-clinical database. From this point forward I will be working towards analyzing all of our data on an official excel sheet previously created by Dr. Meintjes. Once we compare all of our factors, which is subject to change along the way, our research will nearly be completed. The remaining few weeks leading up to May will solely be spent on abstract writing. The plan is to have me start writing the abstract and periodically send it to Dr. Meintjes for feedback and suggestions. Once completed, the last step for a while will be to

submit the abstract to the American Society of Reproductive Medicine. While Dr. Meintjes and I wait to see whether or not our abstract was accepted, I will conclude my ISM year by creating a complete write up on all of the research I have done over the course of five months.

Materials

There are no true materials that I will have to buy for my research project. Everything that I will need is located at FIRM and is mainly on their online databases. Furthermore, due to HIPAA laws, a large portion of my research, analysis, and writing will have to be done at the office itself. The only portion I may work on at home is the abstract, which will not happen until the end of March or early April. The materials I will be using at my mentor's office are his computers, which contain all of the databases necessary, and also the labs, such as the andrology lab. The labs in particular will simply serve as an extra tool to aid in my understanding of the field, which will, in turn, aid in the execution of my abstract.

Conclusions

I anticipate the outcome of my final product to be a well written abstract that is capable of getting accepted by the American Society of Reproductive Medicine. However, this outcome requires a significant time commitment. This is challenging, especially considering my course load, but my goal of visiting the office at least twice a week is one that I plan on keeping up with. My overall wish for this final product is for it to truly get me interested in the whole research aspect of medicine. This aspect is something I hope to pursue in college and my final product will, hopefully, expose me to what I can expect in my future.

Also, the overarching goal of this final product is to help my mentor and increase the productivity of FIRM itself, which will be done through improving pregnancy rates. While this

assistance is directed towards another office, I find it important for me to always remember the results Dr. Meintjes and I get, for I may decide to work in a similar setting one day. I knew from the beginning that I wanted my final product to have an impact on something in the real world, but this opportunity to actually help a business run smoother is not what I expected, in the absolute best way possible.

There are enormous opportunities that can come along with this final product. However, they will only come to fruition through dedication and consistency. So, no matter how busy I may be, I must find a way to make my way down to FIRM in order to stay on schedule for the May abstract deadline.