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HON 301
Professor Tony Scarlatos
Research Paper Proposal

Subject: Personalized Medicine: Is it too personal?

My Major and why writing about this topic will be beneficial to me: I am majoring in Applied Mathematics and Statistics with an interest in computational biology and biomedical engineering. In both of these fields, biological systems are studied in order to better understand the ways in which human beings and other species function so that improvements can be made, through technology and other advancements, to benefit the population. Personalized medicine is an evolutionary phenomenon in which people will be diagnosed and treated on an individual basis with access to each patient's genomic information. As with any new proposal, especially in medicine, the uncertainties are many and must be considered before a final resolution. Ultimately, a new construct cannot be implemented until all sides are considered.

My thesis: Personalized medicine appears to be a very promising field within the next several decades. While the potential benefits of this new type of medicine have been addressed, the "side effects" (dehumanizing people, loss of privacy, what comes next?) of this type of medicine must also be taken into account.

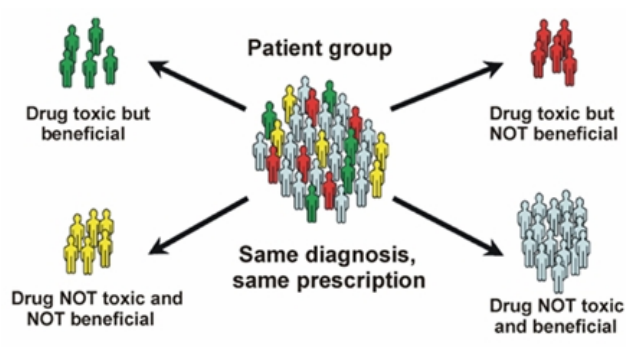
Approach to the subject of my paper: It is important that within this paper, the reader does not lose sight of the importance of continued advancement in medicine – the astonishing work that has been done by biologists, engineers and researchers in the past, and what a continued effort could potentially do for the medical community. An introductory part of the paper will include the concepts behind personalized medicine, what it is now, and what it could potentially become. Further research on The Human Genome Project will paint a better picture of the huge obstacle that researchers overcame in 2003.

This will then lead into the second argument – if so much has been done in terms of being able to identify thousands of one human being's genes, a main component in personalized medicine – then why hasn't there been any further advancements made in the field over the last decade? Even though the concept is there, by no means does that make it easy to develop the technology required to put personalized medicine into practice.

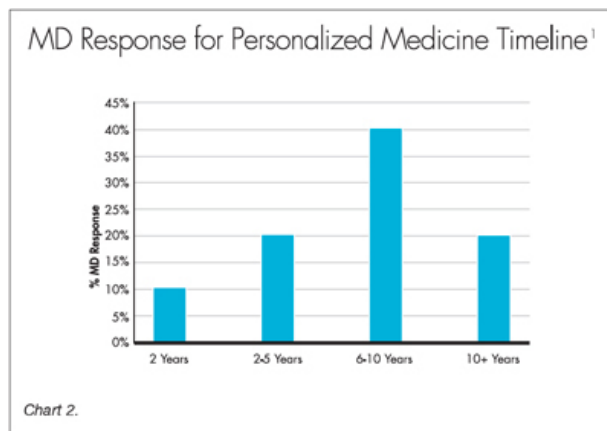
The other side of all this is more hypothetical: Say that personalized medicine could be practiced tomorrow. Why would people be against it? Here, the practical questions come into play – would everyone be able to afford this type of medical treatment, i.e. would developing countries have access to it? Most importantly, what are the ethical questions behind personalized medicine? – will the drive to identify a patient as a collection of data points dehumanize us? Could easy access to one's genetic makeup impact the way we view one another? Would doctors have access to too much information? Is personalized medicine too personal?

Intended audience: It is important that this paper is not geared specifically towards those who may be skeptical of personalized medicine. It is easy to present the facts but then get lost in an ethical debate and lose sight of what is truly factual and what is an opinion. Since the field of personalized medicine is fairly new, a lot of information will be hypothetical and futuristic – what the benefits could be if this happens, or what the ethical problems could be if that happens. It is important that people who unfamiliar with personalized medicine read this paper and not be swayed in one way or another. Doctors, engineers and researchers might benefit from reading this paper, as well as experts in the field of medical ethics.

Graphs or charts:



¹ <http://www.jyi.org/articleimages/1047/originals/img3.jpg>



² <http://www.mpo-mag.com/articles/2011/07/images/chart2-400.jpg>

The first diagram represents the current practice of diagnosis and treatment by the masses. People are diagnosed and are given the same medication, but only a portion of the patients are successfully treated, represented by the people in grey. The goal of personalized medicine is to eliminate the other categories shown above, as each patient is diagnosed and treated on an individual basis and their specific needs are addressed. The second chart above shows the promise of personalized medicine becoming a reality within the next decade. This paper will address the progress already made in the field, as well as the obstacles that researchers are still working to overcome.

Documentation Style: MLA

Kinds of sources I will use and why they will benefit my paper: There are a number of sources listed below that were briefly skimmed to get a general idea of what topics should be covered in the paper. Although these specific references are subject to change, they provide information on a number of distinct issues that should be addressed: a basic understanding of what personalized medicine is, the promises that this field has to offer and the technological advancements that have already been made to spark this revolution. Additionally, a number of articles have been added to the list of resources predicting the tentative costs and benefits of personalized medicine within the next several years. A few books are also listed below that have been written within the last decade on the ethics behind genetic engineering and an article about genetically altered babies. It may be beneficial to include information that is not specifically about personalized medicine, but rather bioengineering as a whole, especially since this revolution will have an impact on much more than the medical community alone.

Tentative List of References:

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² Sheppard, Maria. "An Introductory Lesson in Personalized Medicine." Medical Product Outsourcing. (2011): n. page. Web. 19 Feb. 2012. <<http://www.mpo-mag.com/articles/2011/07/datawatch>>.

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