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# Physicians or Facebook? The effects of do-it-yourself healthcare on modern society.

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Physicians or Facebook?

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The effects of do-it-yourself healthcare on modern society

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### Abstract

All patients have the right to be an advocate for their own healthcare; however, most patients in today's society abuse that right by delving from professional medical advice given per their healthcare provider. It is imperative that self-diagnosis and self-treatment do not undermine healthcare professionals and do not replace the medical treatment advice given to incite healing. Do-it-yourself healthcare has become increasingly popular in the last decade due largely in part to rising healthcare costs. While having negative implications on modern society, the articles explored illustrate how do-it-yourself healthcare has given rise to a new era of chaos proving that healthcare is not what it used to be—or could be. Self-diagnosis, self-treatment, and self-monitoring in conjunction with observations in patient behavior and technology show that unfiltered various information is taken out of context to support individual claims of proposed ailments while things like smart device software applications recommend alternative treatments to healing.

*Keywords:* do-it-yourself healthcare, self-treatment, self-diagnosis, self-monitoring, social networking, supply and demand, cost shifting

### Introduction To Key Concepts

Individual and community health are put at risk when patients can no longer tell the difference between physician advice and Internet advice. When so many symptom checkers, wearable sensors, online databases, support groups, and other various resources are used out of context patients can often lose the ability to adhere to a set medical treatment or advice plan put forth by their known healthcare professional. Defined by Merriam-Webster, “a disease is any type of harmful development that can be categorized as new, to a society or being (Merriam-Webster, 2018). As research suggests, there is a new disease in the medical community—it is known as do-it-yourself healthcare. According to Gidengil, Linder, Mehrotra, & Semigran (2015), “More than a third of adults in the United States regularly use the Internet to self diagnose their ailments...(Gidengil, et Al., 2015). A quick Google search shows that there are 327.7 million people in the United States, a third of that would be 109 million people who rely on the Internet to find out what is wrong with them (and possibly how to cure themselves) (Census Bureau, 2018). When taken into consideration the large number of people who will utilize these portholes of diagnosis, one must also consider that those people could spread false information, or information taken out of context, to others who they think will listen or have the same ailments. Soon, that 109 million people snowballs into even more and there is no end in sight to people relying on the Internet instead of trained healthcare professionals.

While there are a number of online domains that Internet users can explore to research their symptoms, there are also apps that can be downloaded to any smart devices one may own subsequently known as symptom checkers. The algorithms that are used to power these apps sustain their recommendations, and whether or not they can be viewed as trustworthy

(Gidengil, et Al., 2015). Recommendations can mean anything from a specific disease, whether or not a person needs immediate medical care, or other types of remedies for curing a disease (Gidengil, et Al., 2015). They are categorized as either triage, which is what type of care is needed (i.e. immediate, normal, or self); or diagnosis, which is what ailment the person in question has (Gidengil, et Al., 2015). Entering patient templates that physicians would normally use tested the symptom checkers. Once the symptom checkers displayed their recommendation, the results were compared to that of a professional diagnosis given by a trained healthcare professional. It was found that on average symptom checkers only provided the correct diagnosis 34% of the time (Gidengil, et Al., 2015). The correct diagnoses were provided 58% of the time, but only when multiple diagnoses were possible (out of the top 20 possibilities of similar symptomatic diagnoses) (Gidengil, et Al., 2015). The correct triage recommendation was only correct 50% of the time (Gidengil, et Al., 2015).

While some of the apps/symptom checkers take into consideration the demographic or location of the patient in question, they cannot get a human perspective. They cannot see the patient, touch the patient, get a family medical history of the patient, ask questions and look for red flags or phrases that alert to certain symptoms, or other patient assessment items. If it were your health and wellbeing in question, would you dare leave it up to a measly 34%? This of course, with a grain of salt, because the 109 million people that are relying on such information do not realize that they are giving in to the 34%. So essentially, how do we fix that? How do we lessen the gap between reliable information and false recommendations? How do we stop this pandemic from taking over healthcare?

There are many aspects of healthcare that physicians have to deal with as healthcare and technology grow, that they otherwise did not have to invest their time in. When the

industries grew, so did the responsibilities of the physicians. Many went from only having to worry about patient care; including visits, treatment, and advise, then moving on to another patient and starting the process all over again. Over time, the responsibilities became dealing with insurance claims, referring patients to specialty physicians, office tasks, etc. so instead of spending as much time as possible with the patient, they were now sacrificing those interactions in order to keep everything else running smoothly as well. This created a need for patients to have other outlets to get information from.

While the growing need for new information outlets increased, so did the problems with the way the information was being put out there. Eng & Gustafson (1999) claim that there has been little evaluation or quality control of interactive health communication, because applications have developed faster than theory and assessment tools (Eng & Gustafson, 1999). Essentially, the system was created in such an influx that the information being put through did not have any opportunity to be evaluated or inspected. It is very much a problem in today's society that people will take anything they read at face value, which leaves room for dangerous possibilities, especially when it comes to health care. When patients can take on the responsibilities of the physician, without any of the correct knowledge or experience, healthcare becomes a completely different tool. While Gidengil and colleagues state that triage recommendations were generally risk averse, that is not always the case (Gidengil, et Al., 2015). In a world of so much blame, think about how an undereducated or common patient in question could wind up in a very sticky situation by relying on such a risqué piece of advice from a symptom checker or online database. It is a bit of a stretch; but imagine, if you would, a patient who has a condition that is to the naked eye undetectable. This patient has intermittent pain or suffers an injury and refers to some type of platform like WedMD.

The symptom checker advises them that their injury or diagnosis is not life threatening, and to avoid unnecessary medical bills the patient waits until a more appropriate time to seek medical attention. Over night, the patient dies and the family is left trying to put the blame with the company that advised the patient to not seek immediate medical attention. As previously stated, it is a bit of a stretch and some of the companies of symptom checkers possess liability waivers or such that prohibit any circumstances to hinder their name. However, what if they didn't. Or even if they did, the damage is still done and a patient that should have otherwise been made aware of such risk factors did not know any better. An important aspect of public and community health is awareness campaigns. Awareness though, in such circumstances, may not even be enough to make a difference. You cannot help a person who does not want help or think that they need it, and until they are put in a situation that proves them wrong, they will not care to understand that what they are doing is detrimental to their individual wellbeing, and therefore their communities as well.

#### Literature Review

The Center for Disease Control and Prevention's NCCDPHP: Community Health (2018) classifies community health by stating, "Working at the community level promotes healthy living, helps prevent chronic diseases and brings the greatest health benefits to the greatest number of people in need. It also helps to reduce health gaps caused by differences in race and ethnicity, location, social status, income, and other factors that can affect health" (CDC, 2018). In short, community health is a very important aspect of healthcare, that when used correctly, can emulate change and promote healthy lifestyle choices for a community's inhabitants. As a whole, individuals are stronger when they have a sense of comradery or community when struggling with maintaining their health. As the old saying goes, "birds of a

feather, flock together” and quite literally when community inhabitants flock they are likely to share, support, and spread any and all information they have with one another in hopes of bonding and having that sense of not being alone while struggling. As researched by Breitegger, Pereira, & Vesnic-Alujevic (2018) the wearable sensory known as a Fitbit is explored in regards to everything from why people wear them, where they talk about their experiences, to the sources they get their information from and what they do with the information given (Breitegger, et Al., 2018). Fitbits, and other wearable sensors, are capable of things such as tracking sleep patterns, recording daily caloric intake/burning, tracking heart rate discrepancies, logging and predicting female menstruation cycles and complications, and much more (Breitegger, et Al., 2018).

Upon close examination of Fitbit consumers it was discovered that most users get their information in online user forums (Breitegger, et Al., 2018). These essentially would be giant discussion board posts only for Fitbit users. They can talk about how they use their device, what they use it for, different possible applications of the device, to ask other users for help, etc. While in theory this outlet for communication seems to bring people together, it greatly limits the integrity of the information being provided (Breitegger, et Al., 2018). With having a public domain for these forums, the consumers participating in these discussions are not properly vetted, credible, or otherwise. It is possible for a user to be a healthcare professional but it is also possible that they are simply an average civilian. Here again, comes that snowball effect of anyone and everyone who is worried about their ailments that may be surprisingly similar to another consumer but are ultimately individualistic in nature and should be treated as such.

According to the socio-ecological model set forth by Simons-Morton, McLeroy, & Wendel (2012) there are seven levels of influence that categorize human behavior and put it into an ecological perspective (Simons-Morton, et Al., 2012). They help to explain how physical, social, political, economic, and cultural dimensions play a part in people's behavior and interactions. The socio-ecological approach begins with intrapersonal levels and moves outward to interpersonal, organizational, community, public policy, physical environment, and culture (Simons-Morton et Al., 2012). Interpersonal levels of influence are seen here and are described as "interpersonal processes and primary groups, including family, friends, and peers that provide social identity, support, and role function" (Simons-Morton, et Al., 2012). Community levels of influence are seen here as well, and are described as "social networks and norms, or standards, which exist as formal or informal among individuals, groups, and organizations" (Simons-Morton, et Al., 2012). Friends, peer-pressure, conformity, social networking, etc. are some of the most popular and influencing factors that dictate behavior in today's society. Imagine that you purchase a wearable sensor to help monitor your health. You join an online forum or Facebook group, discussion thread, etc. You connect with other consumers who make it sound like something they are trying to monitor or focus on is something that you are struggling with as well. Upon speaking with them further they tell you that this remedy, or alternative treatment, worked for their friend or cousin who also suffered from the same ailment. The alternative treatment worked for them, so that consumer is going to try it, then gives you the idea to try it—only your perceived ailment is unique to your body, your symptoms, your family history, etc. and is not the same thing. You then have a perceived concept of knowing your own ailment, a path of possible treatment, and start down that path towards self-monitoring and hopeful recovery only to find that their remedy doesn't work and

you could potentially be worse than when you originally were because you did not consult a professional healthcare provider. When that 34% accuracy rate looms over your health and well being, are you really prepared to gamble with your life like that?

In correlation to the socio-ecological perspective; the health belief model, otherwise known as the HBM, is also beneficial in examining why do-it-yourself healthcare is so encroaching in today's society. According to Rimer & Glanz, (2005), "The HBM addresses the individual's perception of the threat posed by a health problem (susceptibility, severity), the benefits of avoiding the threat, and factors influencing the decision to act (barriers, cues to action, and self-efficacy)" (Rimer & Glanz, 2005). The following case scenario examined by Cottrell, Girvan, McKenzie, & Seabert (2015) explores the reasoning behind a potential patients why or why not to do self-screening in regards to cancer:

A person sees an advertisement for self-screening for cancer in a magazine, otherwise referred to by the HBM as a cue to action, which leads the person to start thinking about them getting cancer. By means of family history, age, or poor health decisions this person thinks they are susceptible to cancer, otherwise known as perceived susceptibility and that if they get cancer it will be a very serious situation, known as perceived severity. The person decided that because of everything going through their mind they have ample reason to be concerned, known as a perceived threat, but that if they utilize self-screening they could lessen the severity of the situation, which is known as perceived benefits. Ultimately, that person will decide to take action if they think the perceived threat will be reduced by action. A person's confidence in their ability to accurately perform a certain action is called self-efficacy, which is a concept that was recently added to the HBM.

Adding to Cottrell and colleagues case scenario, Champion & Skinner (2008) also found that, “if people are going to be successful in changing a behavior they must feel threatened by their current behavior (perceived susceptibility/severity), feel that a change in the behavior will result in an outcome they value (perceived benefit), and believe that they are competent (self-efficacy) to overcome the barriers to engage in new behavior” (Champion & Skinner, 2008).

The health belief model serves as a stepping-stone to understanding what do-it-yourself healthcare is, the mentality behind decision selection, and the terminology regarding self-care. However, the main reason for do-it-yourself healthcare becoming what it is—is the cost of healthcare (Breitegger, et Al., 2018). Do-it-yourself healthcare has become increasingly popular in the last decade due largely in part to rising healthcare costs (Breitegger et al., 2018). With devices such as a Fitbit to track anything and everything that goes on in your life, the simple version is: you could be saving yourself the time and money of a doctor’s visit or a trip to the emergency room so why would you not do it? As briefly mentioned by Breitegger, et Al., 2018 wearable sensors could be extremely useful for preventative healthcare and if healthcare costs are to be lowered patient/potential patients involvement is imperative implying that if governments are to take seriously the task of lowering debt and decreasing healthcare costs so that it is more accessible and more affordable to all its citizens, they must include the citizens in the bulk of the work. While it seems extremely trusting, if the general population was taught more about basic medical care or advice then they would possibly not have to go to as many routine doctors visits for preventative healthcare. If they could track preventative healthcare on their own, they may not need a doctor to do it, so when they do have visits to go to they already have some of the information ready resulting in the utilization

of the physician's time more efficiently. This seemingly was a great proposition, however, it directly relies on the integrity of the information the potential patients would be taught/given.

The healthcare industry and technology industry seemingly go hand in hand. The two industries are ever changing and extremely consumer oriented, and when used together can either be a great advancement or a major glitch in the system. As stated by Hawamdeh & Tay-Yap (2011), "The gap widens between the crucial need for transmitting more information and the relatively few and often brief face-to-face opportunities for communication between physicians and patients" (Hawamdeh & Tay-Yap, 2011). Singapore created an initiative, referred to as Singapore One, which strived to lessen the gap of the physician/patient relationship by creating a support system that works like encoded email conversations to give patients easier access to physicians (and vice versa) (Hawamdeh & Tay-Yap, 2011). An open line of communication can be established and utilized to ensure that the physician can have direct contact with patients and patients would know that the information is more reliable than other unfiltered information outlets (Hawamdeh & Tay-Yap, 2011).

Upon creation of such a system, kiosks were implemented to provide more universal access for those otherwise unable to access the Internet (Hawamdeh & Tay-Yap, 2011). Acknowledging this aspect of public access was a thoughtful point to the initiative. However, as mentioned previously, technology is ever changing. With personal exchanges from physician to patient, a support system outlet poses viable risks by endangering patient's right to privacy, specifically through hacking (Grevey, 2014). According to HHS.gov's HIPAA for Individuals (2018), "all patients have the right to privacy" (HHS, 2018). All patient's, whether their information is submitted electronically, orally, or written, have the right to keep their information secured and private (HHS, 2018). The kiosks used in Singapore One were

protected by encryption codes (Hawamdeh & Tay-Yap, 2011). However, if the codes used for patients/physicians were to be broken, stolen, etc. any and all information that was exchanged in the system could be violated which would potentially be a great downfall to this initiative.

Another aspect to the initiative that is important to understand is how it pertains to the physician/patient relationship. Hawamdeh & Tay-Yap (2011) refer to said relationship as unequal, stating that “the balance is tilted in favor of the physician, owing to the knowledge and skills the physician possess, which have seemed unattainable to the common person” (Hawamdeh & Tay-Yap, 2011). It is explained that there is a scale for a reason, the balances should be tipped in favor of the physician as it is their job to treat, heal, advise, etc. They go through rigorous training in order to be able to do various tasks and it is naïve of common persons to think they can do the same feats, with no training. So when the physician/patient relationship is altered, every point of contact from there on out is altered as well (Hawamdeh & Tay-Yap, 2011). This can cause patients to feel uneasy, distrusting, or a general disregard for professional medical advice (Hawamdeh & Tay-Yap, 2011). Overall, Singapore One is a step in the right direction in bridging the gap between rising healthcare costs and the effect it has on the patient/physician relationship. While it acknowledges that there are problems in the system, it is still very flawed in strategic design. Creating a more modern form of communication was a good start in patient participation, and acknowledging that many average patients may not have access to information outlets to therefore implement the kiosks was a very progressive approach; however, the looming threat of invasion of privacy and cyber attacks far outweighs the positive strategy.

According to the identity protection platform known as CSID, “In 2013, the healthcare industry experienced more data breaches than ever before, accounting for 43% of all breaches

that year” (Grevey, 2014). This means that of all data breaches and cyber hi-jacking, 43% had to do with healthcare related cases, most commonly but not always referring to medical identity theft (Grevey, 2014). This directly relates to the economy, healthcare costs, and the impact on health in the U.S. because we are a primarily market driven system (Shi & Singh, 2017). With security and safety issues, the healthcare industry would likely spend more revenue ensuring that those breaches or anything similar did not happen again. Such a reversion of revenue may also cause prices of healthcare services to go up, per supply and demand conceptualization.

While affecting healthcare in relations to the industry aspect, it also affects healthcare in the community and individual aspect as well. If a person chooses not to seek professional medical assistance since the prices are now even higher, and per market justice status quo, they could not afford to go to the doctor, they could do a random search for their symptoms. With this search they find what they think can be cured by a day off work and a Netflix binger but is actually a communicable disease which has now spiraled and spread to every person they came in contact with. Communicable diseases and poor healthcare decisions lead to a decrease in community and public health, which then reverberates back into more people possible also choosing to self-diagnose and treat themselves (Breitegger, et Al., 2018).

There are two types of justice that make up the healthcare industry, social justice and market justice. While these two types of driving factors are minute in name, they are immense in national and even international healthcare. Social justice versus market justice is the root of the very controversial debate that our own country struggles with. Social justice, as defined by Shi & Singh (2017), is “a distribution principle according to which healthcare is most equitably distributed by a government-run national healthcare program” (Shi & Singh, 2017).

In regards to social justice, access to healthcare and its services are viewed as a basic right. Healthcare is a social resource that has active government involvement and regulation; it is not disbursed by your ability/inability to pay, it is disbursed by central planning. On the opposition, market justice, as defined by Shi & Singh (2017) is, “a distribution principle according to which healthcare is most equitably distributed through the market forces of supply and demand rather than government interventions” (Shi & Singh, 2017). In regards to market justice, healthcare and its services are an economic good, rather than a basic right. Healthcare is disbursed based on your own personal efforts and achievements. Under market justice, healthcare operates under free-market conditions and the services are determined per how much you are able to pay (Shi & Singh, 2017).

When looking at the issue of self-diagnosis/self-treatment from a social justice perspective and a market justice perspective it is clear that with either concept the issue is dangerous, but the underlying reasons are different. With a social justice healthcare system, every person has the same benefits and/or access to healthcare (Shi & Singh, 2017). This means that no matter the job, region, age, or sex a person is, they can use the same resources as another individual that has completely different circumstances. Things like access to healthcare, costs, etc. do not prohibit someone from seeking a medical professional. However, there are reasons that self-diagnosis could still occur under social market healthcare. Being ashamed or worried about a diagnosis could intimidate a person to not seeking professional assistance. Time could also play a role in a person not seeking professional assistance, it may be the added convenience factor of having that information right at your hands that keeps you from having to get a day off work and go in for a check up, or something similar. With a market justice healthcare system, social determinants play a large role in whether or not

people would seek professional advice or try self-diagnose/self-treat (Shi & Singh, 2017). If potential patients were not employed by a place that offers healthcare benefits, insurance or any other assistance then they may choose to forgo the process of seeking professional advice altogether and solve the problem their self.

In a time where millions of Americans are uninsured, the Affordable Care Act (ACA) is passed and things begin to change. This new legislation provided insurance coverage for a significant amount of people who previously did not have (or were not eligible for) insurance. (Shi & Singh, 2017). On the surface the ACA seems like a huge win for the people, however, increased coverage comes with increased costs. As briefly mentioned, the United States operates through the market justice system, rather than the social justice system. This means that our healthcare system is based off of supply and demand, rather than care being seen or given as an equal right (Shi & Singh, 2017). According to Morrisey (1993), “When a hospital has market power, it is able to set prices above marginal costs (Morrisey, 1993). However, when a buyer has enough patient/subscribers and a willingness to direct them to particular providers based on price considerations, hospitals have less flexibility in raising prices above costs” (Morrisey, 1993). Cost-shifting, as explained by Frakt (2011), is where private payers are charged more in response to shortcomings from public payments (Frakt, 2011). With market justice applications, a patient could be treated as an uninsured patient (public payment). Since costs of treating said patient would have to be made in some way, that cost would then come from a different source. That different source, for example, would be raising the costs of those already insured (private payers) to make up for the losses. This may now be seen as a win for that patient; however, in the long run it provides more economical hardship as the working class who already had insurance could now struggle to pay to keep it.

Healthcare economics are an extremely passionate topic among the professional and common folk alike. It seems everyone has the best idea when it comes to healthcare reform but no one wants to compromise. When the general population has such a personal stake in the welfare of their country's healthcare system, it's easy to see why they are so involved and opinionated with all the politics that surround healthcare. As stated by Fuchs (2009), "Almost every political pronouncement now emphasizes cost reduction as a central object of health care reform. The policy recommendations that follow, however, frequently aim at cost shifting rather than cost reduction" (Fuchs, 2009). One can make as much advancement in reform as one would like, but if one is ultimately just sweeping the problem under the rug one is still not actually implementing a strategic plan—but only hoping no one notices the discrepancies.

Strategic planning is a very important aspect of healthcare that often can make the largest difference in reform efforts (Zuckerman, 2012). With attempting to lower healthcare costs and boost the patient/physician relationship, strategic planning essentially examines the inward and outward aspects of the organization (hospital, government system, healthcare industry, etc.), develops a set of goals and objectives to propel the organization forward, implements a management strategy to keep the plan on task, and holds annual updates to determine the success/failures of the plan and the necessary steps to follow in order to keep it alive (Zuckerman, 2012). As mentioned previously, healthcare and technology is ever-changing, so in correlation—the plan implemented to better serve your organization should be flexible in nature as opposed to rigid to complement that ever-changing nature. Zuckerman (2012) states that "rapidly changing technology; increasing competition from physician entrepreneurs and for-profit niche providers; and the looming shortage of physicians, nurses,

and other healthcare professionals will also contribute an element of uncertainty to the healthcare environment. Healthcare organizations with comprehensive, sound strategic plans will be best positioned to respond with contingency plans as change emerges” (Zuckerman, 2012).

After establishing what do-it-yourself healthcare is and how it relates to healthcare and healthcare organizations, let's establish what is included in self-diagnosis, self-treatment, or do it yourself healthcare. The concept is vaster than one might think. This healthcare issue encompasses aspects of healthcare such as: mental health diagnoses, general health questions, rehabilitation plans, medical prognosis' for already diagnosed patients, self-help programs based on online quizzes to determine what is wrong with you, smart-applications to monitor and store your personal information, self-medication, etc. (Breitegger, et Al., 2018). With such a need for instant gratification in our society it seems more convenient to look up what you think the problem is, get an answer in three seconds, then look into ways you can solve it without ever having to leave your office, bedroom, or wherever you are and interestingly enough, this issue is of a more recent background. An article written by Samantha Murphy for [livescience.com](http://livescience.com) refers to the issue as “cyberchondria” which is a clever play on words alluding to hypochondria, an actual medical condition where people obsess about the idea of having a serious illness--often one that they've read about or heard of somewhere else (Murphy, 2010). While searching for answers on your own may be helpful in understanding a certain diagnosis, it is important to remember that that new information does not undermine the diagnosis or alter the agreed upon method of treatment for that diagnosis set forth by a medical professional.

Any time a patient receives a medical diagnosis their physician usually follows through with a treatment regimen that may include medicine, dietary guidelines, physical activities, surgical recommendations, etc. and while you may not completely understand what the treatment regimen does or is, your physician had a sound medical reason for ordering it. Clatworthy, Home, Jackson & Robinson (2010) state that, “adherence is generally associated with improved treatment outcomes” which correlates to the health belief model that a perceived benefit motivates patients to adhere to a set treatment regimen (Clatworthy, et Al., 2010). When the patient becomes non-compliant with professional medical advice they put themselves into the category of do-it-yourself healthcare participants. Clatworthy and colleagues designed a study centered on patients with Inflammatory Bowel Disease (IBD) and their adherence/non-adherence to their prescribed medical treatment. In their study the information stemmed from the professional databases EMBASE, Medline, and PsycINFO. Searching for titles related to IBD, medication, and adherence and quantitative studies to include information that measured characteristics associated with adherence, adherence with oral medication, and adult patients with IBD. It was found that non-adherence rates reached up to 72% but proved that the average number of patients who were non-adherent were between 30-45% (Clatworthy, et Al., 2010). Non distinct reason was found to be the ultimate deciding factor for non-adherence, but factors listed were demographic, clinical, treatment, and psychosocial variables that permitted a patient to be non-adherent (Clatworthy, et Al., 2010).

Essentially, different people decide to be non-adherent for different reasons but the damage is still the same. While the effects of non-adherence would appear differently in each patient the overall fact of the matter is that in the absence of their treatment regimen their

disease will worsen with the decision to be non-compliant (Clatworthy, et Al., 2010). Patients who are non-adherent may also be persuaded into searching for less rigorous, less expensive, less time-consuming, and often less trustworthy treatments options that can lead to an even scarier dilemma. As stated by Ruiz (2010), “Potential risks of self-medication practices include: incorrect self-diagnosis, delays in seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease and risk of dependence and abuse” (Ruiz, 2010). When self-treatment comes into effect, it is not limited to medication adherence or non-adherence; it can include alternative medicine, recreational medicine, self-help tools such as videos or speeches, non-medicinal remedies, alcohol, and various forms of quackery (Bolton, et Al., 2008).

According to Brunnsden, Griffiths, & Widyanto (2011) when you rely so heavily on Internet use, you have a tendency to write off human interaction (Brunnsden, et Al., 2011). By limiting human interaction you directly strain the patient/physician relationship, which has adverse effects on your healthcare (Hawamdeh & Tay-Yap, 2011). With having already determined that the patient/physician relationship is irreplaceable in healthcare industry, a study by Corrigan, Larson, Sells, & Watson (2007) proves that mental health cases are significantly prescient in this regard. There is such a stigma involving mental health cases in the United States, and all over the world (Corrigan, et Al., 2007). It is not often that people seek help for their mental illnesses, which has the potential to make the illness worse when left untreated, undiagnosed, or self-diagnosed (Corrigan, et Al., 2007). According to Berglund, Bruce, Kessler, Koch, Laska, Leaf, Manderscheid, Rosenheck, Walkters, & Wang (2001), “the most common reason for failing to get treatment, or for dropping out of

recommended treatments was due to feeling they could solve it on their own” (Berglund, et Al., 2001). Berglund and colleagues designed a study to evaluate serious mental illness cases that were otherwise undiagnosed. It helped to explain why people had not sought medical care, and what they were doing to cope with their situation. For some, financial barriers were the preventative factor; but for a majority of the cases it was situational (Berglund, et Al., 2001). This means that even if they wanted help, they did not feel they were in a position to get it. By this statistic, it is proven that financial barriers are not the most driving factor in self-diagnosis or self-treatment but that self-efficacy may be (Berglund, et Al., 2001). Which, again, correlates to the health belief model and that self-efficacy allows a person to believe they can control or improve their perceived benefits from self-treatment (Cottrell, et Al., 2015).

In addition, Clarke, Debar, Eubanks, Guillion, Kelleher, O’Connor, & Reid (2005) set up a trial to see if using Internet sources to cure medical ailments such as depression actually helped. Their focus was in generating information such as self-help videos, how to cope with a disease, what its like to be with someone with a certain disease, etc. that are all types of information that can be found in one general search on Facebook and WebMD (Clarke, et Al., 2005). According to Clarke and colleagues, self-help strategies did not help in depression cases specifically and it is likely that these results can be implicated in other instances as well, in efforts to deem those strategies unfit for healthcare (Clarke, et Al., 2005). For mental health cases, it is extremely unlikely that online sources or outlets have a positive result on a patient’s recovery/treatment speaking yet again to the fact that the patient/physician relationship is irreplaceable (Hawamdeh & Tay-Yap, 2011). Professional human interaction is encouraged to provide the most accurate medical treatment (Clarke, et Al., 2005).

There are a multitude of mental health diseases in the world, all containing the stigma previously mentioned; however there is one that is more prominent than others and that is anxiety. The Anxiety and Depression Association of America estimate that there are about 40 million adults in the U.S. that are affected by anxiety disorders and that only an estimated 36% of those 40 million are receiving treatment (ADAA, 2018). While therapy, medication, and complimentary approach treatments are all professional ways to get treatment for a mental illness, the two most popular alternative self-treatment approaches to dealing with anxiety (and depression) are drugs and alcohol (Bolton, et Al., 2008). Bolton, Cox, Robinson, & Sareen (2008) found that “the use of alcohol and/or drugs in an attempt to reduce anxiety has often been invoked as an explanatory mechanism for the high co-occurrence of anxiety and substance use disorders” and that “multiple logistic regression analyses determined that self-medication with alcohol was associated with increased likelihood of any mood or personality disorder diagnosis, while self-medication with both alcohol and drugs further increased these associations over and above self-medication with alcohol alone” (Bolton, et Al., 2008).

When you have so much going on mentally, adding self-diagnosis and self-treatment into the mix may seem like it is saving you from doctor’s visits, or medication costs but looking into what all do-it-yourself healthcare includes logically you are making the problem worse by trying to handle it on your own. While the stigma surrounding mental health alone is enough to prevent someone from seeking help, don’t let false accusations of professional medical advice not working deter you from putting your health first. The potential risks of self-medication mentioned by Ruiz are serious in nature and are a serious threat for every patient who thinks do-it-yourself healthcare is an option.

### Conclusions

Before the Internet came around, it was not as common for people to try to handle healthcare on their own (Brunsdan, et Al., 2011). There were not as many resources readily available to people wanting to look into things on their own. Instead of having Internet people had encyclopedias, books, journals, etc. and while those resources are still around today they are nowhere near as convenient to use or they can be accessed quicker through an online database. By giving in to this idea of self-diagnosis, a patient is essentially making the Internet their physician. The problem, again, therein lies with the fact that while the Internet is convenient, it is not always reliable (Eng & Gustafson, 1999). There is an unfathomable amount of information out there for us to use but it is not all scholarly information, anyone can post whatever he or she wants. People have a hard time determining whether or not the information that they are taking in is from a credible source or not (Eng & Gustafson, 1999). Others do not even care to know the difference between credible and bogus sources, they could do a blind search and take the first information they see at face value and never question the accuracy. This logic really drives home the importance of consumer health and why it is so crucial and beneficial to be able to recognize quackery when attempting to do your own investigating.

The issue of self-diagnosis ultimately boils down to whether you are able to (or already have) access to the Internet. Portals such as Wi-Fi, smart phones, tablets, desktops, etc. are all ways that you can get this information. If you are able to afford things such as those, or go somewhere like a public library that has computers you could use, you have access to this information; if not, than that would be considered a social determinant that is associated with this healthcare issue (Shi & Singh, 2017).

In addition to the other negative implications of do-it-yourself healthcare, it is important to understand that this pandemic affects more than just a few people, or certain types of people at that—and that it is not just “googling” whether or not your stomach ache is cancer. For example, if a person with mental health issues (depression, anxiety, borderline personality disorder, etc.) thinks that they have a problem and “googles” their situation or sees a video on Facebook, they could find all kinds of information such as self-help groups, techniques, or things to try, that maybe sound good to them and could even help at first, but in the end might make things worse. This behavior directly affects the individual, or possibly a small group of people (like a family) by the negative repercussions that could follow a self-treatment regimen (Bolton, et Al., 2008).

While there are a certain demographic that this issue directly relates to, it can encompass all genders, age groups, locales, etc. The main audience, however, is the young to mid-adult age group (Brunsden, et Al., 2011). This issue is applicable to younger generations, but as they are mostly under parent guardianship they can still use the Internet but do not have to worry about paying for their own healthcare or things like that (Brunsden, et Al., 2011). Similarly, older generations have access to Internet as well, but usually already having things like social security, disability, Medicare, etc. so they don't worry as much about healthcare costs (Shi & Singh, 2017). The middle of those extremities is young enough to make use of the Internet yet old enough to have to pay for their own healthcare if they aren't willing to self-diagnose.

#### Future Study

In order for this issue to change, an all-encompassing audience has to take steps forward. Physicians, hospitals, offices, and anyone else willing to help should push for

furthering education and awareness. Things such as public awareness campaigns that take advantage of social media, word of mouth, or even flyers/brochures from medical professionals could help lead people to understanding the dangers of do-it-yourself healthcare and why they should never gamble with their health like that.

This issue will likely never be eradicated; let's face it, people love their Google. However, it could be possible to decrease the popularity of self-diagnosing by taking the right steps forward. Self-diagnosis is not an issue that the government could necessarily regulate in terms of interventions but there are other ways to actively play a role in ensuring this issue becomes safer and less common. Technology is ever-evolving and as such, is the main contributing factor to this dilemma, and could also prove to be an antagonist in the matter. By making vendors or manufacturers, of the portals used in searching for information, vet all third party organizations to ensure accuracy a rise in safety of personal information could increase. The online organizations could add disclaimers, multifactor identification, anti-virus software (for data breaches), etc. Hospitals, offices, and physicians could also help prevent do it yourself healthcare by promoting more patient support, increased involvement in free clinics, or even added participation in health fairs. A last factor that could play a huge role in our country's health issue of do-it-yourself healthcare is a switch to a more social justice system. If our citizens have the encouragement that their healthcare is a basic right, and not just a monetary good, they may be enticed to seek out professional medical assistance, instead of trying to self-diagnosis or treat themselves.

## Annotated Bibliography

Andreassen, T. W. & Lanseng, E.J. (2007) "Electronic healthcare: a study of people's readiness and attitude toward performing self-diagnosis", *International Journal of Service Industry Management, Vol. 18 Issue: 4*, pp.394-417. Retrieved from: <https://doi.org/10.1108/09564230778155>

Research is being done to determine if self-service technology (SST) in health diagnosis cases is a means to reduce costs of healthcare and the improvement of the quality of healthcare. With ever increasing healthcare spending, there is always a need to find cheaper alternatives that benefit every involved party. Surveys were given to participants in efforts to understand their use of SST, how it impacts their health, and how it affects their need for healthcare. The results found that patients had a general positive attitude about using SST and not much hesitance towards performing self-diagnosis examinations.

By using SST to benefit the healthcare industry, our country (and others) may be able to decrease healthcare costs and improve quality of healthcare experiences at the same time. If such technologies are studied more in-depth and further advancements in technology are made, a system set in place by medical professionals may not be a bad thing after all.

Barber, X., Chirlaque, M.D., Navarro, C., & Tormo, M.J. (2000). Validation of self diagnosis of high blood pressure in a sample of the Spanish EPIC cohort: Overall agreement and predictive values. *Journal of Epidemiology & Community Health, 54(3)*, pp. 221-226.

There are many different conditions in the medical world; diseases, illnesses, colds, cancers, conditions, etc. Self-diagnosis can apply to any of those categories, and can

encompass any symptom. It does not pertain to a specific ailment, which is why it can be so dangerous. High blood pressure is one of the most popular ailments in our society, and can fall victim to self-diagnosis too. A study was done to show if patients who had self-diagnosed themselves with high blood pressure got a correct diagnosis. This was done by comparing the opinions of the patients to that of a medical professional.

The results are staggeringly surreal. Having any education showed no relevance to whether or not a correct diagnosis was given; however, being a female did. While it was about average for a patient to get their diagnosis correct, it was still more favorable for a medical professional to be right. Validating self-diagnosis could prove to be an even more dangerous topic henceforth. If patients start to believe they know more than doctors they can then try to spread their luck with other patients and encourage them to start self-diagnosing as well.

Berglund, P.A., Bruce, M.L., Kessler, R.C., Koch, J.R., Laska, E.M., Leaf, P.J.,

Manderscheid, R.W., Rosenheck, R.A., Walkters, E.E., & Wang, P.S. (2001). The prevalence and correlates of untreated serious mental illness. *Health Services Research, 36(6 Pt 1)*, p.987.

There is such a stigma involving mental health cases in the United States, and possibly all over the world. It is not often that people seek help for their mental illnesses, which has the potential to make the illness worse when left untreated or undiagnosed. A group of researchers designed a study to evaluate serious mental illness cases that were otherwise undiagnosed. It helped to explain why people had not sought medical care, and what they were doing to cope with their situation.

For some, financial barriers were the preventative factor; but for a majority of the cases it was situational. This means that even if they wanted help, they did not feel they were

in a position to get it. The most common reason for failing to get treatment, or for dropping out of recommended treatments was due to feeling they could solve it on their own. By this statistic, it is proven that financial barriers are not the most driving factor in self-diagnosis or self-treatment.

Bolton, J., Cox, B., Robinson, J., & Sareen, J. (2008). Self-medication of anxiety disorders with alcohol and drugs: Results from a nationally representative sample. *Journal of Anxiety Disorders* 23(1); p.38-45. Retrieved from: <https://doi.org/10.1016/j.janxdis.2008.03.013>

While performing a study on anxiety disorders a group of researchers found that self-medication, by means of drugs and alcohol, is the most popular way to deal with a patient's illness with anxiety or depression. Factors such as socio-demographic and personality disorders played important roles in whether or not a patient turned to self-medication as a means of treatment.

Breitegger, M., Pereira, A.G., & Vesnic-Alujevic, L. (2018). Do-it-yourself healthcare?

Quality of healthcare through wearable sensors. *Science and Engineering Ethics*, 24:4. Retrieved from: <https://link.springer.com/article/10.1007/s11948-016-9771-4>

Wearable sensors, such as a Fitbit, can be used to help keep track of daily endeavors. Wearable sensors can keep track of daily caloric intake/burning, sleeping patterns, heart rate discrepancies, etc. It has all the appeal of information you would maybe need professional help tracking or researching, at the convenience of your own body (i.e. wearable). With this in mind, why would you need to visit the doctor? That is the ideal that is taken away from these devices. The very motto of the company itself (Fitbit) is to inspire its users to help them live a healthier and more active life. However, the article also discusses that one of the main features of these wearable sensors is the online forums that accompany them.

Online forums, chat rooms, message boards, etc. are all spaces that the general public can partake in. It is rarely a medical professional at the other end of the spectrum offering insight. Even though these forums and sensors can create a very strong sense of companionship with others who are experiencing the same ailments you are, they also create room for false information to slip through. With advice not coming from medical professionals one should not be able to take said information at face value.

Brunsdon, V. Griffiths, M.D., & Widyanto, L. (2011). A psychometric comparison of the Internet Addiction Test, the Internet-Related Problem Scale, and self-diagnosis. *Cyberpsychology, Behavior, and Social Networking*, 14(3), pp.141- 149.

When studying how the Internet plays an active role in healthcare, it is important to know how average people view their Internet use. The Internet is such a vast porthole of information that is almost unfathomable. Any book, game, show, article, picture, message, etc. can all be found at the touch of a finger. It is easy to see how unimpeded access can cause an unhealthy amount of Internet use, and for a study pertaining to just that, the results are intriguing.

There are three methods used to determine if a person is addicted to the Internet; 1. IAT- the Internet addiction test, 2. IRPS- the Internet related problem scale, and 3. A self-diagnostic query. These three methods were used on a number of subjects to determine how consumers view their Internet usage. Of the 225 participants, those who already viewed themselves as obsessed with the Internet (Internet addicted) scored higher with the remaining two methods. When you rely so heavily on Internet use, you have a tendency to write off

human interaction. By limiting human interaction you directly strain the patient/physician relationship, which has adverse affects on your healthcare.

Burwick, H.A., Case, M.A., Patel, M.S., & Volpp, K.G. (2015). Accuracy of smartphone applications and wearable devices for tracking physical activity data. *JAMA*. 2015, 313(6), pp.625–626. DOI:10.1001/jama.2014.17841

As popular as wearable sensor technology is in today's society, it is still relatively understudied. Drawing into question the accuracy of the technology, a group of researchers did a study on how precise the tracking mechanisms are in such wearable sensors as a Fitbit. By utilizing healthy volunteers, the team of researchers essentially observed the volunteers while walking. The researchers were in place to count steps and compare their data to that of the wearable sensor. The idea is to see how close or how far off the technology is from human observation. Things such as step tracking are relevant to calorie burning which is a marketing tool for the technology to promote a healthier lifestyle.

The trial results concluded that most step counting technologies were fairly accurate, leading you to assume that other factors such as calorie burning information are fairly accurate as well. Smart phone applications were also tested as well, and while still proved to be decent, were not as reliable as sensor technology in tracking such information. With empowering consumers to take their healthcare into their own hands, and having fairly accurate information to back up their technology (as studied to date) it is easy to see how so many people rely on these devices for daily medical upkeep. If you think you are already keeping track of your health you are more likely to not seek professional medical support because you are already getting it from another source.

*The Center for Disease Control and Prevention's NCCDPHP: Community Health*

(2018). Atlanta, GA: U.S. Department of Health & Human Services.

The CDC classifies community health as, “Working at the community level promotes healthy living, helps prevent chronic diseases and brings the greatest health benefits to the greatest number of people in need. It also helps to reduce health gaps caused by differences in race and ethnicity, location, social status, income, and other factors that can affect health”.

When understanding how a community is effected or controlled by individual well-being it is imperative to put into perspective that the individuals are collectively responsible for the general success of the health of their community.

Clarke, G., D. Eubanks, E. Reid, C. Kelleher, E. O'Connor, L. DeBar, C. Guillion.

(2005). Overcoming Depression on the Internet: A Randomized Trial of Self-Help Depression Skills Program With Reminders. *Journal of Medical Internet Research* 7(2) e16. Web. Retrieved from: <http://doi.org/10.2196/jmir.7.2.e16>

While many Internet domains are popular for self-diagnosing reasons, the most well known among them are likely WebMD and Facebook. Facebook is a social media outlet, but it has been known to provide copious amounts of unverified data, which is then deemed trustworthy by the general public. Generating information such as self-help videos, how to cope with a disease, what its like to be with someone with a certain disease, etc. are all types of information that can be found in one general search.

A group of researchers set up a trial to see if using internet sources to cure things like depression actually helped. While they found that self-help strategies did not help in depression cases specifically, it is likely that these results can be implicated in other instances as well in efforts to deem those strategies unfit for healthcare as well. For mental health cases,

it is extremely unlikely that online sources have an positive results on a patients recovery/treatment. This speaks to the fact that the patient/physician relationship is irreplaceable. Professional human interaction is encouraged to provide the most accurate medical treatment.

Clatworthy, J., Home, R., Jackson, C., & Robinson, A., (2010). Factors associated with non-adherence to oral medication for inflammatory bowel disease: A systematic review. *The American Journal of Gastroenterology* 105; p525-539. Retrieved from: <https://www.nature.com/articles/ajg2009685>

A study was done to determine factors leading to medication non-adherence in patients with inflammatory bowel disease. It was found that adherence was generally completed when patients understood the desired outcome. Noncompliance was due to patient/physician distrust, physiological factors, and patient beliefs.

Corrigan, P., Larson, J.E., Sells, M., & Watson, A.C. (2007). Self-stigma in people with mental illness. *Schizophrenia Bulletin*, 33(6), pp.1312-1318. Retrieved from: <https://doi.org/10.1093/schbul/sbl076>

Any medical condition that a patient suffers from can lead to an enhanced sense of awareness. This awareness can lead to feelings of doubt, lack of confidence, low self-esteem, etc. Over time, researchers have suggested that the stigma surrounding such conditions, as mental illnesses are what lead to a lowered sense of self. There are however some patients that do not fall victim to such feelings or manifestations. Patients that do not let the stigma surrounding their conditions get to them are often left feeling empowered or more in charge of the healthcare.

Such technologies as wearable sensors can be used to encourage and further support patients who have medical conditions and can be an added tool to further their healthcare journey. There is also evidence to suggest that people who are negatively impacted by the stigma surrounding mental health, that wearable sensors can improve their confidence and positively impact their healthcare experience. Stereotypes can be a very large factor in why a person decides or does not decide to seek medical care.

Cottrell, R., Girvan, J., McKenzie, J., & Seabert, D. (2015). *Principles and Foundations of Health Promotion and Education*. Glenview, IL: Pearson Education, Inc.

Understanding how human behavior effects individual and community health is fundamental in understanding how do-it-yourself healthcare works. The socio-ecological model and the health belief model (HBM) explore how potential patients view their symptoms, situations, demographic, role models, etc. and how those relationships factor into how they take care of themselves.

Frakt, A.B. (2011). How Much Do Hospitals Cost Shift? A Review of the Evidence. *The Milbank Quarterly A Multidisciplinary Journal of Population Health and Health Policy*, 89(1). pp.90-130. Retrieved from: <https://dx.doi.org/10.1111%2Fj.1468-0009.2011.00621.x>

An important part of the healthcare industry that is often overlooked is known as cost-shifting. Cost-shifting is where private payers are charged more in response to shortcomings from public payments. With market justice applications, a patient could be treated as an uninsured patient (public payment). Since costs of treating said patient would have to be made up in some way, that cost now comes from a different source. That different source, for

example, would be raising the costs of those already insured (private payers) to make up for the losses.

This may now be seen as a win for such patients; however, in the long run it provides more economical hardship as the working class who already had insurance could now struggle to pay to keep it. If a person who has a known medical condition (that has insurance) is forced to raise their rates in order to keep their health insurance and are, as a result, not able to pay anymore to keep it they may seek alternative treatments to their known condition. Money is a very strong force in our society and even if people do not want to seek alternative treatment options, they may out of necessity for other life requirements.

Fuchs, V. R., (2009). Cost shifting does not reduce the cost of healthcare. *JAMA* 302(9); p 999-1000. DOI:10.1001/jama.2009.1278.

Healthcare economics are at the forefront of every political reform movement, but are never an actual solution, only a band-aid. As explained by Fuchs, cost shifting does not reduce the cost of healthcare, it only moves it to other areas which shifts the responsibility of the payments to those who are already ensured—which can often cause them to no longer be able to pay for their insurance.

Gidengil, C., Linder, J.A., Mehrotra, A., & Semigan, H.L. (2015). Evaluation of symptom checkers for self diagnosis and triage: Audit Study. *BMJ* 2015; 351:h3480. Retrieved from: <https://doi.org/10.1136/bmj.h3480>

Whether it be from distrusting doctors, not having access to healthcare, or other factors that lead people to such diagnoses, more than a third of adults in the United States regularly use the Internet to self diagnose their ailments. People who use such diagnoses are then directly endangering others because they will then share the information they found with

others who they think are similar to their case, creating a snowball effect. A set of researchers sat down and examined numerous Internet domains that help to provide patients with self-diagnoses. The domains, also referred to as apps, were ones that could be downloaded to any type of smart device available on the market.

The apps are powered by algorithms, which give the user the best recommendation per medical advice. Recommendations could mean telling a specific disease, types of alternative remedies to sure a disease, or what type of medical treatment to seek (non-emergent, emergent, etc.) After finding out that these symptom checkers only offer the correct diagnoses 34% of the time, a harsher look at this type of interaction needs to be taken. Gambling with your wellbeing (with only a 34% chance of being right) is a very risky endeavor. If individuals were more cautious, then healthcare may not be as expensive a market as it is today.

Grevey, M. (2014). Experian Partner Solutions. *Looking for a Cure for Medical Identity*

*Theft*. CSID. October 2014. Web. Retrieved from:

<https://www.csid.com/2014/10/medicalidtheft/>

According to the identity protection platform known as CSID, “In 2013, the healthcare industry experienced more data breaches than ever before, accounting for 43% of all breaches that year”. This means that of all data breaches and cyber hi-jacking, 43% had to do with healthcare related cases, most commonly but not always referring to medical identity theft. This directly relates to the economy, healthcare costs, and the impact on health in the U.S. because we are a primarily market driven system. With security and safety issues, the healthcare industry would spend more revenue ensuring that those breaches or anything

similar did not happen again. Such a reversion of revenue would also cause prices of healthcare services to go up, per supply and demand conceptualization.

While affecting healthcare in relations to the industry aspect, it also affects healthcare in the community and individual aspect as well. If a person chooses not to seek professional medical assistance since the prices are now even higher, and per market justice status quo, they could not afford to go to the doctor, they could do a random search for their symptoms. With this search they find what they think can be cured by a day off work and a Netflix binger but is actually a communicable disease which has now spiraled and spread to every person they came in contact with.

Hawamdeh, S., & Tay-Yap, J. (2011). The impact of the Internet on healthcare in Singapore. *Journal of Computer-Mediated Communication, 6(4)*. JCMC645. Retrieved from: <https://doi.org/10.1111/j.1083-6101.2001.tb00131.x>

An initiative was created, called Singapore One, in efforts to lessen the gap in the patient/physician relationship. Singapore One essentially works like an encoded emailing system that was to be utilized for the patient to ask their physician any questions, comments, concerns, etc. over safe messaging systems. It encourages patients who may have a hard time interacting with physicians, can't remember to ask questions during an examination, or anything in between to have an open dialogue with their physician that is safe and easy to use. Singapore One's goal was to help lessen the community's involvement with doing their own online searches for information, as they cannot as easily ascertain what is false and what is not.

With an array of information steadily available on the Internet, it is easy for patients to do a quick Google search and find what they think is wrong with them, often leading to

misguided opinions, prolonged medical treatment, and distrust with their physician. Initiatives such as Singapore One, however, do pose a real threat to patient security. While the messages would be encoded, there is no guarantee that the information could stay one hundred percent secure. This brings into question a variety of HIPPA violations that would ensue post-hacking of messages.

Morrisey, M.A. (1993). Hospital pricing: Cost shifting and competition. *EBRI Issue*

*Brief*, 137. pp.1-17. Retrieved from: <http://europepmc.org/abstract/med/10129621>

According to Morrisey, “When a hospital has market power, it is able to set prices above marginal costs. However, when a buyer has enough patient/subscribers and a willingness to direct them to particular providers based on price considerations, hospitals have less flexibility in raising prices above costs”. In a country, such as the United States, that operates under a market justice system, the “market” can set the costs at pretty much anything they want, knowing that the consumers have to pay if they want treatment.

Knowing such conditions of the state of healthcare may directly relate to the dilemma of so many people seeking other options for healthcare/medical treatment. While healthcare is in industry, it is still needed for every human on the planet, so is it a right or a privilege? With so many reasons for an expensive healthcare industry, one could almost not blame an individual for seeking cheaper alternatives.

Murphy, S. (2010). *Internet Fuels Bad Self-Diagnoses and “Cyberchondria”*. Live

Science. Web. Retrieved from:

<https://www.google.com/amp/s/amp.livescience.com/3486-medical-website-self-diagnosis-cyberchondria.html>

In a clever play of words, Samantha Murphy does an excellent job in explaining the negative implications of Internet use for self-diagnosing. Calling the pandemic “Cyberchondria”, she draws parallels that if a patient reads something about a disease online, they automatically think they have it. Hypochondria is an obsession that a person has a serious yet undiagnosed medical condition. For example, if you have a stomach ache and research your symptoms, you know think you have stomach cancer and your doctors just haven’t found it yet.

With remembering from another source that symptom checkers are only correct 34% of the time, it is extremely important to raise awareness to such instances and the danger they impose on public and community health. Community health is made possible through individual wellbeing and if you are not doing your part to make sure you are healthy, then the health of your surroundings will deteriorate as well.

Ruiz, M.E., (2010). *Risks of Self-Medication Practices*. *Current Drug Safety*, 5(4). DOI: 10.2174/15748861079224592245966

Taking self-treatment a little bit further, Ruiz dives into a topic known as self-medication by means of self-treatment. This article assesses the many dangers proven to trust your self to accurately diagnose, monitor, acquire proper medication, etc. throughout the course of an illness such as a cold or virus. Crediting the positive implications of self-medication as increased access to medication, the active role of the patient in their own healthcare, better use of physicians and pharmacists skills, and a reduced burden of the government in regards to healthcare expenditures. It goes on to explain, however, that self-medication is not a safe practice and has great potential risks that should be taken into

consideration, the more significant of those being misdiagnosis and medication abuse/dependence.

Shi, L. & Singh, D.A. (2017). *Essentials of the U.S. Healthcare System Fourth Edition*.

Boston, MA: Jones & Bartlett Learning.

There are two types of justice that make up the healthcare industry, social justice and market justice. Social justice versus market justice is the root of the very controversial debate that our own country struggles with. Social justice is “a distribution principal according to which healthcare is most equitably distributed by a government-run national healthcare program”. In regards to social justice, access to healthcare and it services are viewed as a basic right. Healthcare is a social resource that has active government involvement and regulation; it is not disbursed by your ability/inability to pay, it is disbursed by central planning. On the opposition, market justice is “a distribution principle according to which healthcare is most equitably distributed through the market forces of supply and demand rather than government interventions”. In regards to market justice, healthcare and its services are an economic good, rather than a basic right. Healthcare is disbursed based on your own personal efforts and achievements. Under market justice, healthcare operates under free-market conditions and the services are determined per how much you are able to pay.

When looking at the issue of self-diagnosis/self-treatment from a social justice perspective and a market justice perspective it is clear that with either concept the issue is dangerous, but the underlying reasons are different. With a social justice healthcare system, every person has the same benefits and/or access to healthcare. This means that no matter the job, region, age, or sex a person is, they can use the same resources as another individual that has completely different circumstances. Things like access to healthcare, costs, etc. do not

prohibit someone from seeking a medical professional. With a market justice healthcare system, social determinants play a large role in whether or not a person would seek professional advice or try to self-diagnosis/treat him or herself. If they were not employed by a place that offers them healthcare benefits, insurance or any other assistance then they may choose to forgo the process of seeking professional advice altogether, and solve the problem their self.

Simons-Morton, B.G., McLeroy, K.R., & Wendel, M.L. (2012). *Behavior theory in health promotion practice and research*. Burlington, MA: Jones & Bartlett Learning. p.45

A construct known as the socio-ecological model was created in efforts to explain the levels of influence from an ecological perspective. It helps to give a visual representation as to the relationships between individuals, strangers, organizations, and other types of social constructs. It is categorized into seven different concepts as to why people behave the way they do and are as follows: intrapersonal, interpersonal, organizational, community, public policy, physical environment, and culture.

Zuckerman, A.M. (2012). *Healthcare Strategic Planning*. Chicago, IL: Foundation of the American College of Healthcare Executives.

When strategic planning is implemented in order to further an organization, a certain element is crucial in seeing to the organization's advancements—flexibility. Since technology and healthcare are constantly evolving, rigidity lessens an organizations ability to adapt and thus survive. By implementing a plan, setting clear concise goals and objectives, starting task forces and management strategies, and following through with annual updates an organization is far more likely to succeed.