

Preventative Care for the Elderly

Health care is at a very interesting and compelling point here in the United States. Fairly recently we saw the passing of the Affordable Care Act, which brought forth some change to our current healthcare system, primarily attempting to broaden insurance coverage to citizens. Of a lesser note the bill also did a little to encourage citizens to seek out preventative care by covering doctors visits that could be classified as such. The reason that this is particularly salient in today's United States is because unless we find a way to control costs, likely through preventative care, we are headed for a crash.

This crash seems imminent for a multiplicity of reasons: the baby boomer generation is larger than the succeeding generations, Medicare has been overspending for sometime, people are living much longer than 65 (the recognized age of retirement), and accompanying this increased mortality an expensive extensive care resulting in high morbidity for the elderly population. In other words we are going to have a large elderly population that demands a lot of medical care with little or no means of paying for that care. Preventative care could represent a way mitigate some of those costs by limiting the amount of care that people seek and by allowing people to be healthy enough to work longer and continue paying in to Medicare. This paper will focus on examining several reviewed articles that examine some of the approaches, policies, problems, and ethical issues that are being discussed in conjunction with this topic.

Before delving further into the specifics about how preventative care can be applied to the elderly, we must first understand a little about preventative care as a whole. Essentially there are three separate forms that preventative care can take. Primary

preventative care, is the attempt to avoid the occurrence of a disease, for example if you were pre-disposed to developing diabetes you would eat healthy, exercise and maintain a healthy weight (this of course applies to all and not only those who are predisposed), basically the avoidance of unhealthy habits. Secondary preventative care focuses on the treatment of a disease that is in its early stages. One example of secondary care would be to identify someone who is pre-diabetic and keep them from developing diabetes; these are accomplished through screenings and daily medical interventions (like daily medications). Tertiary preventative care is intended to keep someone who has previously contracted a disease from mismanaging it and therefore worsening that disease. To continue with the diabetes example, an individual who had diabetes would meet with a support group and participate in a management program where they may report their numbers and learn to develop better habits.

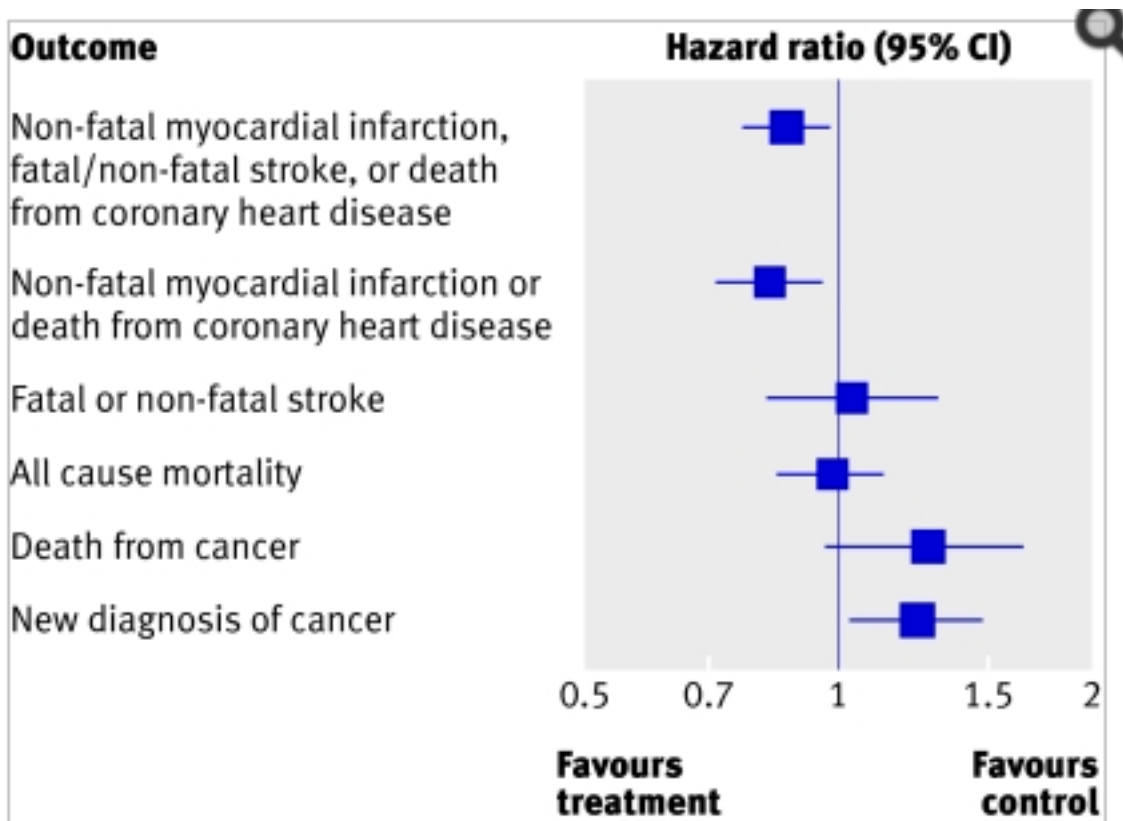
One of the great challenges of working with the elderly population in this particularly sphere is that often measures that are intended to be secondary prevention frequently become tertiary. Dr. M.A. Roworth expands upon this in their examination of screening in the elderly, stating "...the screening test or tests which are used when elderly people are screened are in themselves diagnostic and the exercise is more akin to tertiary prevention in which established disease is sought in order to create better prospects of alleviation or rehabilitation." (2) Those who normally undergo screenings are considered to be asymptomatic, which gives inherent effectiveness to the test because previously perceived healthy individuals can then be identified. However as described above by Dr. Roworth, elderly individuals realistically cannot be perceived as asymptomatic because they are so often carriers of established diseases and health problems, whether they have

been detected or not. This is further substantiated by this study as it states, "...in a survey of general practice patients aged over 65 showed that each patient had an average of about three unreported mild to severe disabilities." (2) This is problematic primarily because this means that these conditions have progressed unfettered and likely have adverse sequelae to which the managing physician (according to the paper) was unaware. This naturally results in further medical costs and deterioration of the patient.

Another of the challenges that is examined in these studies result in the actual treatment of the elderly patient. Since any elderly patient in question is likely to have more than one condition or disease, no single disease model can be applied. There is actually a very real danger in applying a single disease prevention model in an elderly patient as they often react differently to the intervention purely because their biology is different because of age. Since cardiovascular disease has become the number one cause of death in the United States, it has become the number one target for preventative care. A portion of those who die from cardiovascular disease are naturally elderly, unfortunately however in order to combat the problem solutions are only drawn from studies on younger generations and then applied to elderly patients. (1)

One study was performed in order to determine the effectiveness of one such approach, the use of Statins to lower cholesterol (Statins lower cholesterol by inhibiting the HMG-CoA reductase that is responsible for producing the majority of body's cholesterol). The largest study in the elderly population utilized pravastatin in 5000 elderly individuals (70-82) who were at risk of cardiovascular disease. For around three years these individuals were followed to determine what effects these preventative measures would have. (1) Examining the results of all mortality and morbidity are quite

revealing, as women who took pravastatin showed a change in composite cardiovascular outcomes, but importantly all cause mortality stayed the same. In fact those who did receive pravastatin saw a rise in, fatal or non-fatal stroke, death by cancer and even more alarmingly in a new diagnosis of cancer. So while those who took statins did see an improvement by decreasing complications from cardiovascular disease they ultimately developed some other disease or condition. (1)



This raises a number of ethical questions in regards to preventative care for elderly patients. The first ethical question that should be addressed deals with morbidity and whether or not it is ethical to prevent one disease if evidence suggests that it will only lead to a more morbid one (1). In the study we saw that those who were on statins saw a decrease in the likelihood that they would succumb to heart failure, but they saw an increase in the likelihood they would die of cancer. While neither death is desirable

cancer rates much higher in terms of morbidity. Raising the question is it good that an individual to escape one disease to only experience a more difficult one? This realistically is a question that exists in whenever preventative measures are employed regardless of age. When infants undergo vaccinations they inevitably are avoiding those diseases for ones that will come later. But, what really differentiates these two scenarios is the timing of the onset of the impending disease. When preventative measures are taken early in life there is a much more significant time gap between the onset of diseases and conditions, whereas in the elderly population realistically they are either simultaneous or separated by months or a few years. (1)

This brings us to another ethical question that sounds more ominous. If as physicians we understand that by choosing to prevent a particular disease that we are ignoring or causing the genesis of another to some extent the patients death is being chosen without their informed consent (1). While it is true that this is not the goal of any preventative treatment it to some extent is a reality. We must then ask ourselves, to what lengths must we educate the patient on their decision and do we have sufficient evidence to do so? Furthermore when it comes to the elderly how much does the psychology factor of understanding you have a potentially fatal disease affect a patient? Does it feel more certain or shroud their remaining years in the gloom of disease? This to must be considered as an aspect of morbidity to determine if the life they will be living is worth living. (1)

Prolonging that life also represents a substantial financial investment may prove to be unnecessarily costly for the patient and the taxpayers who support them through Medicare. This context would specifically apply to those who perhaps receive an increase

in mortality, but a decrease in morbidity. This again begs the questions what is the value of a life and what constitutes a life worth living? These are questions that are not easily answered and up to this point don't really have answers that don't change from person to person. Yet these questions really must be considered if we are going to deal with the impending financial crisis caused by our current medical system.

Based on the information that is at hand what would seem to be the most logical solution is to identify those who have a likelihood of developing a disease at slightly younger age. By determining who is likely to be subject to any disease early on prevention can take place earlier on thereby reducing the risk that an elderly patient will have to deal with so many disease during their lifetime. A study performed at the University of Utah sought to do just that by utilizing epidemiologic studies, medical histories of the individuals, parents and family members to compute a family risk score.

(4)

From this score one is able to determine whether or not a family or individual is at a measurable higher risk for developing a disease. The study had some very positive results in regards to the state of Utah, "Utah families with a positive family history of CHD (FRS \geq 0.5) represented only 14% of the general population but accounted for 72% of persons with early *coronary heart disease* (men before age 55 years, women before age 65 years) and 48% of CHD at all ages." (4) This is encouraging information when considering that those who were identified were generally younger than the age of retirement. This is significant because these individuals could then theoretically be targeted prior to developing a number of other health risks. Additionally the information seems to suggest that the FRS score is actually fairly indicative of problem families, this

would allow us to further research the significance of the role that their genetics and environments play in developing these disease leading to future successes in limiting preventable diseases. Perhaps equally importantly we can see that this specific method is also cost effective to implement, as the study states that the cost ran about \$27 per high-risk family. This price is miniscule in comparison to the charges that the family would incur if they were to develop a chronic preventable disease. (5)

Research has tended to show that families are a better place to start when determining who is at risk of coronary heart disease. This seems somewhat counterintuitive to many of the things that we have studied during this course, as it felt at times that we centered on an individuals genome. However under further examination one comes to realize that by studying the family history gives a fuller picture of the interplay between genes and lifestyles that lead to the development of a disease or condition. With this fuller picture we are able to better predict what an outcome may be for a particular individual. One of the challenges of using family history to better our situation is that it is very much dependent on the information at hand. A patient with a clear family history will receive a stronger prediction, but this is what makes the NHLBI family heart study is that it uses observed and expected (these are calculated using population estimates of age and gender susceptibility) relatives to predict the FRS score (5). This is beneficial because it can be adjusted to a family of any structure. Family Risk Scores are calculated using the equation below:

$$FRS = \frac{|O - E| - 0.5}{\sqrt{E}} \times \frac{O - E}{|O - E|} \quad (6)$$

In this equation (O) represents the number of CHD events that have been observed in a family history. (E) is indicative of the expected number of events within a family, which are the sum of the probabilities of the family members. High values naturally identify families that have a very high number of members who suffer from CHD. If a family is young their number can easily be skewed by just one positive case of CHD. This danger is accounted for by setting FRS to zero if (O-E) was to be equal to 0.5. With this in mind a final calculation that is greater than or equal to one indicates a familial CHD (however this number was adjusted to 0.5 in the Utah portion of the NHLBI study). (6)

While family utilizing family history seems like a cheaper and more realistic option it too has its ethical drawbacks. The first deals with whether or not family history research would be considered an invasion of privacy. The argument against this theory is that typically the information regards a more distant family member and that there is really minimal risk in the information that is being granted. Other ethical questions arise after a prediction is reached, due to the vast amounts of information that are required to determine whether or not a family is at risk are those running the study now obligated to disclose the information to more than just the individual? This would seem prudent if the goal is to try and mitigate future costs of healthcare and lower morbidity amongst aging individuals. After all how can anyone act preventively if they don't first have the information to make the necessary changes?

While I believe there are clear benefits to expanding the use of family history to manage our preventative health decisions, realistically it is more useful for the future generations. This brings us square the question how do we handle the care of elderly patients who may not benefit from primary and secondary preventative care. Interestingly

an argument has been made that autonomy of the individuals while maintaining the elderly patients freedom of choice—albeit within an institution. This is often difficult as many of those elderly who will live in these types of institutions will suffer from dementia and will be unable to maintain their autonomy. For those who have slipped into dementia I offer few solutions as we walk into the gray area where we are dealing with a life that is difficult to measure in quality. (7)

My only thought would be that preventative habits should still be taught to those who live within these types of institutions, at least for those who have the capacity. I was not able to find studies that specifically looked at this type of behavior, but was able to find evidence of some studies that were comparative between different types of health facilities for the elderly. In the studies NHS nursing homes were compared to NHS long stay wards. The patients were measured using the Crichton Royal behavioral rating scale a psychiatric assessment, semi-structured interviews of quality of care and self rated health, life satisfaction index and survival outcomes. The studies fail to determine whether or not a nursing home is better than a long stay ward. The studies do suggest that those who live in a nursing home as opposed to a long stay ward, have better attitudes and higher perceived quality of life. The drawbacks are that they experience more falls and that in one of the studies there was stronger decline in health. (7)

This is discouraging to my theory of autonomy and to my theory of teaching preventative habits to the elderly. I say this because one would assume that an individual living in a nursing home would have more autonomy than one living on a long care ward in a hospital. Since both share similar death rates there seems to be little effect of

autonomy on the lives of elderly patients. But again this a bit of a stretch to conclude and I still submit further research must be done to verify this.

The conclusions that I draw from this and the all the studies that I have read in preparation for this paper is that health care for the elderly is not an easily solved problem. Preventative care appears to be relatively fruitless in any situation with the elderly whether it is primary, secondary or tertiary. This is not to say that any one particular ailment can't be treated, but that ultimately another condition will replace the treated one. Furthermore there seems to be little focus on our elderly politically as most of the focus tends to dwell on the younger population. Thusly there is a lack of depth of meaningful studies regarding the elderly and preventative care. My final conclusion is that family histories could be useful to eliminating chronic diseases in younger generations. Hopefully family histories can be used to incite preventative care at least to a some extent on the aging baby boomer generation, since its effect on the current elderly population will likely be minimal. I am hopeful that future break-throughs in preventative care will be more useful to the elderly and that younger generations will take advantage of what is available.

1. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1941858/>
2. <http://www.ncbi.nlm.nih.gov/pubmed/2678219>
3. <http://www.ncbi.nlm.nih.gov/pubmed/11152826>
4. [http://www.ajpmonline.org/article/S0749-3797\(02\)00587-1/abstract](http://www.ajpmonline.org/article/S0749-3797(02)00587-1/abstract)
5. <http://aje.oxfordjournals.org/content/143/12/1219.full.pdf>

6. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1055130/pdf/qualhc00008-0050.pdf>