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WHEN DO THE ADVANTAGES OF PREVENTIVE HEALTHCARE OVERCOME THE DISADVANTAGES?

Thesis Organization and Strategy

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Management Summary

In this thesis the problem statement is: When do the advantages of preventive healthcare overcome the disadvantages?

Preventive healthcare is a form of medical care that concentrates on the prevention of diseases or health maintenance of people. This sector of healthcare is divided into three types, namely primary, secondary and tertiary preventive services. Secondary and tertiary services are widely used in clinics already, but about primary preventive healthcare not a lot is known. The appliances that are included in this type are screening, immunization and health education.

The thesis explains that the advantages of preventive healthcare are that it seems to decrease the in-patient medical costs. Furthermore, it reduces the number of clinical visits for people and it also reduces the need for radical treatments.

However, the thesis also illustrates that there are some disadvantages attached to an implementation of preventive healthcare. The level of acceptance is very important for a new system to really work. Next to that, the total medical costs do not seem to be reduced by preventive services and there are still a lot of problems and complications with false positive and false negative findings in the screening of clients. Furthermore, to let this preventive system flourish, training of existing staff is needed and a restructuring in procedures is necessary.

Through guidelines we can say that there are still a lot of changes needed in the whole system in order for the advantages to reach their full potential. Training and building well-care centres seem to be the most important factors in the development to establish preventive healthcare. Only then, the advantages of preventive healthcare overcome the disadvantages.

Chapter 1: Introduction

1.1 Problem indication

Preventive healthcare has been a large issue in the world of healthcare for years now. This branch of healthcare focuses on the prevention of diseases and on providing information about how to do that (Mosby's Medical Dictionairy, 2009). The theory behind preventive healthcare is that by discovering a disease in an early stage, the treatments can start earlier and this means a decrease in inpatient demand in hospitals (Tian, Chen & Liu, 2010).

While health care maintenance visits continue to be the primary mechanism for preventive service delivery, many patients rarely see clinicians for this service (Cohen, 2004). Although a lot has been developed in new possibilities in healthcare until now, still the actual delivery of preventive healthcare can be better, by providing it during medical visits. Cohen (2004) also describes that illness visits to clinicians are still mainly focused on the moment itself, in providing instant treatment of a disease that is present now and less focus on preventive communication. This means that a lot has to change in order to give preventive healthcare a solid place in the total healthcare supply chain.

The main goal of this study is to create an insight in which advantages and disadvantages primary preventive healthcare provides and, resolving out of this, when the advantages can overcome the disadvantages. In the thesis the focus is on primary preventive healthcare, which is described in Chapter 2 by Zhang, Berman & Verter (2007), which focuses on the screening and education of people that do not have direct symptoms at this moment in time. The focus is on primary preventive healthcare, because there is already a lot of information about secondary and tertiary preventive healthcare and these methods are widely used in hospitals.

A number of problems can be associated with this subject, namely if preventive services are reliable and if these services are changing the type of client visits in hospitals and type of visits in other clinics.

This means that there are a lot of uncertainties still present about preventive healthcare. Literature gives a two-sided view on this. On the one hand, there are academics that argue that the positive effects are still too uncertain to implement the system in the total supply chain. Chan (2005), for example, argues that the net benefit or efficacy at reducing disease-specific mortality has not been proven in these services and that screening tests are not ready to offer to the general public. On the other hand, Zhang, Berman & Verter (2007) show that preventive programs can save lives and contribute to a better quality of life by reducing the needs for radical treatments, such as surgery or chemotherapy.

This two-sided view within literature provides a basis for this research. Some arguments imply that the pressure on processes and time planning within the healthcare chain should be lightened, because, as Zhang, Berman & Verter (2007) say, it reduces the need for radical treatments. Others argue that the effects are not proven and that other factors play a role in the effectiveness. This contradiction in literature is why an insight in the advantages and disadvantages of preventive healthcare is needed.

1.2 Problem statement

The problem statement that follows out of the problem indication is:

When do the advantages of preventive healthcare overcome the disadvantages?

1.3 Research questions

To form a good answer on this problem statement, a number of research questions are needed.

1) What is preventive healthcare?
2) What are the advantages of preventive healthcare?
3) What are the disadvantages of preventive healthcare?
4) When do the advantages overcome the disadvantages?

With this structure and sequence of research questions, a conclusion can be drawn about the problem statement.

1.4 Research method

The type of research that is used in the thesis is a descriptive research. The results of the thesis findings offer a view on this subject that is not covered sufficiently. To acquire the answers on this research question and problem statement, a number of sources are used. A description of the author's information gathering methods are explained below, in accordance with the research questions.

- Research question 1: a literature review is needed to answer this research question. This is mainly information about which concepts play a role in preventive healthcare. This information is gathered from academic journals from databases like ScienceDirect.

- Research question 2 & Research question 3: the advantages and disadvantages are found through a literature review, again through articles found in the ScienceDirect database.

- Research question 4: the answers on research question 2 & 3 form the basis for this research question. The advantages and disadvantages are categorised and a conclusion on this overview is given.

This literary study is performed by finding articles through the database of ScienceDirect, which provides articles of the Elsevier and other academic books and sources. These sources are well-known for their quality and provide a trustworthy basis for the thesis.

1.5 Relevance

The academic relevance of this thesis is that it will offer an overview of the two-sided view of preventive healthcare in the total healthcare system. The managerial relevance of this thesis is that the conclusion might help to adjust the managerial decisions in clinics or to offer a different view on this matter.

1.6 Structure

This thesis explains in Chapter 2 what preventive healthcare exactly is. It contains information about its definition and about which forms preventive healthcare can have. After this, in Chapter 3, the advantages of preventive healthcare are shown. In Chapter 4 the disadvantages of preventive healthcare are shown. Furthermore, in chapter 5 an answer to when the advantages overcome the disadvantages is given.

Chapter 2: What is preventive healthcare?

In this section of the thesis a view is given on what preventive healthcare is. The chapter contains a definition of preventive healthcare, the types of preventive healthcare and the appliances of these types.

2.1 Definition

In this part of the section a definition is given to provide a clear understanding of what preventive healthcare is.

Mosby's Medical Dictionairy (2009) defines preventive care as:

"a pattern of nursing and medical care that focuses on disease prevention and health maintenance. It includes early diagnosis of disease, discovery and identification of people at risk of development of specific problems, counselling, and other necessary intervention to avert a health problem. Screening tests, health education, and immunization programs are common examples of preventive care."

This definition explains that preventive healthcare is about the prevention of diseases and about keeping the quality of life of an individual as high as possible. As described above, this can be through the early diagnosis of diseases, which can be used in hospitals, but also through the early discovery and identifications of diseases in people that are not ill at this moment. This can be done by screening and immunization programs, like flu shots. Another part of preventive healthcare is health education, which teaches people how to live a healthy life.

2.2 Types of preventive healthcare

In order to get a view on what preventive healthcare is, we need to distinguish the different types of preventive healthcare. This helps in developing a knowledge base to understand what preventive healthcare is.

Zhang, Berman & Verter (2007) describe three different healthcare programs that summaries the methods in preventive healthcare. These programs are:

1) Primary prevention, which is meant to reduce the likelihood of diseases in people that have no symptoms at the moment. Examples of this program are flu shots in children, but also full-body MRI scans in people that have a health check-up. This program also includes providing information about a healthy lifestyle.
2) Secondary prevention, which aims to identify a disease in people that have a predisposition for diseases or who are at a very early stage of, for instance, a form of cancer. By performing this method, a diagnosis can be formed earlier.
3) Tertiary prevention, which focuses on controlling the lifestyle of people that are already diagnosed with a disease and to decrease the complications and severity of their disease. An example that is mentioned by Zhang, Berman & Verter (2007) is the sugar control for people that are diabetic to mitigate problems with vision and nerves.

In relation to these several types Tian, Chen & Liu (2010) explains about the first two programs: "As the name suggests, the purpose of primary preventive care services is 'prevention' (for example, immunization), whilst the purpose of secondary prevention services is the early detection and diagnosis of illnesses, along with the possible prevention of any subsequent need for the utilization of curative services."

2.3 Appliances

In understanding what the different types of preventive healthcare imply, this section of the thesis explains the appliances of preventive healthcare. As the focus is on primary prevention, because the other types are widely used in clinics already, the explanation is focused around screening, immunization and health education.

2.3.1 Screening

The screening of clients is an important step in preventive healthcare. Ladd (2009) describes how the screening of clients is performed with MRI machines. She says about MRI

scanning for prevention: “MRI has opened up another field of diagnostic imaging: early diagnosis of disease in defined groups of persons who do not yet show symptoms, with the aim of reducing morbidity and mortality. A high accuracy, reader independence, and capability of the diagnostic test to be standardized imply a low number of false results and thereby decreases indirect costs in healthy individuals due to false positives.” This clarification of MRI supports the idea that MRI is a useful appliance of preventive healthcare, because it is a reliable system and that it even reduces costs. Furthermore, Ladd (2009) explains that the brains, heart and other organs, as well as the vascular and nerves system can all be checked on signs that could indicate health problems. This makes it a broad appliance in the early detection of diseases.

Ladd (2009) also presents us with the most important factor in MRI being a very efficient and comfortable way of disease detection, namely that this method holds almost no side effects. This means that people who are healthy at the moment do not undergo risks that could harm this healthy state through the screening with MRI.

2.3.2 Immunization

As stated in the section of the types of preventive healthcare, immunization is a part of primary preventive healthcare. Through research several vaccines are created for young people. The most well-known of these vaccines are of course flu shots and the DTP vaccine (Diphtheria, Tetanus and Polio). These were introduced long ago.

MedicineNet.com provides a definition of immunization: “ Immunizations work by stimulating the immune system, the natural disease-fighting system of the body. The healthy immune system is able to recognize invading bacteria and viruses and produce substances (antibodies) to destroy or disable them. Immunizations prepare the immune system to ward off a disease.” In this definition the primary preventive character of immunization is visible. By stimulating the healthy immune system at this moment, diseases in the future are prevented in people that, at this moment, do not have any physical symptoms.

2.3.3 Health education

Next to the development in scanning material and immunizations, a development has been realized in the field of health education. People are more aware of what can damage their health, because of research that has been done concerning the causes of types of cancer and vascular problems. Nakanishi, Takara & Fujiwara (1996) describe two classifications in health education:

1) General health education, which deals with general health promotion and not about specific diseases.
2) Priority health education, which includes specific prevention of, for instance, lung cancer, breast cancer and colon cancer.

The main difference between these two divisions within health education is that there are certain products in the market that are specifically attached to certain diseases. People should be informed to know the risks of these products in order to prevent them to get an incurable disease. Examples of this are the dangers of smoking or eating too much fast food.

In conclusion of this chapter it can be said that a definition of preventive healthcare is explained, that the different types of preventive healthcare are given and that the appliances of primary preventive healthcare are explained.

CHAPTER 3: WHAT ARE THE ADVANTAGES OF PREVENTIVE HEALTHCARE?

This chapter of the thesis describes a number of advantages of preventive healthcare. In literature the most common advantages are the presumed cost reduction through preventive healthcare, the decrease in clinical admissions and the decline in the intensity of treatments. These advantages are explained in this chapter.

3.1 Costs

In this section of the chapter the advantages of preventive healthcare, concerning costs, are described.

Several studies have been dedicated to do research on the total costs per person with respect to preventive healthcare and in-patient costs. Nakanishi, Tatara & Fujiwara (1996) describe that, amongst insured persons, there is a negative correlation between the costs for preventive health services per resident and the indices for in-patient care. This means that if persons have made costs regarding preventive healthcare, the costs for in-patient care is decreased. However, the research does not make the conclusion that the total costs are decreased. This statement is also supported by Cooper, Goodwin & Stange (2001), which describe that the number of check-ups in preventive healthcare considerably decrease the costs per insured person of in-patient care.

Although there seems to be a negative correlation between the costs of healthcare in general and the use of preventive healthcare. However, the research does not make the conclusion that the total costs are decreased, only the costs of in-patient hospital or clinical costs. This subject is dealt with in Chapter 4.

3.2 Clinical admissions

In this part of the chapter a number of findings in literature are described concerning the effects of preventive healthcare concerning the number of clinical admissions.

Cooper, Goodwin & Stange (2001) describe that the correlation coefficients between the rate of use of health check-ups and the rates of hospital admission and long stay are negative correlated by a rate of -0.890 and -0.584. This information explains that the use of preventive services lowers the number of hospital admissions and it reduces the period of time that clients have to stay in the hospital.

Tian, Chen & Liu (2010) support this information by describing that if there is an adequate procedure in providing these preventive care services, this results into a more effective prevention of illnesses, the early detection of illnesses, and lead to a reduction of inpatient services. This means that there are results of studies, which indicate that the in-patient treatment is lessened by preventive services.

Another development in clinic admissions deals with health check-ups and is described by Nakanishi, Takara & Fujiwara (1996)), who refer to Breslow (1978). They describe that in Japan it is generally believed that health management and testing in middle-aged people will contribute to the health status of these people when they become elderly. This implies that the general health of all age groups will benefit from regular health check-ups and that the standard of life in total will improve, which means that people, over the course of their lives, need less clinical admissions, because the health standard in general is higher.

Nakanashi, Tatara & Fujiwara (1996) also found out that there is a clear correlation between the number of health check-ups and the occurrence of disabilities in elderly people. This means that good health management during your middle-aged life can resolve into a better health later on.

Another result that has been realized is that making use of general health check-ups increases doctors visits on an out-patient basis. This means that these people are clients of doctors, but are not hospitalized. Instead, they are treated in special clinics or at home. Nakanishi, Tatara & Fujiwara (1996) show that being educated about health creates more awareness, resulting into more doctors visits. This means that, although the number of doctor visits are increasing, the number of patients in hospitals decreases, because clients are treated on an out-patient basis and do not need to be hospitalized.

3.3 Treatments

In this part of the chapter information is given on the changes in intensity or duration of treatments. Research describes a number of changes in treatments through the use of preventive services.

Most of the information in literature is concentrated on the changes in radical treatments as a result of screening services. The screening for breast cancer, which has been available for a longer period now, is showing positive results for women. Zhang, Berman & Verter (2007) claim that preventive programs can save lives and are indeed increasing the quality of life by reducing the number of radical treatments. Zhang, Berman & Verter (2007) refer to Health Canada (2005) in this passage: “studies show that mammograms taken on a regular basis have the potential to reduce deaths from breast cancer for women between the ages of 50 and 69 by up to 40%.”

Ladd (2009) also shows the impact of tumour screening. In screening for renal cell carcinomas (which is kidney cancer) it has been shown that the survival time in patients has increased greatly in comparison with the screening of symptomatic patients, to find signs earlier. This means that when clients already have symptoms, the screening is less effective concerning survival time than in people who are screened ahead. This means that a better sequence of intensity of treatments can be made.

Zhang, Berman & Verter (2007) also refer to Gornick et al (2004), which states that 36% of the breast cancer patients who did not make use of this screening possibility, received a diagnosis in a late stage of the cancer, whereas in the group that did use this screening opportunity, this number was only 20%. This shows that preventive services result into positive developments. In the late stages of breast cancer, the treatments are more intensive and more difficult. This means that breast cancer screening has a significant impact on the number of treatments and on the severity of these treatments.

In this chapter a number of points are provided. The advantages of preventive healthcare can be in cost reduction for in-patient services. Another development is that clinic admissions are decreased or transformed from in-patient to out-patient. Finally, the number of radical treatments is lessened or the intensity is minimized.

CHAPTER 4: WHAT ARE THE DISADVANTAGES OF PREVENTIVE HEALTHCARE?

In this chapter the disadvantages of preventive healthcare are described. In literature there is a two-sided view on preventive services. On the one hand the positive effect or advantages are praised and recognized, but on the other hand researchers doubt the actual performance of preventive services or take into account the negative effects that come out of the advantages.

Chan (2005) doubts if the benefits of screening tests outweigh the risks, which consist out of unnecessary workups for false-positive outcomes, unnecessary financial costs and sometimes even outcomes that do not show an illness, but later on turn out to actually be indications for a specific disease, such as tumours. Patient anxiety can also be a results of these screening procedures.

Because of this two-sided view a description of the disadvantages is necessary. In this chapter the subjects acceptance, costs, false positives, training and changes in procedures are dealt with.

4.1 Acceptance

A very important step in the usage of preventive services is the acceptance of these services. This is not a disadvantage of preventive services themselves, but it is needed to establish prevention on a large scale.

Ladd (2009) describes acceptance to be very important. She states that clients feel that preventive services provided by physicians are not always necessary, are inconvenient or put clients up with costs that are unnecessary.

Tian, Chen & Liu (2010) describe that people who are active in sports regularly and who have information about the prevention of kidney disease, high blood pressure and diabetes, are more likely to use preventive services. Moreover, being married and having a high education also influence the acceptance of preventive services. However, being a smoker decreases people's willingness to use preventive measures. Tian, Chen & Liu (2010) claim

that more information helps in the acceptance. This indicates that acceptance is essential, but this process takes time and, consequently, money.

4.2 Costs

In the previous chapter it is explained that the in-patient costs per person decrease through the use of preventive services. However, it is important to take the whole picture into account.

Nakanishi, Tatara & Fujiwara (1996) make a remark that in an early review of cost-effectiveness studies of prevention that not all prevention programs reduce medical expenditures. Nakanishi, Tatara & Fujiwara (1996) say that even when prevention costs are less per person than acute costs, the total medical costs can be greater. This means that, although the acute medical costs could decrease, the total costs when preventive services are included, could be as high as they are now.

Another problem in preventive healthcare concerning costs is that clients are recommended to use preventive services to increase clinicians financial wealth. Chan (2005) refers to Forster & Mayo (2003) and to Levin (2004) which state about this: “Despite professional guidelines against screening lung, heart, and whole-body scans, some physicians are even self-referring patients to imaging facilities that they have invested in for these services.” In this article Chan (2005) also refers to Lee & Brennan (2002): “They (doctors) reason, “If patients are willing to pay, why not offer it to them?”

Chan (2005): “Medicine is not a marketplace commodity to be sold but rather a profession with physician responsibilities that include altruistic commitment to patients.” This means that sometimes clinicians misuse there equipment to earn their costs back, but simultaneously harming their clients financially.

The provided information about costs in the previous and this chapter make forming a conclusion very difficult about the cost-effectiveness of the whole supply chain. If the costs of preventive services are as high as the otherwise needed clinical services, then a net benefit in costs is not present.

4.3 False positives

Another disadvantage of preventive healthcare that is described in literature are the findings of false positives. This means that some findings seem to be an indication for a specific disease, but they are not. Another problem is that there are often side findings in screening for diseases.

Ladd (2009) warns us for side findings of screening tests. She claims that sometimes the findings on other diseases exceed to signs for the target disease. In her article she states: “In a study primarily conducted for screening for atherosclerosis, 29% of all relevant findings were not related to the target pathologies: atherosclerosis and tumours.” This means that there are findings that do not relate to the disease or illness that the clinicians were looking for.

Ladd (2009) also argues that false positive and false negative findings in the screening for tumours can have a large impact on the consequences of these screenings. Consequences can be that there are psychological difficulties in clients that are examined, because it is hard to distinguish if a tumour is malignant or not.

Although MRI holds almost no risks involved with the procedure itself, there are, however, risks that involve the conclusions drawn from this procedure. A good knowledge of medicine is needed to interpret the scans of MRI machines and if a disease is discovered, several tests should follow to be sure of a diagnosis. Ladd (2009) says that even if target organs or tumours are defined before the examination, a whole variety of unanticipated lesions can be detected, so that information on the global accuracy of MRI is not easy to determine. This means that several other symptoms can be found on the scan outcomes and not all of them are related to a disease or are in fact even dangerous.

4.4 Training

Another disadvantage of preventive services is that, to use it in a larger context, training to clinicians is needed. In order to give a view on the importance of this training a reference to Oldenburg & Owen (1995) is necessary, in which they say: “Nurses, psychologists, nutritionists (or dietitians) and a range of other health professionals have many of the skills which are so important for setting up lifestyle change programs and delivering

preventive care to individuals. Moreover, the training that these groups have undergone, particularly in the case of psychologists and nutritionists, has generally placed more emphasis on preventive approaches and the delivery of such programs."

In this quote the importance of training is emphasised. Clinicians do already have the knowledge to inform clients, but they do not yet possess the proper communication skills to really let them have an impact. However, time is needed to provide this training.

Denberg, Ross & Steiner (2007) describe that, unfortunately, due to competing time demands of acute illness care and chronic disease management, prevention is often overlooked at clinic visits. It is hard to change this, because there is no time to develop a proper system to get these clinicians to really work on preventive healthcare and health education in general, while they are capable of doing this.

This statement describes that although training is needed, the focus is still on acute care and in that way there is no time to focus on preventive healthcare training and practical functionality of the preventive services by clinicians.

4.5 Change in procedures

Another disadvantage of the preventive healthcare is that changes in clinic procedures are necessary to fully implement them. In this section a number of changes are explained.

4.5.1 Focus on acute treatment

The main problem described in literature is that the focus in hospitals is on the acute treatment of diseases, which are present at that point in time. This section explains what this implies.

Ladd (2009) explains that many clients rarely, if ever, see PCPs (Primary Care Physicians) simply to talk about prevention, and almost half were only interested in seeing PCPs if they felt ill." People should be open for information provided by their physicians and, in return, these physicians should provide clients with more information on the procedures of preventive services.

Chan (2005) supports this by saying that physicians usually look at what benefits screening can have for sick people and not on what it can do for healthy people. According to him physicians who recommend screening tests that do not show a clear net benefit in the first place are focusing on people with symptoms.

Cooper, Goodwin & Stange (2001) also argue that practitioners do not take into account that they could offer a preventive view on the patients health and that they are just finding conclusions on the basis of health difficulties that are present now.

Cohen (2004) does make a remark on this statement by saying: As such, primary care clinicians are poised to make real improvements in promoting healthy lifestyles by seizing the opportunity to deliver preventive care during illness visits. He enforces this by saying that clinical visits are focused on this moment. This is important, because it is generally demanded that clinics treat what happens now. This is their goal; not to provide preventive services. A change in procedures is necessary to develop a system of preventive services.

4.5.2 Well-care centres

Another change in procedures can be described with the development of separate departments or centres in which the focus is on preventive care.

Cooper, Goodwin & Stange (2001) claim that preventive services that are not focused on the treatment of direct symptoms, may require dedicated well-care visits or other prevention-focused mechanisms for delivery. He says that, in order to make preventive services a part in the healthcare supply chain, a very coordinated and well controlled system is needed to implement this. Separate well-care visits and other mechanisms will only stress the whole supply chain more, because it increases the number of facilities that are necessary to deliver a proper preventive healthcare system.

These well-care visits are important to structure the flow of information to the clients. This is also supported by Ladd (2009), that says that it is very important that there are always difficulties in reading MRI images in preventive care services, as it is also in clinical visits. Two readers should be involved and excessive communication is needed. This proves that

these well-care visits are intensive and need clinicians as well. This could have an impact on the total supply chain by adding more clinical centres.

4.5.3 Size of clinics

Another important factor that can be changed is the size of clinics. This seems to play a role in the use of preventive care services. Hung et al (2006) claim that in small clinics more preventive services are provided than in larger clinics. The implementation of smaller clinics will have an impact on the workload. To support this Hung et al (2006) describes that the more preventive services are delivered, the more stress nurses and clinicians are experiencing. This could be because they have to perform this on top of their daily routines. This is why a change in the procedures could be necessary in order to develop clinic visits that only focus on preventive services.

In this chapter a number of things about the disadvantages of preventive healthcare are mentioned. The acceptance of preventive services seems to play an important role in the functionality of these services. The total medical costs do not seem to change. False positives and side findings form a problem for clinicians. Training is needed to implement preventive services and procedures in clinics need adjustments in order to establish a proper preventive system.

Chapter 5: When do the advantages overcome the disadvantages?

In this chapter a recap of the advantages and disadvantages is given. Furthermore, an analyses on when the advantages overcome the disadvantages is presented on the basis of a guideline to implement preventive services.

5.1 Recap

In this section a recap of all the advantages and disadvantages is provided. The advantage and disadvantage in the same row correspond with one another. This is important to see, because in this way it can be shown what is necessary to overcome in order to let the particular advantage prevail over the disadvantage.

Advantages	Disadvantages
Cost reduction of in-patient services	Not a reduction in total medical costs
Decrease the need for clinic visits	Acceptance is needed to use prevention on a large scale
	Only works with training and procedural changes in the subsequent clinic visits
Decrease in need for radical treatment	False positives and side findings make diagnosis more difficult
	Focus is still on acute treatment and not on preventive treatment

Table 5.1 Recap of Advantages and Disadvantages

In this table the second and third advantage are both linked to four disadvantages. In this comparison it can be said that the advantage can only be established by overcoming the disadvantages mentioned. In this way, the disadvantages form a requirement to meet in order to establish the advantage.

5.2 Guidelines

The implementation of preventive healthcare into the supply chain requires a number of adjustments in order to make the advantages of these services flourish. To provide a framework in which the supply chain of healthcare could make the best use of preventive healthcare and implement a guideline for these services in the total supply chain, Oldenburg & Owen (1995) present four steps:

1. Primary care professionals should utilise some form of tracking system, which ideally should be computerised. Oldenburg & Owen (1995) explain with this point that the information about these preventive services should be computerised in order to create a clear flow of information.
2. A variety of interventions should be used so as to take account of the particular needs of the practice and the characteristics of the patient population. Ease of use and cost of implementation and practice are important issues to consider. This step refers to the earlier statement that well-care visits are extremely important to make the use of these services easily available.
3. Wherever possible, nursing and other staff should be involved and this should be formalised so as to become part of routine practice. This step refers back to the issue that preventive healthcare is not a daily work of nurses now and that it requires training. As described earlier, this could present more stress for clinicians.
4. Strategies and efforts directed at stimulating patient interest and awareness, motivation and ongoing involvement are vital to the long-term success of physicians' initiatives in this area. This final step explains, as has been explained in an earlier chapter, that health awareness and the creation of this phenomenon through training is very important to establish a solid base for preventive healthcare and the quantity of usage of preventive healthcare.

Through these guidelines, we can conclude that, if we reflect the disadvantages on the guidelines, that still a lot has to be done in order to make full use of the advantages. The guidelines of Oldenburg & Owen (1995) acknowledge that training for clinicians on providing information, but also on how to deal with information, and well-care clinics are needed.

Another important factor are costs, which should be analysed as a total medical cost bill. When the total costs decline with preventive healthcare, then the whole system saves money. The other disadvantages, as acceptance and false findings, can be overcome through good training in providing information about healthier living and through clinicians who are specialised in dealing with false findings.

When all these point are overcome, then the advantages have not pitfalls and preventive services can be used more extensively.

Tian, Chen & Liu (2010) say about this that preventive care services can even be a substitute for in-patient services in the future. In the author's diagnosis, this statement has a number of hurdles to overcome first and then conclusions can be drawn about the future purposes of these services. The advantages only overcome the disadvantages, when the disadvantages are mitigated and when decisions about training and focus are changed.

Chapter 6: Conclusions

In this thesis the problem statement is: When do the advantages of preventive healthcare overcome the disadvantages? The research questions in this are:

- What is preventive healthcare?

- What are the advantages of preventive healthcare?

- What are the disadvantages of preventive healthcare?

- When do the advantages overcome the disadvantages?

Preventive healthcare is a form of medical care that concentrates on the prevention of diseases or health maintenance of people. This sector of healthcare is divided into three types, namely primary, secondary and tertiary preventive services. Secondary and tertiary services are widely used in clinics already, but about primary preventive healthcare not a lot is known. The appliances that are included in this type are screening, immunization and health education.

We have seen that the advantages of preventive healthcare are that it seems to decrease the in-patient medical costs. Furthermore, it reduces the number of clinical visits for people and it also reduces the need for radical treatments.

However, we have also seen that there are some disadvantages attached to an implementation of preventive healthcare. The level of acceptance is very important for a new system to really work. Next to that, the total medical costs do not seem to be reduced by preventive services and there are still a lot of problems and complications with false positive and false negative findings in the screening of clients. Furthermore, to let this preventive system flourish, training of existing staff is needed and a restructuring in procedures is necessary.

Through guidelines we can say that there are still a lot of changes needed in the whole system in order for the advantages to reach their full potential. Training and building well-care centres seem to be the most important factors in the development to establish preventive healthcare. Only then, the advantages of preventive healthcare overcome the disadvantages.

Chapter 7: Recommendations

The recommendations that the author would propose for further research are that it could be useful to calculate the costs of implementing preventive healthcare in the total healthcare supply chain and compare these costs to what could be saved for people by these measures. In order to do that, first changes that are described in the guidelines should be implemented.

Further research can also be performed in the field of looking at how the false findings in screenings can be minimized, can be interpreted better or how screening can be focused more on one disease.

CHAPTER 8: REFERENCES

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