Fee Based Transportation Analysis

**Executive Summary**

Many people in the United States have difficulty with utilizing or obtaining transportation whether it is public or private. These people, also known as the transportation disadvantaged, have been found to be disproportionally elderly, poor, disabled, and female. Due to their lack of transportation, these people have difficulty accessing medical care and may miss regular outpatient appointments. Missed appointments and missed treatments can lead to a progression of chronic disease. Many medical practices have incorporated transportation services into their businesses to assist these people in need.

One type of medical practice, that of the retina specialist, typically enjoys a healthy profit margins and robust revenue. Retina specialists serve many elderly patients with vision problems who can have a difficult time getting to and from the office. In the current economic environment, many patients may find maintaining personal transportation, such as a car, unaffordable. In order to help these patients maintain consistency in their care and increase revenue for a private retina specialist practice, an in-house transportation system was proposed.

The researcher conducted a cost-benefit analysis on incorporating a fee-based transportation system into this practice in metro Detroit. Several scenarios were analyzed. The results were favorable in all scenarios. For a basic van with 193 potential riders, the net benefit of the transportation system for the first year was $74,033. The net benefit for a period of five years was $466,338. The cost benefit ratio was 2.52. This analysis determined that an in-house transportation service can serve as a significant source of revenue for this type of business. An added bonus is that this service will help increase the quality of care for these patients in need.
An Analysis of a Fee-Based Transportation Service for a Private Retina Specialist Practice

MSA 685 Project Report

Submitted in Partial Fulfillment of Requirements
for the Degree of Masters of Science in Administration
(Concentration in Health Service Administration)

by
Kelli Lutz

Project Instructor
Dr. Judith Gold

September 5, 2010
Fee Based Transportation Analysis
Fee Based Transportation Analysis

Table of Contents

Chapter 1: Definition of the Problem

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>4</td>
</tr>
<tr>
<td>Research Questions</td>
<td>4</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>4</td>
</tr>
</tbody>
</table>

Chapter 2: Literature Review

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td>History of patient transportation</td>
<td>5</td>
</tr>
<tr>
<td>Types of patient transportation</td>
<td>7</td>
</tr>
<tr>
<td>Transportation issues of patients</td>
<td>10</td>
</tr>
<tr>
<td>Current transportation programs</td>
<td>13</td>
</tr>
<tr>
<td>Summary</td>
<td>16</td>
</tr>
</tbody>
</table>

Chapter 3: Methodology

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>17</td>
</tr>
<tr>
<td>Data Collection</td>
<td>17</td>
</tr>
<tr>
<td>Variables</td>
<td>18</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>19</td>
</tr>
<tr>
<td>Research Questions</td>
<td>20</td>
</tr>
</tbody>
</table>

Chapter 4: Data Analysis

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>21</td>
</tr>
<tr>
<td>Demographics</td>
<td>21</td>
</tr>
</tbody>
</table>
Fee Based Transportation Analysis

Costs of integrating a patient transportation service  23
Benefits of integrating a patient transportation service  30
Cost-benefit analysis  33
Other considerations  35

Chapter 5: Summary, Conclusions, and Recommendations

Summary  37
Conclusions  39
Recommendations  40

References  42
Chapter I

Definition of the Problem

Introduction

A lack of transportation is well-documented as one of the main reasons patients miss their doctor appointments (Paul & Hanna, 1997). In fact, it is often cited as the number one barrier to attending clinic appointments (Pesata, Pallija & Webb, 1999). Transportation difficulties tend to disproportionately affect those patients who are low-income, disabled, or elderly. Many patients fall into more than one of these categories, making traveling to the doctor’s office even more difficult.

The United States General Accounting Office (2003) defines the transportation disadvantaged as those “. . . people who are unable to provide their own transportation as a result of a disability, an age-related condition, or an income constraint” (p. 1). The report cites Census information from 2000 where 35.1 million people were over the age of 65, 44.5 million people over age 21 were disabled, and 33.9 million people were living below the poverty line. Although some people certainly fall into multiple categories, this shows almost 100 million people in America were transportation disadvantaged in 2000. That number is certainly higher today, a decade later.

The number of Americans over the age of 65 is expected to double within the next 25 years (Community Transportation Association, 2005). More than half of these older Americans live in a community with no public transit (Lee, 2009). One state with a large senior population that is growing is Michigan. Currently, 12 percent of the population in Michigan is over the age of 65, which is equal to the national average. However, that percentage in Michigan is expected to grow to more than 17 percent by 2020 (Gire, 2005).
As this segment of the population grows, so will the incidence of chronic disease and the need for regular outpatient doctor appointments. Two chronic diseases that become much more prevalent with age are diabetic retinopathy and macular degeneration (Kempen et al., 2004a). These are diseases of the retina, or the inside lining of the eye, and can cause a significant decrease in a person’s level of vision. Such a decrease in vision can compromise a person’s ability to utilize his or her standard mode of transportation and may make it difficult to keep regular medical appointments.

Once a person has a retina condition or disease, maintaining regular visits with a retina specialist is important in order to have the best possible treatment outcome. With many patients needing treatments every 4 to 6 weeks, continuity of care is extremely important. If a patient misses his or her appointment, his or her condition can deteriorate quickly, and the condition can become much harder to treat.

On top of the physical cost for the patient, the cost of missed appointments can be significant for a private practice. Appointment times that are blocked for patients who do not show up ultimately go unused. Other patients who need appointment times are deprived the opportunity to have earlier appointments (Pesata et al., 1999). Furthermore, staff hours are wasted with scheduling, charting, cancelling, and attempting to contact these patients to reschedule.

In order to decrease the amount of missed appointments and increase the quality of care for these transportation disadvantaged patients, some form of transportation assistance is necessary.

“For millions of Americans without private autos, a doctor’s appointment is useless without transportation assistance. Whether it’s public transit, a vanpool, a taxi or a ride
Fee Based Transportation Analysis

with a friend, transportation is truly the critical link to health care access in many communities” (Community Transportation Association, 2005, p. 14).

Paul and Hanna (1997) suggest that health care organizations should offer individualized transportation services to and from their facilities to help avoid missed appointments. In a patient survey conducted by Yang, Zarr, Kass-Hout, Kourosh, and Kelly (2006), the majority of patients preferred the option of a shuttle system from their homes to the office.

Private medical practices typically operate on limited budgets, so having in-house transportation programs may seem unachievable. However, successful private retina practices can be extremely profitable and often have the capital necessary to fund such a program. According to Pinto (2005), the average retina practice runs a 45% profit margin and the average retina doctor generates annual collections of $1.3 million.

The private retina specialist office being used as an example for this study is located in a suburb of Detroit in southeastern Michigan. This area lacks easily accessible public transportation for those that have compromised vision. There are public buses that serve most communities. There are also several community-level senior transportation services available. However, coverage areas, routes, and destinations on these available services are limited, making accessibility difficult for some patients. This metropolitan area has also been hard hit by the recent economic downturn and downsizing of domestic auto companies. Many residents may now find it difficult to afford private transportation such as a personal vehicle.

There are several other retina specialist groups in the Metro Detroit area. In order to attract and retain patients, this private practice must excel at both quality care and excellent customer service. Providing a means of transportation for those patients in need would serve to
Fee Based Transportation Analysis

both improve customer service and help maintain quality of care for patients who may otherwise
miss their appointments.

**Purpose of the Study**

The purpose of this study is to evaluate the costs and benefits of integrating a fee-based
patient transportation service at a private retina specialist practice.

**Problem Statement**

Transportation to and from doctor appointments can be difficult for the visually impaired
patient. Maintaining consistent care with an eye care specialist can make a significant difference
in the outcome of treatment and the patient’s level of functional vision. Patients missing
appointments can also cause problems for clinic schedules and staffing considerations.

**Research Questions**

The following questions were addressed in order to evaluate establishing an in-house
transportation service:

1. What are the costs of integrating a patient transportation service into a private practice?
2. What are the benefits of having patients able to maintain consistent visits?
3. What other considerations must be taken into account before integrating a transportation
   service?

**Limitations of the Study**

This study is limited to evaluating the costs and benefits of an in-house transportation
service at a single private practice in Metro Detroit. The patient population served may differ
demographically from other major metropolitan areas or more rural areas. Patient transportation
may take on a completely different cost-benefit situation at a larger practice, a multi-specialty
practice, or a hospital.
Chapter II

Literature Review

Introduction

Current patient transportation systems exist both as part of medical practices and hospitals and as stand-alone companies. There is a great need for the transportation of certain patient populations. A review of the literature demonstrates the need for patient transportation is widespread and has been recognized for some time. Much of the literature focuses on transportation of the elderly, the disabled, or the disadvantaged. Because of the great need, many healthcare organizations have incorporated this service into their business in some manner.

History of Patient Transportation

Patient transportation was originally focused on getting a critically ill or critically injured patient from one place to another for immediate lifesaving care. This is known as emergency medical transportation and is still the most important form of patient transportation.

Non-emergency patient transportation involves getting patients from one place to another for routine or general medical care. According to the Community Transportation Association (2005), “Non-emergency medical transportation can be thought of as preventative or treatment transportation. This category includes transportation for scheduled doctor visits, long-term therapy appointments and preventive care appointments” (p. 14). For the purposes of this research, the mode of patient transportation discussed here is non-emergency transportation from one building, usually a person’s home, to another building, in this case the doctor’s office.

Historically, non-emergency patient transportation focused on nursing home patients and getting them out of the home facility for social activities or doctor appointments. Most, if not all,
Fee Based Transportation Analysis

institutionalized patients need help with transportation. Unfortunately not all nursing homes or assisted living facilities provide transportation service. The Assisted Living Federation of America found that 37.2 percent of nursing home providers charge extra for transportation and 4.4 percent do not have transportation at all (Anders, 2001). Community service organizations sometimes step in to help fill this void for nursing home patients. In Detroit, the transportation arm of Project Compassion has served 140 nursing homes for over 26 years. This company has several vehicles that are able to accommodate both ambulatory and wheelchair-bound residents, but they only transport for group outings, not medical appointments (Anders, 2001).

In more recent years, the focus of non-emergency transportation for the elderly has started to shift from nursing home and assisted living residents to elderly persons that still live and function on their own. According to Cordeau and Laporte (2007):

In western countries several local authorities are setting up dial-a-ride services or are overhauling existing systems in response to increasing demand. This phenomenon can be attributed in part to the aging of the population but also in part to a trend toward the development of ambulatory health care services. (p. 30)

Tucker (2005) agrees that there are an increasing number of older patients with a need for outpatient treatment of chronic conditions. He argues that the public transportation infrastructure will have to grow or change to accommodate these people who need to get to and from their doctor appointments (Tucker, 2005). Lee (2009) believes “There will be an increased reliance on sustainable transportation for those with physical limitations who want to preserve their mobility and independence” (p. 1).
Types of Patient Transportation

There are many different options for people to obtain non-emergency medical transportation but they may not be viable or convenient. The commonly utilized option is a ride from a friend or family member. Unfortunately, many patients do not have anyone close who is willing or able to take them to their doctor appointments. Work or time conflicts often cause problems with this option. Other options include public transit, taxis or shuttles.

Usually, the most affordable and accessible type of transportation is public transit. Typically with public transit there are two types of service: fixed-route and demand-response. Fixed-route transit includes any services in which vehicles run along an established path at preset times and include buses, subways, and trains (Community Transportation Association, 2005). This type of service is characterized by printed schedules or timetables and designated stops. Demand-response transit involves an individual requesting transportation from a specific location to another specific location at a certain time (Gire, 2005). These vehicles do not follow specific routes but rather travel according to the client’s needs. The most common example of a demand-response transit service is the taxi cab. Though they can be expensive, taxis are a vital means of transportation for many patients (Community Transportation Association, 2005).

In metro Detroit, the Suburban Mobility Authority for Regional Transportation (SMART) provides fixed-route service, connector service, and community transit service for Wayne, Oakland, Macomb and Monroe counties (Suburban Mobility Authority for Regional Transportation, 2010c). The fixed-route service has 284 wheelchair accessible buses, 54 routes, and 7000 stops. The SMART connector service does provide advanced reservation and dial-a-ride service but only within a limited geographic area. The community transit arm provides 250 vehicles, along with some funding and technical support, to communities around metro Detroit.
Fee Based Transportation Analysis

Each participating community is responsible for operating the vehicles and determining the routes. Inside the city limits, the Detroit Department of Transportation provides public transportation. Although it sounds like a fairly comprehensive transit system, these services have problems. According to the Center for Neighborhood Technology:

Detroit… has made few investments in its transit system and has not made plans for fixed-rail or BRT [bus rapid transit] or other substantial improvements to its existing transit system. Its current system is under-funded; it operates fewer than 600 buses for more than 70 million annual riders, one-third of who do not own a personal vehicle; and there are continuing coordination challenges between city and suburban transit providers. (Bernstein, Makarewicz, & McCarty, 2005, p. 8)

Even if fares are affordable and ride times are reasonable, public transportation can be difficult to utilize for those with disabilities. According to the Americans with Disabilities Act, public transportation agencies must provide free service to those with disabilities if they live along current fixed transportation routes (Tucker, 2005). In metro Detroit, the SMART bus provides curb-to-curb transportation for people whose disability prevents them from using the fixed-route service (Suburban Mobility Authority for Regional Transportation, 2010a). The service covers the same areas, times, and transfers as the fixed-route service and is provided only for ADA-certified people who are within three quarters of a mile of any SMART fixed route. In the city of Detroit this service is provided by MetroLift, which contracts with taxi services and has similar requirements for eligibility (Detroit Department of Transportation, 2009). However, if a person is elderly but not considered disabled or does not live near a fixed route, there is no obligation to provide service (Tucker, 2005). This leaves a significant amount of people who need these services without any way to utilize them.
Fee Based Transportation Analysis

For those people that are eligible for Medicaid, the government health insurance for the poor, medical transportation costs are reimbursed by the government (The Henry J. Kaiser Family Foundation, 2008). Depending on the state, Medicaid will usually provide its members with a set amount of trips and may require preauthorization. Some states reimburse the patient, up to a certain amount, for the cost of the trip, while other states contract with local community agencies to coordinate the transportation. Medicaid programs often utilize the same public transportation methods that an individual might use, such as buses or taxi services (The Henry J. Kaiser Family Foundation, 2008). This is a necessary program that provides the means for a disadvantaged population to get medical services; however, it is program that has been found to be full of fraud. According to Klein (2004), an audit of one Medicaid-run transportation program in Illinois found that only a little more than half of the transportation claims could be tied to an actual doctor’s appointment.

Medicaid transportation programs operate in every state and are administered by each separate state government. In Michigan, there are both managed care and fee-for-service Medicaid providers. Non-emergency medical transportation is administered by each separate plan. The managed care plans are given a specific amount of money per covered member to provide transportation. The fee-for-service plans have non-emergency transportation administered through the Michigan Department of Family Independence (FIA). Each local FIA office is responsible for verifying eligibility for a patient and determining the “... least expensive yet appropriate method of travel” (Stefl & Newsom, 2003, p. 61). Travel can be covered by mileage reimbursement and a per diem for patients with personal vehicles or volunteer drivers, transit tokens, or payment for commercial van and taxi transports. Each local
Fee Based Transportation Analysis

FIA office is then reimbursed by the Michigan state government on a monthly basis for the actual cost of the services provided (Stefl & Newsom, 2003).

Medicare, the government health insurance for certain disabled people and those over 65, does not provide for transportation to get to routine health care appointments. Medicare only pays for transportation by ambulance and only if an ambulance ride is truly necessary, such as for a life-saving emergency or bedridden patient (Burkhardt & McGavock, 2002). Many people believe Medicare should provide for non-emergency transportation like Medicaid. The current Medicare restrictions unnecessarily increase transportation costs and limit access to necessary healthcare (Burkhardt & McGavock, 2002).

Transportation Issues of Patients

An analysis of nationally representative healthcare datasets done by Hughes-Cromwick, Wallace, Mull, and Bologna (2005) found that approximately “...3.6 million Americans miss or delay non-emergency medical care each year because of transportation issues” (p. 2). These researchers believe this is a low estimate. There is difficulty surveying this population as people can fall into and out of transportation disadvantaged status over time and their healthcare status can change. Due to these factors, these researchers suggest “...that only some of the Americans who are at risk of missing non-emergency care because of a lack of transportation actually do miss medical treatment in a given year” (p. 3). Several factors, including the aging of the U.S. population, more expensive healthcare, and rising disease prevalence, will cause the number of transportation disadvantaged Americans at risk of missing non-emergency health care appointments to increase.

Hughes-Cromwick et al. (2005) found that the population of transportation disadvantaged who miss non-emergency medical appointments have certain characteristics that distinguish
them from the rest of the U.S. population. These people have a relatively low income, are older, mostly female, and non-white. They are also less likely to possess a four-year college degree and are distributed across urban and rural areas. This population also suffers from critical diseases at a higher rate than the rest of the U.S. population and generally accesses medical care more despite transportation problems.

According to the Center for Neighborhood Technology, transportation is the number two expense for households, second only to housing (Bernstein et al., 2005). Lower income households are particularly burdened by higher transportation costs, since these expenditures can claim a higher percentage of their household budget even if less money is being spent. In 2003, metro Detroit was ranked third in the nation for the percentage of income per household spent on transportation. In Detroit, 20.5 percent of household income, or an average of $9,024 per household per year, was spent on transportation with the average household having two cars (Bernstein et al., 2005). Only Houston and Cleveland had higher percentages of household income devoted to transportation (Bernstein et al., 2005).

As in the previous two studies, most of the transportation studies regarding certain populations are focused on elderly, disabled, or poor persons. According to a Canadian study done by Dupuis, Weiss, and Wolfson (2007), transportation problems statistically correlate with older age, a self-rated health assessment of fair or worse, limited mobility, poor vision and a lower sense of control over one’s life. With women who were surveyed in this study, transportation problems statistically correlated with a lower education, lower income, and poorer income satisfaction. This study also found that “. . . just over 1 in 5 seniors …was found to be experiencing transportation problems, with women 3 times more likely to report problems than
men” (Dupuis et al., 2007, p. 157). This reinforces the conclusion reached by Hughes-Cromwick et al. (2005) that the majority of transportation disadvantaged patients are female.

More than one study has focused on women and transportation difficulties. Women are a distinctly disadvantaged group when it comes to transportation. In a study done by Rittner and Kirk (1995), women were found to be more socially isolated, less mobile, and less likely to use healthcare than men. Dupuis, et al. (2007) also found that “...although the health-related variables were associated with [transportation problems] to a similar degree for both men and women, the socio-economic variables, such as income and income satisfaction, were associated with [transportation problems] for women only” (p. 156). Fewer financial resources compound the problem of transportation for older women. “Those with the fewest financial resources are most at risk for experiencing not only [transportation problems] but also the negative consequences of [transportation problems] (e.g. missed medical appointments...)” (Dupuis et al., 2007, p. 156).

Although women may be more susceptible to transportation problems, both men and women can suffer from a lack of knowledge about available community resources that can impact their mode of transportation. Rittner and Kirk (1995) agree that in regards to doctor appointments “Although some individuals are not predisposed to seek out medical care, a more important determinant appears to be the presence or absence of community or family resources to facilitate access to health care” (p. 366). As mentioned previously, utilizing public transportation is one solution. However, many of the people that need transportation, especially the elderly or disabled, are afraid of becoming victims while using public transportation. Furthermore “A lack of shelter at many bus stops, dirty windows that compromise failing eyesight, problems entering and exiting most buses, fear of injury in crowded buses, and
Fee Based Transportation Analysis

Unsympathetic drivers” are major deterrents (Rittner & Kirk, 1995, p. 366). A community transportation survey done by the American Association for Retired Persons found that the majority (86 percent) of elderly people who do not drive do not use public transportation. Reasons given for not utilizing public transportation included lack of availability and inconvenience (Straight, 1997).

Current Transportation Programs

A report released in 2003 by the United States General Accounting Office found that 62 federal programs fund a variety of transportation services for the transportation disadvantaged. As discussed previously, there is a large population of transportation disadvantaged people in the United States. The report identified many government programs that aimed to serve these people. However, there were many examples of:

- fragmented services and confusion among users as a result of uncoordinated programs…
- [This places] a burden on people who receive transportation through many different programs, depending on trip purpose, because they must be familiar with multiple systems, rules, and requirements. (United States General Accounting Office, 2003, p. 11-12)

The report found that those agencies that coordinated their services through sharing vehicles, consolidating services, or sharing information about available services were able to realize substantial benefits such as improved customer service and lower costs. Those agencies that did not coordinate had problems with overlapping, fragmentation, and rider confusion (United States General Accounting Office, 2003). Funding these programs is an expensive endeavor. It was estimated that in 2001 $2.4 billion was spent on various transportation services,
Fee Based Transportation Analysis

mainly by the Department of Health and Human Services (United States General Accounting Office, 2003). This number is certainly higher today.

Private transportation programs are numerous, some of which have had considerably more success than the government programs. One example in Waukesha, Wisconsin grew out of a radiation/oncology director’s wish to provide transportation for cancer patients. The Waukesha Health System found a solution in utilizing their materials management department. This department was responsible for transporting materials and supplies between many different facilities so they were consulted to design the patient transportation system. Patient transportation turned out to be quite similar to materials transportation, and with this department’s help the new program has become a success. This program now serves 31 departments throughout the health system and transports over 40 patients a day back and forth to their doctor appointments (McCormack, 1996).

According to John Macisak, the director of this transportation program, there are several key components, including good drivers, good communication, and good logistics, which have led to the program’s success (McCormack, 1996). Friendly, courteous drivers who care about people are the first essential component. Safety is also extremely important, so all of the drivers must pass a defensive driving course and are required to take part in continuing education. In order for everything to run smoothly, the drivers must work closely and communicate with each department. Department representatives are trained to communicate clearly and consistently with the drivers regarding appointment dates and times. In order to maintain the efficiency of the program, drivers and schedulers must look at the logistics of each trip. They try to combine as many patients as possible and are now averaging 3.2 patients per trip as opposed to 1.4 when they first started (McCormack, 1996).
Fee Based Transportation Analysis

In Broward County, Florida, all hospitals and medical clinics are serviced by Broward County Transit’s fixed route buses (Community Transportation Association, 2005). Routes are changed when a new medical facility opens in order to provide service to that facility. Through their Transportation Disadvantaged Medical Transportation program, residents can get rides to dialysis, chemotherapy, and radiation treatments. This program provides over 300,000 trips per year to people in need. Because of funding from other sources, the cost to the rider is only $2 each way (Community Transportation Association, 2005).

In Virginia, the Community Association for Rural Transportation’s (CART) careConnection service was implemented in 2001 to provide rides to health care appointments (Community Transportation Association, 2005). This program provides its specialized transportation services with subsidized taxicabs and volunteer drivers. CART leases a wheelchair accessible vehicle to a local taxicab company and then subsidizes the cost of any trip the company provides to eligible patients. Patients are responsible for a small co-pay per ride. For medical trips that are beyond the taxi cabs normal range but within 100 mile radius, CART uses volunteer drivers. Volunteer drivers are screened, trained, added to the vehicle insurance policy, and loaned wheelchair accessible vehicles for the trips (Community Transportation Association, 2005).

Certain transportation programs have also found success by focusing on other disadvantaged populations. One program in Brandon, Mississippi serves “... four different populations- individuals with developmental disabilities, individuals with alcohol and drug addictions, adults with serious mental illnesses, and children with serious emotional disturbances” (‘Using patient transportation,” 2005, p. 38). The transportation program started as part of Region 8 Mental Health and is credited with helping save the department from a dire
Fee Based Transportation Analysis

financial situation. Community support of the program has led to increased investment from both local and state entities (“Using patient transportation,” 2005).

According to Dave Van, the Executive Director of Region 8 Mental Health:

The employees and the administrative staff work together to coordinate transportation.…

We have some general guidelines, including where we purchase the vehicles from, required maintenance, and safety checklists….a monthly vehicle safety checklist; a vehicle inspection report, which is completed by the driver daily but turned in monthly; a fuel log; a vehicle log that reports where the van has been, the number of miles driven, and the number of clients transported. (“Using patient transportation,” 2005, p. 40)

Each of the drivers must have a valid driver’s license and have a good driving record. Region 8 pays for $1 million worth of their own insurance coverage which covers both their staff and the agency itself (“Using patient transportation,” 2005).

Summary

The need for non-emergency medical transportation is growing. The positive and negative aspects of current transportation programs discussed in the literature review provide valuable insights. The researcher’s review of these existing programs helped identify important components to consider and evaluate when designing and potentially implementing an in-house transportation service.
Fee Based Transportation Analysis

Chapter III
Methodology

Introduction

As discussed in the previous chapters, transportation to and from doctor appointments can be difficult for the visually impaired patient. With certain eye diseases, specifically diabetic retinopathy and macular degeneration, maintaining consistent care with a retina specialist can make a significant difference in the outcome of a patient’s treatment. Missed appointments can lead to worsening of the disease and irreversibly compromise a patient’s level of functional vision. Missed appointments can also cause problems for clinic scheduling and staffing considerations.

A successful private practice will find solutions to minimize missed appointments and thus keep revenue consistent. One solution is to assist patients with transportation to and from the clinic. Many different methods of transportation assistance can be utilized, but from the patient’s perspective the easiest to use is a shuttle system. In order to determine if a shuttle system is feasible and fiscally sound, an evaluation needs to be done. The purpose of this study is to evaluate the costs and benefits of integrating a fee-based patient transportation service at a private retina specialist practice.

Data Collection

The data utilized in this study was collected from several sources. Demographic information concerning the metro Detroit area was obtained from online publications of the State of Michigan government and the U.S. Census Bureau. The costs of integrating a transportation service were analyzed using information from private company websites, government websites, government publications, and an insurance agent. These sources include the Michigan
Fee Based Transportation Analysis

Department of Transportation, the State of Michigan government, and Auto-Owners Insurance Company. The benefits were analyzed using information from government websites, government publications, professional association websites, and professional journals. These sources include the National Institute of Health, the U.S. Department of Health and Human Services, and the American Academy of Ophthalmology.

Variables

The variables investigated in this study included the costs associated with integrating a transportation service. There are many few costs to consider for an in-house transportation service including overhead and operations costs. Overhead costs involve the administrative aspect of the service. Since this service will fall under the general practice management, there is no additional administrative salary to consider for the initial cost-benefit analysis. If the transportation service expands, additional administrative personnel may have to be added. The service will also utilize existing office space and computer equipment for scheduling. In order to have effective and timely communication between the office and the van driver, a cellular phone and related service plan will need to be purchased. Operational costs involve the actual operation of the service. The largest initial cost associated with incorporating a transportation service is purchasing and properly equipping the van. Other costs associated with the van are the insurance, yearly registration, and maintenance. The cost of fuel will be a major consideration. Vehicle depreciation must also be factored into the analysis. Another significant set of operational costs are the costs associated with the van driver. If a current employee could be utilized or transferred to the driver position, this would help reduce costs associated with hiring and training a completely new employee. However, most office personnel are already stretched to the maximum of their work and time capabilities.
Fee Based Transportation Analysis

For the purpose of this research, the researcher assumed that a new employee will have to be hired to drive the van. Hiring and training costs were considered as well as the cost of periodic drug and alcohol testing.

The other category of variables being investigated in this study are the benefits that will result from providing transportation to patients in need. The benefits are not as easily quantifiable as the costs. The true value of most of the benefits will not be known until after the program is established and measurements can be made. Benefits from this program include the fee collected for each trip and the revenue gained from each patient visit.

The indirect variables that are not part of the cost-benefit analysis but warrant consideration include staff hours saved from reducing missed appointments and thus increasing the efficiency of the clinic schedule. Positive marketing will result from having the van visible in the community as patients are picked up and taken to and from the clinic. Also, patients who may consider leaving the practice due to new or recurring issues with transportation may choose to stay if transportation is provided.

Data Analysis

The data was analyzed using descriptive statistics. Demographic information was analyzed for population and the percentage of the population that experiences transportation difficulties for medical appointments. Of those determined to be in need of transportation for medical appointments, the percentage of that population likely to utilize the medical practice in question was determined.

A cost benefit analysis was conducted to determine the present value of benefits versus the present value of cost. The benefit cost ratio as well as the net benefit was calculated to help
Fee Based Transportation Analysis

determine if the transportation service is indeed worth implementing into the practice. The breakeven point in terms of trips provided was also calculated.

Research Questions

The researcher addressed the following questions in order to evaluate incorporating an in-house transportation service:

1. What are the costs of integrating a patient transportation service into a private practice?
2. What are the benefits of having patients able to maintain consistent visits?
3. What other considerations must be taken into account before integrating a transportation service?
Chapter IV
Data Analysis

Introduction

In order to determine if it is financially prudent for the retina practice to integrate a patient transportation system, the researcher conducted a cost-benefit analysis. A cost-benefit analysis is an effective tool used in many different businesses to decide whether or not to make a proposed change. The benefits must outweigh the costs within an acceptable amount of time for the proposed change to be worthwhile. The base case in this study is having the clinic remain without an in-house transportation service. Alternatives will be discussed in Chapter 5 but not analyzed for separate cost-benefit ratios.

Demographics

In order to estimate the amount of people that will potentially utilize the transportation service, demographic information was analyzed. Those most likely to utilize this service will be transportation-disadvantaged and have a retina condition that requires specialty care. Since the practice does not specialize in pediatric care, and the two diseases being used for this analysis typically occur in those over the age of 18, the potential riders are assumed to be adults.

The U.S. Census Bureau (2009) estimates that the metro Detroit area, which mainly consists of Oakland, Wayne, and Macomb counties, has a population of almost 4 million people. In Oakland County, where the retina practice is located, the population was estimated to be 1,205,508 as of 2009. A little over three quarters of these residents, or 919,803 people, are over the age of 18. In Wayne County, the population was estimated at 1,925,848 with 1,425,128 adults. The number of residents over the age of 18 in Macomb County was estimated at 76.8
Fee Based Transportation Analysis

percent of the population, or 638,536 people. As shown in Table 1, there are an estimated 2,983,466 adults in the tri-county area.

Table 1

<table>
<thead>
<tr>
<th>Demographic Statistics for the Tri-County Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Oakland</td>
</tr>
<tr>
<td>Wayne</td>
</tr>
<tr>
<td>Macomb</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau

Hughes-Cromwick et al. (2005) found that 1.33 percent of the adult population in America reports a lack of transportation to medical care. Using this percentage and the estimated adult population of the tri-county area, the researcher determined 39,680 people have transportation problems for medical care in this region. Of this transportation-disadvantaged population, only a fraction will have retina conditions that require the care of a retina specialist.

For those that need retinal specialty care, the two most prevalent diagnoses are diabetic retinopathy and macular degeneration. Kempen et al. (2004a) found that diabetic retinopathy occurs in those over the age of 40 at a rate of 3.4 percent. The overall prevalence of macular degeneration in those over 40 is estimated at 1.47 percent (Kempen et al., 2004b). Although not all 39,680 people are necessarily over the age of 40, the researcher assumed they are in order to calculate the amount of potential riders. Adults between the ages of 18 and 40 can experience diabetic retinopathy and macular degeneration, as well as different retina problems that would necessitate a retinal exam. The researcher believes using these percentages are within an acceptable range for this estimation. Using these percentages with the target population of 39,680 people, the researcher determined there are 1,932 potential riders in the tri-county area. This data appears in Table 2.
Fee Based Transportation Analysis

Several factors could reduce this number of potential riders. The main reduction factor is that there are 4 other major retina specialty practices in the metro Detroit area. Assuming the potential riders were split among equally among all the practices, the researcher estimates 20 percent of the potential riders would come to the practice in this study. Of the total potential patients, 386 would possibly come to the practice. Another factor that could reduce this number is insurance status. If a patient doesn’t have adequate insurance coverage, he or she may forgo specialty care visits because of the expense involved. In contrast, the number may be higher if this practice becomes more accessible to these patients when transportation is provided.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>Potential Riders Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target Population</td>
</tr>
<tr>
<td>Lack of transportation to medical care</td>
<td>2,983,466</td>
</tr>
<tr>
<td>Those with diabetic retinopathy</td>
<td>39,680</td>
</tr>
<tr>
<td>Those with macular degeneration</td>
<td>39,680</td>
</tr>
<tr>
<td>Total potential riders</td>
<td>1,932</td>
</tr>
<tr>
<td>Potential riders that may come to practice</td>
<td>1,932</td>
</tr>
</tbody>
</table>

Cost of Integrating a Patient Transportation Service

The process of establishing and integrating a transportation service into a medical practice can be costly. There are many different things to consider, including purchasing the right vehicle. According to Robert Schultz (1993):

Purchasing a properly equipped van…can be a very expensive proposition for the average nursing home. The cost can range easily above $25,000. Beyond this there is the cost of insuring the residents being transported. Coverage amounting to $1 million per person is not unusual in these litigious times (p. 44).
Fee Based Transportation Analysis

Furthermore, the type of vehicle chosen should be carefully considered for functionality and cost-effectiveness. Anders (2007) states:

One of the most popular choices of vehicles for the elderly is the 14 or 15-seater with a couple of flip seats to accommodate two wheelchairs… In addition to safety features such as grab rails on seat backs, seat belts, and aisle-seat armrests… contour, mid-high seats, which offer security and back comfort, yet don’t prevent riders from socializing are nice features to consider. (p. 30)

After taking into consideration this information, the researcher decided the best choice of vehicle for this service would be an eight to ten person passenger van. This type of van doesn’t require the driver to possess a commercial driver license and is readily accessible to purchase.

According to U.S. News and World Report (2010), one of the best rated passenger vans is the GMC Savana. This van seats eight people and does very well in federal government crash tests. For the 2010 Savana Passenger LS with all-wheel drive, the power package, and a sliding passenger-side door, the net price is $32,810 (General Motors Corporation, 2010).

According to Yahoo (2010), the total cost to own a 2010 GMC Savana is broken down into eight different categories: depreciation, fuel cost, financing, insurance, maintenance, fees and taxes, repairs, and opportunity cost. This information was collected and analyzed based on a variety of sources (Yahoo, 2010). In this analysis, the depreciation, fuel cost, maintenance, and repairs will be similar to owning a vehicle for personal use, so this data can be utilized. The financing category doesn’t apply to this analysis since it is assumed the vehicle will be purchased outright. The insurance for this particular situation is unique, so separate information will be used. Taxes and fees specific to the transportation service will be used. Opportunity costs will be taken into account when analyzing all of the costs of integrating the service. Separate opportunity costs for the vehicle are not used.
Insurance is one major cost that must be considered before purchasing the van. In order for the van to be legally insured in the city where the practice is located, the liability coverage must have at least $100,000 coverage for each person for personal injury or death, $300,000 coverage for each accident for personal injury or death, and $50,000 coverage for each accident for property damage (City of Southfield, 2009). According to Dave Damron of Auto-Owners Insurance Company, adequate coverage for this type of van service would exceed $1 million in liability (personal communication, July 8, 2010). The yearly cost for this coverage can range from $4,000 to $5,000. For the purposes of this analysis, a cost of $4,500 per year will be used.

The vehicle title and registration costs are not as burdensome as the insurance cost but still must be considered. The vehicle title fee is a one-time fee of $15 that is paid when purchasing the vehicle. The State of Michigan bases the yearly vehicle registration fee on the manufacturer’s suggested base price. For the GMC Savana, the base price is $32,070. The registration fee is $171 for the first year. For the second through fourth years, the registration fee decreases each year. The second-year fee is $154, the third-year fee is $139, and the fourth-year fee is $127. Every year beyond 4 years, the registration fee is $127 (K. Smith, personal communication, August 11, 2010). The standard license plate in Michigan is a white license with a blue bar and is included in the price of the registration fee (State of Michigan, 2010).

The State of Michigan (2003) does not require a separate state license to operate a taxi service. In Oakland County (2010) no licenses or permits are needed either. The City of Southfield (2009), however, requires a new taxi service to pay for a taxi bond plate fee, which has an initial fee of $150.00 and a yearly renewal fee of $100.00. The city also requires that for each driver an annual fee of $50.00 be paid (City of Southfield, 2009).
Another significant cost to consider is depreciation. While this isn’t a direct cost that requires an outlay of cash it is still important to the cost-benefit analysis. Depreciation is an estimate of the reduction in value incurred by owning and operating a vehicle over a period of time. This cost is largest in the first year and is estimated to be 38 percent of the total cost of owning the vehicle. For the GMC Savana, the first-year depreciation is $17,020 (Yahoo, 2010). The second-year through fifth-year depreciation is shown in Table 3.

In relation to the other van costs, fuel is probably the biggest recurring cost to consider. The cost of fuel for the GMC Savana is based on the vehicle’s average of 14 miles per gallon with an estimated 20,000 miles per year being driven. The first-year fuel costs are estimated to be $3,946. This category is 32 percent of the total cost of owning the vehicle (Yahoo, 2010). Table 3 shows second- through fifth-year fuel costs. Fuel costs are largely unpredictable and can fluctuate throughout the year, so the actual cost of the fuel could be much higher or lower. This cost would also increase if the van were driven more than 20,000 miles per year.

Yahoo (2010) estimated maintenance costs based on industry information regarding the frequency of problems, labor rates, and parts prices. These costs can vary based on how the vehicle is driven but are estimated to be 9 percent of the total cost. The first-year maintenance costs are estimated at $190 (Yahoo, 2010). Subsequent year costs appear in Table 3.

Yahoo (2010) estimated repair costs using nationally available service contract providers and the national average that consumers pay to keep the vehicle in operating condition. These costs can vary greatly depending upon the type of repairs needed and if those repairs fall under any extended service contract. The first year repair cost is estimated to be $0 because of the average car warranty (Yahoo, 2010). Further year estimated repair costs are shown in Table 3.
Fee Based Transportation Analysis

For the initial analysis, the researcher assumed the van will be utilized with the factory specifications. The van will not be accessible to wheelchair bound patients. The researcher conducted a second analysis of costs associated with buying a luxury, wheelchair lift equipped vehicle called the Senior Living Vehicle (SLV). The cost for this vehicle, outfitted and sold by Transportation Innovation LLC, is $59,900 (K. Whetter, personal communication, August 11, 2010). This vehicle has increased head room with an integrated aluminum roll cage and a Braun wheelchair lift with 3-point safety harnesses. Two wheelchair-bound patients and 6 other passengers can fit in the vehicle at one time (K. Whetter, personal communication, August 11, 2010). Since the SLV is built with a GMC Savana 3500 base, the other costs including depreciation, fuel, maintenance, and repair costs were obtained from Yahoo. These costs appear in Table 4.

In order to utilize the van for advertising purposes, simple magnetic logo signs with the practice logo can be used on the van’s sides. The cost for two 30-inch by 12-inch signs are around $50 (Iprint, 2010). A full vehicle logo wrap can also be used, but this is much more expensive. According to Joe Rupp, of Graphik Concepts Inc. in Farmington Hills, Michigan, the cost for a full vehicle logo wrap is approximately $4,000. This includes the design and installation (personal communication, August 23, 2010).

Along with having the right van, finding the right driver is an important component to the success of the transportation service. The driver must be friendly, courteous, and genuinely care about people. He or she must communicate clearly and be able to operate a computer. Since the majority of this job entails driving, this person must have a clean driving record as well as no criminal record. According to Salary.com, the total cost for a chauffeur in the metro Detroit area is $47,365. This includes the base salary, bonuses, social security, a 401k plan, disability,
Fee Based Transportation Analysis

healthcare, pension payments, and time off (“HR Salary Wizard,” 2010). The researcher assumes this salary will increase a minimum of 3 percent per year to account for inflation. These figures appear in Tables 3 and 4.

Once the driver is hired, it is important for him or her to have specific training. The on-the-job training will consist of basic office training, scheduling, and learning how to use the office scheduling computer program. Using insight gained from the literature review, the researcher recommends the driver be enrolled in a defensive driving course at the beginning of his or her employment and take periodic driving tests. An estimated $500 per year is included in this analysis for driving classes, testing, and training.

Periodic drug and alcohol testing should be conducted to make sure the driver is operating the vehicle safely. According to Pre-employmentdrugscreening.com, drug tests for small to medium employers generally cost in the $50-70 range. This cost includes collection of the sample, laboratory analysis, and the results (Rosen, 2010). For the purposes of this study, the researcher assumed this testing is conducted on a yearly basis at a cost of $60.

In order for the van driver to be able to contact patients and communicate with the office, a cell phone is necessary. Most cell phone companies provide a basic cell phone with a 2-year service contract so the cost of the phone is $0. The phone does not need to be equipped with text messaging or internet services. For a basic talk-only plan with 450 monthly minutes, Verizon Wireless charges a base rate of $39.99 (Verizon Wireless, 2010). With taxes and fees, the monthly charge will be approximately $50.

To increase the efficiency of the van system and avoid unnecessary delays, a GPS system should also be purchased and installed in the van. This will allow the driver to put in patient addresses, plan a route, and get back to the office in a timely fashion. The more efficient the
routes are, the more patients the van can pick up on a daily basis. Depending on the model chosen, a basic GPS can range from $100-300 (“Automotive GPS,” 2010). An estimated $200 cost will be used for this analysis.

Table 3

<table>
<thead>
<tr>
<th>Costs with Basic Van</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Recurring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Van Purchase</td>
<td>$32,810</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$32,810</td>
</tr>
<tr>
<td>Michigan sales tax 6%</td>
<td></td>
<td>$1,924</td>
<td></td>
<td></td>
<td></td>
<td>$1,924</td>
</tr>
<tr>
<td>Logo magnets</td>
<td>$50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$50</td>
</tr>
<tr>
<td>Cell Phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$-</td>
</tr>
<tr>
<td>Portable GPS</td>
<td>$200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$33,910</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$34,310</td>
</tr>
<tr>
<td><strong>Recurring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone service</td>
<td>$660</td>
<td>$660</td>
<td>$600</td>
<td>$600</td>
<td>$600</td>
<td>$3,000</td>
</tr>
<tr>
<td>Vehicle Depreciation</td>
<td>$17,020</td>
<td>$2,864</td>
<td>$1,693</td>
<td>$1,693</td>
<td>$1,606</td>
<td>$24,876</td>
</tr>
<tr>
<td>Vehicle Registration</td>
<td>$171</td>
<td>$154</td>
<td>$139</td>
<td>$127</td>
<td>$127</td>
<td>$718</td>
</tr>
<tr>
<td>Taxi Driver Fee</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
<td>$250</td>
</tr>
<tr>
<td>Taxi Bond Plate Fee</td>
<td>$150</td>
<td>$100</td>
<td>$100</td>
<td>$100</td>
<td>$100</td>
<td>$550</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$190</td>
<td>$285</td>
<td>$1,743</td>
<td>$285</td>
<td>$3,387</td>
<td>$5,890</td>
</tr>
<tr>
<td>Repairs</td>
<td>$-</td>
<td>$83</td>
<td>$417</td>
<td>$417</td>
<td>$417</td>
<td>$1,334</td>
</tr>
<tr>
<td>Fuel</td>
<td>$3,946</td>
<td>$4,086</td>
<td>$4,231</td>
<td>$4,382</td>
<td>$4,538</td>
<td>$21,183</td>
</tr>
<tr>
<td>Driver Salary &amp; Benefits</td>
<td>$47,365</td>
<td>$48,786</td>
<td>$50,250</td>
<td>$51,757</td>
<td>$53,310</td>
<td>$251,467</td>
</tr>
<tr>
<td>Driver Training</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$2,500</td>
</tr>
<tr>
<td>Drug &amp; Alcohol Testing</td>
<td>$60</td>
<td>$60</td>
<td>$60</td>
<td>$60</td>
<td>$60</td>
<td>$300</td>
</tr>
<tr>
<td><strong>Total Projected Costs</strong></td>
<td>$109,551</td>
<td>$62,068</td>
<td>$64,283</td>
<td>$64,471</td>
<td>$69,195</td>
<td>$369,567</td>
</tr>
<tr>
<td>Present Value Factor</td>
<td>0.9346</td>
<td>0.8734</td>
<td>0.8163</td>
<td>0.7629</td>
<td>0.7130</td>
<td></td>
</tr>
<tr>
<td><strong>Total Present Value Cost</strong></td>
<td>$102,386</td>
<td>$54,210</td>
<td>$52,474</td>
<td>$49,185</td>
<td>$49,336</td>
<td>$307,591</td>
</tr>
</tbody>
</table>
Table 4

<table>
<thead>
<tr>
<th>Costs with Luxury Van</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Recurring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Van Purchase</td>
<td>$59,900</td>
<td></td>
<td></td>
<td></td>
<td>$59,900</td>
<td></td>
</tr>
<tr>
<td>Michigan sales tax 6%</td>
<td>$3,594</td>
<td></td>
<td></td>
<td></td>
<td>$3,594</td>
<td></td>
</tr>
<tr>
<td>Logo magnets</td>
<td>$50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$50</td>
</tr>
<tr>
<td>Cell Phone</td>
<td>$-</td>
<td></td>
<td></td>
<td></td>
<td>$-</td>
<td></td>
</tr>
<tr>
<td>Portable GPS</td>
<td>$200</td>
<td></td>
<td></td>
<td></td>
<td>$200</td>
<td></td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td>$15</td>
<td></td>
<td></td>
<td></td>
<td>$15</td>
<td></td>
</tr>
<tr>
<td><strong>Recurring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone service</td>
<td>$600</td>
<td>$600</td>
<td>$600</td>
<td>$600</td>
<td>$600</td>
<td>$3,000</td>
</tr>
<tr>
<td>Vehicle Depreciation</td>
<td>$14,584</td>
<td>$3,855</td>
<td>$1,352</td>
<td>$1,325</td>
<td>$1,240</td>
<td>$22,356</td>
</tr>
<tr>
<td>Van Insurance</td>
<td>$4,500</td>
<td>$4,500</td>
<td>$4,500</td>
<td>$4,500</td>
<td>$4,500</td>
<td>$22,500</td>
</tr>
<tr>
<td>Vehicle Registration</td>
<td>$171</td>
<td>$154</td>
<td>$139</td>
<td>$127</td>
<td>$127</td>
<td>$718</td>
</tr>
<tr>
<td>Taxi Driver Fee</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
<td>$50</td>
<td>$250</td>
</tr>
<tr>
<td>Taxi Bond Plate Fee</td>
<td>$150</td>
<td>$100</td>
<td>$100</td>
<td>$100</td>
<td>$100</td>
<td>$550</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$22</td>
<td>$22</td>
<td>$117</td>
<td>$1,761</td>
<td>$198</td>
<td>$2,120</td>
</tr>
<tr>
<td>Repairs</td>
<td>$-</td>
<td>$-</td>
<td>$240</td>
<td>$399</td>
<td>$399</td>
<td>$1,038</td>
</tr>
<tr>
<td>Fuel</td>
<td>$3,946</td>
<td>$4,086</td>
<td>$4,231</td>
<td>$4,382</td>
<td>$4,538</td>
<td>$21,183</td>
</tr>
<tr>
<td>Driver Salary &amp; Benefits</td>
<td>$47,365</td>
<td>$48,786</td>
<td>$50,250</td>
<td>$51,757</td>
<td>$53,310</td>
<td>$251,467</td>
</tr>
<tr>
<td>Driver Training</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$500</td>
<td>$2,500</td>
</tr>
<tr>
<td>Drug &amp; Alcohol Testing</td>
<td>$60</td>
<td>$60</td>
<td>$60</td>
<td>$60</td>
<td>$60</td>
<td>$300</td>
</tr>
<tr>
<td><strong>Total Projected Costs</strong></td>
<td>$135,707</td>
<td>$62,713</td>
<td>$62,139</td>
<td>$65,561</td>
<td>$65,622</td>
<td>$391,741</td>
</tr>
<tr>
<td><strong>Present Value Factor</strong></td>
<td>0.9346</td>
<td>0.8734</td>
<td>0.8163</td>
<td>0.7629</td>
<td>0.7130</td>
<td></td>
</tr>
<tr>
<td><strong>Total Present Value Cost</strong></td>
<td>$126,832</td>
<td>$54,773</td>
<td>$50,724</td>
<td>$50,016</td>
<td>$46,788</td>
<td>$329,134</td>
</tr>
</tbody>
</table>

Benefits of Integrating a Patient Transportation Service

The benefits of having an in-house transportation service are less quantifiable than the costs of putting the service in place. Hughes-Cromwick et al. (2005) conclude that “Measuring the benefits of providing transportation is far more difficult than measuring its costs” (p. 14). As with some of the costs, the actual benefits will not be known until after the service is operating.

The main benefit of this transportation service will be the revenue gained from each patient visit. According to Pinto (2005), the average revenue gained from each visit for a retina specialist is $321. The average American has more than 3 visits per year to medical specialty offices (Hughes-Cromwick et al., 2005). Compliant patients with active diseases often come to the retina specialist every four to six weeks for treatment. This is an average of eight visits a year. Some patients with mild macular degeneration or mild diabetic retinopathy only need to
Fee Based Transportation Analysis

visit the retina specialist on a yearly basis. The three visit per year estimate is low for some patients and high for others, but the researcher feels this is a good general estimate. Since 2005, several new treatments, as well as new testing methods, have become much more common in the retina practice. The average revenue gained from each visit, as well as the average number of visits per year, is most certainly higher today.

Another quantifiable benefit from this service is the fee collected from each patient per trip. A flat rate fee for a round-trip is the best option. The fee needs to be reasonable but also adequate in order to help offset the cost of fuel. The one-way fee for a bus ticket on the SMART system is $2.00 (Suburban Mobility Authority for Transportation, 2010b) Taxi cab companies generally charge much more than this. In order to remain a viable and attractive option for the patient, a standard $5 fee is recommended for a round-trip. This would keep the fee just over the cost of a round-trip bus fare but well under a round-trip taxi fare.

Using the number calculated earlier in this chapter, there are potentially 386 patients that would utilize this transportation service. If each of these patients comes to the clinic an average of 3 times per year, at a revenue of $321 and a van fee of $5 per visit, the projected revenue per patient per year is $978. With 386 patients, the present value of the projected revenue for the first year is $352,819. Even if the potential number of patients is cut in half and estimated at only 193, the present value of the projected revenue from these patients is $176,409.
Other benefits that are not easily quantified but should be considered include: the possibility of increased referrals, positive marketing, and the possibility of retaining certain patients. Referrals, both from other doctors and from patients, are very important to maintaining a successful practice and attracting new patients. The average retina practice has 19 percent new patients (Pinto, 2005). With the option of this transportation service, referrals may increase. People that use the service may refer their friends that also have difficulty with transportation. Referring doctors may refer more patients knowing these patients will be able to maintain consistent visits with transportation assistance.
Fee Based Transportation Analysis

By putting a company logo on either side of the van, the practice gets mobile marketing that can help attract new patients. This kind of public marketing can be extremely expensive if purchased as a billboard advertisement or even as a radio announcement. Visibility in the community and knowledge about the practice are both increased with this type of advertisement. Furthermore, there is a sense of compassion implied by having a transportation service to assist patients. While the decision to have a transportation service may be purely economical, patients may view this as the doctors having more compassion.

As stated previously, people can become transportation disadvantaged at any point. A patient may have gotten a ride in the past from a friend or family member that can no longer bring him or her. Personal vehicle trouble or a significant decrease in a patient’s vision may make driving independently to the appointment too difficult. If a patient becomes transportation disadvantaged and can no longer get to his or her retinal appointments, the practice will lose this patient temporarily. If the patient stays transportation disadvantaged, the practice may lose this patient all together. With the shuttle service available, these patients could maintain their visits until their situations improved.

Cost-benefit analysis

For an accurate cost-benefit analysis, the costs and the benefits must be expressed in terms of their present value. In order for future benefits and costs to be compared equally, these values must be converted to a current, or present, value. This reflects the time value, or opportunity cost, of money. Present value calculations deal with interest, not inflation, and shrink tomorrow’s dollars to today’s dollars by the difference of the compounded interest. The U.S. Department of Health and Human Services (2010) requires states to use a 7% present value factor in any cost-benefit analysis submitted for funding. The present value calculations for this
Fee Based Transportation Analysis

study were taken from the U.S. Department of Health and Human Services and are incorporated into Table 3, 4, 5 and 6.

The total net present value, or net benefit, of the transportation service for a five year period is the sum of the present value of benefits less the sum of the present value of costs. Assuming the basic van option with the lower potential patient number, the total net present value of the transportation service over five years is $466,338. For the first year, the net benefit is $74,023. The net benefits for the basic van with higher potential patients and luxury van with both patient amounts are displayed in Table 7.

The benefit-cost ratio is the present value of benefits over the present value of costs. This ratio helps determine the value of the money invested in the transportation service. Again looking at the basic van option with the lower potential patient number, the first-year benefit cost ratio is 1.72. So for every dollar invested in starting the service, $1.72 is earned. For the five year period, the benefit cost ratio is 2.52. For every dollar it costs to run the service over a period of 5 years $2.52 is earned. The benefit-cost ratios for the other scenarios appear in Table 8.

<table>
<thead>
<tr>
<th></th>
<th>All potential passengers</th>
<th>Half of the potential passengers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Van</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefit</td>
<td>$ 1,547,858</td>
<td>$ 773,929</td>
</tr>
<tr>
<td>Cost</td>
<td>$ 307,591</td>
<td>$ 307,591</td>
</tr>
<tr>
<td>Net</td>
<td>$ 1,240,267</td>
<td>$ 466,338</td>
</tr>
<tr>
<td>Luxury Van</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefit</td>
<td>$ 1,547,858</td>
<td>$ 773,929</td>
</tr>
<tr>
<td>Cost</td>
<td>$ 329,134</td>
<td>$ 329,134</td>
</tr>
<tr>
<td>Net</td>
<td>$ 1,218,724</td>
<td>$ 444,795</td>
</tr>
</tbody>
</table>
Table 8

<table>
<thead>
<tr>
<th></th>
<th>Benefit/Cost Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All potential passengers</td>
</tr>
<tr>
<td>Basic Van</td>
<td>Benefit $1,547,858</td>
</tr>
<tr>
<td></td>
<td>Cost $307,591</td>
</tr>
<tr>
<td></td>
<td>Ratio 5.03</td>
</tr>
<tr>
<td>Luxury Van</td>
<td>Benefit $1,547,858</td>
</tr>
<tr>
<td></td>
<td>Cost $329,134</td>
</tr>
<tr>
<td></td>
<td>Ratio 4.70</td>
</tr>
</tbody>
</table>

To analyze the breakeven point for each option, the number of passengers is taken out of consideration. Only the trips are considered since this is where the revenue is made, both on the nominal trip fee and revenue from the office visit. The revenue per trip is $327. The breakeven point for the basic van option occurs after 314 trips. It would require 389 trips in order for the practice to breakeven on the luxury van option.

In all of the scenarios considered, the practice would make a profit the first year of operation. All of the cost-benefit ratios are over 2 meaning the practice will earn at least double its investment back in revenue. As long as the practice can provide the breakeven amount of trips in the first year, the transportation service looks like a solid investment.

Other Considerations

Aside from the numbers, there are certainly other considerations to take into account when making a decision about the transportation service. Other considerations in favor of incorporating the transportation service are related to the clinic itself. Because of the time and effort that goes into scheduling patients and preparing their charts for office visits, missed appointments can be very time consuming for the staff. The time slot reserved for the patient that misses his or her appointment goes unused and the staff hours to schedule and then get the chart ready for the visit are wasted. The patient must then be called and rescheduled for a different
Fee Based Transportation Analysis

visit and the chart must be filed. Of course, not all patients that miss their appointments do so because of transportation problems. However, eliminating just a few missed appointments will benefit the practice in reducing wasted staff hours.

Reducing the number of missed appointments will also help with the flow of the clinic. Patients are scheduled utilizing a template of appointment times that correlate with the type of visit. When a patient misses an appointment, there is a block of time that goes unused. The staff and the doctor then have down time that is not being utilized effectively while they wait for other patients to arrive.

Considerations not in favor of the transportation service are mainly related to liability. Although the practice would be providing a service to patients and adequate insurance coverage would be maintained, there is always the possibility of an accident or injury occurring. The practice could face a lawsuit with any injury or accident. One solution for this may be to have any patient using the service sign a release form prior to taking any rides. This release form would need to be drawn up by a lawyer, but in essence it would release the practice from any lawsuit related to any accidents or injuries that occurred while using the transportation service.

Since safety is an important factor in avoiding any legal action, a quality safety program would need to be incorporated into the transportation service. Regular maintenance logs should be maintained and regular safety checks should be performed. Anything that doesn’t pass inspection should be immediately dealt with and records kept of any and all repairs. As previously mentioned, the driver should be put through yearly driving classes and have to take periodic driving tests. He or she should also have a daily safety checklist for the vehicle. Having a safe and competent driver can really make the transportation service a success.
Chapter IV

Summary, Conclusions, and Recommendations

Summary

There is a large population of transportation disadvantaged people in America that have difficulty getting to and from medical appointments. These people are typically elderly, disabled, or poor. Many medical practices have incorporated transportation services into their businesses in order to help these patients in need.

One subset of the transportation disadvantaged are the visually impaired. Visually impaired patients can have difficulty maintaining consistent visits with their eye care specialists due to the difficulty of providing their own transportation or using public transportation. Without consistent care, these patients have a higher chance of losing even more functional vision. Two diseases that can affect vision are diabetic retinopathy and macular degeneration. Both of these diseases require consistent care with a retina specialist.

Retina specialists who are in private practice typically enjoy high profit margins and robust revenue. Private retina specialists often have the capital needed to fund an in-house transportation system. The purpose of this study was to evaluate the costs versus the benefits of integrating a fee-based transportation system into a private retina specialist practice in the metro Detroit area.

A review of the literature helped define the transportation disadvantaged population. This population was found to be mainly older, mostly female, non-white, and poor. This population was also found to have a higher incidence of chronic disease and utilize medical care more often despite their transportation difficulties.
Fee Based Transportation Analysis

The type of transportation needed for travel to and from doctor offices for routine medical appointments is known as non-emergency transportation. Non-emergency transportation started as a way for nursing home patients to get to and from their doctor appointments. However, in recent years, non-emergency medical transportation has become integral to most ambulatory medical services.

Different types of non-emergency transportation were identified. These include rides from friends or family members, public transit, taxis, and shuttles. Public transit in the metro Detroit area was discussed. Non-emergency transportation for medical appointments is reimbursed for Medicaid recipients but not for Medicare recipients.

Many different programs, both federal and private, exist to help provide non-emergency transportation to those in need. Federal programs lack the coordination needed to be truly effective. Some private programs have had considerable success. These programs provided good examples for the researcher to consider when discussing the transportation service for this study.

In order to calculate the costs and benefits associated with an in-house transportation system, the researcher collected data from many different sources. Demographic data for the metro Detroit area was analyzed for an estimate of potential riders. This number was used with the average revenue per visit to calculate the average revenue that could be expected from the transportation service. The costs for the transportation service include purchasing a van, insurance, fuel, registration, maintenance, repairs, depreciation, driver salary and driver training. Two different cost scenarios were calculated: one based on a basic passenger van and one based on a luxury passenger van. The benefits for the transportation service include the revenue and fee collected from each patient visit. Two different benefit scenarios were calculated: one with a higher number of potential patients and one with a lower number. The future costs and benefits
Fee Based Transportation Analysis

for all scenarios were reduced to their present values for comparison purposes. The net benefits and cost-benefit ratios were calculated for all the scenarios. Also the breakeven point, in terms of trips, was calculated for both the basic and the luxury van scenarios.

Conclusions

This cost-benefit analysis proved that incorporating an in-house transportation service is definitely a sound financial decision for this private practice. If the practice decides to go with the basic van, only 314 rides need to be provided in the first year to break even. This is equal to only 6 rides per week. Even if the luxury van option is chosen, less than 400 rides in the first year will reach the breakeven point. This amounts to about 8 rides per week. Both of these scenarios seem plausible and reasonable. If only the breakeven point is reached, the practice will have earned back all of the money invested and also provided an invaluable service to the patients. This will help increase the quality of care. It is more likely though, that the practice will see an increase in revenue from the increased office visits and possibly even an increase in patients from referrals.

In these economic times, it is important to maintain both quality care and quality customer service. The transportation service will help increase the level of customer service and this will help the practice stand out among its competitors. Patients are starting to behave more like consumers and shopping around for medical care. It is an important selling point to be able to offer these consumers a means for maintaining consistent care.

The outcome of this study is in line with the information reviewed in the literature. The patient population served by the retina practice tends toward that of the transportation disadvantaged. Most of the patients are elderly and disabled by their retina diseases. This population can obviously benefit from a transportation service.
Fee Based Transportation Analysis

Several of the current medical transportation programs reviewed are very successful, both financially and in terms of increasing the quality of care. In the study conducted by Hughes-Cromwick et al (2005), it was found that providing non-emergency medical care was cost-effective for all medical conditions studied. In fact, providing this transportation was estimated to actually reduce healthcare costs for four of these conditions.

The researcher was unable to find a cost-benefit analysis done by just one private practice, therefore a direct comparison could not be performed. Much of the research relates to programs that are already in place or patients surveys dealing with the reason for missed appointments. The researcher discovered, as Hughes-Cromwick et al. (2005) discovered, that “healthcare data lack(s) sufficient information on transportation and access to care, while transportation data contain little on healthcare utilization and nothing on utilization by medical condition” (p. 6).

Recommendations

The researcher makes the following recommendations:

1. This private practice should seriously consider incorporating a transportation service into the business.

2. Other medical specialty offices should conduct similar cost-benefit analyses to evaluate whether or not a transportation service makes sense for their business.

3. Other avenues to aid transportation-disadvantaged patients should be explored if an in-house service is not established. This includes supplying bus or taxi vouchers, or having a staff member assist patients with securing appropriate transportation.

4. Further research should be conducted on transportation-disadvantaged populations and access to medical care. Solutions need to be found to increase the access to care for these
Fee Based Transportation Analysis

patients. These will vary depending on the area being studied, but may involve increasing the public transportation infrastructure or increasing funding for more private, shuttle services for those medical offices that cannot afford to provide their own.
Fee Based Transportation Analysis

References


Fee Based Transportation Analysis


Fee Based Transportation Analysis


Fee Based Transportation Analysis


