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An Investigation into the Development, Design, and Feasibility of a Comprehensive Breast Diagnostic Center

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AN INVESTIGATION INTO THE DEVELOPMENT, DESIGN, AND FEASIBILITY OF A COMPREHENSIVE BREAST DIAGNOSITC CENTER

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An Abstract Presented to the Faculty of the Graduate School of Lindenwood College in Partial Fulfillment of the Requirements for the Degree of Master of Business Administration

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ABSTRACT

This thesis will focus on the feasibility of implementing, operating, and managing a free standing comprehensive breast diagnostic center for the detection of breast disease.

The important concern for diagnosis, treatment, and management of breast cancer in women is no new theory to the health care industry. Current public awareness of breast cancer is at an all time high. Every day the American public hears some aspect on the subject, whether it is on the evening news, TIME magazine, or just by word of mouth at the office.

This business plan will provide an all encompassing prospectus for potential investors to make a sound, logical, and accurate business decision in determining the appropriateness of investing in a comprehensive breast diagnostic center.

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DEDICATION

This project is dedicated to my Aunt, who at the early age of forty, died of breast cancer.

I also dedicate this project to all those women who have faced the dreaded disease of breast cancer.

ACKNOWLEDGEMENT

I greatfully acknowledge the support of Ms. Louise Webb, who over the past four years has been so gracious to help me in my never ending quest for literature on mammography.

TABLE OF CONTENTS

List of Tables

Chapter I

INTRODUCTION

The Discovery of X-Rays

On November 8, 1895 Sir Willhem Roentgen, a physicist, was working in his laboratory at Wurzburg University in Germany. During his experiments, he discovered a new form of "X-LIGHT," today called X-rays.

Several amazing features about the discovery of X-rays caused it to rank high in the events of human history. First, probably no fewer than a dozen contemporaries of Roentgen had previously observed X-radiation, and none of these other physicists had recognized its significance or properties. Second, Roentgen followed his discovery with such vigor that within little more than one month he had ascribed to X-radiation nearly all the properties recognized today.

The value and usefulness of X-rays today play a vital role in the health care needs of our society. This is evident by the general health of our Nation as a whole (Bushong 32).

The Health Care Industry

Health care in the United States is technology driven and is, for the most part, paid for by the federal government. Historically, no incentive for cost effective delivery of care has been offered to either consumer or providers. What has evolved is a system that despite some well published flaws, is very good, but costly.

Health care consumes fourteen percent of current Gross National Product (GNP), more than any other industrialized nation in the world uses. In responding to dire warnings of economists and declining available resources, the purchasers of health care (governmental and industry) are looking for and adopting new measures to control costs and make the health care industry more economical. In response, health care providers (hospitals and physicians) are scrambling to preserve their incomes in an increasingly competitive market place. As a result, health care providers are now being forced to deliver care more cost effectively. It is for this sole reason that diagnostic imaging center markets have experienced tremendous growth. The major factor influencing this is because traditionally free standing imaging centers

could provide a quality service at fees thirty to eighty percent lower than that of hospital based imaging facilities.

In 1987, total health care expenditures reached 500 billion dollars. Hospital care consumed 194 billion dollars, and physician fees another 102 billion dollars. In that same year, the Medicare program spent eighty-one billion dollars on its thirty million participants.

Medicare is expected to grow under the current Medicare law from ninety-seven billion dollars in 1988 to 198 billion dollars in 1993. Medicare part B, which is currently growing at an annual rate of twelve percent annually, makes up eight percent of the health care segment that this company will focus on for medical reimbursement revenues (Cole 9-12).

Joint venture activity in the medical imaging industry has grown at an estimated rate of forty-five percent annually. This rapid growth has opened the medical imaging service industry to many new imaging markets. The largest of these is, the development and implementation of multi-modality free standing imaging facilities. These multi-modality facilities provide health services such as computed axial tomography (CAT Scan), magnetic resonance imaging (MRI), ultrasound (U/S), and

breast imaging. These multi-modality facilities require initial investments from seven to ten million dollars.

The market segment that this company will focus on will be based solely on a comprehensive breast diagnostic facility. This area of the market is very specific to the health care industry. The Health Care Financing Administration (HCFA) estimates that this specific sector of the medical imaging market will provide the most stable growth for investors (Asher 4).

Breast Imaging

Breast cancer is the major leading cause of death in women. An estimated 120,000 women will develop breast cancer, and approximately 45,000 women will die of this disease in 1993. The survival rate is dependent upon tumor size and lymph node status (ACR 32).

In asymptomatic women, the use of mammography has been shown to aid in the early diagnosis of breast cancer and mortality rate can be reduced. The continual management of women who present with a breast mass is of great importance in confirming the presence and nature of the lesion.

Mammography not only can be helpful in supplying information concerning the area of question, but also contribute valuable information concerning the rest of the breast tissue.

Currently the number of firms in the comprehensive breast imaging industry are relatively limited. In 1991, there were only 150 comprehensive breast imaging centers listed with the American College of Radiology (ACR). Of these facilities, seventy-five percent were demographically located in cities with an average population of 300,000 (Asher 30).

The ACR also estimated that the average facility employed approximately ten to fifteen full-time equivalent (FTE) individuals. The employee make-up of these facilities consisted of support personnel such as facility administrator, radiological technologists, ultrasound technologists, clerical staff and radiologists. The center will also need the resources of an attorney, Certified Public Accountant, and marketing firm for business support (Numerof 71).

Financial Risks

An investment in this comprehensive breast imaging diagnostic center

involves a mid to high degree of financial risk and is suitable only for persons who have no need for liquidity of their investment and who can afford to lose all or substantially all of their investment in the breast center.

Each prospective investor will be required to prove to the satisfaction of the designated facility administrator, in writing, that he or she is suitable for an investment in the facility. A standard subscription agreement form showing good faith of the prospective investor to do business will be used.

The investors will also be subject to the risks inherent in the operation of a business in the health care industry including, without limitations, fluctuations in physicians' patient levels and testing expenses, variations in health conditions among the general population, scheduling, local economic conditions, demand for mammographic and related diagnostic services, and competition from hospitals, individual physicians' offices, Health maintenance organizations, preferred provider organizations, and other private free standing diagnostic facilities, if any.

Such competition may result in the inability of the facility to attract the volume of patients necessary to bear the cost of operating the investors

business. Future increases in the number of such facilities may serve to decrease future cash flow, and their investment may result in the failure to achieve the results of operating depicted in the forecasts, and thus the benefits to investors. Additionally, because certain operational expenses (including rental payment for both equipment and the building, and salaries) do not generally decrease with decreases in physicians' patient loads, the cost of operating the business may exceed income (Cyrlak 661).

Capital Investment

The company forecasts raising $250,000.00 of investor capital through the sale of fifteen investor partnerships (Units). The Unit offering will consist of a minimum of ten Units, and the maximum of fifty Units at a price of $5,000.00 per Unit, due in full upon subscription. In general, the Units will not be transferable unless the Unit transfer is in compliance with applicable state and federal securities law and unless the voting right of each investor approves such a transfer.

The comprehensive breast center will hold all cash investments in liquid securities until all units are sold. The investor capital of

$250.000.00 will be used for the sole purpose of business operations. The investor capital will cover other operational items such as the lease of office space, equipment lease, technologist salaries, attorney fees, management fees, clerical staff, and other relevant business office supplies.

It is further estimated that the initial capital investments of $250,000.00 will cover all operational expenses for a period of one year. If estimated patient volume levels do not meet anticipated goals, the business should be able to continue operations for a period of one year without experiencing any type of capital shortfall.

Anticipated Profits

Cash distributions to investors the first year of operation will be nonexistent. In the second year of operations, cash distributions will be as follows: first, the investors will receive a return equal to ten percent per annum, cumulative, but not compounded, on their capital contributions; second, the group partnership will receive a subordinate return equal to eight percent of retained net profits. This eight percent return will be retained by the business to provide cash flow for the following year. This

eight percent withholding is based upon anticipated cash flow projection for the first year of operation.

The management of the company shall in the second and consecutive years of operation evaluate cash disbursements to investors, if any, in such amounts that may be necessary for the payment of any contingent debts, liabilities, or expenses of the business or for the establishment of cash reserves to be used for business development. Investors may be subject to tax on such retained income in the year received by the business without respect to when, if ever, such income is distributed to the investors. Also in the second and subsequent years of business operation, the return on investment will be established at a rate of ten percent on each Unit investment of $5,000.00 dollars. This amount shall be $500.00 per annum to each $5,000.00 investor.

The company will make cash distributions on a quarterly basis, if profits are realized, to the extent of available cash after the payment of expenses. In addition, the company may retain profits, if any, in such amounts as the investors, it its sole discretion, determines to be necessary for the payment of any contingent debts, liabilities or expenses of the company or for the establishment of cash reserves.

Distributions of cash made to investors at any time when there are any unpaid debts, taxes, liabilities or obligation of the company, and if the company does not have sufficient assets to pay or meet such obligations to repay all cash or any such other distributions within a time frame as is deemed necessary by the partnership.

Other allocations of profits and losses are provided in a manner which meet federal, state, and local tax laws. Generally, laws stipulate that profits and losses from operations be allocated for federal income tax purposes in a manner that follows cash distributions. Losses are allocated to the company to the extent of their capital accounts, with the excess allocated to investors.

If the company incurs indebtedness in order to acquire or carry investor shares of stock, interest paid by the partnership on such indebtedness is subject to the limitation for passive activity losses, except to the extent that such indebtedness relates to "portfolio income," if any, of the partnership. Interest expense of a company or partnership attributable to "portfolio income" may be subject to other deductibility limits set by federal tax laws.

In computing its income or loss, the company may claim as a deduction all expenses arising form its operations. Under federal tax code 709(b) a partnership has rights to elect to amortize over a period of five years those expenses which are incident to the operation of the company.

Chapter II

LITERATURE REVIEW

A new business typically introduces a new product or service that addresses a need of the customer which has previously been limited or has gone unsatisfied, the innovative idea. Most often, the idea arises when the entrepreneur realizes that a particular product or service is limited and then figures out how to satisfy it. This industry satisfaction, then, is translated into customer satisfaction. The trick to this premise is that there really is an existing need for the business concept or idea. Simply inventing or providing a service that is based on investor needs or demands is not enough. Someone has to be willing to purchase that product or service. Once decided that the product or service may be warranted, a plan can be formulated. A plan should start with an understanding of what the idea is and how these ideas congregate to form a solid plan for business decisions (Pollan 45).

The Plan

A formal business plan is an essential ingredient in any business.

It provides potential investors and lenders with all the information they need to make financial decisions. While its primary role is a money raising tool, a business plan also serves as a map -- a game plan-- for a business effort, taking an idea from inception to success.

Drawing up a business plan forces the entrepreneur to think logically, to examine potential problems, and to make realistic assessments of future earnings within the industry. A business plan forces questions, assumptions, and ideas every step along the way. If the business is started by a partnership, drafting a business plan helps bind the partners together. A business plan is too valuable to overlook. For every entrepreneur who succeeds without a business plan, hundreds fail because they lack a logical, formal plan of doing business. Even if an entrepreneur has no need for outside funding, a business plan, drawn up as early as possible and updated periodically, will be an important means of measuring the progression or lack thereof (46).

To a large extent, the business plan can also predict the death of a business. By calculating how much start-up financing the business will need, how much capital the business will need to keep open, and how much revenue the business will need to bring in, the plan will be able to

set minimum goals. Every business plan should include a danger zone that tells when to pull out and keep losses to a minimum. This zone may change as the business and business plan evolve. This is why it is imperative to update relevant information to the business plan regularly (79).

A business plan is the company's manual, its condition, its Bible. Like the Bible, it starts in the beginning, with the entrepreneur. The business plan contains many components. Among the most important is the "executive summary," a brief description of the owner(s), highlighting their strengths, weaknesses and overall competency. It should stress his or her technical abilities, management skills, and experience. Investors and lenders often regard personal integrity and strength of management as prime factors in determining their decision to lend capital (63).

Also within the business plan is a section that spells out the purpose of the business, a crystallization of ideas in writing, paying particular attention to what sets the business or service apart from everyone else. It describes the marketplace, discusses the general trends in the industry, and gradually narrows with a description to include the segment of the target market and a specifies market niche. It

keeps the analysis of the trading area in mind and defines the geographical limits of the market.

It describes the target customer, whether an individual consumer or another business, in terms of age range, general health care knowledge, income range, sex, education level, and interests. It notes the size and decision making pattern of any market that the business is targeting.

It analyzes why the target customers buy the particular product or service, taking into account all of their motivations. It describes the products or services in detail, touching on how the company will make it or service it, how it will purchase it, or how it will provide it. The plan will fully analyze how much it will cost the company to make it, purchase it, or provide it, and explain the sources of supply, the quality of their materials, and the relationship the company may have with vendor. The plan will touch on any potential problems in procuring or dispensing the product or service. Will it become obsolete or go out of fashion quickly? If so, it should describe how the business will react to changes in the market, and how quickly the plan can be implemented (49).

The business plan must address the competition. It describes how many competitors there are, what market segments they serve, how well they are doing, and how the company will stack up against them.

It also presents any data gathered on sales and market shares of companies within the industry.

The next step in the business plan is to describe the marketing plan, explaining exactly how the company will convince customers to buy its products or services or to use company services over the existing competition. The plan must describe how the business will generate sales through advertisement, promotion, and publications, and note how much the product is worth to the customer, what the competition charges, and at what prices the business can maximize profits.

One of the final steps in the business plan, considered the most critical and most difficult component, is the financial breakdown. Every item dealing with start-up costs are considered. This includes leasehold items to advertising. It will be important to include every cost possible, describing how much start-up capital will be needed, provided and used. It should also include payback rates for business loans and plans for retaining profits and return on equity financing. Also within this section should be a formulated balance sheet based on estimated start-up costs. Further develop the financial plan by preparing projected income statements, cash flow assumptions, break-even analysis, and financial ratio analysis. When putting

together these financial calculations they should be projected up to three years, this will hopefully entice outside capital. For the first year, monthly projections should be made. For the second year, make quarterly projections. In the third year apply calculations based on annual projections (Pollan 72).

The business plan should also include a brief statement explaining the legal structure of the business, any businesses licenses that will be needed, and describe any potential regulatory and zoning problems the business might face.

Another important component in developing a winning business plan is the marketing plan. A marketing plan can be crucial in a business for any new product or project that is about to start, yet many business operators neglect the marketing plan, or, at best, formulate a plan that does not consider all the various aspects that are important for success (Cohen 245).

A marketing plan is critical because it does some very important things for the business:

1. It acts as a road map.
2. It assists with management control.
3. It helps briefing new employees.
4. It helps to obtain financing (Cohen 79).

A marketing plan acts as a road map in getting the company from where it is to where it wants to be: successful, profitable, and making a great deal of money from the product or services it is thinking about introducing. Thus, the marketing plan acts as a road map and guide, and it takes the idea step by step until the company reaches its goal.

Along with being a road map, the marketing plan acts as a tool that allows company management to control its progress. Nothing will go exactly as planned. However, because the business has a complete plan, laid out and documented, management to will be able to see the exact differences between what is happening and what was planned. But more than that, the marketing plan will assist the business in focusing on the proper course to reach its goals (Albrecht 32).

Because the business may need financing at inception or at some point in the growth and development, a full business plan will assist greatly in getting it, whether it be from the Small Business Administration, a bank, or a venture capitalist. A marketing plan is the heart of a good business plan, and with some additions, the company will be able to view the marketing plan as the basis by which the business plan will help in acquiring the capital the company will need.

Finally, the business plan should be concise, or investors will not take the time to read it. It should use photos, graphs, charts, and other eye catching material to send a clear message to investors that the company is serious about starting or adding an existing business and committed to succeeding in that venture (Albrecht 45).

The Industry Prospective

The initial phase in the development of any business venture is the formulation of everything from business concepts to products or services that the industry under investigation may provide.

Once formulated, these factors build the objective for business goals and decisions.

Business Concepts and Objectives

In the case of the health care industry, the most valued and important quotient in formulating a joint venture is to define the scope of services offered. Beyond the obvious goal of making a profit, the objective of the business might include enhancing the business's

customer base, reducing the cost of health care products, providing an investment opportunity for physicians, freezing out area competition, or providing access to capital in purchasing equipment. Whatever the goal, it must be inherently beneficial to the product or service being provided.

The Feasibility Study

The feasibility study is a fact finding, data collecting, and number crunching process in which the proposed business must broadly determine its needs. The final conclusions are only as good as the assumptions and information.

Market Assessment

After determining what service or product the business will offer, it will be important to examine the need and current availability of those services.

The first step is to delineate the geographical boundaries of the area from which most of the business will come now and in the future. It is accomplished by analyzing demographic data of potential patients.

In the area defined by this demographic data, vital information on segmentation of age and family income may can be gained. Economic growth potentials, major employees, and financial stability of the region are ascertained (45).

Information sources most often used to access this data include the following:

* The local community Planning and Economic Development agency.
* The local Chamber of Commerce.
* The regional Electrical Utility Services.
* Regional and State Commerce Department (Albrecht 49).

Competition Analysis

Identifying actual competitors and potential customers is vital to business development and survival. They may include other health care services offered by a local hospital, joint venture, or women's clinic.

To reduce costly duplication of health care services, the federal government has enacted laws that require the review and approval of certain health care services by state health planning agencies. These regulations are known in the industry as Certificate of

Need Laws. The type of service or facility and the expenditure threshold to which certificate of need laws apply vary from state to state (Cryan 38).

Ownership Structure

Deciding on the ownership structure of a joint venture business in the health care industry is a complex process. This is due in part to the laws which govern fraud and abuse of government money.

The financial, legal, tax, and marketing ramifications of choosing an ownership structure in the health industry is ascertained. One type of ownership structure might improve access to capital; another could strengthen customer base with physicians. Thus, selecting the ownership structure is not just a legal or tax decision, but an investment one as well.

The two most common types of joint ventures in this segment of the health care industry is the corporation and the partnership. There are variations to each of these basic structures. The corporate entity includes the closed corporation, the professional corporation, the C corporation, and the S corporation. Each type of corporation has its

own distinctive legal and tax structure that determines its usefulness in a particular business situation (GAO 329).

Partnerships

Partnerships within the industry include general partnerships and limited partnerships. The partnership is by far the most frequently used ownership structure for joint ventures within the health care industry. In a business enterprise, the general partner holds a substantial financial and equity interest in the business, generally sixty percent. The general partner also assumes general liability and has operational responsibility either by contract or by "rights of general partnership." A limited partner has a liability that is no greater than the dollar value of the investment and has no management responsibility or control.

Shares in a limited partnership are dispensed by the unit. The usual unit cost in the industry varies from $1,500 to $5,000 dollars. Sometimes businesses are structured so that only ten percent of the cost of the share is given up front as cash and the rest as a promissory note. Other deals require that full cash payment be made at the time of share purchase (433).

Product/Service Life-Cycle

The recent phenomenon of out-patient health care imaging facilities is, in part, fueled by the development and acceptance of managed health care techniques under President Clinton's Health Care Plan. As such, these health care facilities are in the early phase of their "Product Life-Cycle" (303).

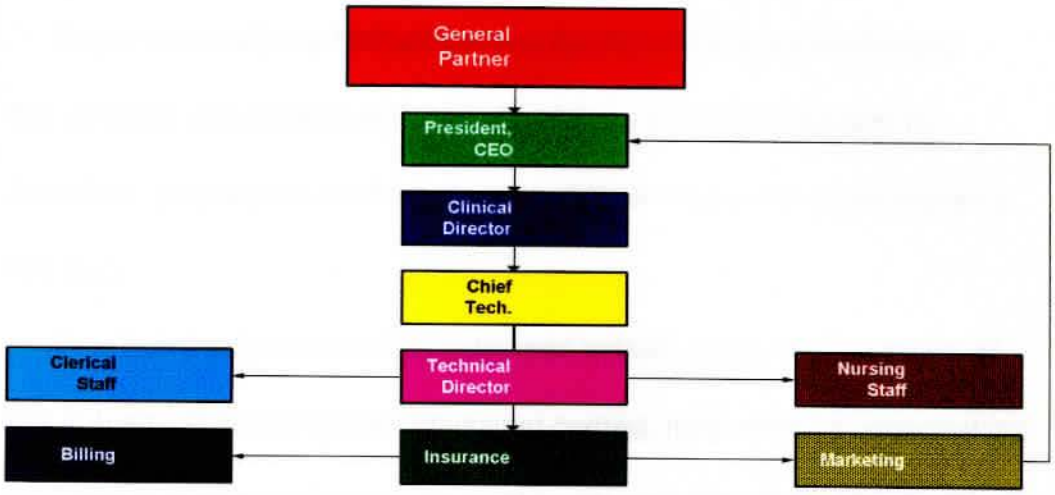
Evolution of the Industry

Joint venture activity in the health care industry has evolved primarily because these services offer more customer conveniences at lower costs to patients, as compared to hospital based ventures.

Organizational Chart

Organizational charts reviewed within the particular health care industry are as diverse as the market they represent. No one organizational chart in this particular segment of the health care industry is standardized. It is important to formulate and design the most appropriate organizational chart that fits the scope of the business.

In formulating and standardizing a set of most commonly occurring organizational charts the following organizational chart structure is designed.



Organizational Relationship

Ninety percent of businesses comprising this segment of the market are made up of investor and general partner relationships. The rest are privately held organizations which use non-investor relationships to conduct business activity.

Organizational Roles and Responsibilities

Businesses which make up the industry use a number of variable

responsibilities to meet the demands and need of the current business environment. These roles and responsibilities generally follow the organizational chart structure and functions listed above (ACR 759).

Organizational chart structure and function helps in maintaining the integrity of business activities. It relays a specific message to investors, physicians, and employees of their role in the organization's mission.

One hundred percent of all business activity within this segment of the industry is comprised of physician owned, joint venture relationships. Of these business relationships, eighty percent are wholly owned by multi-specialty group practices. These physician/investors purchase shares of stock in this venture, which is limited to covenants of twenty-five percent ownership to each individual, according to current federal guidelines (HCFA 932).

Key Positions

Of cases investigated within the industry, one hundred percent used a Chief Executive Officer(CEO) or a Chief Operations Officer(COO) to maintain daily operational activities of the facility. While official job titles and tasks varied from facility to facility, the

duties of the position stayed consistent. The standard requirements for experience of CEO's or COO's within the industry were multiple years of experience in the health care industry, with specific knowledge in joint ventures. Complementing experience of these CEO's and COO's were generally people with advanced degrees in Hospital/Health care Administration, Business, Finance or a CPA.

Another position within the industry is the Technical Administrator, who serves as a liaison and advisor to the CEO/COO, as it relates to technical and health related issues. Their general qualifications were specific to federal and state laws requesting that the Technical Advisor be certified in job specific tasks. This included that the technical administrator be certified by the American Registry of Radiology Technologists. In addition to certification, five or more years of experience in the field of radiology is a standard norm for entry into this technical position (ACR 456).

Business Philosophy

The health care environment of today is scrutinized not only by patients, but by the health care community as well.

These health care communities are made up of physicians, patients,

and other heath care facilities. These businesses have gained enormous identity due to the nature of the market segment in which they do business. These type of businesses are praised by President Clinton's administration, because they service demands of the population they serve. This was evidenced by the reduction in overall mortality rate in women with breast cancer and the increase awareness of breast cancer in women (239).

General business philosophy follows the premise that serving women's health needs from a preventative perspective will increase the overall wellness of women and continue to reduce the mortality rates in women with breast cancer, thus reducing health care expenditures.

Outside Management Assistance

The development of a breast care center is an involved and expensive venture. The willingness to plan and analyze up front can prevent costly mistakes later. It can take upwards of five-hundred hours to gather the necessary facts and figures, analyze them, and prepare a business plan to support financial investment in business development of a breast care center. Starting a business of this type requires the experience of a specialist, with documented

knowledge in all phases of imaging center development. Further, an accountant, lawyer, architect, or banker may complement the ranks of the consultant team in getting the business started. Once business is conducted, these individuals can be consulted on a quarterly basis to keep the CEO, COO, or investors informed on changes with the industry.

Equipment and Facilities

The equipment, space, location, and costs associated with each in the industry have been defined in various ways. First, it has been defined as "projected demand." According to data from the 1987 National Health Interview Survey(NHI), the provision of adequate resources of equipment, facilities, and space to meet industry demand is a necessary condition for reducing the cost and price of services. These factors will further generate demand for breast care maintenance and services.

The number of machines required to meet the current demand for mammography depends, naturally, on the number of mammographies done annually per machine. The (NHI) has documented that a well-organized facility in the United States can successfully perform forty

mammographic examinations per day (AMA 1028).

Current Supply of Mammographic Machines

Dedicated mammography machines are designed exclusively for taking mammograms. Using this equipment is essential to acceptable medical practice and has become almost universal in recent years. Estimates of supply and demand of mammography machines were obtained from two sources. The first source was the Nationwide Evaluation of X-ray trends, an annual service that assesses the amount of radiation patients receive and evaluates radiographic technique for representative clinical examinations. The second source was records from the Food and Drug Administration(FDA) report 257d "Report of Assembly of a Diagnostic X-ray System" (982).

To obtain estimates of the mammographic machine supply through 1992, the assembly of data from 1988 to 1992 was modeled with a logistic cure. Estimates of the number of mammographic sites and equipment range from 4,000 to 6,000 units. The estimated capacity range from 1,675 machines, based on a low estimate of actual demand, to 7,892 machines, were not being met (748).

Number of Mammography Machines in the United States

Estimates of the total number of dedicated mammography machines in the United States indicate a consistent growth rate. Data suggested an increase from 134 units in 1982 (plus previously installed machines) to over 8,000 machines at the end of 1993 (Sondik 892).

The instillation of almost 10,000 dedicated mammographic units is predicted for 1994. The rate of diffusion for mammographic machines is much more rapid than many other medical devices and nonmedical devices in the United States (529).

Focusing on the average mammography facility, however, is somewhat simplistic. Clearly some mammography facilities operate at relatively high utilization rates. Further, as more states mandate third-party reimbursement for mammograms and as Medicare coverage for screening mammograms becomes available, a growing proportion of mammography facilities will separate their services. If only ten percent of mammography machines performed thirty mammograms per day, this would account for 4.3 million mammograms annually (849).

At fifty dollars per mammogram, a screening facility doing thirty procedures per day could make a substantial return on investors equity.

The General Accounting Office's(GAO) industry calculations on estimated cost of equipment and services by the year 1994 will be about 4 billion dollars.

Sales and Profit Estimation

Every new program or venture requires some form of funding. To estimate funding and profit requirements, a budget is drawn up at the outset, taking into account all capital and fixed costs and establish prices for the service or product being offered. Outside funding sources and grants is researched and is attained if available.

Cost versus revenue serves as the basis for developing a payback analysis. Though the initial financial outlay is sizable, fixed costs should remain fairly constant, with variable costs increasing as patient volumes increase.

While data did vary from facility to facility, a mean sales/profit figure is determined. Industry estimates suggest that a base of 10,900 mammograms with a per procedure charge ranging from $75 to $100 is an accurate representation of the current industry (Sondik 568).

With these estimates in mind, less any average profit over a three, five, and ten year span, realizable income would be $174,000, $290,000 and $580,00 respectively (GAO 293).

Starting and Operational Capital

The investment capital needed to open the doors of a screening facility within the industry is comprised within the capital budget. Typical facility size is approximately four-thousand square feet. Facilities equipped with state-of-the art scanning equipment cost from a low figure of $150,000 to a high figure of $500,000.

Components of the capital budget must include the following items.

* Real Estate
* Equipment
* Construction
* Miscellaneous (Start-up costs included)

The single most expensive component of the capital in each facility observed was costs associated with equipment purchases. These equipment costs generally used up fifty to sixty percent of start-up capital used in business development (Winthrop 34-87).

Direct Costs (Labor & Material)

According to the American College of Radiology(ACR), actual direct costs from facility to facility within the industry varied greatly. This one factor was due in part to the fluctuations and variations in technical and administrative salaries across the industry. By estimating the national average labor and material cost, the following data was accumulated. Yearly mean estimates on labor costs are around $420,000 per year, per facility. Based on these estimates, labor cost is approximately forty to fifty percent of average sales/revenue for each facility, but average yearly supply cost represent only two to three percent of sales/revenue (ACR 23-43).

Indirect Costs (Overhead & Administrative)

Indirect overhead and indirect labor statistics vary within the industry. One indicator influencing this is the variability of procedure/service volumes and actual procedure/service costs from facility to facility.

The income statement listed on page 36, shows the typical average indirect costs within the industry. Health Care Financing

Administration(HCFA) estimates that the typical industry average overhead for a facility performing 15,552 mammographic services a year and generating $1,052,000 average sales dollars, use approximately thirty to fifty percent of these sales dollars. What this data suggest is that for every sales dollar earned, thirty to sixty percent will pay indirect costs such as administrative salaries, building costs, utilities, insurance, and other related expenses. One factor affecting the relationship of indirect cost percentages within the industry was volume. Industry data indicated that as procedure volumes increased, fixed costs reduced or stabilized in relationship to indirect cost percentages. It was noted that if average volume increased, there was a direct reduction or a stabilization of fixed costs (142).

Income Statement

The income statement serves to summarize various component projections of revenue and expenses for a given budgeting period. Industry data suggest that facility volumes fluctuate ± thirty percent from standard base of 15,000 units. Based on data from the American College of Radiology, the income statement (Table 1), depicts an average income statement used within the industry.

Table 1

Income Statement

Revenues	$1,052,250.00
Direct Expense	
DB Accounts	$ 105,225.00
Total Direct Expenses	$ 105,225.00
Gross Profit	$ 947,025.00
Operating Expenses	
Advertising	$ 15,000.00
Depreciation	$ 44,550.00
Insurance	$ 17,000.00
Maintenance	$ 4,500.00
Start-up Costs	$ 32,900.00
Equipment Lease	$ 49,800.00
Rent	$ 198,000.00
Salaries-Clerical	$ 24,000.00
Salaries-Technical	$ 320,000.00
Salaries-Admin	$ 65,000.00
Supplies	$ 28,000.00
Utilities	$ 21,250.00
Payroll Taxes	$ 114,520.00
Total Operating Exp.	$ 934,520.00
Net Income	$ 12,505.00
Partners Equity	$ 00,000.00
Capital Contributions	$ 250,000.00
Partners Equity	$ 262,505.00

Source: Health Care Accounting. Practical Guide of Health Accounting, by A.J Winthrop (January 1987).

The Balance Sheet

The balance sheet (Table II) is developed by beginning with the balance sheet for the fiscal year just ending and adjusting it, using all the activities that is expected to take place during the budgeting period. For a new service or product that is introduced, this criteria is not available, so, some estimates and deductions need to be made as to their impact on business operations.

To illustrate this point, data was taken from Health care Financing Administrations estimate on financial information disclosures provided by the General Accounting Office (GAO).

Table II

Balance Sheet
Date XX, 19XX

	6 Months	12 Months
Current Assets:		
Cash	$ 43,725.00	$ 76,289.00
Accounts Receivable	$ 41,025.00	$ 109,831.00
Inventory	$ 12,000.00	$ 6,500.00
Fixed Assets:		

Land	$ 25,000.00	$ 28,800.00
Building & Equipment	$135,000.00	$ 143,000.00
Accumulated Deprec.	($98,525)	($ 152,000)
Total Assets	$158,225.00	$ 212,420.00
Current Liabilities		
Accounts Payable	$ 8,225.00	$ 20,420.00
Income Tax Payable	$ 25,000.00	$ 67,000.00
Total Current Liab.	$ 33,225.00	$ 87,420.00
Stockholders Equity:		
General	$ 75,000.00	$ 75,000.00
Limited	$ 50,000.00	$ 50,000.00
Total Liability /Stockholder Equity	$158,225.00	$ 212,420.00

Source: Health Care Accounting. Practical Guide of Health Accounting. by A.J. Winthrop (January 1987)

Financial Forecasting

There are many different ways to determine the profitability or loss of net income in a company at any given time.

One of the most common forms industries use to determine yearly earnings is standardized profit and loss statements, also called the income statement. This profit and loss statement is included within the annual report. Table III represents a condensed income statement.

Table III

Income Statement

Sales:	$752,000.00	
Less: Cost of Sales		$325,000.00
Gross Margin	$427,000.00	
Less: Operating Expenses		$316,000.00
Income From Operations	$111,000.00	
Add or Less: Other Income/Expenses		$ 35,520.00
Income Before Tax		
Less: Provision of Taxes		
Income From Operations:	$ 75,480.00	
Add or Less: Income from Discontinued operations		$ 54,000.00
Income before extraordinary items	$ 21,480.00	

Source: Health Care Accounting. Practical Guide of Health Accounting, by A.J. Winthrop (January 1987)

Net Income

Based on research data, it is suggestive that the industry is currently conducting quarterly and annual profit analysis. Further indications suggest that quarterly data is attained by using interim financial statements (ACR 546).

Cash Flow Analysis

Cash forecasting and management (Table IV) are integral parts of the budgetary control process. The budgetary control system begins with the preparation of the operating budget and capital expenditure plans.

Once they have been completed, cash forecasting can begin.

The first step in cash forecasting is analyzing the monthly income and expense statements to determine cash inflows and outflows. The time lag factors between the two make up total cash flow.

Two time lag factors are computed and monitored in estimating cash flow:

1. Cash inflow - The amount of time between billing of the service and receipt of that service.
2. Cash outflow - The amount of time between incurring of an expense and actual disbursement of cash to pay for it.

The primary purpose of cash forecasting is to assist management in determining whether there will be enough cash coming in to cover reported expenditures (GAO 23).

Table IV

Cash Flow Projections

	1st Qt	2nd Qt	3rd Ot	4th Qt
Beginning Balance	$ 00	$202,145	$224,572	$271,587
Sales of units	$250,000	$ 00	$ 00	$ 00
Cash Receipts	$ 56,512	$ 78,918	$ 97,245	$ 82,500
	$184,143	$201,389	$225,000	$205,000
	(25,307)	(32,000)	(36,000)	(28,000)
Cash Sales Receipts	$460,448	$450,452	$510,817	$531,087
Uncollectibles Total	$102,249	$104,800	$110,120	$125,390
	$ 12,450	$ 12,450	$ 14,280	$21,000
Payroll Expenses	$ 32,900	$ 00	$ 00	$ 00
	$ 82,074	$ 80,000	$ 86,200	$93,500
Disbursements	$ 28,630	$ 28,630	$ 28,630	$32,480
Equip. Lease	$258,303	$225,880	$239,230	$258,000
Start-up Costs				
	$202,145	$224,572	$271,587	$258,000
Operational Payroll Taxes Total				
Ending Cash Balance				

Source: Health Care Accounting. Practical Guide of Health Accounting, by A.J. Winthrop (January 1987).

Break-Even Analysis

Use of the break-even point, when total revenue equal total expenses, requires that costs be classified as either fixed or variable. Comparatively speaking, the higher the fixed costs, the higher the break-even point. Conversely, the lower the fixed costs, the lower the break-even point. The break-even model is used quite frequently within the industry to determine the required procedure volume.

A common approach in computing the break-even point is illustrated in the following mathematical technique.

	Per unit	Total	Percent
Net Charges	$100	$100,000	100%
Variable Costs	$60	$60,000	60%
Contribution	$40	$40,000	
Contribution Margin			40%
Total Fixed Costs		$40,000	
Net Profit (loss)		$ 0	

By using the data from above the following break-even points can be calculated in terms of units of service and in dollars charged.

A. Break-even (B/E) in units of service = $\frac{\text{Fixed Costs + Net Profit}}{\text{Contribution Margin}}$

A. B/E = $\frac{\$40{,}000 + \$0}{\$40}$ = 1,000 Units

B. Break-even (B/E) dollars of charges = $\frac{\text{Fixed Costs + Net Profit}}{\text{Contribution Margin}}$

B. B/E = \$40,000 + \$0/.40 = \$100,000

In summary, break-even analyses provides a valuable statistical background for important planning decisions such as rate setting (pricing), staffing, and market analysis (HCFA 1093).

Fixed Assets and Acquisition Schedule

Customarily, fixed asset acquisition planning is a program for identifying, evaluating, and financing proposed start-up and operational costs of a business (GAO).

Major components to a fixed asset schedule are start-up and operational costs. These costs identify specific needs for capital. Items limited on fixed asset acquisition schedules vary greatly within this segment of the health care industry. This variation is due, in part, to the level and scope of the business and the regulations which control the industry.

As a general rule within the industry, the following subcomponents

are included within the fixed asset acquisition schedule:

- Payroll Costs
- Rent (lease)
- Marketing
- Equipment

Tax Planning and guidelines

Under current tax codes, a partnership is not subject to federal income tax, but it is required to file a partnership information tax return each year (form 1065). Each investor is required to take into account their federal income tax liability and distributive share of all items of profit, gain, loss, deduction, credit, and tax preference for any taxable year of the investment (GAO 693).

The federal income tax consequences of an investment in a partnership within the industry is complex, and their impact may vary depending upon an investor's particular tax situation. Investors in the industry consider the following tax risks, among others:

1. Possible characterization of the partnership as an association taxable as a corporation, can result in both the imposition of additional tax on the facility and reduced partner income.

2. The fact that investors are taxed on taxable income derived from operations and that the facility may not distribute cash sufficient to pay those liabilities.

3. Possible disallowance, or reduction, of the investors allocation of losses, depreciation deductions or other deductions resulting in additional taxable income to the partnership without a corresponding increase in distributions of cash to the investors. Other reduction in current taxable income not currently utilized.

4. Possible audit of investor tax return resulting for the audit of the facility.

5. The partnership may not cause the facility to elect, under Section (745) of the Alabama Tax Code, to adjust the basis of the partnership's assets upon sale of a unit, thereby resulting in a lower sales price to a selling investor. (782)

Tax Limitations in the Industry

The Tax Reform Act of 1986 (the "ACT"), generally effective as of January 1, 1987, made comprehensive any significant changes in the Internal Revenue Code of 1954 (now the Internal Revenue Code of 1986). Such legislation modified many provisions of the Code, including, subject to certain transition rules, the following changes:

1. The investment tax credit is available, but under specific criteria.

2. At the present time, capital gains are fully included in income, and taxed in full.

3. Certain nonbusiness interest is no longer deductible in full, and investment interest is deductible only to

the extent of net investment income.

4. Depreciation on specific capital items are no longer tax advantages (GAO 578).

The Act added the passive loss limitations to the Code that prevents a taxpayer from sheltering salaries, wages, and portfolio income with losses from trades or businesses in which the taxpayer does not materially participate. This limitation denies a deduction for the full amount of such losses in computing tax payer's regular federal income tax liability. Any loss disallowed because of this limitation may be carried forward to offset passive income in future years. If a tax payer transfers his or her entire interest in a passive activity in a taxable transaction, suspended losses will become deductible.

The Act of 1987 provides that certain publicly traded partnerships shall be treated as corporations for tax purposes. The Act stipulates that partnership shares cannot become publicly traded.

Enactment of any future tax from legislation could materially affect the partnerships' investments. In addition, future regulations promulgated under the Code may limit the ability of the facility to generate passive income (Alabama Tax Code387).

Compensation Plans

Pension, profit sharing, and bonus incentives generally fall within the category called partnership allocations.

Regulations under Section 704(b) of the tax code make specific provision on how physicians can be compensated under incentive and profit sharing plans. These plans are specific to the industry and only include those dollars earmarked for Medicare beneficiaries.

Federal laws further dictate how physicians are compensated on a salary bases as it relates to federal health subsidies. These laws mandate that a physician who has an ownership interest in a health care facility cannot gain financially from such a venture. Physicians excluded from these federal guidelines are radiologists, physicians who use radiation, ultrasound, or magnetism to detect the absence or presence of disease processes.

Federal tax laws provide an important incentive for businesses to contribute financially to their employees pension plans: the amount a company puts into a pension plan is deductible as a current expense.

Presumably, most radiology practices have pension plans, but no documentation is available from an industry perspective. To obtain

information on what pension provisions are typically in the industry, the American College of Radiology and the Principle Professional Organization of Radiologists conducted a survey of radiology pension plans in late 1990.

This survey concurred with the industry standard on providing individual pension plans, incentive bonuses, salary base, and profit sharing based on each individual facility (ACR).

Target Market

The targeted market is specific to the health care industry. The industry follows the American College of Radiologies guidelines on testing of women over forty years of age.

The American College of Radiology recommends that women have one mammogram by the age of forty, one every two years between the ages of forty to forty-nine, and one annually thereafter.

Based on industry criteria, the targeted market is women greater than forty years old or women who have a known breast disease and have not reached their fortieth birthday (29).

A 1990 census data shows that there are approximately 114,447,567 women forty years of age or greater in the United States (48).

Market Share Potentials

The American College of Radiology and the American Caner Society estimate that approximately fifty percent of women between the ages of forty to sixty-five have annual mammograms. Based on this and data provided by 1990 census bureau, the market size potential is approximately 29,500,000 women (39).

Potential dollar value of the market, assuming an average price of seventy-five dollars per mammogram, is about two billion dollars annually.

The American Cancer Society predicts that potential market size will increase as the incidence of breast cancer increases and as shifting of the forty to forty-nine age range shifts into the fifty or greater age range. The market potential under these factors and general assumptions will increase approximately one percent annually (ACS 19).

Market Segmentation

By definition, market segmentation classifies customers into groups with different needs, characteristics, and behaviors. This market

segment consists of consumers who respond in a similar way to a given set of marketing stimuli.

Given the nature of the industry and its demographic makeup, it is difficult if not impossible to segment such a specific group. There is little or no differentiation between the needs of each individual consumer. The end product or service is specific to the level and needs of each individual consumer (Enzman 47-52).

The Product

Much debate has taken place within the medical industry in determining whether a mammogram is considered a product, service, or a combination of both. The American College of Radiology tends to refer to the mammogram as a product but considers the physician component of the mammogram a service. So for clarity sake, the mammogram will be referred to as the product.

What is a Mammogram?

A mammogram is an x-ray procedure that produces an image of the breast tissue. The x-ray image is called the "mammogram."

Mammography is primarily used for the early detection of cancer and other abnormalities of the breast.

Mammography is one of the most reliable medical procedures available for detecting cancer and tissue differentiations within the breast and armpit lymph nodes. A mammographic procedure is generally done for two reasons:

1. To screen for breast cancer -- Breast cancer can frequently be detected by mammography years before it can be found by physical examination or other methods of diagnosis.

2. To help evaluate abnormalities of the breast -- Mammography can rule out or confirm the presence of breast disease or abnormalities, which may include cancer.

Benefits/Risks of Mammography

The most obvious benefit of mammography is the possible early detection of breast cancer. The early detection of cancer means a better chance of a complete cure and less tissue removal when surgery is necessary.

As with all x-ray procedures, mammography exposes the patient to a minute tissue dose of radiation, but the benefits of mammography clearly outweigh any risk involved from minor exposures to radiation.

Product Life Cycle

There are five levels to the normal life cycle. Each level is judged as to the products progression over time in relation to sales and profits.

The levels typically found within a normal life cycle display are as follows:

1. Product Development
2. Introduction
3. Growth
4. Maturity
5. Decline

There are also varying shapes of a typical life cycle within the above five components. The following components define the product and how it is classified within each stage of the life cycle.

1. Traditional -- Distinctive stages of development and decline.
2. Boon -- Popular product generates sales for a long time.
3. Fad -- Quick popularity, quick decline.
4. Extended Fad -- Residual sales after initial success.
5. Fashion -- Product sells well during non-consecutive periods.
6. Nostalgia -- Obsolete product achieves new popularity.

In relation to the standard product life cycle, mammography is relatively young within the growth stage. The product could also be considered a boon product, because it is a popular product within the industry and should continue to generate and maintain sales over a long period.

Mammography can be classified within the growth stage of the product life cycle for specific reasons. One indicator of this is the continued expansion and demand for the product and service. Unit profits continue to increase over consumer willingness to pay higher prices for the product and service.

Industry Competition

The industry as a whole does not have highly competitive forces that position the product or service in terms of market competition. The industry must meet specific guidelines set forth by the American College of Radiology, the Health Care Financing Administration, and the American Cancer Society.

Facilities performing mammographic studies within the industry must meet these guidelines or be subject to stringent federal and state laws. If not, the facility will be inhibited from receiving reimbursement from private and federal insurance agencies.

Facilities within the industry are competitive forces only as they compare to the technologically driven procedures that a facility may offer over another facility. By this, the only source of patient referral volume comes from physicians who feel the facility may have

technology advantages over the other. Making the referring physician happy with the service and product, therefore, is the major force which drives competition within the industry (ACS 56).

Industry Regulation on Advertisement

Federal and State anti-trust laws prohibit some states and medical associations from using federal and state funds to advertise products and services.

The medical industry as a whole considers any form of medical advertisement as taboo and unethical (98).

Remaining Competitive

One way to provide the best service in the industry is by staying technologically competitive. Referring physicians and patients demand the most up to date technology for detecting the absence or presence of breast cancer. Facilities within the industry which can provide this type of high-quality, technologically superior product at a reasonable price will stay on top as leaders.

Pricing Strategy

General pricing within the industry is regulated by Medicare and other health agencies. This is due in part to legislative efforts made by insurance companies to regulate quality indicators of mammogram procedures. To received funding, each facility must meet specific guidelines set forth by these health agencies.

Medicare now pays fifty-five dollars per procedure for a screening mammogram, one hundred-fifty dollars for a diagnostic mammogram, and up to two hundred-fifty dollars for a breast biopsy procedure. Each rate will be increased five percent per year for beneficiaries under the newly proposed health care plan.

Due to specific pricing standards of the federal government, the industry tends to set profit goals based on screening, diagnostic and biopsy services provided to Medicare beneficiaries and third party insurance carriers (HCFA).

Problem Statement

Changing the nature of health care is enormous. The federal government estimates that thirty-five million Americans are without or have limited access to health care benefits.

This is due in its entirety to the cost of medical insurance. Out of this crisis has grown a new awareness of what is termed "Preventative Medicine."

It is this preventative medicine concept that has brought women's health awareness to the forefront of medicine today. This is also due in part to the rising concern of breast cancer in women.

Regardless of the health care environment of today, tomorrow, and well into the future, there needs to be more viable, preventative medical screening facilities available for the detection of breast cancer in women.

If detected early, breast cancer is treatable. Current demand for these services are not being met to the expectations of physicians and women. This study will continue, therefore, with a business plan for a comprehensive breast diagnostic imaging center.

Chapter III

METHODS AND EVALUATION

Subjects

Two evaluators reviewed the proposed business plan and provided the necessary feedback for this project. Both of the individuals were selected due to their extensive knowledge in the field of mammography and business management. Each individual has in depth working knowledge of breast care techniques and maintenance. Each individual is also very knowledgeable on federal guidelines which regulate the breast care industry. Both evaluators are privately practicing physicians living in different geographic locations. Each physician has completed a medical residency in radiology and extended clinical practice in breast care management.

Craig M. Watts, M.D., MBA , is a clinical radiologist practicing speciality medicine in rural counties in southern Illinois. Watts is a board certified physician through the ACR, which allows him specific medical privileges in the interpretation and diagnosis of disease states through the use of medical radiation. Watts was chosen to evaluate this plan because of

his in depth knowledge of breast care management and extended knowledge of current trends in breast treatment technologies. Watts was further selected to evaluate this plan based on his experience and knowledge of owning and operating a diagnostic center for the treatment and diagnosis of breast disease. Watts has been a practicing physician for 10 1/2 years. Watts is an advocate for the proposal of federal mandates on eliminating facilities not registered with the American College of Radiology(ACR) in practicing breast care management.

Watts has worked with the ACR in developing guidelines in practice management and technology assessment of breast care techniques and utilization of resources. Watts was further selected to evaluate this plan due to his business background and insight into the long range future and treatment of breast disease.

Watts has a clinical patient practice mix made up of various individuals. The majority of his patient mix are women between the ages of 35 and 72. All of his patients have experienced some form of breast care management and treatment. His final mix of patients encompass long term care and maintenance cases.

Daniel S. Lumpkin, M.D., also evaluated this project. A practicing physician in southern Alabama, Lumpkin specializes in

clinical radiology and practice management of breast disease for the women's resource center of southern Alabama. Lumpkin serves as an advisor to the Southern Radiological Society of Technology Assessment and Facility Utilization. This committee evaluates the use of radiographic equipment in the state of Alabama. Lumpkin manages and operates a solo practice dedicated to breast care management and treatment of long term breast disease. He is a board certified radiologist with the ACR.

Lumpkin has over 20 years of radiology training and subspecialization in the interpretation and treatment of breast disease. Lumpkin has participated on various ACR projects relating to breast care management and practice guidelines for radiologists. He has performed various lectures on marketing and clinical indicators for the American Healthcare of Radiology Administrators (AHRA).

Lumpkin's patient practice mix is made up solely of women who need short term management of breast disease. His patient practice mix includes all age ranges.

Watts and Lumpkin are active in both professional and community efforts in the detection, awareness, and reduction of breast disease. Both of these physicians are committed to the advancement of

clinical practice guideline in breast care screening and management. Each physician also retains clinical practices in the interpretation of radiographic procedures.

Instrument

Each evaluator was contacted first by letter (Appendix A) and then personally by phone one week later. Both physicians received the letter and were interested in finding out more about the project. Due to each physician's extensive knowledge in clinical research and process evaluation, they easily understood the technique used to gain data for the plan.

The evaluators were given a detailed description on the scope and the importance of candid information and asked to provide input on a set of prepared survey questions (Appendix B).

Each evaluator was asked to have the manual back in two weeks. Each evaluator was asked to call the surveyor if they could not effectively evaluate the survey questions.

Within 2 1/2 weeks each evaluator had returned the survey questions. A phone call was made to each individual to clarify results and thank them for their responses.

Materials

The resulting project is a business plan (Appendix C) designed to enable investors in determining the appropriateness of the design, development, and implementation of a breast care center. This plan expands upon the importance of educating women on breast diseases and routine screening for breast abnormalities. The thrust of the plan is to assess the need for adequate and appropriate screening facilities. The plan will further evaluate the access to capital for business development and implementation.

Ideas and concepts under the current environment are pinpointed throughout the plan. Specific detail to market saturation is delineated and determined within the literature.

The business plan is the frame work of an organization. This frame work includes detailed information on marketing and financial plans. These plans direct the organization into formulation of business concepts and objects. Finally, the plan brings together all relevant information and summaries the data so that potential investors can evaluate the results of data collection.

Procedures

It was concluded that personal interviews would have been the better choice in gathering information for feedback on this project. But due to the constrains of location and time available from physicians', data collection was adequately attained through phone interviews. Having worked extensively with each of these physicians made the interview process more effective in assessing basic reactions. The prepared list of questions, in Appendix B, kept the interview on track and provided a valuable gauge in accessing the appropriate length of the interview.

Each telephone interview was scheduled one week in advance. This allowed each evaluator adequate time to review and make plans for a question and answer session. Both phone interviews were conducted in the evening at the physician's home address, which helped each evaluator to feel relaxed and comfortable. It further provided the evaluator adequate time away from the patient care area and possible interruptions by phone.

The interview process was kept at a professional level and conducted as though it was a blind study. The average time of each interview was

thirty minutes. The list of survey questions took an average time of ten minutes, with the remaining twenty minutes used for comments and general discussion.

Notes were carefully taken and reviewed with each evaluation after the question and answer session was completed. Questions were based on a scale from 1-5. 1 being the worst and 5 being the best.

Chapter IV

RESULTS

Results from the enclosed business plan (Appendix B) were dependent upon the accurate accumulation of interview data. The numerical rating system was used to attain the overall scope, relevancy, and accuracy of the plan. When the evaluator expanded upon the numeric rating, an effort was made to quantify the information.

A number of "5" indicates the best possible result, while the number "1" indicates the least desired result. The mean number was represented by a "3." The numeric results table on page 65 encompasses two columns. Each contains information on evaluator's name, question listing, individual numeric mean, and net combined mean. The results of each question are listed underneath the name of the evaluator, and the question to which the answer relates is listed on the left hand margin. The numerical results table was put together in a manner that would reduce the difficulty in reading and interpretation of the data.

Watts had the following comments concerning the business plan: He felt the plan was written in great detail and focused on all the points

Table

Numerical Results

Question Number	Dr. Watts	Dr. Lumpkin
Question Number 1	5	5
Question Number 2	5	5
Question Number 3	5	5
Question Number 4	5	4
Question Number 5	4	5
Question Number 6	4	4
Question Number 7	5	5
Question Number 8	5	4
Question Number 9	5	5
Question Number 10	4	5
Question Number 11	3	5
Average Mean	4.5	4.7
Net Combined Mean	4.6	

necessary to adequately evaluate the current business environment. Watts stated, "Physicians in todays health care market are looking for ways in which to enhance their income and it is this type of business which most physicians are looking into to expand." Watts felt that this type of joint venture, while offering some risk, would provide long-term investment growth for additional revenue generation and enhance tax advantages that could lower the physicians' taxable investment.

Watts felt that the plan's format was easy to follow. He commented that at first he was skeptical about his ability to evaluate the writing style of the plan but later admitted that the way in which the material was presented flowed and was easy to visualize.

Watts indicated that physicians tend not to take the time to make complex business decisions on their investment portfolios. He said physicians generally leave it up to their portfolio manager or business manager to make the decisions on business investment. He felt that the information presented to him put the information into clear cut terms that he could act upon. Watts was so interested in the venture that he asked if he could forward the information to his physician colleagues for review.

Watts was interested in finding more about the topic of employee gain sharing. He commented that his employees generally leave his practice to go work at another physician's office for some type of profit sharing program. He felt the concept would fit into his busy practice by rewarding those individuals who helped his practice grow and continued to meet his expectations.

Watts felt he could use some of the marketing information in his current practice. He asked if he could copy the information and present it to his marketing manager and office administrator.

Lumpkin had the following comments to make concerning the business plan: He felt the plan was easy to follow, even though it touched upon some very specific business terminologies and concepts. He commented that the plan takes financial, marketing, and general use information and puts the information into an organized and readable format. Lumpkin commented that the business plan is realistic, exactly what is going on in the breast care market today. Lumpkin felt that other physicians would be very interested in this type of business format for investment and tax advantages.

Lumpkin said the information was lengthy but touched upon all the information that would probably be required by his portfolio manager if he were to invest in a business of this nature. Both physicians stated that the plan utilized tables and graphs very effectively. Lumpkin said the use of color graphs and tables were spectacular. He said it grabbed his attention and held it throughout the literature.

Both Watt's and Lumpkin's survey results were very consistent throughout the survey. The average mean point calculated for Watts was 4.5 points and the average mean calculated for Lumpkin was 4.7 points. Total combined mean for both physicians was 4.6 points. Total mean possible was 5.

Chapter V

DISCUSSION

Summary

Each evaluator provided valuable assessment and feedback in measuring the validity of a comprehensive breast imaging facility. Both physicians viewed the business plan as a framework for future development and implementation of such a facility. Each physician felt the business plan would provide physician investors with the necessary information to make a determination about investing in a facility. Each evaluator felt that their extensive training and education on the subject helped them to evaluate the business plan. Watts felt that physician investors would be the most likely candidate in providing capital for the development of a comprehensive breast imaging center.

Lumpkin pointed out that work unit compensation plans are becoming more prevalent in the health care field. His assessment of the work compensation plan was favorable. He stated that in his practice one objective was to reward the good employee and not the bad.

The problem statement at the end of chapter II indicated that a business plan will provide an all encompassing prospectus for a potential investor to make a sound, logical, and accurate business decision in determining the appropriateness and validity of such a facility. Based on interview questions, research material, logical assessment, and other information gathering techniques, the data support the need for a comprehensive breast imaging center for the detection and treatment of breast diseases.

Limitations

In recent years the health care industry has become the central thrust of many political debates. The increasing evolution and speed at which health care concerns have filtered into the minds of the general public is quite amazing.

Very few limits were experienced during this project. One factor that continued to be exhibited throughout the plan was the limited access to specific information. A great deal of general information was available but seemed too physician oriented. This information had to be reviewed in great detail to acquire timely and accurate information. Another

difficult factor encountered during this project was gaining access to medical data bases. Access to these medical data bases was not only very expensive but time consuming.

It was somewhat difficult to put medical data in terms that would be easily read by a lay person.

Suggestions for Further Research

One factor that needs to be consistently addressed and evaluated is the ever increasing legal and tax structure of implementing a business such as a comprehensive breast imaging center. Research data suggests that regulatory agencies have different legal requirements for each state.

Another important factor to consistently review is the capitated cost structure allowable under each insurance plan within the industry.

Other possible evaluators could be utilized to strengthen the validity of such a business. Individuals such as attorneys or investment bankers be used to help oppose or support such a venture. These individuals could add valuable information on assessing the legal and financial nature within the industry.

Detailed research in the area of breast disease and mortality rates could further support the use of techniques such as annual breast screening in the detection of breast cancer.

Breast cancer screening techniques have come a long way in recent years. Long range plans to reduce this dreaded disease will be up to the medical community. It is for this reason that viable and comprehensive breast imaging centers should be made available to every woman. The heavy concentration and awareness of breast cancer in the general population needs to continue. This can only be accomplished through facilities such as the comprehensive breast imaging center.

APPENDIX A

SURVEY INTRODUCTION LETTER TO PHYSICIAN'S

Dear Doctor _____:

Congratulations! You have been selected to participate in an important survey. The survey will ask you specific questions pertaining to the enclosed business plan. The survey questions will assess the validity and feasibility of developing, implementing, and operating a comprehensive breast imaging center.

Please read the enclosed business plan. After reading the business plan, complete the enclosed survey questions. Please be candid about your comments. Extra space has been made available so that additional comments can be written.

In approximately one week you will be contacted by phone. This session will be used to clarify questions that you may have, if any.

Please have the business plan and evaluation questions returned within two weeks.

Thank you for your time and professional opinion in evaluating this business plan.

Respectfully submitted,

Mr. Kelly Wayne Emrick

APPENDIX B

Evaluation of Business Plan

Instructions: Please read the following questions carefully, then circle the number that best fits your answer. Circle one number per question. Please explain you response on the additional space provided.

1. Would this business plan be important to you in determining whether to invest in such a venture?

1 2 3 4 5
Not important Very important

Why_____
_____
_____

2. Was the information contained within this plan clear and concise?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

3. Was the plan informative?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

4. Did the information within the plan hold your attention?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

5. In your professional opinion, do you think a business like this is needed with the medical community

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

6. Would you invest in a business such as the one presented?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

7. Would you invest in a business such as the one presented?

1 2 3 4 5
Not likely Very likely

Why_____
_____
_____

7. Do you feel all relevant information was presented?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

8. Was the plans message conveyed in a logical manner?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

9. Would other colleagues of yours be interested in this business plan?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

9. Would other colleagues of yours be interested in this business plan?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

10. Did you understand the concepts of gain sharing?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

11. Does the literature accurately represent the current medical environment?

1 2 3 4 5
Not Very Very Much

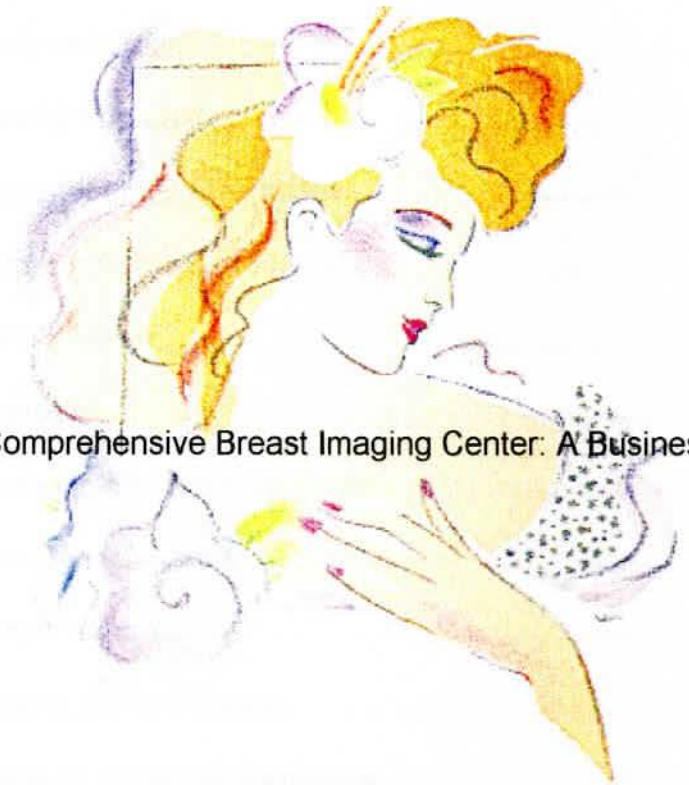
Why_____
_____
_____

12. Did the plan provide you with information that you can use within your current practice?

1 2 3 4 5
Not Very Very Much

Why_____
_____
_____

APPENDIX C



by

Mr. Kelly Wayne Emrick

TABLE OF CONTENTS

I

The Comprehensive Breast Imaging Center

The business of the Comprehensive Breast Imaging Center is to own and operate a "Comprehensive Breast Care Center," providing diagnosis and treatment of breast cancer and other breast diseases.

The Breast Imaging Center shall conceptualize a full range of services, including the selection and acquisition of appropriate equipment and the design and supervision of facility operations. The Breast Imaging Center shall provide provisions and training of technical and support staff, patient billing, collection, and the provisions of all marketing activities. Other goals of the Breast Imaging Center shall be to provide investors with a stable return on their equity and provide other tax deductions allowable under local, state, and federal agencies.

Investment Goals

Investment goals of the Comprehensive Breast Imaging Center shall be the following:

1. Generate a return on investment to partners.

2. Use federal income tax benefits available for investors.

There shall be no assurance that cash will be available for distribution to the investor partners in year one and on. The Breast Imaging Center shall be compensated or reimbursed by the investor partnership for specific services and expenses paid on behalf of the facility. These fees and expenses, with the exception of billing and collection, will be deducted from net income and other investor funds prior to computing the net cash from operations available for distribution to the investors. The Breast Imaging Center, in its discretion, may also retain any portion of such funds in the partnership for reserves for working capital purposes. Based on estimated pro forma statements, there is a high probability but no assurance that the Breast Imaging Center will be able to achieve a sufficient level of operating income to pay its forecasted expenses and provide additional income from which to make cash distributions to investors. Cash available for distribution will be dependent upon many factors which are not within the control of the facility. Physician's patient volume, the cost of acquisition and servicing patient tests, and changes in Medicare and private reimbursement rates could affect forecasted revenues.

This plan is accompanied by financial forecasts of anticipated business operations. The financial forecasts are further based on assumptions which may or may not occur.

Forecasts are inherently subject to varying degrees of uncertainty, and their achievement depends on the timing and probability of a complex series of future events, both internal and external, to the enterprise. Further, there can be no assurance that some tax deductions upon which the accompanying financial forecast is based may not be challenged, disallowed, or required to be capitalized, or that there will not be adverse legislative or administrative changes to the federal income tax laws. Any such changes could adversely affect the tax consequences of assumptions set forth in the forecasts. Further, if financing for the facility in the amounts and on the terms depicted in the forecast could not be obtained, then facility operations may be limited.

Financial Forecast

This forecast anticipates specific assumptions as to the factual matters of operating a Comprehensive Breast Imaging Center. Accordingly, the financial forecasts may not and should not be relied upon entirely to

Table 1

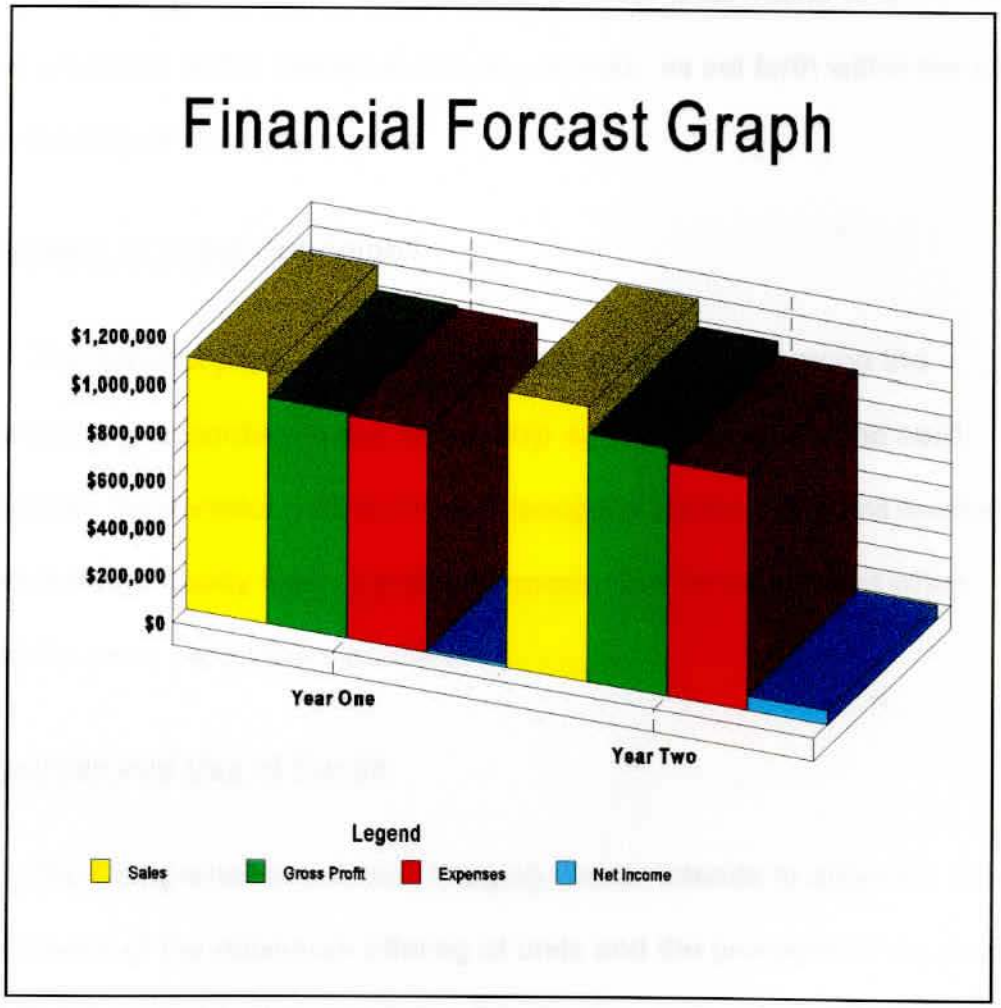
Financial Forecast

Financial Forecast For the Period Ending December 31, 1994 and 1995				
Revenue	Dec. 31, 1994	%	Dec. 31, 1995	%
Fee income (sales)	$1,052,250	100	$1,157,475	100
Direct Expenses				
Doubtful Accounts	$105,225	10	$115,748	10
Total Direct Expenses	$105,225		$115,748	
Gross Profit	$947,025	90	$1,041,727	90
Operational Expenses				
Advertising	$15,000	1.14	$9,500	.82
Depreciation	$44,550	5.22	$44,550	3.85
Insurance	$17,000	1.62	$18,000	1.56
Maintenance	$4,500	.43	$4,500	.39
Start-up Costs	$32,900	3.13	$0	
Equipment Leases	$49,800	4.26	$49,800	4.30
Rent(Building)	$198,000	18.9	$198,000	1.71
Salaries				
Clerical	$24,000	2.28	$24,964	2.16
Technical	$320,000	30.4	$332,880	28.8
Administrative	$65,000	6.18	$67,600	5.84
Supplies	$28,000	2.66	$29,400	2.54
Utilities	$21,250	2.02	$21,675	1.87
Payroll Tax	$114,520	10.9	$114,520	9.9
Net Operating Expense	$934,520	88.8	$982,905	84.9
Net Income	$12,505	1.19	$58,822	5.08
Partner Equity(Jan 1)	$0		$262,505	22.7
Capital Contributions	$250,000	23.8	$0	0
Partner Equity(Dec 31)	$262,505	24.9	$321,327	22.6

suggest actual results that may or may not be obtained.

Figure 1

Financial Forecast



The offering shall be made on a "best effort" basis by the partnership. A "best effort" offering shall mean that the Breast Imaging Center is not

obligated to purchase any units, but is obligated to use its best efforts to sell units. The facility will not pay commissions to anyone in connection with the placement of units.

The Comprehensive Breast Imaging Center shall intend to apply the net proceeds of the maximum offering of units, as set forth within the plan for funding of initial operations.

Funding of Initial Operations

The items of profit, gain, and loss shall be allocated among the partnership according to the partnership agreement. Under the cash method, the investor partnership will recognize as income items such as interest and facility fees. Facility expenses shall be recognized when paid in cash, rather than incurred.

Sources and Use of Funds

The Comprehensive Breast Imaging Center intends to apply the net proceeds of the maximum offering of units and the proceeds of equipment financing as set forth in this plan. Prospective investors should note

that the figures set here within are approximations and estimates only, and no assurance can be given that the proceeds will in fact be used in the specific manner shown within.

Table 2

Source of Capital

Assuming Sale of: "Units"

Sources of Capital Funds[1]	100	Units
Investor Capital Contribution	$2,500	Each
Total Source of Capital Funds	$250,000	Total

(1) All financial forecasts within are based upon the sale of 100 units.

Table 3

Uses of Capital Funds

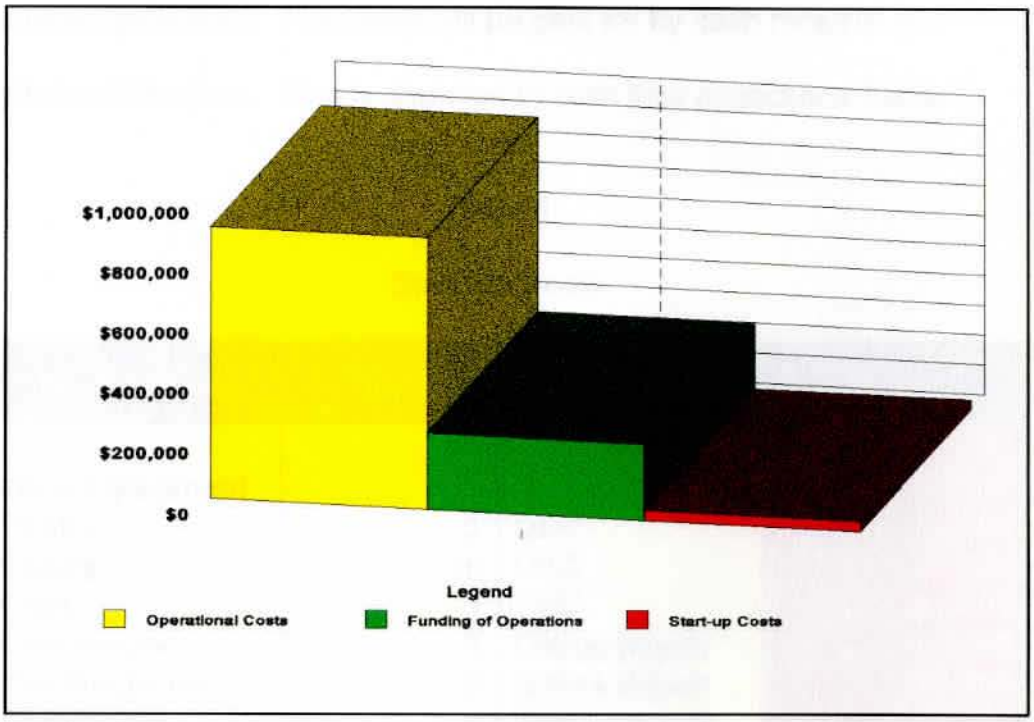
Operational Costs	$	901,620.00
Start up Costs	$	32,900.00
Funding of Initial Operations	$	250,000.00
Total Use of Capital Funds	$	1,184,520.00

Debt Schedule

As depicted in cash flow projections, Table 7, the following items are included in the start up costs of the Breast Imaging Center.

Figure 2

Use of Capital Funds



Equipment

The following items shall be leased on a monthly basis. As described earlier, each item shall be expensed when the cost is received, rather that when it was incurred. Based on cash flow assumptions and equipment speculation the following costs shall be incurred in the start up of operations. Other items such as payroll, equipment leases, and other

operational costs will not be calculated in start-up business costs. The cost of these items will be recognized at the end of the first month of business operations. The items will be paid for by cash receipts and capital contributions. This is depicted in cash flow projections Table 7.

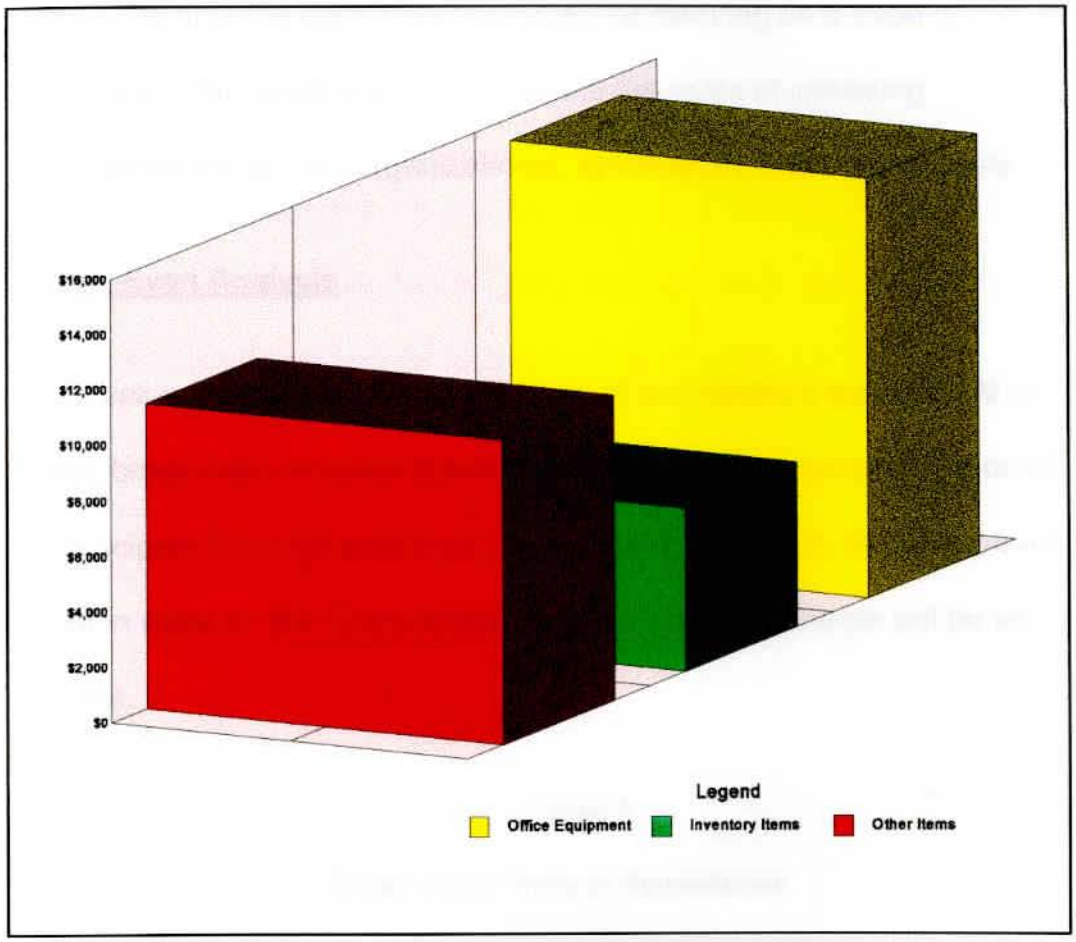
Table 4

Start-Up Costs

Description	Units	Company	Price
Office Equipment			
Desks	3	OEC	$3,500
Chairs	15	OEC	$2,900
Files	3	OEC	$2,200
Calculators	2	Office Depot	$360
Fax Machines	2	Office Depot	$2,200
Computers	2	IBM/Software	$4,750
Inventory Items			
X-Ray Film	24	Kodak	$3,220
General Supply		OEC	$2,700
Other Items			
Lease			$3,200
Advertising		Press Register	$2,500
Legal Fees		Sullivan	$2,800
Accounting Fees		ABS Assoc.	$2,500
Start-up Costs			$32,900

Figure 3

Start-up Costs



Amortization of Start Up Costs

Under Section 709(b) of the Revenue Code of Alabama, a partnership may amortize over a period of sixty months those expenses that are incident to its operations. These costs shall include all items except

those construed as syndicated costs to the partnership, if any. In addition, the Code permits a facility to amortize certain expenses incurred before the time the partnership commences carrying on a trade or business. The facility intends to allocate the costs of operating the partnership among organizational, syndication, and start up costs.

Break-Even Analysis

Break-even analysis lies at the heart of a company's success. At its base, break-even analysis draws upon speculative assumptions in order to anticipate financial outcomes. As depicted in Table 5, the Break-even point in sales for the Comprehensive Breast Imaging Center will be as follows.

Table 5

Break-even Point in Procedures

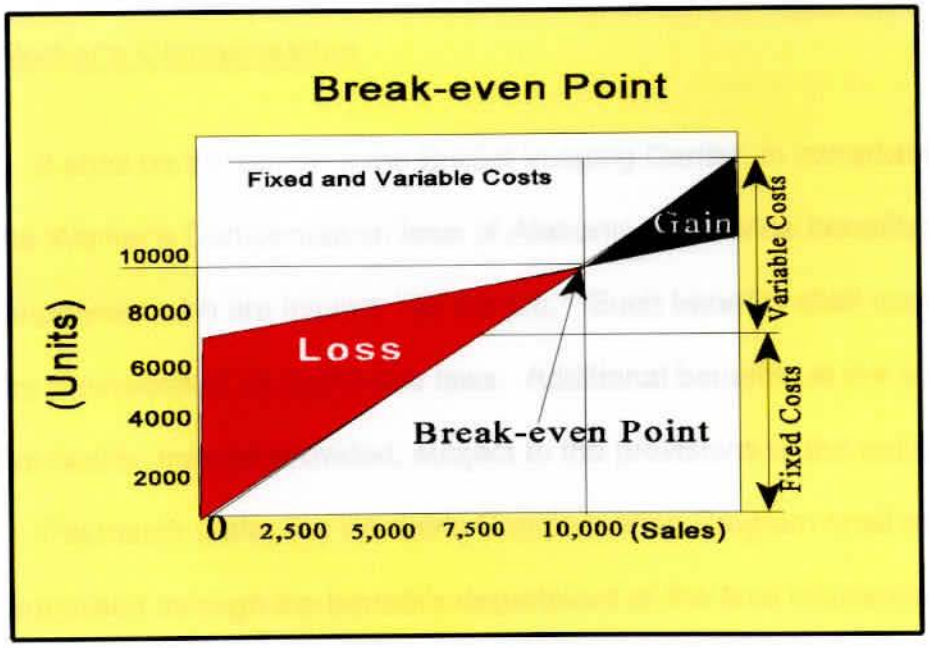
Modality	Volume of procedures
Mammography	7500
Ultrasound	1525
Biopsy	915

Mixed Unit Pricing	1. Mammograms $ 60
	2. Ultrasound $120
	3. Biopsies $450
Total	9,940 Break-even point

The break-even point, the point of no profit and no loss, was estimated on anticipated procedure levels, and procedure fees. See Table 5 & Graph 4 for an illustration of the break-even analysis.

Figure 4

Procedure Break-Even Analysis



Health Program

It shall be the policy of the Breast Imaging Center to provide an employee health program. Such programs shall be designed to provide a safe working environment and to help employees in maintaining optimum health and efficiency in their jobs to safeguard the health and well-being of patients and staff. Further, it shall be the policy of the facility to comply with all applicable laws and regulations pertaining to employee health standards in health care facilities. The employee health program shall contain, but not be limited to, the provisions and conditions set forth in this plan.

Worker's Compensation

It shall be the policy of the Breast Imaging Center, in compliance with the Worker's Compensation laws of Alabama, to provide benefits for employees who are injured "on the job." Such benefits shall comply with the provisions of all applicable laws. Additional benefits, at the option of the facility, may be provided, subject to the provisions of the policy.

Payments under the Worker's Compensation Program shall be processed through the benefit's department of the final insurance carrier.

Long-term Disability Insurance

It shall be the policy of the Breast Imaging Center to make individual long-term disability insurance available to all regular and full-time employees. Further, it shall be the policy that the facility will not participate in the payment of premiums for such insurance coverage. Benefits available to the employee shall be in accordance with the provisions of the individual contract.

Compensation Plans

The Breast Imaging Center shall provide several retirement programs for each employee who qualifies under the provisions of the retirement compensation program. The program of choice shall be at no charge to the retiring employee.

Work Unit Compensation Plan

The Breast Imaging Center recognizes that the success of a new business not only depends on the financial health of the start-up facility, but the hard work and dedication of its new employees. The Breast Imaging Center will employ highly technical and very skilled health care

workers. For the facility to prosper, it needs employees who go above and beyond the call of duty. The facility's growth will be highly dependent on the satisfaction of its customers to return on an annual basis. One way to motivate these employees shall be through the following work unit compensation program.

This work unit compensation program shall be set up in the following way. A work unit value shall be assigned on the average salary paid for the specific specialty; i.e., one minute=one unit. This unit will be relative to the modality. A seven-hour threshold standard shall represent 420 work units. Therefore, a bonus or incentive cannot be generated until a group or individual has exceeded the threshold of 420 units.

The best way to reward bonus dollars will be determined by group or individual participation. If there is a group type participation, then it shall be the group as a whole who gains shares in the productivity.

Incentive compensation levels (ICL'S) shall be the referred name of production. An example of a group sharing plan would be this: Five technologists have a combined ICL'S of 2,100 units they each add a divided total of 420 units (five/2,100). One of the group's technologist is sick or on vacation the ICL shall stay

the same. This would significantly enhance a gain sharing atmosphere and would tend to propagate a decrease in sick days. (When one group member is sick, the rest of the group has to pick up the slack or they will lose ICL position for that quarter.) In a "work unit compensation" plan, a department sets a standard based on the amount of production time expected each day for each FTE. This becomes another threshold. Each examination is given a unit value based upon the amount of time it takes to complete it. At the end of each day, the number of examinations multiplied by its value unit is compared against the actual time worked. If the value exceeds the threshold, then that individual or group receives incentive pay. An example of this process would be as follows.

Table 6

Employee Incentive Program

Full time employee	(1.0 x four people)	4
Part time employee	(.5 x three people)	1.5
Hourly employees	(.2 x one person)	0.2
Total		5.7
Possible Shares	[5.7 X 10]	57

Then, the total possible shares denominator for this group of

employees is fifty-seven for this quarter. The total bonus share of dollars would be $750.00. So the total equivalent shares would be calculated by the following formula.

750 divided by 57 would equal: 13.16 Full Time Equivalents(FTE)

Then, quarterly sum of bonus dollars for each employee would be calculated by the following.

Full time employee	= 1.0 x ten = ten shares,	receives $ 131.57:
Part time employee	= .5 x ten = five shares,	receives $ 65.79:
Hourly employee	= .2 x ten = two shares,	receives $ 26.31:

This type of principle would be carried over to other modalities as well.

The important factor will be to determine the group's share as a ratio.

Compensation Program in Progress

To compute a compensation program the following assumptions need to be addressed.

Quantity	Procedure performed	Time to complete exam
4	Screening Mammogram	20 Minutes
5	Ultrasound	10 Minutes
4	Biopsies	30 Minutes

This individual went over the 100% threshold by 5% for the day. The 100% is equated or compared to 420 ICL'S. The productivity for the day would be 105%. It is important to note that any overtime incurred by the individual would not be included in this model. It should also be noted that if a group or individual does not meet the threshold, they will receive no compensation units.

Under this scenario, if there were a total of 750 bonus dollar available for the quarter and 750 bonus dollars were available this quarter then this individual would receive the following.

Bonus dollars of $750 / fifty-seven possible shares available = $ 13.15 per share over the 100% threshold level. This technologist would receive a total of $65.75 bonus dollars this quarter. Group or individual productivity time per hour/ per period would need to average out to 100% or greater to receive bonus dollars. This individual was only able to have one productive day over 100%. In order for an individual or group of individuals to receive productivity units, they have to maintain a productivity standard over the entire bonus period or no bonus dollars will be realized.

It will be difficult for individuals or groups to maintain 100% or greater

productivity level over the bonus period. It is the intention of this compensation program to reward those individuals who consistently rise above the standard in providing quality care at the Comprehensive Breast Imaging Center. A pilot project of one full year shall be required to set up such a compensation program. The total dollar value of this program could be as little as $5,000 or as great as $15,000 annually. The employees ability to attain these high standards will decide the actual dollars spent.

II

Breast Center Leadership

Administrative direction for the Comprehensive Breast Imaging Center will be directed by and dependent upon the capabilities of its officers and the tasks of its employees. Although the principles and structures of a comprehensive breast imaging center are new, it should be noted that the designated facility administrator has over twelve years of management experience in the operation of health care facilities.

Five of these years were dedicated to the direction of a comprehensive imaging facility. The facility administrator, Mr. Kelly Emrick, has been involved in the medical industry for twelve years. Mr. Emrick is currently Administrative Director of Radiology and Imaging services of IHS health care concerns with over 270 hospital affiliates, and 67 partnership alliances generating over one billion dollars in revenue a year. From 1987 to 1992, Mr. Emrick held the position as Administrative and Technical Director of AMTS, a large free standing multimodality imaging center specializing in health care radiology services. From 1983 to 1988, Mr. Emrick held the position as Division Director of Special Imaging

services at Western Medical Center. His duties included direction and application of various health care imaging services. From 1980 to 1983, Mr. Emrick served as Medical Support Supervisor at the Medical Clinic of Kansas City. His duties included imaging service regulation and support.

Mr. Emrick attended Colorado College and then on to Avila College from 1978 to 1983, where he received his Bachelors Degree in Radiological Science with a business emphasis in Health Services Administration.

The Comprehensive Breast Imaging Center will be managed under a management agreement with the partnership investors. Under this agreement, the facility will bear the cost of operating the facility, except for billing and collection costs. The facility administrator shall conduct, supervise, and coordinate every day to day business function taking place at the facility and shall further provide billing and collection services.

The facility administrator will hire all employees required by the facility and shall be responsible for payment of all salaries, payroll taxes, employee benefits including, but not limited to, profit sharing,

work compensation programs, and gain sharing incentive plans, if any.

Organizational Structure

The Comprehensive Breast Imaging Center's structure will be based on a partnership agreement between the facility administrator and the investor partnership.

The investor partnership shall have no voice in the management or ordinary course of business of the facility including decisions concerning the selection and location of the facility, the conduct of operations, the fees to be charged, the services performed or contracted, the amount or timing of cash distributions and the amount of reserves to be maintained.

Organizational Roles and Responsibilities

The Comprehensive Breast Imaging Center will employ a community based radiologist group to read and interpret radiographic films. This group shall rotate one radiologist through the facility on a six-day work week. This work week shall be defined as Monday through Saturday. The radiology group shall have no direct responsibility over personnel at

the Breast Imaging Center. Their specific responsibilities shall be limited to procedure evaluation, film interpretation, breast ultrasound consultation, and performance of breast biopsies. The radiologist P.C. groups fee for service shall be based on payment guidelines set forth by HCFA. These HCFA guidelines specify that all reading fees shall be subject to and the sole responsibility of the radiologist P.C. group. The radiologist P.C. shall further be responsible for billing and collection.

Facility Manager

The facility manager of the Breast Imaging Center shall report to the facility administrator and shall have direct responsibility over clerical and technical staff functions. This includes, but is not limited to, staffing, performance reviews, time sheet calculations, and employee education.

Chief Mammographer (RT) M

The chief mammographer of the Breast Imaging Center shall have secondary responsibility over the clerical and technical staff. This includes, but is not limited to, daily performance of mammographic

procedures, ultrasound scanning, breast needle biopsies, inventory control, and other facility duties.

Mammographer (RT) M

The mammographer shall have specific responsibility in performing all mammograms. This function shall include, but is not limited to, the performance of breast ultrasounds, breast biopsy procedures, needle aspirations and patient education on breast self-examinations.

Technical Assistant

The technical assistant shall support the technical staff in coordinating patient flow, film filing, film processing, and cleaning of procedure rooms. The technical assistant shall also do other duties as specified by the facility manager.

Clerical Support

The clerical support staff shall have specific responsibilities in scheduling of patient exams, calling or faxing the physician's office with test results, and insurance billing.

Beast Imaging Services

The Comprehensive Breast Imaging Center will offer diagnostic services including routine mammograms, breast ultrasounds, needle localizations, needle biopsies, aspiration of breast cysts, and other related diagnostic services. The Breast Imaging Center's major medical equipment will consist of two mammographic units, two ultrasound units, one stereotactic biopsy unit and all necessary related equipment and accessories. The Breast Imaging Center will also provide assistance in educational services to patients on a case by case basis.

The Breast Imaging Center will own and operate a comprehensive dedicated breast center with the aim of performing the following:

(1) Accurate diagnosis of breast disease, (in both symptomatic and screening populations).

(2) Providing aid in comprehensive breast care.

(3) Giving personalized patient education programs, all in a pleasant, non-stressful atmosphere.

The Breast Imaging Center will use state of the art mammography equipment, which can provide magnification, cone-down compression views, with using limited radiation dose. This will be the cornerstone of

providing high quality images. As an adjunct to mammography, dedicated ultrasound will be used in the evaluation of dense, fibrocystic, or post-augmentation breasts that may be inadequately visualized by mammography alone. In addition, ultrasound will be used in making cysts verses solid determinations and act as a guide to needle biopsy.

To further integrate services provided by the Breast Imaging Center, a self-examination and counseling program is planned. This program will serve to educate patients on how to accurately perform breast self exams. This additional service will be provided free of charge to the patients of the Breast Imaging Center.

Investor Ownership

The principle investors will have limited voting rights to the participation in the facilities decisions affecting the ordinary course of business activities.

The principle investors shall devote such time to the business and management of the facility as it, in its discretion, deems reasonably necessary to enable the facility administrator to meet its stated objectives.

Furthermore, there shall be no restrictions on the ability of the principal investors and its officers, to participate in other ventures that compete with the Breast Imaging Center, but the investors may be subject to conflicts of interest in carrying out the best interests of the Breast Imaging Center.

The partnership and the facility shall not have independent management but shall rely upon the facility administrator to manage both the investor partnership and the facility. The investor partnership will devote only so much of its time to the business of the partnership as in its judgment is reasonably required. The partnership shall generally be liable for the debts of the facility. The investor partnership's liability shall be limited to its net worth, since it will be structured as a partnership. Since the investor partners may serve in such capacity in other partnerships, creditors of these partnerships could seek to realize on its assets if the assets of those partnerships were insufficient to satisfy their debts. If the principal partnership at any time lacks sufficient assets to meet such obligations, it could face conflicting demands regarding the distribution of its assets to meet such obligations. The investor partnership agreement provides that in the event of bankruptcy of the

Breast Imaging Center, the partnership will be dissolved unless a majority of the investor partners agree to vote on restructured financing plans and continue the business as stated here within. The facility administrator shall be accountable to the investor partnership as a fiduciary and consequently must exercise good faith and integrity in handling business affairs. Courts have held that an investor partnership may institute legal action on his own behalf or on the behalf of all other similarly situated investors (a class action) to seek the recovery of damages for a purported breach of the partnership itself (a partnership derivative action) to recover damages from third parties. Recent cases decided by the federal courts may also be construed to support the rights of the investor partnership to bring such actions under Rule 10b-5 promulgated by the Securities and Exchange Commission under Section 19(b) of the Securities Exchange Act of 1934, for the recovery of damages (including losses) incurred in connection with the purchase or sale of investor shares resulting from a breach of administrative fiduciary responsibility .

Certain problems and complexities exist in instituting any legal action alleging a breach of fiduciary duty. The cost of litigation alleging a breach of fiduciary obligations may be prohibited. The facility

administrator shall not be bonded, and any judgment which exceeds the net worth of the Breast Imaging Center may not be collectible. Each principle investor will be limited to the purchase of ten units.
This assures that each investor will have certain restricted voting rights, and the rights to certain distributions, such voting rights will be based upon each investor's sharing ratio.

The investor partners may not assign or transfer their units, nor may any assignees of the units become investor partners, without the prior written consent of the facility administrator, whose consent may be withheld in its sole discretion. Any transfer must comply with applicable federal and state securities laws. Units may not be sold or transferred by an investor partner in the absence of an effective registration statement under the Securities Act of 1933, as amended, and any applicable state securities laws, or an opinion of counsel acceptable to the partnership that such registration is not required.

An investor agreement plan shall be used which permits investors to withdraw from the business voluntarily only with the prior written consent of the facility administrator. If withdrawal of a investor is permitted, the facility shall pay such investor in lieu of a return of the investor's capital,

the product of his "Vested Percentage" multiplied by two times the average annual net income allocable to such partners. Investors Vested Percentage shall be determined by reference to the number of whole years as a partner, with the Vested Percentage being twenty-five for less that two years, fifty for two years, seventy-five for three years, and one hundred percent for four years or more.

Outside Management Assistance

The Breast Imaging Center plans not to enter into any negotiations with outside consulting firms at this time. If there comes a point at which the majority of the investor partners feel outside management consultation is need, then the facility administrator shall seek to secure a reputable health care consulting firm. In addition, the facility administrator will evaluate the effectiveness and usefulness of such a company. This evaluation criteria will be based upon a set of expectations set forth by the the partnership.

Facility Reputation

It is anticipated that the Breast Imaging Center will be scrutinized principally, but not specifically, by the health care community. The health care community shall be defined as patients, physicians, and other health care facilities. It will be important for the breast imaging center to align its imaging services with the medical needs of the community. These medical needs shall be considered in conjunction with the marketing plan of the Breast Imaging Center. This marketing plan must prove to the physician community that the facility is meeting the needs of their patients. It will be paramount that the Breast Imaging Center position itself as a community leader in the detection, prevention, and education of breast cancer and other breast diseases. It is under these assumptions that the Breast Imaging Center will focus its mammography services.

Cash Flow Projections

The financial forecasts here within are prepared to assist potential investors in evaluating and investing in the Comprehensive Breast Imaging Center. The following forecasts represent managements

estimate of the most probable financial results for the forecasted period. Accordingly, the forecast reflects management's judgment, based on present circumstances, of the most likely set of conditions. The assumptions disclosed herein are those management believes are significant to the forecast. The actual results achieved during the forecast period may vary from the financial forecast, and the variation may be material.

Accounting Policies

The partnership will maintain its books of accounts on the accrual method of accounting for financial statement purposes. The financial forecast assumes the partnership will not meet the definition of a "Tax Shelter" as set forth under Internal Revenue service code Section 448 (d)(3) and will therefore maintain its books of accounts on the cash method of accounting for federal income tax purposes.

The facility shall operate on a calendar year basis. The forecast represents operations for twelve months beginning January 1, 1995, and ending December 31, 1995.

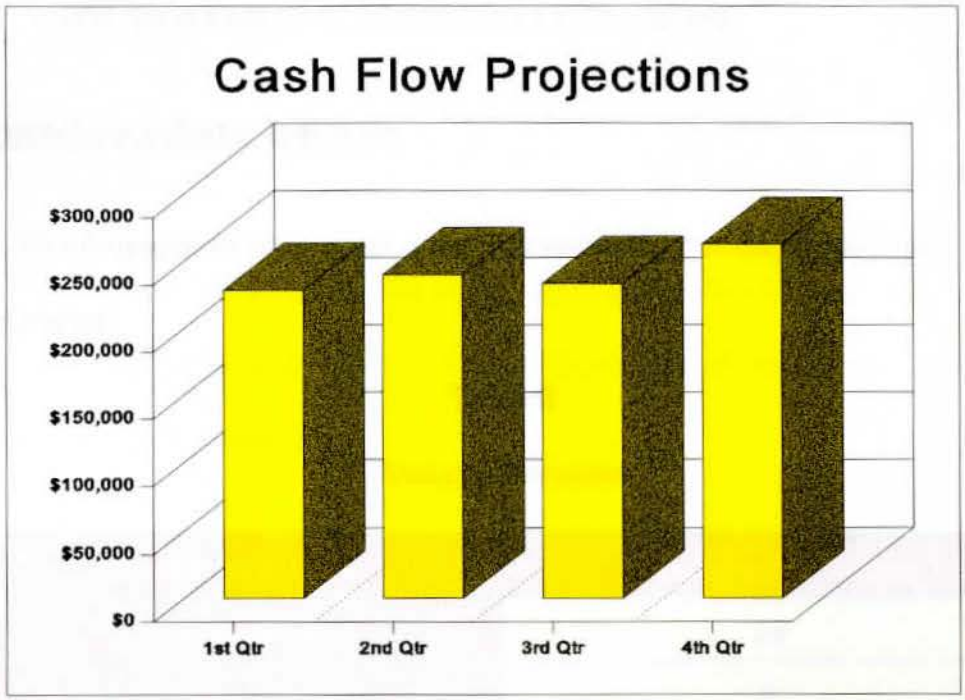
Table 7

Cash Flow Projections

Description	1st Qt	2nd Qt	3rd Qt	4th Qt
Investors Equity	$ 243,754	$ 255,105	$ 248,457	$ 267,808
Cash Receipts				
Cash Sales	$ 26,306	$ 26,306	$ 26,306	$ 36,306
Collections	$ 61,381	$ 61,381	$ 61,381	$ 61,381
Uncollectibles	$ (8,769)	$ (8,769)	$ (8,769)	$ (8,769)
Disbursements				
Payroll & Benefits	$ (34,083)	$ (34,083)	$ (34,083)	$ (34,083)
Disbursements				
Equipment Lease	$ (4,150)	$ (4,150)	$ (4,150)	$ (4,150)
Start-up Costs				
Other Costs	$ (27,358)	$ (27,358)	$ (27,358)	$ (27,358)
Payroll Taxes	$ (28,630)	$ (28,630)	$ (28,630)	$ (28,630)
Ending Balance	$ 228,451	$ 239,802	$ 233,154	$ 262,505
Investors Beginning Equity (January 1)				$ 250,000
Investors Ending Equity (December 31)				$ 262,505
Net Profit (December 31)				$ 12,505

Figure 5

Cash Flow Projections



Capitalization of Facility

The financial forecast assumes the Comprehensive Breast Imaging Center will be organized and operated as a "Partnership" for federal income tax purposes. The financial forecast also assumes the Partnership will be capitalized in the following way:

A. The investor partners will contribute funds amounting to the sum of $250,000.00.

B. The offering will consist of (100) investor units, at $2,500.00 per unit, for a total of $250,000.00 investor dollars.

Procedure Volume Estimate

The financial forecasts assumes the following per-day case-load estimates:

Table 8

Volume Forecast

Procedure Type	Procedure Volume
Screening	25
Ultrasound	5
Biopsy	3

Revenues

The financial forecast assumes the following procedure rates for private payers of health care insurance under each alternative:

Table 9

Procedure Costs

Mammographic Screening	$85.00
Ultrasound	$120.00
Needles localization	$350.00

The financial forecast further assumes ninety percent of fees billed will be collected within sixty days. The remaining fees of ten percent will be construed as uncollectible.

Expenses

The expenses assumed by the forecast are management's best estimate of the expenses necessary to operate the facility and are based upon management's experiences in the previous operations of an out patient imaging center offering full service medical diagnostics.

Cost Recovery

The financial forecast assumes the following equipment requirements:

Table 10

Depreciation Schedule

Equipment	Method	Life	Amount
2 Mammography	MACRS	5 Years	$132,000.00
2 Ultrasound	MARCS	5 Years	$72,000.00
Office	MARCS	5 Years	$45,000.00

Uses of Funds

The financial forecast assumes the partnership will use the proceeds from the initial investment for the following purposes:

1. Fund initial operations.

2. Lease equipment-- The cost of the equipment shall be financed by a capital lease. Implicit interest rate to these leases will range between three and five percent per year.

III

Comprehensive Breast Center Marketing

Excellence in radiology is as important as it ever was, but it is no longer sufficient, by itself, to ensure a robust diagnostic imaging practice. Availability and affability are necessary complements to ability. Increasingly, competition in the wake of declining reimbursement mandates that radiology practices distinguish themselves from similar groups by providing value-added service. This service can and should include high-quality images, excellent interpretations, competent technical and clerical support, and convenient access. It is most important to humanize the diagnostic imaging experience for both the patient and the referring physician. Convenient and responsive scheduling, flexible payment options, rapid turnaround of radiology report results, and competitive pricing are important starters. However, goal-oriented marketing is the key that turns these ingredients into a successful imaging center. Effective marketing is easier to implement when it is understood in terms of education, courtesy, consideration, and service. One can employ the most knowledgeable imaging physicians, have the

most sophisticated equipment, and hire only the best technologists, but if these facts are not communicated appropriately to referring physicians, the practice will not grow. Similarly, accurate diagnosis and impressive images are useless if the reports and films do not reach the ordering physician in a timely manner. Unhappy or angry patients easily can undermine the relationships that a practice has cultivated with its referring physicians.

Thus, liberal use of the telephone and the fax, a friendly and responsive staff, and educational outreach efforts to the community all help reinforce the message that a practice is willing to meet the perceived and actual needs of the patients and their referring physicians. Much of the marketing is common sense. It is treating the clinician and the patient in the way that one would like to be treated. Calming fears, answering questions, and providing attentive service should be second nature, yet many radiologists are content to practice in virtual isolation from patients and referring physicians. Such practices cannot, will not, and should not prosper in the increasingly competitive environment of health care in the 1990s. As a marketing strategy, the old-fashioned approach may still be best. Giving customers what they want can be the key to success in today's competitive health care environment. In the

radiology setting, customers include referring physicians, their office staff and patients. The simplest approach to marketing is to determine the needs of these customers and then educate them about how the imaging center meets those needs. Marketing research professionals might prefer to conduct extensive research to access customer needs, but an initial survey conducted by mail may be the best way to develop a plan that meets the needs of its customers.

The strategy outlined within shall be implemented at the Comprehensive Breast Imaging Center. The facility shall function in the capacity of providing breast imaging for women on an outpatient basis.

Customer Needs

Before opening a Comprehensive Breast Imaging Center, the following questions shall be asked in the medical community:

1. Does the medical community need this type of medical service for women?
2. Does the medical facility have the capacity to become financially feasible?
3. Will the medical community use the facility?

The answer to these questions must be yes. Referring physicians must

support such a facility on an ongoing basis. The referring physicians will most likely request that the outpatient facility be conveniently located, with easy access and free parking to both them and their patients. They will likely request immediate scheduling, same-day appointments when needed, and rapid turnaround of imaging reports. Referring physicians want imaging centers to offer state-of-the art imaging equipment that provide high quality images. In addition, physicians want fees to be lower than those of hospitals. The also want their patients to be billed on a total fee basis instead of a split fee basis.

Even if a radiology practice or center has been in existence for may years, asking customers what they want is a useful step for enhancing business. To implement a successful marketing and public relations plan, it shall be necessary to assess the needs of patients and referring physicians. Asking customers what they need in an imaging center will help determine what services need to be offered, what services need to be considered, what hours of operation should be, and what medical education will be needed. The process of conducting the initial analysis will help the imaging center ensure that commitment to a marketing oriented strategy is consistent with the organization's

philosophy. It will allow the imaging center to determine if internal support is sufficient to develop an ongoing marketing program, which includes provisions for expenditure of human and financial resources.

Referring physicians and their office staff may be surveyed in person, by telephone, or by mail. Surveys conducted in person or by telephone will be more time consuming than those conducted by mail, but respondents may find it easier to answer questions orally. In addition, participants often are flattered by the personal attention involved. On the other hand, physicians also are likely to complete surveys mailed to them because they value the opportunity for input that the survey represents. Surveys by mail are easier to conduct because they consume less time, but their return rate may be lower than that produced by telephone and in-person surveys. The use of monetary or gift incentives can improve the return rate for mailed questionnaires, but survey recipients may be offended that the imaging center has attempted to buy their opinion.

Once the surveys has been completed and returned, it will be important that they are analyzed so that a plan of action can be developed to meet those needs of the medical and patient community. It will also be important that the respondents receive feedback about the survey,

including a description of the actions that will be taken as a result of their overall responses.

Survey results should be shared with the staff, and suggestions for improvement or change should be solicited.

After surveying referring physicians, the imaging center should assess the patients' perceptions of the facility. Referring physicians can provide subjective feedback about patient satisfaction. Conducting a patient survey periodically by telephone, in person, or by mail should provide an adequate impression of patients' perspectives of services that they received.

Marketing by Staff

Marketing the Comprehensive Breast Imaging Center shall be part of every employee's job. Each staff member should act as a goodwill ambassador. Everyone affects the success of the facility. The professionalism of the radiologists will be critical to establishing the center's reputation for high-quality care. The receptionists' job is also critically important in scheduling appointments efficiently and greeting patients. Personal concern is the responsibility of the technologists during

the delivery of care. The transcriptionist is responsible for rapid output of accurate and professional looking reports. A team effort to market the imaging center will result in a successful business, producing growth in patient volume and revenues.

Providing the best possible care for patients at the Comprehensive Breast Imaging Center will begin with the hiring of top-notched staff. The technical staff will be hand-picked by strict criteria set forth by the facility administrator and the facility physician. In doing so, this should reduce staff turnover, in part because staff members will be respected and made to feel that they make a difference in the success of the facility. People who are treated with fairness and respect will be loyal. Employees shall be rewarded for their dedication with competitive salaries, benefits, a supportive work environment and frequent social events. Since all staff members will affect the growth of the Comprehensive Breast Imaging Center, the center will maintain an incentive pay program from which all employees benefit.

In return, the Comprehensive Breast Imaging Center expects more than technical knowledge from the staff. Personal skills that smooth communication with physicians, other Comprehensive Breast Imaging

Center employees, and patients shall be mandatory. The staff will need to operate as a team, and all members shall be responsible for filing, restocking, and performing any other tasks after their regular daily duties have been completed.

Patient Education

Service-oriented patient care begins with the Comprehensive Breast Imaging Centers philosophy that each patient should be treated as though it was a personal relationship. The facilities objective will be to impress patients so that they will use the Comprehensive Breast Imaging Center for all their mammography needs. In providing this service, the technologists shall introduce themselves to every patient and listen to what patients say. Careful listening does more than show patients that the technologists are aware of their concerns, but it also adds a physiological factor that eases the patients' fears of having the procedures. Thus, procedures shall be fully explained to each patient, resulting in easier examinations for patients and providing the patient with expectations. In doing so, this will minimize the level of confusion that patients may have. The friendlier the manner in which the technologist

treats the patient, the easier it is to perform the examination and the less likely the patient is to complain about the procedure.

When exams are scheduled, the appointment secretary will ask patients, "When is it convenient for you to come in for your exam?" For difficult examination procedures or procedures that may cause the patient to become nervous, the staff member will encourage the patient to visit the facility before their appointment so that they can discuss their concerns with the technologist. In doing so, patients can then become accustomed to the procedure room and the facility. Referring physicians may call the facility to alert the staff about patients who are likely to have problems during their examination. In cases such as this, the technologist shall call the patient prior to the examination to explain the procedure in detail.

Extra effort always produces happier patients. If the need for repeat film is in question, the technologist will have the patient wait at the facility rather than undergoing the emotional stress and inconvenience of returning for additional studies. All abnormal or questionable results are immediately brought to the attention of the referring physician, who may then give the patient further information about follow-up care. The

Comprehensive Breast Imaging Center will survey its patients and referring physicians monthly to see their satisfaction regarding appointments, waiting times, patient registration, front office staff, technologists, and billing assistance.

The Comprehensive Breast Imaging Center will offer incentive items such as shirts, visors, and jackets as a means of promoting community visibility. The most important factor in patient care will be to deliver the best quality service at a reasonable cost. Even the most intriguing novelty giveaway will not overcome a patient's memory of receiving poor service.

A brochure describing the Comprehensive Breast Imaging Center and its related services will be mailed to women in the community and to patients at referring physicians' offices. Patient instruction sheets shall also be available for procedure preparation explaining procedure requirements, and pamphlets explaining the mammography procedure will be made available in conjunction with translucent, miniature breast models for physicians to use in explaining the importance of mammography. Posters promoting both mammography and breast self-examinations will be displayed at the Comprehensive Breast Imaging Center and referring physicians' offices. Mammography and breast

examination teaching videos, models, and wall charts will be made available in each mammography suite. In addition, each mammogram patient will receive a breast self-exam shower card. The Comprehensive Breast Imaging Center will use a mammography management system which tracks and implements a reminder letter to patients who need to have a monthly or annual exam.

Physician Education

The Comprehensive Breast Imaging Center shall focus on meeting the needs of the referring physicians, their office staff, and their patients. Research conducted by the American College of Radiology has shown that poor service is the reason most frequently cited by physicians who stop referring patients to an imaging center. The most important criteria referring physicians use to select an imaging center for their patients are the ability to schedule patients quickly, prompt report turnaround times, patient satisfaction, and personal familiarity with the facility. Physicians will be invited to call the centers administrator, medical director, or radiology physician at anytime to voice their suggestions or comments. Personal visits to referring physicians will be made so that the

staff can continue to solicit ideas and opinions about any areas of its operation that may need improvement. The Comprehensive Breast Imaging Center will also mail out a quarterly news letter to its patients, and referring physicians in order to keep them aware of new advancements in breast care management.

The Comprehensive Breast Imaging Centers marketing team shall include the facility administrator, a technologist team leader, and one radiologist. Instead of hiring an outside marketing firm, the facility will use the experience of the administrator and the technical staff to conduct marketing visits to referring physicians. These representatives will inform physicians and their staff of new and existing services offered by the Comprehensive Breast Imaging Center. Initially, some technologist may feel that sales and marketing skills are necessary to conduct these visits. With some training, however, they will be able to better market imaging services because of their vast knowledge in radiology services. Referring physicians tend to be more open to suggestions and ideas if they come from a more technocratic approach.

Furthermore, it will further be the goal of the facility to keep physicians, their staff, and patients satisfied. The marketing approach of the

Comprehensive Breast Imaging Center shall focus on expectations set forth by the medical community. The facility will draw on the premise that the medical community wants same day service for their exams, reports delivered via fax machine or by phone, and courier services for delivery of radiographic film. This shall be accomplished by making available brochures, referral pads, and report turn around times of twelve hours or less.

Public Relations

The goal of the public relations program will be to position the Comprehensive Breast Imaging Center as the premier provider of mammography services in the community.

To achieve this success, the center will need to strive to be visible in the community. Its radiologist and administrator shall be active in local charities and should be available for health care community relationships. These individuals shall also provide presentations to local civic groups, women groups, and provide education to women on topics of breast cancer. The Comprehensive Breast Imaging Center shall participate in local health care fairs and public events that increase their visibility. The

facility shall also provide special discount pricing to local businesses that utilize their services.

A common-sense approach to developing a marketing plan for an imaging center involves following the right steps. Support is necessary from the radiologist, the facility administrator, and the staff. Developing and implementing a marketing plan is time consuming, and a commitment to making the necessary expenditure must exist. Marketing costs will vary depending upon the facilities use of marketing materials and utilization of staff time. The facility will utilize an aggressive marketing approach to meet anticipated financial goals. The marketing plan shall focus on and utilize financial goals in delivering superior service to its referring physician and patients.

In Conclusion

The increasing incidence of breast cancer morbidity and mortality in the United States is now emerging as a matter of political as well as medical concern. Women are organizing and demanding action, and the political establishment is beginning to respond.

The development of screening facilities as an outreach is an important

step, but the strategy could readily be extended. Self-administered instructional systems for teaching proficient tactile breast screening techniques will need to be more commonplace. In cooperation with primary care physicians, these facilities should become available throughout the community. There is no reason why radiology should not become the source of supply, particularly since it is to radiology that the user will eventually turn in the event of a discovery.

Suggested Further Reading

Alablam Tax Code. Master Tax Guide Birmingham: 1994.

American Cancer Society. Annual Health Statistics U.S Government Printing Office, 1991.

American College of Radiology. Imaging Practices Reston, Virginia: 1989.

American Medical Association. Counsel Report on Mammographic Facilities and Utilization Report 289, 189-793, 1991.

Albrecht, K. Service America: Doing Business in the New Economy. Homewood, IL: Dow Jones-Irwin, 1988.

Cryan, T. "Radiology Managers Apply Marketing." Radiology Management 21-28, Jan. 1989.

Health Care Financing Administration. Health care Transmittal number 28932-R1. HCFA, Atlanta, GA, 1990.

Pollan, Stephen. Starting a Business. New York: Simon & Schuster, 1990.

Sondik, E. Health Care Statistics in Review. Washington, Division of Health Statistics, National Cancer Institute [In press].

U.S. General Accounting Office: Health Structure Report number HRO-90-39. Gathersberg, MD, U.S. General Accounting Office, January, 1991.

Winthrop, A.J. Imaging Center Development and Structure. Private Health Press, December 1989.

Works Cited

Alablam Tax Code. Master Tax Guide Birmingham: 1994.

American Cancer Society. Annual Health Statistics U.S Government Printing Office, 1991.

American College of Radiology. Imaging Practices Reston, Virginia: 1989.

American Medical Association. Counsel Report on Mammographic Facilities and Utilization Report 289, 189-793, 1991.

Albrecht, K. Service America: Doing Business in the New Economy. Homewood, IL: Dow Jones-Irwin, 1988.

Cryan, T. "Radiology Managers Apply Marketing." Radiology Management 21-28, Jan. 1989.

Health Care Financing Administration. Health care Transmittal number 28932-R1. HCFA, Atlanta, GA, 1990.

Pollan, Stephen. Starting a Business. New York: Simon & Schuster, 1990.

Sondik, E. Health Care Statistics in Review Washington, Division of Health Statistics, National Cancer Institute [In press].

U.S. General Accounting Office: Health Structure Report number HRO-90-39. Gathersberg, MD, U.S. General Accounting Office, January, 1991.

Winthrop, A.J. Imaging Center Development and Structure. Private Health Press, December 1989.