DESIGN EVALUATION OF SIX PRIMARY CARE FACILITIES FOR THE PURPOSE OF INFORMING FUTURE DESIGN DECISIONS

by Min Kantrowitz & Associates

Design Evaluation of Six Primary Care Facilities for the Purpose of Informing Future Design Decisions

by
Min Kantrowitz & Associates, Inc.

for
The Center for Health Design

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Executive Summary

Primary care is a diverse, changing and critically important part of America's health care system today. This research project, sponsored by The Center for Health Design, is the first endeavor which begins to examine the implications that the changing primary care system has on the facility design.

The research project studied six primary care facilities -- one each located near Boston, Chicago, Detroit, Minneapolis, New Orleans, and Seattle. All were associated with a larger health care provider organization, and ranged in size from 10,000 square feet to 55,000 square feet. The definition of primary care varies among these six organizations. Each of these groups has taken the initiative to custom fit the mix of primary care services to meet the needs of the population and communities served. There is little recent published literature available to inform or guide designers, administrators, researchers or facility managers about successful primary care facility design. The designers of each facility carefully evaluated design issues-- such as flexibility, efficiency, and image -- and developed and implemented new and effective design solutions.

These designers reject the old sterile image of medical settings, instead providing comfortable, light, welcoming spaces which enhance patient, visitor and staff experiences. They pay careful attention to patient choice and privacy, staff interaction and abundant natural light. These facilities reflect their organizations' focus on health promotion and continuity of care, and a shift from large-scale to smaller scale facilities with a mix of centralized and decentralized functions which balance personal attention and efficiency. The facilities include patient education spaces and accessible community rooms. Most facilities have flexible, adaptable spaces and furnishings, appropriate to today's quickly changing health care scene.

These design concepts are consistent with trends in primary care, which include more emphasis on wellness in an efficiency-oriented, capitation-based health care environment; client and community orientation with an emphasis on convenient access; a shift from hospital care toward primary care and home care, with associated changes in training of a variety of health care providers; and the increasing importance of information and other technologies in health care.

This case study research was based on a very small sample of facilities, but it identifies a set of critical design issues faced by many involved with design, development, and operation of primary care facilities. As more primary care environments are designed, these issues deserve more rigorous examination, leading to research-based design guidance.

Preface

This research paper is the first in a series to be commissioned by The Center for Health Design, under the leadership and guidance of the Healthcare Design Research Committee. The vision of The Center is "to create a future where environments support the highest level of human achievement in all aspects of life and work." The Committee's support of this research project is a reflection of this report's promise to significantly impact the lives of many, in a manner consistent with the vision of The Center.

Our nation is poised at a moment in time, surrounded by great uncertainty. It seems possible to speculate that the future of healthcare will look nothing like it has in the past. One can further speculate that the role of primary care facilities will take on increasing importance as healthcare organizations - in an effort to maintain their viability - shift their focus from inpatient to outpatient care, from curative to preventative medicine, and from incomes based on illness to financial strength from community wellness.

It is hoped that this research report will enable those who are responsible for the planning, design, and construction of primary care facilities to be able to learn from those built in the past, so that those to be built in the future will be better able to support the highest level of human achievement.

Wayne Ruga, AIA, ISID
President/CEO
The Center for Health Design
November 1993

Introduction

Context for the Study

Interest in primary health care in the United States is growing daily, fueled by economic, social and political change. Responding to that interest, The Center for Health Design commissioned a series of design evaluations of six primary care facilities, to examine design issues and inform future design decisions. Min Kantrowitz & Associates, Inc., an applied design research and consulting firm located in Albuquerque, New Mexico, conducted this research during mid-1993. This monograph summarizes the results of that research.

Scope of the Research

The focus of this research first was directed at identifying critical design issues -- those programmatic and functional situations which are found in many primary care facilities to which design solutions must be found; then on examining how these critical design issues were addressed and solved in the six selected facilities. As a result, the research team could identify specific examples illustrating innovative ideas for how these issues were addressed in the six sites.

Since the set of case studies is very small and does not represent the vast range of primary care facilities, the findings of this research cannot be generalized; that is, one cannot say that a specific design strategy that was successful in one of these case study facilities would necessarily be successful in another facility.

This research was not focused on patient outcomes; in no way did the conceptual approach, research methods, or analysis focus on the question of the medical status of the patient. In fact, given the fact that the average time of a patient encounter in a primary care setting is often less than an hour, it would be presumptuous to claim such direct environmental impact on patient health; however, the physical environment does influence patients, visitors, and staff in a variety of ways that this study does examine.

This set of design evaluations examines:

1) how a variety of designs fit with different models of delivering primary care,
2) the relationship between design features and patterns of practice, and staff and patient use,
3) the characteristics of specific design features (e.g. room arrangements, furniture),
4) how the design processes unique to these environments influence the final designs,
5) facility management concepts including durability, maintenance, flexibility, operation, and use.

There is currently a wide variety of primary care environments in the United States.

These operate under varied jurisdictions and are administered by many different public and private organizations. Some have benefited from thoughtful, research-based design, others seem to be afterthoughts. Some are part of health care delivery systems which have systematic procedures governing the processes of planning, operating, or maintaining primary care settings. Others operate in design vacuums.

Primary care is diverse - in providers, settings, motivations and communities. As more primary care environments are designed and used, the need for research-based design guidance increases. The context in which this need exists is complex. Some of the most relevant factors are discussed below.

- **Diversity**

Primary care providers are a diverse group, including physicians, physician assistants, nurses, family nurse practitioners, nurse midwives, and an increasing number of retrained subspecialty physicians.

- **Variety of Settings**

Primary care is provided in a variety of settings, including small rural clinics which offer the only local alternative to health education, prevention, diagnosis and treatment, 'Urgent Care' settings located in shopping centers, commercial retail zones, and private physician offices co-located with subspecialty medical offices.

- **Choice of Primary Care**

Patients choose primary care services for many reasons, ranging from maintaining a continuing relationship with a family physician, seeking care for urgent problems after regular clinic hours, needing routine preventive care, and choosing primary care because of health insurance provisions which require referral from a primary care provider to a specialist.

- **Community Orientation**

The concept of Community-Oriented Primary Care (COPC) is receiving more attention as an approach to integrating the specific characteristics of a community with health education, active prevention and patterns of health care delivery.

Thus, in each community, in each practice, the unique characteristics of the patient pop ulation are a critical factor in guiding the form of the practice, and, ideally, the design characteristics of the practice setting.

- **Case Study Sites**

These six primary care case study sites, selected by The Center for Health Design, included sites in Boston, Chicago, Detroit, Minneapolis, New Orleans, and Seattle.

- **Critical Design Issues**

Design for primary care environments is very complex, especially since the institutional, legal, financial, and scientific context within which they operate is changing daily. Issues fell into eight major categories: design process, humanistic design, functional factors, technical factors, aesthetic factors, cost factors, materials and furnishings, and primary care practice. Each facility had some outstanding features and some design details worth repeating.

How to Use This Report

This report describes the case study sites in detail, identifies the critical design issues common to all of them and highlights the successful solutions the research team found in studying them. Designers, facility planners, managers and administrators can use the Trends and Critical Issues sections of this report to help guide their own analysis and planning. Sections can be used in facility programming discussions, and good design solutions identified here can be adapted to the unique situations which characterize other primary health care facilities.

Trends

This project assessed six primary care facilities which were designed to include the latest technology and current thought in designing and providing healing, efficient space. Given that the realm of primary care is changing at a very rapid rate, it is important to examine the future directions that primary care may take.

This section identifies a set of eleven possible near- and long-term trends in primary care that could have an impact on the design of these facilities. These trends were derived from the literature review and from interviews with prominent designers, medical administrators, and medical futurists. Each trend is briefly discussed, followed by comments about the resulting design implications.

Trend One: Wellness, Not Illness

All segments of the primary care portion of the health care system - health care systems, health care providers, insurers, and users of health care services are expanding their services and changing their focus from illness toward wellness. This is reflected in a variety of programmatic changes.

For example, due to a variety of reasons, health education efforts used to focus almost exclusively on a particular disease entity - in fact, they were often disease prevention programs rather than health education programs (e.g. "How to Prevent A Heart Attack"). For the number which were offered to people who had already been diagnosed with that disease, these programs were symptom amelioration and coping programs - "How to Live with Your Diabetes", for example.

The programs now being offered focus on a much broader definition - health promotion. The health promotion approach emphasizes preserving a person's state of wellness and increasing it through comprehensive programs which may examine diet, exercise, mental health, family functioning, and other life style issues in addition to the more usual anatomic, physiological, and chemical indicators of health or illness.

For health care systems, this appears as a decreasing emphasis on acute care, crisis medicine, and very ill patients as the sole point of contact between health care workers and the people in their care. More and more frequently, people self refer to acute care settings like emergency rooms, hospitals, and urgent care centers when they have a major acute illness or are sent to those settings by their primary care providers. Primary care facilities, thus, will be increasingly oriented toward maintaining and promoting wellness.

Trend One: Design Implications

- **Waiting**

The cold, noisy, antiseptic-scented, crowded clinic of the past is gone. When frequent floor cleaning necessitated by the results of acute illness or injury was common, easily cleaned hard surfaces made sense. High levels of uniform light to facilitate cleaning in that scenario made sense. Soft surfaces and absorbent materials made no sense, resulting in acoustically disastrous environments which seemed even noisier and colder than they were.

When people describe the stress they experienced merely anticipating a visit to this type of facility for any reason, it is clear that actually being there when ill or with a sick friend or family member was far from a healing experience. As the mix of people using primary care facilities has changed and as the philosophy of supporting and encouraging healthy individuals and families visiting primary care facilities has grown, facilities increasingly reflect those changes.

During the initial transition from "cold-clinical, germ free" as a design theme, many primary care facilities were designed to resemble office environments, communicating a professional, business-like image associated with competence and efficiency. More are now moving away from the office image toward hotel or home imagery, with the use of domestic-scale plants, lamps, artwork, furnishings and window treatments, thus, communicating messages about psychological support, comfort, personalization, and close interaction. Waiting areas are smaller, with more flexible, comfortable furnishings, as in homes. Aquariums act as calming distractions and televisions play entertaining educational programs. Toys and spaces for children to play are provided.

The message becomes clear -- if the doctor no longer makes visits to your home, then you can visit the doctor's home.

- **Education**

Focus on wellness implies that individuals will be increasingly responsible for knowing about their own health and will expect, and be expected, to do more self-care. For primary care, this means providing facilities and programs to effectively facilitate learning. Current design practice includes patient education rooms. These designated spaces are usually located directly adjacent to a waiting area where people can browse through a variety of health-related brochures or view videotapes about topics of interest to them. In some practices, nurse advice telephone lines are heavily used providing free medical advice. Some facilities have professionals with special training in, for example, diabetes education who counsel individuals with diabetes in consultation rooms with comfortable seating -- not in an exam room.

As health promotion becomes more associated with community outreach programs, providing community health education facilities will become even more prevalent. Support groups like those for people who have had heart attacks, and their families, meet in such facilities. Community rooms with separate secure evening access will be used more frequently as the nature of education changes toward a focus on community wellness.

Few primary care facilities offer any opportunity for patients or visitors to obtain any food or drink except for a water fountain. Those that do often have only a soft drink machine, a questionable message in a health facility. This is a missed opportunity to provide nutrition education, to increase the home-like atmosphere and to make a visit to the facility more pleasant. While there are some costs associated with the idea (purchasing and cleaning, for example), there are definite advantages. A minimal offering of a bowl of fruit, individual cups of applesauce, or boxes of juice would help make the health care setting feel more like a home.

Trend Two: One-Stop Shopping for Primary Care

There is a trend toward a variety of primary care services co-locating at one facility along a convenient, familiar route with easy auto access.

Proprietary studies indicate that people do not like to travel from one location to another to obtain health care services, which, in their minds, are related. The success of the supermarket is based on the notion of combining a large number of related products in one location. Hypermarkets aim to increase the range of products customers associate with food shopping to include video rental, toys, patio furniture and small appliances. Some shopping malls now include real estate agents.

For primary care, this means providing an attractive and appropriate mix of services - and products - to meet individual desires for convenient, complete health care interactions.

Trend Two: Design Implications

- **Location**

Convenient location not only includes the siting of the facility close to the population base who will use it, but easy and familiar access to that facility as well. Easy access is interpreted as including a variety of factors: visibility, proximity to other places the person might be going, car access from a familiar route, and free parking that is secure, abundant, and close to the facility entry.

Except in the downtown core of major urban centers, individuals prefer to get to the primary care facility the same way they get to shopping locations. Primary care facilities will be found more and more in shopping plazas, malls and other commercial areas. There is increasing interest in placing them in community centers as well.

- **Variety of Services**

While lab, radiology, and pharmacy services are frequent components of primary care facilities, there are other services, such as optical shops, which are increasingly part of the mix. There are some facilities which include chiropractic or massage services. The future may well see the addition of a variety of wellness services and products such as acupuncture, nutritional counseling, or other methods of alternative healing.

Trend Three: Increasing Role of Primary Care

According to an article in the March 4, 1993 edition of the *New England Journal* **of** *Medicine*, Medicare expenditures in a community are closely related to the mix of specialists and primary care physicians in each city. Since primary care physicians prescribe fewer diagnostic tests and hospitalize patients less, the care they provide costs less and yet, according to this article, is as effective. Insurance carriers, governmental health agencies, and health maintenance organizations, wanting to hold down per capita health care costs, recognize this fact and are encouraging the increased use of primary care physicians and midlevels.

In California, for example, there had been a shrinking pool of primary care physicians until recently. This is changing rapidly however. In 1993, there was a ten percent increase in the number of family practice physicians practicing in California. A bill introduced and passed in the 1993 California legislature specified that fifty percent of all medical school residency positions in California should be allocated to training primary care physicians. Although vetoed by the Governor, the bill, which will be reintroduced this year, indicates the recognition of the increasing role of primary care in the American health care system. Even traditionally research-oriented medical schools like Harvard and Stanford are establishing

major new programs to emphasize primary care, because that is where jobs will be available in the future. There are discussions about establishing re-training programs which teach specialist physicians to become primary care doctors.

Trend Three: Design Implications

• **More Primary Care Facilities**
Primary care physicians are increasingly being trained in primary care facilities rather than in hospital settings.

One obvious design implication is the increasing demand for primary care facilities. This will be met in these ways -- new construction, renovation, and conversion of medical facilities. New construction needs no special comment. Renovation of a variety of facilities, for example, retail space meeting the location criteria described above, is already beginning to occur. Conversion of outpatient medical specialty facilities is on a more distant horizon. It has the advantage of already having some relevant components in place, plumbing distributed to exam rooms, for example. Another possibility, perhaps the most challenging from a design standpoint, is the conversion of inpatient space to primary care outpatient space.

• **Space to Support Training Programs**
A second set of design implications involves providing facility components to support the training of primary care physicians within the primary care facility. A number of these training programs already exist. Facility characteristics needed for support include acoustically and visually private consultation spaces for primary care residents to discuss their findings, recommendations to the physicians training them, shared consultation/discussion space for resident desks and small conferences, provision for hard copy and electronic library, facilities for research, and perhaps changes to the size and configuration of exam rooms. Perhaps there should be one-way mirrors in some exam rooms or provision for videotaping selected patient/resident interactions for later analysis as part of training in physical examination or 'bedside manner."

Trend Four: Home Care

An increasing amount of treatment and monitoring is occurring in the home. Some medications and treatment which used to be administered by health care professionals have been transferred to the home setting where family and friends take on this responsibility. This includes some long-term treatment for chronic illness (e.g., kidney dialysis).

In addition, home monitoring devices are becoming more prevalent and more sophisticated. A non-invasive finger probe which will measure blood glucose levels is now in early stages of production. Some pregnant women with potentially dangerous high blood pressure who used to be monitored in the hospital are now being sent home with a blood pressure monitor which will electronically transmit their blood pressure readings.

Output of these at-home monitoring devices could quite readily be transmitted to an identified location at the primary care facility where appropriate medical personnel could review them and contact certain individuals according to their monitored results.

As home caregivers become a more important component of the health care team, there will be an increasing need to help support those caregivers. For example, the concepts of "discharge planning" at in-patient facilities includes a team of medical, nutritional, and social work services to recommend services and follow-up for a patient just leaving the hospital. Follow-up planning for home care would involve a similar mix of services and would require spaces to accommodate them.

Trend Four: Design Implications

• **Space for Training Caregivers**
Home care requires both patient education and training. Training caregivers may require a special space outfitted with the range of at-home care equipment and supplies used, with sufficient space to comfortably support the activities of the patient, caregiver, caregiving trainer, and other staff or family members. Such a space also should help increase the home caregivers confidence in their abilities to perform the tasks with competence and care. Support groups for home caregivers will also need a place to meet. Perhaps a respite care component would allow those people to get needed support, additional information, and advice while the patient was in temporary care (e.g., for people with Alzheimer's disease).

• **Monitoring Receiving Station**
The increasing use of monitoring devices with electronic transmission capabilities implies the necessity for some sort of "receiving station", a central location which could receive remote input. The appropriate medical staff person would sit at this station to review incoming monitoring results, review the patient's charts, and take the appropriate actions. This approach has particular appeal for those many areas of the country where there is great distance between the home and the primary care facility.

Trend Five: Total Quality Management (TQM)

For primary health care, TQM translates as providing opportunities for meaningful feedback, participation, and influence on the part of all participants in the system. For staff of all levels, teams consisting of a group of professionals who work together consistently are growing. These meetings provide opportunities to address issues as varied as case management and team interpersonal interactions.

Health care provider teams also facilitate professional growth as midlevels are given an increasing amount of responsibility when they learn, test, and demonstrate their increasing competence in a team setting.

Health care provider teams are decreasingly physician-centered. Meaningful feedback improves staff satisfaction at all levels, which will result in decreased turnover and decreased training costs. Opportunities for professional growth and learning within a defined primary care environment will grow.

For clients of the primary health care system, a quality approach implies structuring opportunities for feedback as well as establishing and maintaining a variety of client satisfaction measures. Feedback now includes systematic questionnaires sent to HMO members to examine a range of issues from waiting time and parking to pharmaceutical prices. Some systems have member advisory groups, patient feedback groups or other established groups of individuals to provide information. Approaches to obtaining client feedback will become more prevalent and more sophisticated.

The basis for satisfaction is often the client's perception of how they are treated. Proprietary research consistently finds that being treated with respect, dignity, intelligence and clarity increases satisfaction. In primary care settings, potential points for increasing a sense of privacy include reception, cashier, appointments, exam, radiology, pharmacy, and consultation rooms.

Trend Five: Design Implications

Meeting rooms for client feedback meetings which are available in the evenings without threatening the security of the rest of the facility will have many uses. The interior design approach will continue to convey caring and respect in a variety of ways.

Architectural elements which decrease the traditional hierarchical power relationships in health care will change. For example, the reception desk which can be placed on a platform so that people checking in are at eye level and exam/consultation rooms which provide dressing and sitting areas so that post-exam conversations can take place between people sitting at the same level, with the patient clothed, are important architectural indicators of respect.

Not only visual and acoustic privacy are important, but people want to be assured that their medical history and records are confidential, and that phone conversations about them will not be overheard by others. Staff working in teams will need consultation spaces which are private, comfortable, and not part of the "turf" of the physician.

On-site libraries with access to electronic databases will facilitate continuing education and training. Approaches such as masking sounds, electronic medical records, and use of flexible sophisticated acoustical/visual barriers hold promise for the future. If wellness is considered a partnership effort between the client and the health care provider team, the facility must reinforce this idea.

Trend Six: More Midlevels

There is an increasing number of nurse practitioners, certified nurse midwives, and physician assistants as essential components of the primary health care team.

Trend Six: Design Implications

Since midlevels need physician supervision, consultation space where they can present the individual's symptoms, medical history, and other essential background data to the physician is critical. This consultation space should be private, yet conveniently located so efficient work flow can be maintained.

Trend Seven: Emphasis on Efficiency

An increasing emphasis on efficiency is a natural outgrowth of increasing financial pressure on health care systems and a busy society where individuals value their time highly. An efficient health care unit is, to the patient, a sign of respect for their time. New technologies can enhance efficiency.

Trend Seven: Design Implications

Reduced waiting time can be facilitated by electronic means such as medical records transfer at check-in; instant transmission of prescriptions from the prescribing physician to the pharmacy, and ready access to medical information databases from the examination area.

New technologies which instantly read temperature and blood pressure will be followed by technology currently being researched like non-invasive monitoring of a variety of substances in the blood, and quick and accurate on-site lab tests and new imaging techniques.

These technological supports will require careful consideration of location, wiring, lighting, privacy, space, and industrial design.

Efficiency emphasis also may require rethinking of some traditional layouts of primary care environments - central nursing stations replaced by a number of small hall niches or computer monitor stations, lines of exam rooms with flag indicators may be replaced by more circular groupings; the corridor as single use circulation space may be replaced by multi-use circulation areas.

In another example, more compact and portable diagnostic equipment (e.g., for X-rays) can reduce the amount of client movement around the facility, but may imply changes in exam rooms.

Trend Eight: Increasing Importance of Access to Information

As the amount of medical research increases dramatically every year, efficient access to recent medical information becomes more important. On-site information through resident computers is currently being done, but the future includes a variety of electronic networks and link-ups which will ease medical staff access to a vast amount of information. Facilitated information flow between components of the health care system will also become more important.

Patients are now demanding more access to their own medical information. This brings up a variety of questions about the responsibility for effectively "translating" and communicating medical language and concepts and the form and the media of this information transfer. People are also interested in more information about health and wellness issues, as described earlier.

Trend Eight: Design Implications

Computer media centers including wall screen/projection, teleconference facilities, and two-way interactive video may facilitate communication among physicians and patients at different locations.

Trend Nine: Demographics of Aging Population

The number of older Americans has increased by more than 1.7 million since 1980; this trend is expected to continue well into the next century.

As life expectancy increases and as the baby-boomer generation ages, there will be more older and more frail users of primary care facilities. Only one percent of the 65-74 age group, seven percent of the 75-84 age group, and twenty percent of the 85-and-over age group actually need nursing care. Others need some sort of assistance with transportation or cooking; however, over eighty-three percent of the over 65 population need no assistance at all.

Since aging people will constitute a large portion of the users of primary care, the varying levels of support and assistance they need until they die must be carefully considered.

Trend Nine: Design Implications

Aging users of primary care may bring increased attention to cognitive disabilities. This implies the importance of designing new methods of wayfinding and clear signage in facilities that will enable older individuals to easily find their way. Also, as the hearing and sight of older people become limited, assistive technology and communicative tools may be used in exam rooms to facilitate patient and physician communication.

If groups of older patients are brought to the primary care facility, and are seen individually, waiting times of one to two hours may be conceivable. There are opportunities for taking advantage of extended waiting time by providing patient education space, and perhaps low-level exercise and rehabilitation sessions during extended wait periods.

* * * * * * * * * * *

There are two trends without direct design implications, but which are important to consider in long term primary care planning:

On-Site Primary Care/The Company Store

Some large companies provide company-owned primary care centers for their workers. This will decrease loss of work time if the center is conveniently located on site

and will facilitate employee's access to primary care services. It is an attractive employment benefit and may enable companies to more easily control health care costs.

A significant overlap is beginning to occur between occupational medicine and primary care, with increasing recognition that the work place has a great effect on employee health status, examining issues as diverse as work-related stress and stress reduction programs, recognition, impact and treatment of substance abuse, and other factors.

Capitation

Capitation refers to the system of reimbursing a medical care provider system on a per capita basis instead of on a per procedure basis.

An increasing trend associated with the rise of managed care, capitation means that health care provider systems make more money by keeping people well instead of by performing a larger number of more expensive procedures.

The administrative, long term patient base implications of this trend, as well as the design implications are challenging.

* * *

This case study research constitutes a systematic examination of six primary care facilities, each of which responds to and reflects the trends described above in their own unique way.

Methodology

After consulting with selected members of the Healthcare Design Research Committee of The Center for Health Design, and performing an initial literature review, a set of qualitative instruments was developed for use at the six case study sites.

These six sites, listed below, were selected by The Center for Health Design according to these criteria:

- personal knowledge of the organization, program, facility, and key individuals,
- recommendations by professional consultants and committee members,
- sites representing a diverse set of primary care program elements and building conditions, and
- willingness of the organization to participate in the research project and provide all requested information within the project time frame.

The chart illustrates the wide variety of facility characteristics among the six sites selected for case study.

The facilities selected often will be referred to in the text by the names of the major cities near which they are located. They are:

University Medical Center (Seattle)
Group Health Cooperative of Puget Sound
Seattle, WA

MacNeal Medical Center in Bridgeview (Chicago)
MacNeal Hospital
Bridgeview, IL

Quincy Health Center (Boston)
Harvard Community Health Plan
Quincy, MA

Inver Grove Heights Medical and Dental Center (Minneapolis)
Group Health, Inc.
Inver Grove Heights, MN

Redford Medical Center (Detroit)
Henry Ford Health System
Redford, MI

Ochsner Metairie Neighborhood Clinic (New Orleans)
Ochsner Clinic
Metairie, LA

After telephone interviews with key designers and health care futurists helped focus the approach, a trends analysis and more complete literature search identified the set of site visit issues.

After initial data-gathering about the characteristics of the facility was completed, trained researchers visited each facility during July and August 1993. Typically the visits were for two intense days of observation, photography, staff interviews, administration of patient questionnaires, and a variety of other data-gathering techniques.

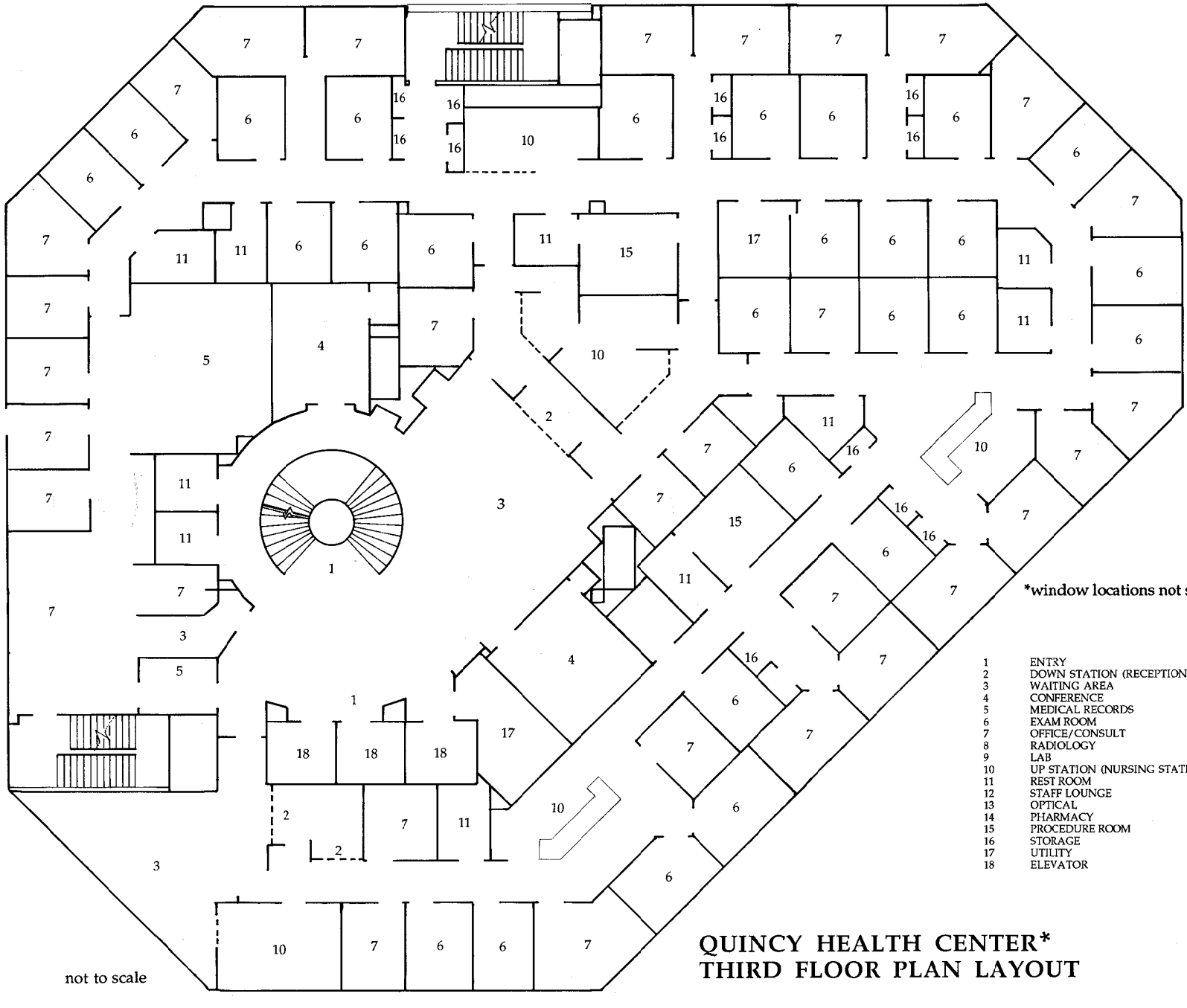
Structured observations involved documenting detailed descriptions of each type of room, particularly noting those design aspects that increased the comfort level and improved efficiency. Other observations made during the site visits included site assessment, patient flow, and wayfinding. The patient/visitor questionnaire was developed, then pretested in a medical setting, and revised prior to use at the six sites. Questionnaire results were tabulated and summarized; specific comments are included in each case study description while a general summary of responses is included in the Appendix.

Each of the six facilities was analyzed independently and the results across all facilities were explored in detail.

SUMMARY OF FACILITY CHARACTERISTICS

Facility Name	Located near:	Size (SF)	Cost/sf	Bldg. Height	Construction	Free standing /attached	Owner-ship
Quincy Medical Center Harvard Community Health Plan	Boston	55,000.	$64	Multistory	Interior build to suit	Attached	Tenant
MacNeal Medical Center in Bridgeview; MacNeal Hospital	Chicago	12,000	$176	Single	New	Freestanding	Own
Redford Medical Center Henry Ford Health System	Detroit	13,000	$58	One floor of Multistory	Interior build to suit	Attached	Tenant
Inver Grove Heights Medical and Dental Center; Group Health, Inc.	Minneapolis	35,000	$105	Multistory	New	Free standing	Own
Ochsner Metairie Neighborhood Clinic; Ochsner Clinic	New Orleans	49,000	$85-95	Multistory	Renovation	Free standing	Own
University Medical Center Group Health Cooperative	Seattle	10,000	$45	Multistory	Interior build to suit	Attached	Tenant

Harvard Community Health Plan, Inc.
Quincy Health Center
Quincy, Massachusetts
(near Boston)



**QUINCY HEALTH CENTER*
THIRD FLOOR PLAN LAYOUT**

Harvard Community Health Plan, Inc.
Quincy Health Center
Quincy, Massachusetts
(near Boston)

Introduction

The Quincy Health Center site visit was conducted on August 2 and 3, 1993. Forty questionnaires were distributed from the Pediatrics and Internal Medicine reception desks. Twenty-six were completed. After a tour of the facility, observations were made of each department and interviews were gathered from representatives of ten functional groups. The interviews included a surgical physician assistant, two facility managers, an administrator, a clerical worker, an obstetrical nurse, an internist, a medical supervisor, and the designer.

Organizational Structure

The Harvard Community Health Plan, Inc. (HCHP), Quincy Health Center is administrated by Harvard Community Health Plan, a managed group practice with facilities throughout the State of Massachusetts. The organization has formed an unprecedented alliance between a health maintenance organization and a medical school, forming a new Harvard Medical School Department of Ambulatory Care and Prevention.

The Quincy Health Center opened in 1990 and now houses Internal Medicine, Medical Specialties, Mental Health, Obstetrics/ Gynecology, Pediatrics, Surgical Specialties, and Visual Services. Supporting services include a Laboratory, Pharmacy, Radiology, and an Optical Shop. The center has departments of Health Education, Member and New Member Services, and Medical Records.

Twenty-nine physicians work at this center. There are twenty-six mid-levels including nurse practitioners, two visual services consultants, and ten mental health consultants. There are approximately 145 people on the staff including administrative heads, supervisors, clerical support, maintenance, receptionists, and physicians. There are currently 11,000 members with a capacity for expanding the facility to accommodate 25,000. Expansion space may be used for Obstetrics/ Gynecology or Ophthalmology.

Facility Background

Quincy Health Center is located in Presidents Place Tower, a pair of prominent, attractive brick buildings with beautiful, well-manicured landscaping. The health center leases patient space on floors two through four in the Presidents Place South Tower (with the exception of the Optical Shop which is located in the first floor retail mall). The North Tower is occupied by a bank. In addition to the Quincy Health Center, the South Tower includes a wide variety of retail businesses, including restaurants and a National Park Service Visitor Center. There are things to do in the area before and after

appointments or while waiting for laboratory results. Many questionnaire respondents mentioned the retail stores as their 'favorite place' at Quincy Center.

The Center serves patients primarily in Quincy with a few from South Boston and Dorchester. The HCHP Braintree Center, located several miles away, serves a somewhat different population. Many of these patients travel to Quincy Center for Obstetrics/Gynecology services not provided at Braintree. The 80,000 population service area is primarily urban, including many people with a variety of health problems found in urban centers.

All new construction and renovation design is coordinated by the HCHP Facility Department. Outside consultants are retained to design facilities. SBA|Steffian Bradley Associates, Inc. has designed six sites for the HCHP, in addition to the Quincy Health Center.

The current Quincy Health Administrator was responsible for gathering information from clinicians during the design phase of the Center.

Philosophy

HCHP is a national leader in forming partnerships with clinicians and their patients to change behaviors, improve the quality of care, detect illness earlier or, preferably, to prevent it altogether. HCHP supports teaching, research, and community service through a number of noteworthy projects. Harvard Community Health Plan staff say they are "recreating their service", they are orienting more towards prevention and lifelong health care rather than crisis care.

In order to continue providing quality service, questionnaires are distributed every six months through random sampling of 550,000 HCHP members. Questions address access to appointments, waiting time, satisfaction with staff, quality of care, and the facility. Results consistently indicate that the members like the HCHP centers. One consumer sits on the HCHP Board, and there is also a Member Appeals board.

Facility Description

The 55,000 square-foot health center within the office tower has a unique footprint which creates interesting circular space on the interior. There is a core around a grand stair, with a circle of distinct and separate waiting rooms around the core, ringed by another circle of reception areas, ringed once again by workstations, and completed with physician and administrative offices along the perimeter of the building. Signage is the primary key indicator of individual departments.

The multi-floor plan includes medical records, business and administrative offices, nurses stations, sixty-two exam rooms, six eyelanes (one with treatment), ten mental health rooms, four procedures rooms, one treatment/audio room, offices, waiting and sub-waiting areas, a conference/lunch area and reception areas. The main reception desk is centrally located on the second floor; subsequent floors have central public areas surrounding a grand stair. The building services and mechanical areas are located below ground level.

Most patients come to Quincy Health Center by appointment. There is no urgent care and no formal walk-in clinic. Patient appointments are scheduled from 8:30 a.m. to 5 p.m., Monday through Friday.

Patients and visitors came to the facility by car, bus, and subway. The center is located on a major arterial across from the MBTA ("T") Redline Quincy Station (subway system) or it can be easily accessed by car. Visitors can obtain recorded directions to the facility by calling Member Services. It is estimated that only 5% arrive on the 'T'.

Questionnaires gathered during the site visit indicated eleven percent arrived by subway.

Most patients arrive by car and may choose to park in the garage or at a parking space along the street. The Quincy Health Center validates parking permits up to two hours. Patients enter Quincy Health Center from any of three directions. The parking garage is slightly below grade and connects by a short flight of stairs or an elevator to a corridor common to the retail mall in which the Quincy Health Center is located.

Patients and visitors entering from the parking garage or from Washington Street generally proceed to an elevator located on the ground floor next to the HCHP Optical Shop.

Visitors arriving from the street parallel to the South Tower's main entrance proceed immediately up the grand stair to the second floor main entrance. The stair and the portals very clearly invite movement upstairs or into a department. This is where Member Services is located and where a patient can obtain directions to proceed to specific areas on one of three floors.

Patients visiting the medical departments check in with a receptionist in each respective department. The client waits in a main waiting area until called by a nurse who enters the waiting area through a door to the side of the receptionists' area (which staff refer to as a "Down Station"). The patient is taken to an exam room while the medical staff complete other exams or prepare for next exams at the centralized staff workstation (which staff refer to as an "Up Station").

The laboratory and radiology departments are easily accessible by the adjacent medical department. In fact, the circular layout of the center allows all staff to circulate along the periphery of the building throughout the day contributing to a feeling of keeping in touch with co-workers.

Most requests for labwork and radiology are delivered to a reception desk by the patient. The lab or radiology receptionist enters the request into the computer. Circulation in these areas is very efficient.

Medical Records is located in the administrative office area. This area is shared with medical transcribers and data processors. There is a reception area and four data entry stations located in an open area. Beyond the open area is a corridor along which there is another open workstation. The enclosed offices of transcribers and administrators are located along the outside corridor wall. Medical records storage units are located at the end of the corridor; the door at the end of this corridor has a special mechanism to provide records confidentiality as well as emergency egress.

The royal blue spiral stair is the most prominent feature of this core space and provides consistency in design between *floors*.

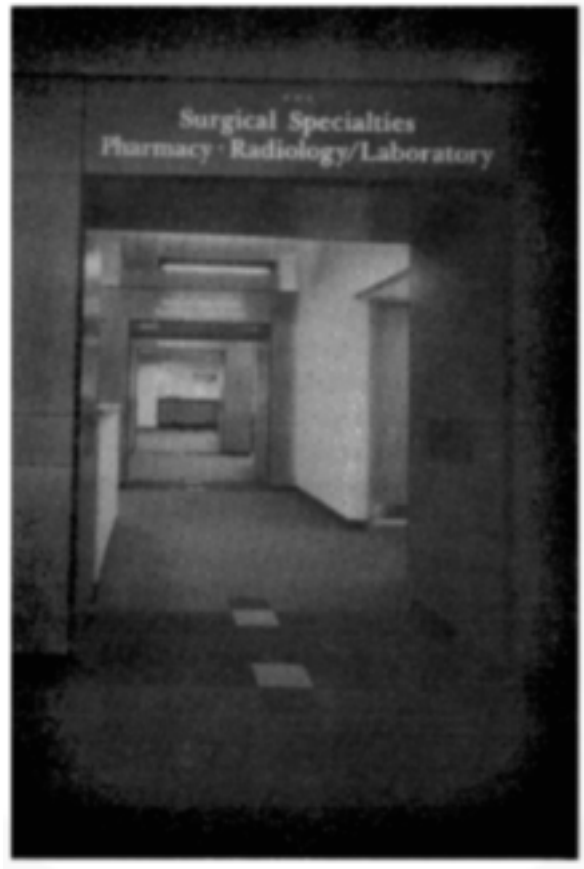
Each department varies, but similar colors and furnishings are used throughout the facility. Patients particularly mentioned the colors in their questionnaire responses.

Portals at each cluster or entry to a department are cherry wood, orange-colored with routed blue lines and black squares. The portals are designed to utilize nautical elements of Quincy's ship-building history. Counters are blue and blonde. Shiny gray round support columns match columns in the mall atrium. Walls are off-white cream. Ceiling tiles are white, 2′ by 2′ and 2′ by 4′ panels with a trough design. Sleek black lighting fixtures with uplights and downlights are arranged in a circular pattern around the stairway.

The carpeting is predominantly blue and beige speckled and is uniform throughout the facility except in the lab and public rest rooms. The walls are frame drywall painted a color which is perceived as gray/blue or

The central stairway is a strong visual and functional design feature.

Reception areas have colors and detailing which reflect the strong nautical heritage of the area



Archways facilitate circulation and wayfinding, while providing a consistent design image.

blue/gray depending on lighting and furnishings.

Noteworthy Design Features

Mall Location
Quincy Health Center is located in a retail mall. The staff and the patients like being able to shop, eat, watch people, and go to the doctor. Several visitors mentioned the used book store as a design feature that caught their attention.

Staff Circulation
A perimeter corridor system allows staff to move easily around the facility without going through patient waiting rooms. Staff felt this facilitated their interactions and specifically contributed to the quality of health care delivery. They were able to easily and informally consult with other health care professionals in the Center.

Space Allocation
The spaciousness of the facility was the most frequently mentioned feature of the building. The space gives the perception that the facility is calm and quiet even though a high volume of service is provided within the various departments. Disaggregated waiting areas for each department and ancillary services contributed to a sense of personalized service.

Image
The architect described the imagery of the design as familiar and nautical - relating to the Quincy shipyard. The designs are not intended to be literal; rather the materials of a shipyard are used, but not in context: cherry wood, hardware, technical lights, and the color blue. The elements are neither contemporary nor traditional; but are subtle and effective.

HCHP Model Clinic Unit Concept
The governing concept for HCHP design is an optimum line of site and visual continuity. The ideal design module for HCHP is a 26-28′ bay; however, the shape of this building constrains this concept.

Central Stair
The stair is a usable sculpture at the central core of the facility, a dynamic design feature, a central organizer, and a functional vertical circulation element. A vertical flow-through hierarchy was created using the portals, lighting, and signage. The project architect described this flow in the interview: Point A (building directory) progresses to point B (department portals), to point C (exams). As the patient moves through these points, elements or images of circulation drop off, such as lighting and signage.

The stair also reinforces the health promotion message, by encouraging facility users to exercise.

Entries
The main entrance to the Tower has lawns and raised flower beds with brick walls wide enough for sitting. The main entrance opens to a five-story pitched ceiling atrium which has about twenty-five round, gray, lunch tables, a small stage, trees, and metallic columns. A grand stairway to the Quincy Health Center entrance is located just inside the mall entry doors. About half of the patients were observed arriving via this formal route; the other half arrived through the parking garage. About half of those patients using the parking garage used the atrium stairway to the second floor and the others used an elevator located in one arm of the mall. Most staff entered and exited via the stairway and used the parking garage.

The main entry, accessed by the grand stair, is a wide corridor with visiting consultants' offices on one side. The patient immediately sees another spiral stair which is at the core of the facility. As the visitor proceeds, elevators come into view, then Pharmacy, and finally Member Services. As the visitor turns slightly, the HCHP name and logo

come into view. Exiting the center via the stair, one sees through picture windows and glass doors into the mall atrium.

The secondary entrance, by elevator, is next to the HCHP Optical Shop. The lobby is nicely finished with the same materials used in the main entrance. There is a blue strip of carpeting at the first floor landing and a gray half-circle above the elevator.

Arrival on the second floor from the elevator also offers an immediate view of the spiral stair. The Pharmacy is located beyond the stair and Internal Medicine is readily visible on the right. The Member Services desk is semicircular and has a clear view of the center area and the elevators.

Waiting and Reception ("Down Stations")
The waiting areas and associated reception work spaces are called "Down Stations" at Quincy Health Center. Patients check-in and out and wait for appointments in the small furnished areas just beyond each department's portals. The pediatric waiting room includes a small playhouse, a moveable train, and a bead-maze on a small table. At least half of the Quincy Center pediatric patients came with their fathers on the day of observation.

Staff Stations (Up Stations)
Medical staff function around a central "Up Station". These stations are shared by two or three nurses; they vary in size and spatial configuration, depending on location in the building. Those on the perimeter of the building have a wide picture window.

Radiology
The department includes dressing rooms, a large radiology room, mammography room, and a small patient education room in which videos can be viewed in privacy.

Laboratory
The phlebotomy area and EKG spaces are flooded with natural light. Patients positively noted this in the questionnaires.

Staff Lounge/Meeting Room
The combined staff lounge and conference room has a moveable divider to separate the spaces. A door in the partition allows access between the two areas. A small kitchen area is located across the hall from the lounge.

The lounge itself is quiet when the partition is closed and is a calm place to 'get away' during breaks. There are views to the outside from both rooms.

The space is sometimes opened to the public for conferences, non-profit organization meetings, and other community functions.

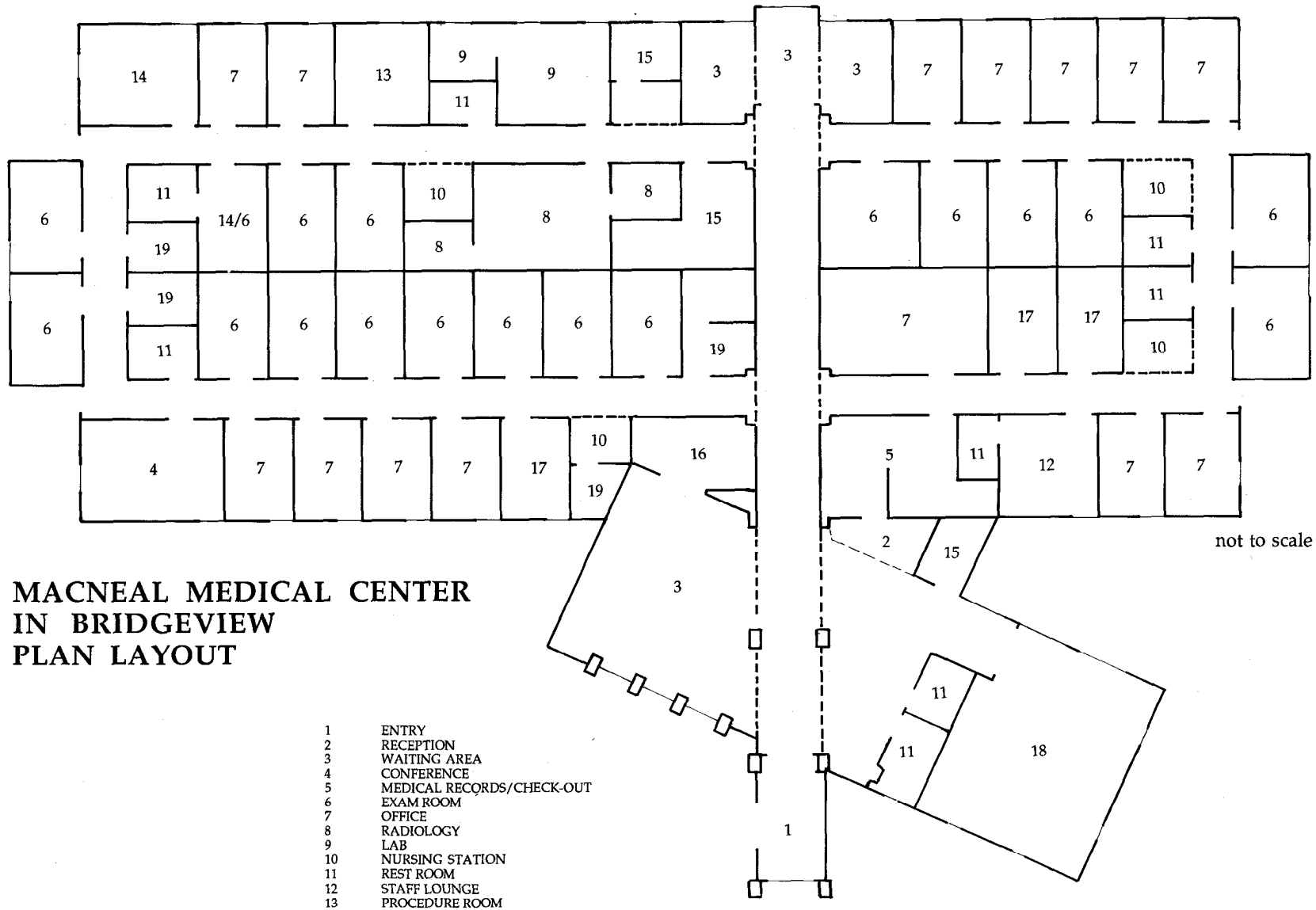
Elements of a Healing Environment
Facility users at Quincy Health Center say this is a healing environment. They describe one important element as being peaceful, caring people. Other elements included a philosophy of employee related management, and the new facility. One physician assistant said, *Yes, no matter how much you like what you do in your own job, it's the people you work with that count.*

Response to Trends
Quincy Health Center is located within a retail mall, a location reflecting the one-stop shopping trend.

The use of midlevel health care providers, presence of an optical shop and patient partnership philosophy shows in their approach to design. They have an in-house feedback program to assess patient response to a variety of care issues, including design.

Their careful selection of colors and materials shows attention to patient comfort through use of familiar symbolic associations.

MacNeal Medical Center in Bridgeview
MacNeal Hospital
Bridgeview, Illinois
(near Chicago)



MACNEAL MEDICAL CENTER IN BRIDGEVIEW PLAN LAYOUT

1 ENTRY
2 RECEPTION
3 WAITING AREA
4 CONFERENCE
5 MEDICAL RECORDS/CHECK-OUT
6 EXAM ROOM
7 OFFICE
8 RADIOLOGY
9 LAB
10 NURSING STATION
11 REST ROOM
12 STAFF LOUNGE
13 PROCEDURE ROOM
14 TESTING
15 SUPPLY/STORAGE
16 PATIENT EDUCATION ROOM
17 CONSULTATION ROOM
18 COMMUNITY ROOM
19 SOILED/UTILITY

MacNeal Medical Center in Bridgeview
MacNeal Hospital
Bridgeview, Illinois
(near Chicago)

Introduction
The team researcher visited MacNeal Medical Center in Bridgeview on July 21 and 22, 1993. Six individuals were interviewed who represented key functions in the facility. Two questionnaires were completed by patients and visitors. The standard observation, walkthrough and photodocumentation protocols were followed.

Organizational Structure
The MacNeal Medical Center in Bridgeview is administrated by MacNeal Hospital, a not-for-profit organization, which has been in operation since 1921.

MacNeal Hospital is affiliated with the Loyola University Medical Center; they share an integrated Loyola/MacNeal training program. MacNeal currently operates twelve primary care or family medical centers in the western and southwestern suburbs of Chicago as well as an inpatient facility and a cancer center in Berwyn. MacNeal Hospital is affiliated with the Independent Physicians Association (IPA) called the MacNeal Health Providers.

As a result of of this affiliation, MacNeal is associated with approximately ten Health Maintenance Organizations in the Chicago area.

Facility Background
The building was designed and built specifically for MacNeal to house these practices. The site was selected primarily because of the strategic location which could conveniently serve the community and surrounding area. The lead internal medicine physician and Center Director were directly involved in the planning of this facility and had direct input into the design.

The building's designer was Stone, Maraccini, Patterson of San Francisco, a well known architectural firm with over forty years of experience in designing medical facilities.

The MacNeal Medical Center in Bridgeview opened in September 1992 and houses five medical practitioners: two in Internal Medicine, two in Pediatrics, and one in Occupational Medicine. There are twenty-five physicians that work at this medical center, including thirteen residents. The Joslin Center for Diabetes rents space in this medical center; they have two Endocrinologists, a diabetes nurse, one intern, a dietician, a social worker and administrative staff.

In addition, four Obstetrician/Gynecologists and one Vascular Surgeon rent space in the MacNeal Medical Center in Bridgeview building.

There are approximately fifteen people on the staff, including physicians, nurses, medical assistants, and administrative staff. The physician panel size is approximately 1,000 members per physician. The 12,000 square-foot clinic includes lab, radiology, patient education room, four nursing stations, community room, a conference room primarily used as office space for the residency program, twenty-two exam rooms including a drug screening room, a testing room (audio, visual, pulmonary), special procedures room, business and administrative offices, a staff lounge, two consultation rooms used by the Joslin Center for Diabetes, combined medical records and reception area, and two waiting areas.

Philosophy

The MacNeal Medical Center in Bridgeview offers a variety of medical services under one roof, supported by a philosophy that emphasizes continuity of care. According to one of the staff, the medical center has abundant resources, enabling patients to come there for all their care. The physicians network together to coordinate patient care.

MacNeal wanted to create an environment where the patient enters a comforting and efficient setting which is designed to promote healing. They pride themselves on giving close one-on-one care. Minimizing the amount of time a patient waits is a goal of the facility's management.

Facility Description

Most patients make appointments to see their physician when they come to the MacNeal Medical Center in Bridgeview but the clinic also takes walk-in patients. Clinic hours are 7:00 a.m. to 6:00 p.m. Monday and Tuesday, 7:00 a.m. to 7:00 p.m. Wednesday and Thursday, 7:00 a.m. to 5 p.m. Friday, and 9:00 a.m. to 1:00 p.m. every other Saturday. A nurse advice telephone line, called "Health Answers" is run by MacNeal Hospital; however, nurses at the Bridgeview facility can respond to their patients who may have questions over the telephone and they will refer patients with acute problems directly to the hospital.

The facility is located at the northwest corner of W. 79th St. and Sayre Avenue and shares a driveway entrance with the Omni Shopping Mall, which has a variety of discount stores and other retail shops.

The entry/lobby area is a strong design feature which is easily recognized. The reception desk is located to the right of the main hallway; patients and visitors find it easily. Patients register at the reception desk, which is accented with a marble countertop and lowered ceiling. Patients scheduled to visit the Joslin Center for Diabetes are directed around the corner and along the secondary hallway for a short distance to a different reception desk.

Rest rooms are located behind a curving glass brick divider wall next to the reception desk. A telephone offering free local service is located behind this divider as well as a coat rack and water fountain.

The receptionist directs the patient to wait in one of two available waiting areas -- the main waiting area or a separate child's area designed for play located at the end of the main hallway. The nurse or medical assistant then is notified that a patient is waiting and personally calls the patient in, and settles them in an exam room. Handicapped patients are typically escorted into and out of the building by a nurse or medical assistant who provides extra assistance, if needed.

Patients are escorted into an exam room. After the patient is examined, conversations between the patient, visitors, and health care staff occur in the exam room.

If patients need to visit the radiology or lab areas, they are located in the northwest cor-

Waiting area with plentiful natural light and views of repetitive design grid.

Strong entry highlighted by flooring and light from clerestory.

ner, across from each other. The radiology and lab areas are accessed off the main hallway next to the occupational health section. Patients needing to have their blood drawn are called by the nurse and invited inside the lab. Patients needing radiology are given encounter forms which provide the nurse with the necessary information. They are directed to the radiology area which has two dressing rooms inside the main area, increasing privacy.

Patients stop at the check-out desk as their last stop before leaving the facility. The patient coordinator calculates patient visit charges and completes the payment or co-payment transaction. The check-out area is relatively private since it is separate from the main waiting area.

Noteworthy Design Features

The MacNeal Medical Center in Bridgeview is housed within a new one-story brick building with limestone accents. Almost all of the staff describe the openness, windows and natural light as the strongest features of this facility's design.

Style

Throughout the majority of the facility, four elements are consistently carried out. They are:

1. grid detailing carried out in windows, cut limestone in pillars, hall gate, carpet, and terrazzo flooring accents,

2. walls which are painted an off-white with a hint of gray,

3. cabinetry, furniture, doors and trim are constructed of natural oak, and

4. muted accent colors in the carpeting are highlighted with turquoise and beige, or gray.

Extensive landscaping on the site is colorfully attractive and varied. The rectangular floor plan consists of a main hallway bisecting the center and a continuous secondary hallway that rings the facility. Within these two halves four clusters are established.

The carpeting has a muted geometric pattern of turquoise and beige for public areas (aside from the main hallway) and charcoal grey in exam rooms and offices. The walls are frame drywall painted an off-white with a hint of gray. Ceilings in most patient exam rooms and some offices were 2'x2' or 2'x4' acoustical tiles. The remaining ceilings are painted frame drywall in off-white with a hint of gray.

No music is played in this facility since it is felt that music choices may not appeal to everyone. No food or drink is available to waiting patients or visitors.

Access/Convenience

The facility is conveniently located next to the Omni Shopping Mall. Clearly identifiable signage for the building is attached to the west-facing facade and a free-standing sign is clearly visible from the intersection while yet another free-standing sign is seen at the entry to the parking area. The entry is has a circular drive located in front of the entrance used for drop-off and pick-up leading to steps or a handicapped ramp. There is no cover for this area, although the sidewalks have heated coils that melt snow and ice in the winter.

The entrance has glass double doors that open into an interior entry. Windows from floor to ceiling (about 25' high) inset between 4 large limestone pillars form the interior entry. This entry provides a much needed transition area during inclement weather. Physicians and staff can access the building through two other doors located on the east and west sides of the building.

Natural Light
The formal entry is highlighted with brown terrazzo flooring accented with turquoise marble detailing, clerestory windows, and 18-foot ceilings along the main hallway. To the left of the entry doors is the main waiting area, referred to as part of the reception area, which seats approximately twenty persons, a comfortable area filled with natural light. Facing the entry is the reception desk which is also accented with oak and a brown marble countertop; the ceiling is lowered elsewhere beyond the main hallway; however, windows at the reception counter provide additional natural light. Even the check-out desk and patient education room have a corner window adjacent to the main hallway which takes advantage of the natural light and brightens this area.

Almost all the exam rooms have natural light provided either through clerestory windows or full-length windows outfitted with vertical blinds.

Work Space
Work space in the facility (i.e., exam rooms, lab, radiology) is largely left undecorated, except for the pediatric exam rooms; this emphasizes the shared, generic work space concept. Large, attractive artwork is interspersed in the hallways and waiting areas, meeting rooms, and reception space. Four pediatric exam rooms are decorated with colorful wallpaper borders and kites suspended from the ceilings.

Privacy
To the right of the entry doors, a curving glass brick divider trimmed in oak separates the rest rooms, free local telephone service, and coat rack from the hallway.

The children's waiting area is divided into two areas: healthy and sick. This is successfully achieved by avoiding total separation or exclusion in which both areas face each other with a carpeted open play space in between.

The financial aspects of checking out are done in private, not near where people are waiting by the reception desk.

Patient Education
The community room is located off the main hallway to the right of the reception desk. It can accommodate about thirty people and is used frequently by MacNeal and the Joslin Center during the evening for programs regarding health topics and for staff meetings. The room is entered through double oak doors with window inserts. Two tables and twenty-five upholstered oak chairs (rose/beige fabric) can be moved to accommodate a variety of seating arrangements. It also has ample natural light from four ceiling-to-floor windows covered with vertical blinds. An electrically-operated ten foot projection screen is recessed in the ceiling. Attractive oak cabinetry and forest green countertop with a sink line one wall and provide space for coffee or refreshments. Projection equipment is permanently housed in these cabinets for easy, quick access during slide presentations.

To prevent access to the rest of the clinic during these evening sessions, gates designed to match the grid in the windows are locked in the main hallway near the reception desk. These gates are virtually unnoticed when unlocked as they fold back into recessed panels in the walls.

One clinic consultation room, similar to the exam rooms, instead has a table, two chairs and a scale. It is located conveniently to the nurses station and exam rooms. Joslin Center for Diabetes uses two other consultation rooms as well within their designated area.

Located off the main waiting area, the patient education room is an inviting, quiet space intended for one (or two) patients at the most to increase their knowledge about health issues and services that MacNeal offers. The room has oak display shelves hold-

ing numerous pamphlets, oak counter space that holds a combination video monitor/ VCR and assorted videotapes, and two-tiered counter space for materials and writing. The clinic physicians and Joslin Center for Diabetes physicians frequently refer patients to this room for more information on health issues of importance to the patient.

Nursing Stations

There are two nursing station configurations: one is a large "L" shaped design and the other is a niche inset within the hallway. Two "L" shaped stations are located in hall corners within space used by the Joslin Center for Diabetes. Two hall inset stations are used by the clinic; these are provided with natural light by clerestory windows above the stations. The nursing station cabinetry has built-in slots for paperwork and supplies, which nurses feel helps them keep organized. For instance, enough space is provided to allow individual procedural supply boxes (i.e., ear irrigation, eye, dressing, etc.) which improves efficiency.

Drug Screening/Testing Rooms

The MacNeal Medical Center in Bridgeview is focused not only on primary care for families but also for the industrial needs of the community. As such, the Center provides pre-employment physicals and drug testing, audio, vision, and pulmonary tests on a contract basis to large industrial businesses in the area. These two rooms are part of the occupational medicine section of the Center.

The drug testing room is similar to the adult exam room (except with blue/gray vinyl tile); however, the nurse has the ability to control all water flow in the bathroom's sink and toilet.

The testing room for audio, vision, and pulmonary tests is directly across from the drug testing room and has an efficient layout with three different stations separate from each other, augmented with natural light from one window.

Communications

The facility relies on convenient layout, with staff being able to locate one another in the hallways or near the check-out area. The overall layout and size are manageable for this type of staff communication.

Elements of a Healing Environment

According to a staff member, the natural lighting is comforting and soothing, contributing to making this a healing environment. Other medical care staff describe the environment as calming and comfortable.

The elements of a healing environment, according to another staff member, are comfortable surroundings and a good team, coming to a place where they know someone and see a familiar face and someone knows them. A staff member described this building as having a "good feeling."

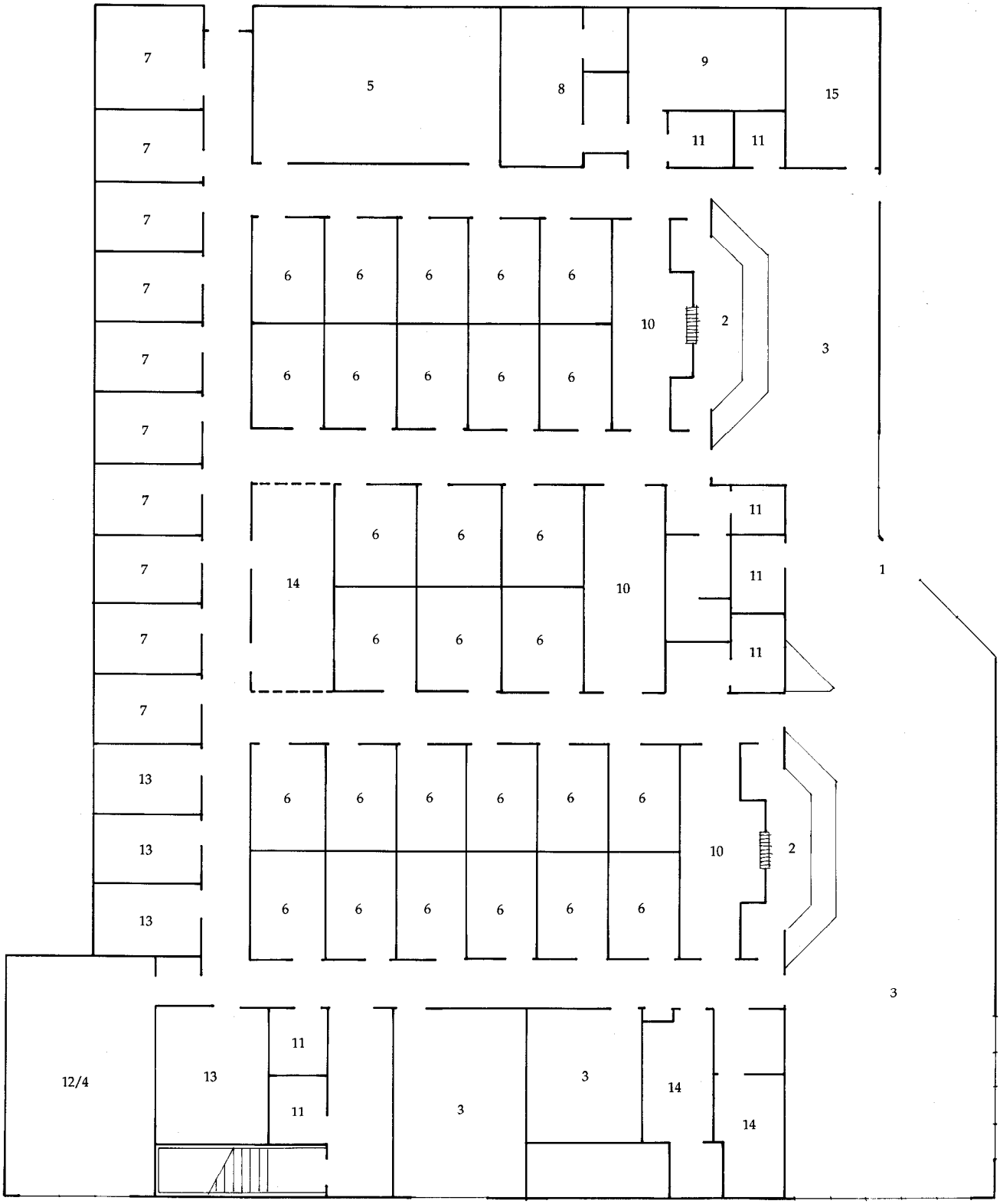
Response to Trends

The MacNeal Medical Center in Bridgeview has responded to trends in primary care by custom tailoring its services to not only family care but community care as well. This is being carried out by providing local industry, which has a significant presence in the community, with medical services.

Patients are given an opportunity to expand their knowledge of a wide range of health topics through use of a patient education room and evening sessions held in the community room.

The facility possesses a flexible design in which any kind of medical service could be easily housed.

Redford Medical Center
Henry Ford Health System
Redford, Michigan
(near Detroit)



HENRY FORD -- REDFORD MEDICAL CENTER PLAN LAYOUT

1	ENTRY
2	RECEPTION AREA
3	WAITING AREA
4	CONFERENCE
5	MEDICAL RECORDS
6	EXAM ROOM
7	OFFICE
8	RADIOLOGY
9	LAB
10	CARE OR WORK STATION
11	REST ROOM
12	STAFF LOUNGE
13	MENTAL HEALTH
14	STORAGE/UTILITY
15	PHARMACY

Redford Medical Center
Henry Ford Health System
Redford, Michigan
(near Detroit)

Introduction

The site visit took place on August 10, 1993. The standard protocol of observations, facility walkthrough, interviews and photographs was followed.

Patient/visitor questionnaires were completed by thirty-eight individuals **at** Redford Medical Center. Seventeen were visitors accompanying a patient, the other twenty-one were patients. All arrived by car.

Organizational Structure

Henry Ford Health System is one of the nation's major vertically integrated health care systems including four hospitals, thirty-six out patient centers, a 400,000 member Health Maintenance Organization, two nursing homes, and a number of other health care entities.

The eight-hundred physician Henry Ford Medical Group serves as staff to Henry Ford Hospital and the twenty-six Henry Ford Medical Centers, including the Redford Medical Center. Henry Ford Health System had 1992 revenues of 1.26 billion dollars.

Redford Medical Center offers physician services in Internal Medicine, Pediatrics, Obstetrics/Gynecology, Geriatrics, and Psychiatry. Their services also include Radiology, Lab, Medical Records, and Pharmacy.

There are a variety of health care professionals at Redford Medical Center, including four internal medical physicians, one physician assistant, one clinic nurse specialist, four pediatric physicians (one of which is Clinic Physician-in-Charge), a Geriatric social worker, a psychologist and two psychiatrists, two psychiatric social workers, and three nurse midwives. Seventy-five percent of the patient population are Health Maintenance Organization members. Patient visits have totaled 21,007 in the first six months of 1993.

Philosophy

While no specific philosophy was described, a number of staff members mentioned that the proximity of the health club to the Redford Clinic was consistent with its emphasis on health lifestyles. The proximity of the health club is seen as a healthful asset to the Redford Medical Center and is often used as a landmark when directions are given.

Facilities Background

Before Redford Medical Center moved in, the Redford Shopping Plaza in which it is located held a variety of discount stores. The staff at Redford Medical Center feel that the facility's presence has been the single most important factor in upgrading the mall.

The largest primary care site of twenty-six HFMC sites, the Redford Medical Center has a ten year tenant agreement with a five year termination option. The approximately twenty other tenants in the building include Vic Tanny's, Blockbuster Video, Burlington Coat Factory, Hallmark, a sandwich shop, a grocery store, a drug store, and many small discount stores. The second floor shell space in which Redford Medical Center is located was previously occupied by a retail business similar to a K-Mart. The facility opened in January 1991, with a mix of new and old furnishings and equipment.

The design team included the architect, the Administrative Manager, the Physician-in-Charge, and the Registered Nurse Leader. The architect, TMP of Bloomfield Hills, was retained as an outside consultant.

Located on a major thoroughfare near two freeways, the Center serves a predominantly residential area within a radius of forty to fifty miles. The City of Redford is approximately 11.25 square miles, and has experienced a steady decline in population since 1980. Employment is primarily in business services and retail. About twenty percent of the population is between twenty-five and thirty-four years of age. Redford Medical Center provides services to an equally distributed age distribution from birth to over age ninety.

Facilities Description

The 13,000 square-foot clinic includes a patient education room, an education/lounge area, business and administrative offices, two work/reception stations, two physician/nurse assistant stations, one nurse triage station, twenty-eight exam rooms, two mental health evaluation rooms, a group therapy room and associated waiting areas. The Center is open Monday, 8 a.m. to 5 p.m., Tuesday through Thursday 8 a.m. to 9 p.m., Friday 8 a.m. to 5 p.m., and Saturday 9 a.m. to 2 p.m. Although receptionists answer the phones and schedule appointments, patients may talk to a physician or nurse for assistance with an illness, medication, or other matter.

After hours calls are directed to the on-call physician at Henry Ford Medical Center - Fairlane, or the patient's physician is contacted. Other HFMC facilities have additional specialized care, outpatient surgery, 24-hour emergency care, CAT scanning, therapeutic radiology, and other services. Major traumas are directed to hospitals.

Patients enter Redford Shopping Plaza and park near the Redford Medical Center which is located at the center of the L-shaped retail mall. A municipal bus enters the Plaza, though no patients were observed arriving or departing in this manner.

The Center's prominent entrance is well marked with a bright red neon art deco type arch. Redford Medical Center is clearly spelled out over the arch.

The parking lot has ample space. Signage indicates that the Medical Center is on the second floor.

Patients enter an unfinished shell space and proceed up a flight of stairs, an escalator, or an elevator. This entry area is not part of the Redford Medical Center lease. Near the elevator on the the first floor is a wall-mounted telephone so that patients may call for assistance if they need help.

Most patients choose to take the escalator to the second floor, then turn to the left and walk almost to the front of the building to enter the Redford Medical Center. Visitors to Vic Tanny's, an exercise club, share the first and second floor entrance, turning to the right from the escalator landing.

Patients have complete views of the Redford Center waiting and reception areas through glass walls. Doors to the Center are positioned between the two waiting areas. Fur-

Medical personnel work together in this area throughout the day.

Pass-through system to facilitate reception, nurse and physician information sharing.

Reception area is easily visible; note pass-through slots behind receptionists.

nishings define a large waiting area on the right which accommodates Internal Medicine/Gerontology reception, the Pharmacy, and Laboratory visitors. A much larger waiting area is delineated by furniture arrangements on the left. This area is the Pediatrics, Obstetrics/Gynecology and Mental Health reception area.

A unisex rest room and a drinking fountain are located across from the entrance and between the two waiting areas. The unisex rest rooms include a sink, toilet, waste paper container, and an emergency pull. They are used by staff and patients. The floors are gray ceramic tile; the walls are gray brick to 48" and then gray, ribbed wallpaper above. There are restrooms in each corridor, with a handicap accessible restroom in Pediatrics which is available to all visitors. Gerontology patients who have an increased need for accessibility may use this restroom as well.

Staff lockers for securing personal belongings are located outside the rest room in Pediatrics. Two pay phones are located on the wall to the left of the entrance.

The patient announces arrival at one of the two receptionist areas where insurance and demographics are verified on the computerized Medipac system. The service memo is updated and the receptionist deposits the current file in a pass-through slot to the work area on the other side of the wall.

A medical assistant picks up the file, calls the patient, and escorts the patient to an exam room. After examination, conversations between the patient and health care staff occur in the exam room. The receptionist schedules future appointments and collects fees as the patient leaves.

The facility is simply finished. Furniture throughout the facility includes armed chairs of blonde wood, covered with dark rose fabric. Carpeting in the public waiting area is blue with rose, beige, and white lines. The walls are papered with a fine textured spackle in beige.

Lighting throughout the Center is recessed and covered with parabolic reflectors. U-tube canisters are positioned over reception desks.

There are three blocks of exam rooms, each served by a double-loaded corridor. All of the rooms are identical with minor modifications in each of two pediatric rooms. The floors are gray and white sheet vinyl. The ceiling and lighting are identical. Each room has a wall-mounted cantilever desk with overhead cabinets. In addition, there is a cabinet on wheels and a standard exam table.

There are occasional recessed areas for secondary work spaces, a crash cart, and equipment along the corridors. A clean room and a dirty room are located in spaces similar in design to the exam spaces and are located at the end of a block of exam rooms.

Noteworthy Design Features

The Clinic Service Representative

The Clinic Service Representative's desk is designed for patient convenience, at check-writing height. The Clinic Service Representative can request records by computer. The medical record bar code is scanned, the location of the chart requested is updated, and the file is pulled. The records are pulled in Medical Records and delivered to the designated Customer Services Representative. A records clerk picks up requests every ten to fifteen minutes during the working day.

Centralized Services

Radiology, the Laboratory, and the Pharmacy are located in the interior of the building at one end of the Center. All patients pass through the Internal Medicine/ Gerontology waiting area to access these services. The Redford Medical Center plans to expand in

the near future and these ancillary services will then be in the center of an L-shaped facility.

Radiology. This area is small, efficient, and typical of other areas. A small desk space is located just inside the door to this area and is partitioned from the radiology table and other equipment.

Laboratory. The laboratory is also efficient and typically finished with the addition of a formica backsplash above the U-shaped counter space. The technician indicated that there is ample space for increasing staff.

Medical Records. The medical records area included shelves brought from another HFMC facility. A built-in counter and cabinet unit run along the length of wall between two doors opening onto the same corridor. Two staff members work at this desk high counter. There is a raised counter area for processing paper work. The room is finished in mauve. Artwork brightens the work area.

A copy machine and free-standing desk are also located in this room. Records clerks hand-deliver and pick up records. As noted earlier, expansion will occur into shell space opposite the Medical Records room, centralizing the files.

MIMS (a management information system used to store information from the Laboratory, Radiology, and dictated reports) is tied to all other records available throughout the HFMC system.

Pharmacy. Prescriptions are left at a window opening into the Internal Medicine waiting area. The pharmacist is visible with the work space aligned so the pharmacist has his or her side to the prescription window. When the prescription is ready for pick up, the pharmacist calls the patient who is generally seated nearby. The ten foot front counter faces and, in fact, shares the waiting area for Internal Medicine. The front includes a door and a high counter with a sliding glass window. The pharmacy interior includes shelves which run parallel to the front. The pharmacist's station puts him/her at eye level with the patient.

At the present time, the pharmacy is located at the end of the Redford Medical Center space. It will be at the core of the center when the expansion is implemented.

Parking

The large parking lot has abundant free parking close to the facility entrance. There is one bench under the portal at the fire zone near the entrance, providing weather protection for people at the drop off point.

Waiting

The Pediatric waiting area is at the front of the building with large picture windows spanning the entire wall. This area has nine sets of four connected chairs. Some of these units have coffee table surfaces suspended between them. There is a small child-size table with four vinyl chairs centered in an area of about 250 square feet. The chairs match the adult chairs.

The area is spacious and airy, about 100′ X **25′.**

Staff Lounge/Meeting Room

The well-utilized staff lounge/education room is located beyond the exam rooms at the end of a corridor. The room is naturally lighted with large picture windows looking north over the parking lot and the nicely landscaped residential neighborhood beyond. A kitchen counter lines one side of the room and includes a microwave, refrigerator, sink, a small beverage vending machine, coffee makers, and gray cabinets.

There are six blonde tables trimmed with black and twenty-five teal vinyl chairs with silver, steel frames. The window sill is deep and holds two or three living plants. The

room includes a magazine rack, bulletin boards, and a writing board.

Administrative, Physician, and Medical Staff Offices
Located along a back corridor, the offices are rectangular, very basic, functional, and flexible. Each office has a blue steno-type chair of a light weight fabric. The offices have plywood shelves and exposed brackets. The spaces are decorated individually by the occupants, although medical staff spend little time in these spaces. Offices are not used except for personal storage or an occasional phone call. Carpeting is a gray, brown and white mix, and is of modest cost.

Work or Care Stations
The work station located beyond each reception/clerical pass-through is designed for physicians and medical assistants to work side by side. A high counter is situated just under the pass-through and runs the entire length of this area. Medical assistants retrieve files from the pass-through and confer with the appropriate physician.

There is a second counter for physicians. This design creates a back-to-back working arrangement although that is not literally the way the space functions. There are eight work stations but the staff are constantly moving within the area rather than working at one space. There are high, mauve colored steno-type chairs, but the staff stands most of the day. All non-exam activity takes place here, including transcription.

A nurse triage work station is located between the two physician/medical assistant stations. Work stations have shelves above the counters for reference material, medical literature, and charts. The carpeting in this area is gray as is the wallpaper. One diffuser directs conditioned air away from a work space. Music is played in this area.

Pass-through Concept
The flow of traffic and paper is excellent -- staff called it "a chain reaction". The proximity between reception, nurse, and physician is efficient and allows continuous monitoring of patients from sign-in through release. Activities are always visible.

Elements of a Healing Environment

When staff were asked whether this was a healing environment, they said, 'Yes. It's very calming. It gives a secure and confident feeling." The staff come here for service as well. The program is pro-patient -- follows up with patient care and utilizes staff to their fullest abilities. Redford Medical Center conducts patient satisfaction surveys twice a year.

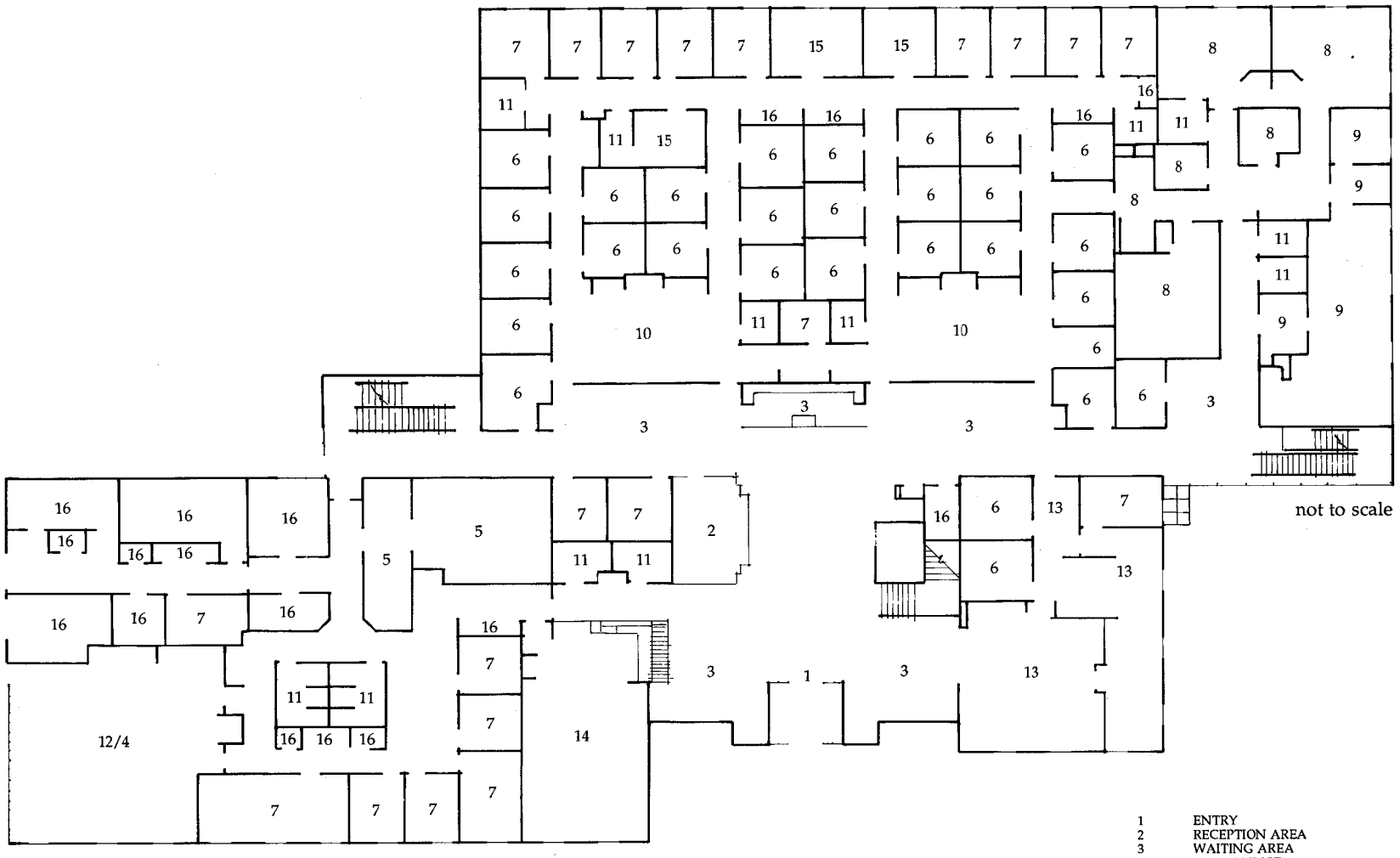
Generous direct access to natural light and views was specifically mentioned without prompting by every staff person interviewed at this facility. Staff comments included: "The large windows in the lobby make it bright and comfortable".

Response to Trends
Redford Medical Center is an important presence in its community. Its convenient shopping plaza location with abundant parking reflects the one-stop shopping trend.

Redford Medical Center recognizes the importance of its proximity to a health club; consistent with trends toward wellness and health promotion.

The efficient shared work station is a good example of how a variety of primary care professionals can be located together; as the trends analysis indicates, this pattern may occur more frequently in the future.

Inver Grove Heights Medical and Dental Center-Group Health Inc.
Inver Grove Heights, Minnesota
(near Minneapolis/St. Paul)



INVER GROVE HEIGHTS MEDICAL AND DENTAL CENTER
FIRST FLOOR PLAN LAYOUT

1 ENTRY
2 RECEPTION AREA
3 WAITING AREA
4 CONFERENCE
5 MEDICAL RECORDS
6 EXAM ROOM
7 OFFICE
8 RADIOLOGY
9 LAB
10 NURSING STATION
11 REST ROOM
12 STAFF LOUNGE
13 OPTICAL
14 PHARMACY
15 PROCEDURE ROOM
16 STORAGE/UTILITY

Inver Grove Heights Medical and Dental Center-Group Health Inc.
Inver Grove Heights, Minnesota (Minneapolis)

Introduction
The Inver Grove Heights Medical and Dental Center site visit occurred on August 4 and 5, 1993. Forty questionnaires were distributed, and twenty-five were returned. After a tour of the facility, observations were made of each department and facility representatives were interviewed.

Organizational Structure
Inver Grove Heights Medical Center is one of twenty clinics operated by Group Health, Inc. Their largest clinic is 110,000 square feet and includes several sub-specialties. Group Healths recent building phase began four years ago and now includes several new and renovated facilities. The Center currently accommodates 12,000 patients but is expandable to 18,000. Built in 1991, the Inver Grove Heights Center is two stories and 35,000 square feet, with plans to expand within five years.

Located in suburban Minneapolis/St. Paul, the construction design is intended to have a residential character. The service area has minimal industry and a low concentration of elderly people. The Center includes family practice, obstetrics/gynecology, chiropractic, pharmacy, radiology (including mammography), laboratory, dental clinic, and an optical shop. It is a regional site for Group Health, Inc.'s mental health program.

There are four medical practices: three in Family Practice and one in Pediatrics. There are several part-time health care professionals practicing at this location, including Primary Care physicians, an Obstetrician/Gynecologist, two Psychologists, and an Optometrist. There are sixty to sixty-five total staff, including RNs, LPNs, medical assistants, receptionists, and physicians.

Service is health maintenance organization-based with minimal fees for service, with an average of 1,500 members per physician.

The Center is open from 8:30 a.m. to 5:00 p.m., Monday through Friday, with the dental, mental health, and chiropractic departments open past 5:00 p.m. After 5:00 p.m., closed steel doors at the front of the optical shop and pharmacy secure inventory.

The Center is visibly located near a major arterial and an interstate highway. Patients drive into a parking lot slightly depressed below the access road grade, and park in front of the building. Staff drive through visitor parking to the side of the building to park. A canopy clearly marks the point of entrance at which there is a patient drop-off. Patients pass by pleasant, well-manicured landscaping, through glass doors into an air lock and into the main lobby. The entry has an automatic door opener option.

A main check-in is the first point of contact, with department reception and nursing nearby. Most patients come to the facility by appointment. There is no urgent care or emergency service.

The well delineated check-in is located toward the center and to the left of the entrance. The patients check in at the main desk and their arrival is recorded by computer. This record prints out at the appropriate nurse's station to notify the patient's arrival. Mental health patients intentionally by-pass check-in and go directly to the stairs leading to the Mental Health Department, allowing them a greater degree of privacy.

Patients are directed to either Station A (Family Medicine) or Station B (Obstetrics/ Gynecology and Chiropractic). The patient sits in a waiting area in front of the subreception desk. Children may wait in an 8 by 18 foot long pass-through space situated between the two stations. A nurse calls the patient, and the two proceed to an exam room. The Center has provided a flag system at each exam room door which is used differently by each medical team. After examination, conversations between the patient, visitors, and health care staff occur in the exam room.

If patients need to visit radiology or the laboratory, they proceed through the Station A waiting area into another waiting space with a small check-in window. Patients are called into either area via a shared door. Staff time is not lost to giving directions.

It is not possible for patients to leave without being seen by the main desk receptionist. Staff members on the other hand can exit through a door well beyond the Station B waiting area and out of view of patients.

An interior corridor system allows staff to move easily throughout the facility without going through waiting rooms. Staff feels this facilitates their interactions and contributes to the quality of health care delivery. There is immediate access to radiology and medical records, and easy contact with other staff.

The pharmacy is located at the front of the building. Patients ring a bell on the counter and hand prescription forms through an opening in security glass. Although the waiting area is near the pharmacy, it is open and part of the main street concept.

The optical shop is located opposite the pharmacy. Visitors pass through a public waiting area and enter the shop through a wide opening. They may browse through eyewear displays on twirlers and wall racks, or they may sit at a counter and work with the optician. An optical patient enters a door and proceeds down a short corridor to a contact lens fitting counter or an exam room.

Philosophy

Group Health, Inc. has used its Model Clinic Process to produce this facility as well as three others. The staff complimented the administration for treating all of the staff equally. Concerns are heard and solutions are presented. The staff is genuinely committed to this facility.

Facility Background

Group Health, Inc., a cooperative, decided to build rather than lease space, allowing control over building maintenance. Group Health is committed to investing in 'bricks and mortar" and current technology.

The Center is located near South St. Paul -- an area of declining stockyards, rails, river transportation, and packing plants. The area is rural and has long-time residents as well as rapidly growing upscale residential development. The Center accounts are primarily brokered through employers, with federal and state employees as primary contracts. About seven percent of the clients are Medicaid recipients in Dakota County. The

Main entry is light and open, with a variety of seating options.

Reception desk is clearly visible to people entering the facility.

Center is currently participating in a prepaid health care pilot project. Seventy-one percent of the clients are aged l-15, twenty-one percent are ages 16-64, and eight percent are age 65+.

Several physicians and nurses were directly involved in planning through the Model Clinic Process. This team was created to implement an expansion program for Group Health, Inc. over a four-year period, with the Center being the fourth clinic built using this process. Architects from BWBR Architects in St. Paul were represented on the eighteen member design team.

Facility Description

The building is two-story brick over block, clearly marked with Group Health Inc. and the logo. The site was selected for visibility from a freeway and for proximity to other cooperative organizations. Interior lights make the clerestory 'glow' at night.

The 35,000 square-foot clinic includes a patient education room, medical records, business and administrative offices, nurses stations, nineteen exam rooms, two observation rooms, a cast room, three procedures rooms, a staff lounge, and waiting and reception areas.

Primary Care is located on the first floor. Mental Health and Dentistry are on the second floor, which is about half the size of the first.

Located in a pastoral setting, there are lawns and groves of trees nearby. Landscape materials were chosen for salt and sand tolerance required for snow removal in parking areas. Site trees were selected for long leaf season, varied colors, hardiness, and flowering ability.

The Center design began with start-up standards created through a Model Clinic Team which conducted research on all users, including chart room studies, functional studies, equipment cost analysis and information not necessarily specific to this facility. Newer Group Health, Inc. facilities, including Inver Grove Height Medical and Dental Center, have a 3:l room to physician ratio, an optical shop, and a pharmacy located near the entrance.

The team established a set of goals: clear wayfinding, flexibility, a mix of medical and non-medical services, and a high-tech but warm feel. The intention was to reduce the big clinic approach and emphasize one-on-one relationships. The clerestory catches attention and serves as a subtle billboard. Offices are designed to be walled and private. The primary colors are seafoam green and champagne. The logo is repeated as a design theme in every window.

The check-in is defined by a wood slat soffit, which helps wayfinding. The berber carpeting in the mainstreet area is seafoam green, gray, mauve and white speckled. The walls are green mottled and textured.

With the natural light from the clerestory, artificial lighting is typically unnecessary. The white, half-globe lights trimmed with seafoam green framework mounted on the walls are rarely used. Task lighting is provided above the semi-circular main counter. This counter accommodates three or four staff.

Overall, the entrance experience is calm and quiet. Lowered ceilings in the pharmacy and optical waiting areas provide a sense of security. Views to the outside landscaping are plentiful.

The circulation area directly under the full two-story high clerestory has a wood slat ceiling 18 feet high over the seating area. Disaggregated waiting areas for each station and ancillary service contributes to a sense of personalized service. These small carpeted areas filled with upholstered chairs are very quiet, decreasing the sense of hurried-

ness which often characterizes clinic waiting areas. End tables hold magazines and table lamps with green ceramic bases and light shades. There are hall desks and trash receptacles in small nooks along the corridors. Chairs are arranged in a U-shape facing the station, with two pairs of chairs in the center.

The laboratory and radiology waiting area has four to six seafoam green and rose upholstered oak chairs. The stairwell is framed with glass walls to the exterior; space under the stair contains live plants in the foreground, silk plants at the back. Chairs are moveable, but no one was observed changing the arrangement.

The children's waiting space included a counter the length of the long wall at about 28" height, with child size chairs and toys and an aquarium. Children are visible in this space from both Station A and B, but not from laboratory and radiology waiting areas.

The Mental Health waiting area on the second floor is very private and partitioned from a corridor as well as the check-in counter by glass shoji screens. One square of the screen can be opened by the receptionist to update the patient about appointment circumstances.

Staff Lounge/Meeting Room
The staff lounge is a square which can be divided into two spaces -- the kitchen side and an educational/conference side. Carpeting in this area is teal and rose, with coordinated blue and gray-white wallpaper. Logotype windows west and south provide beautiful views. Canister lighting is available when natural lighting is inadequate.

The lounge is located behind the administrative offices, with two entrances from the corridor and an exit to the exterior patio. Patio furniture is made of heavy recycled material. The conference area includes four tables, and eighteen teal colored chairs with gray metal frames.

The kitchen area includes four round tables and sixteen chairs. Amenities include cabinets, microwave, refrigerator, vending machine, and organizational literature. The room has framed posters of Tiffany stained glass windows.

Rest Rooms
A unisex public restroom is located near the pharmacy, which includes a long, wall mounted counter for diaper changing, hanging sinks, grab bars near the toilet, and an emergency pull. A staff shower is located in the Building Services area.

Exam and Procedure Rooms
Exam rooms are located behind the nursing station. Doors swing toward the exam table to ensure privacy. Flooring is short pile carpet. The walls are textured wallpaper. Each room includes an adult arm chair, an armless child chair, a rolling, steno-type chair, and a rolling stool.

Plexiglass wainscoating visually aligns all walls at chair height. Each exam room has framed artwork. Health care literature is displayed in wall pockets. Desks and sinks are built in. Trash is dropped through an opening in a deep pull out drawer.

A cast room and a sigmoidoscopy room are located in the facility. The cast room has wonderful views of the Cenex Farm Cooperative 500 or so feet away.

Nursing Stations
Located directly behind the Station A or B reception areas are work areas dedicated for nurse assistants. Behind these are exam rooms and the nurses station. On one side of the work area is a restroom for specimen collection; the other corridor has a niche for weighing and measuring. The work area is efficient and roomy. The flow of traffic is good, with six exam rooms at the core.

The carpet is attractive with coordinated wallpaper. The furnishings are modular. The armless steno-type chairs are covered with teal fabric.

Radiology
Radiology and the laboratory are located together, sharing the waiting area. It is also possible to access the back corridor to Stations A and B exam rooms and offices. Radiology includes dressing rooms and two large procedure rooms, with exterior windows. The darkroom is spacious yet efficient.

The area has carpet, wallpaper, steno chairs, and living plants. Patients ring a bell at a window, or access radiology through the interior corridors if escorted, carrying their own films to and from the physician.

Laboratory
Designed for six technicians, it is comfortable at maximum use. The lab is rectangular with U-shaped counter space and overhead cabinets. There is a restroom and specimen pass-through adjacent to the lab. Located on the perimeter, the room has views of the countryside through windows with deep sills on which plants are arranged.

Medical Records
This department is located by the staff entrance. Staff passing through the corridor may pick up mail which is sorted in the Records/Chart room and placed in a pass-through. Records are stored in an automated Remstar system. An anti-fatigue mat is located in front of the files. Staff members sit at a counter located under the pass-through, with computers for tracking and transferring files, checking member status, and preparing appointment stickers.

Pharmacy
The pharmacy has specific design features that contribute to quality patient interactions and reliable, efficient functioning. These include vial and cap storage within easy reach of the pharmacist standing at the dispensing island. The security window between the waiting room and dispensing work area allows pharmacists to see waiting patients. Visitors as well as nursing staff deliver prescriptions. The pharmacists enter the room through a secured door located in the administrative wing.

The pharmacy has four dispensing stations for the four pharmacists and two technicians. The carpeting is typical of non-public spaces, with seafoam green colored baseboards. Beige wallpaper covers the lower half of the walls, with the upper portion painted gray. The blue counters are trimmed with oak. Closet spaces are open for security. There are several plants on the counters. The tall shelving has viewing openings.

Administrative Offices
These offices are located out of patient flow, with reception area, four offices, transcription, kitchen/conference area, chartroom, hazardous waste, storage, and building maintenance. Offices are carpeted and have striped green wallpaper. Offices have logo-style windows or borrowed light from the atrium. Furnishings are teal with padded arms, with wall art selected by individual choice. The area is quiet and relaxing.

Mental health, physician, and medical staff offices have a blue color scheme, natural lighting, and nice views. They are designed for privacy and accessibility. Mental Health rooms and doors are insulated for sound attenuation. There is a two-way mirror viewing room and group therapy room. The offices of mental health professionals who work with children are larger because children frequently come with family members.

Optical Shop
This area is pleasant and open. Windows behind the counter offer views of the front of the site. Finishes are typical for the public spaces; spotlights with ballasts are used for maximum lighting. The fitting counter is

Pediatric witing area with aquarium and play shelf in Minneapolis

Second floor dental reception area is fight and open; it echoes first floor design elements.

positioned in front of a separate workroom. There are display shelves on the wall between this counter and the workroom. The workroom is on the building perimeter with logo-style windows. To the left is the contact lens technician area. Beyond this workspace is an office, and across are two exam rooms.

Other Services
The dental clinic is a separate division in Group Health, Inc. The chiropractic clinic is a separate contract service. These facilities are compatible in character to the first floor and do not appear to be separate functions.

Noteworthy Design Features

The overall impression is that the facility is open, bathed in natural light, readable, and accessible.

Two striking features are the large artwork at the far end of the main street directly in line with the entrance and the grand stair constructed of seafoam green steel and glass.

The building has a distinct main street concept, complete with street lights. The helps orientation and wayfinding, while functioning as a strong design element.

Staff say the facility is spacious and calm -- here is a lot of activity going on but it is not apparent.

The sub-waiting areas are clearly marked and visible to patients. The work stations have moveable shoji screens with oak mullions, designating whether a station is open or closed.

Staff at the main counter and the stations can see each other, and patients can easily have eye contact with the reception staff.

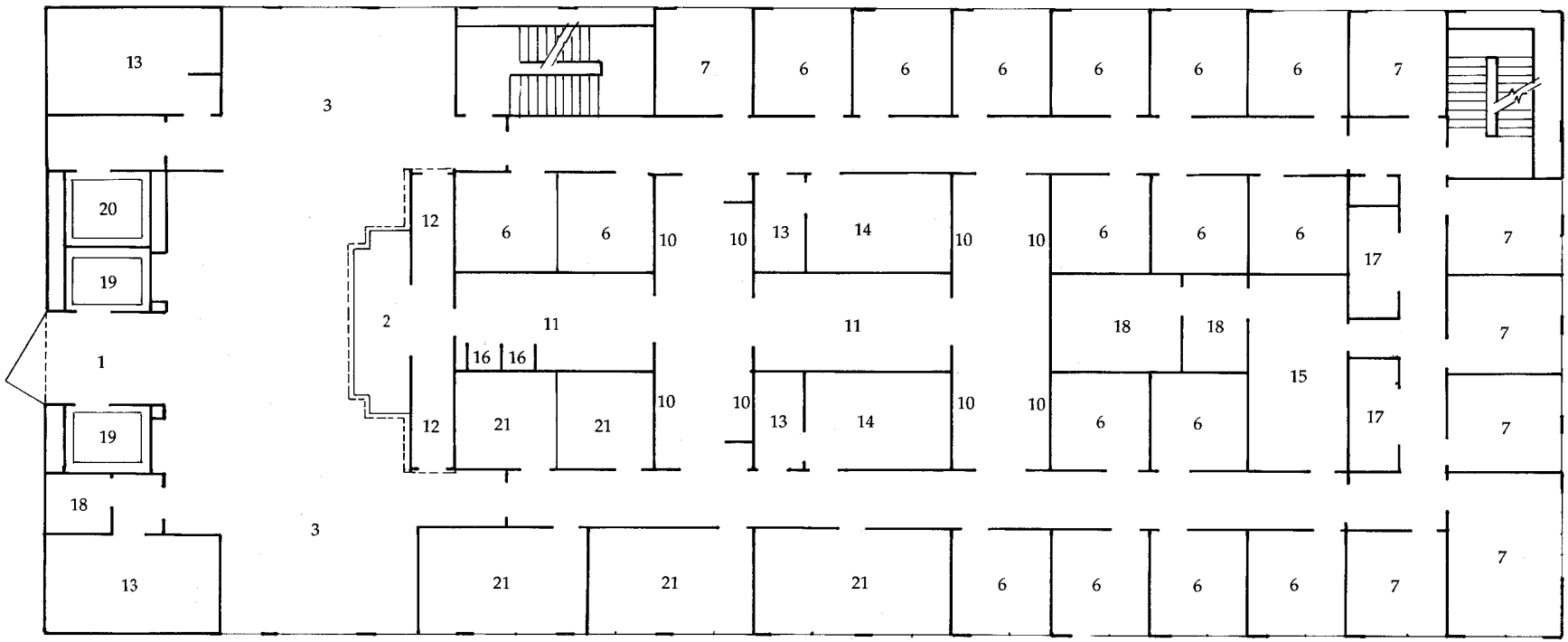
Elements of a Healing Environment
Staff were asked the question "Is this **a** healing environment." In every instance the response was 'Yes." Several indicate the environment is very serene and calming. Others indicated the countryside and views are well appreciated.

Response to Trends
The Inver Grove facility responds to the one-stop shopping trend by co-locating a variety of medical and dental services in the facility. They were the only facility of the six included in the case study sample that offered chiropractic services.

The facility design pays particular attention to patient satisfaction/privacy issues, in disaggregated waiting rooms and especially in the mental health area where waiting patients are screened from view by others.

The facility encourages exercise by prominent placement of a stairway in a comer of the building surrounded by natural light.

Ochsner Metairie Neighborhood Clinic
Ochsner Clinic
Metairie, Louisiana
(near New Orleans)



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OCHSNER METAIRIE NEIGHBORHOOD CLINIC SIXTH FLOOR PLAN LAYOUT

1	ENTRY
2	RECEPTION AREA
3	WAITING AREA
4	CONFERENCE
5	MEDICAL RECORDS
6	EXAM ROOM
7	OFFICE
8	RADIOLOGY
9	LAB
10	TEAM PROVIDER STATION
11	SHARED WORK SPACE
12	PRIVACY BOOTH
13	REST ROOM
14	PROCEDURE ROOM
15	STAFF LOUNGE
16	DUMBWAITER
17	SUPPLY/STORAGE
18	MAINTENANCE/MECHANICAL
19	ELEVATOR
20	STAFF ELEVATOR
21	OFFICE/PSYCHIATRY

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Introduction

The Ochsner Metairie Neighborhood Clinic was visited by a team researcher on July 27 and 28, 1993. Twelve individuals were interviewed representing administrative, architectural, and medical interests as well as other key functions in the facility; thirty-six questionnaires were completed by patients and visitors. The standard observation, walk-through, and photographic documentation protocols were followed.

Organizational Structure

The Ochsner Metairie Neighborhood Clinic is located on Veterans Memorial Boulevard in Metairie, Louisiana, approximately eight miles west of New Orleans. The Metairie Neighborhood Clinic is run by the Ochsner Clinic, with facilities in the greater New Orleans area, its surrounding parishes, and in Baton Rouge. Ochsner Medical Institution (OMI) is an alliance of two major health care organizations -- the Ochsner Clinic and the Alton Ochsner Medical Foundation.

Ochsner Clinic was founded in 1941 by five surgeons, and was named after Dr. Alton Ochsner, a well known surgeon and teacher, who was the first physician to draw a connection between cigarette smoking and lung cancer. Eight family practice neighborhood clinics have been added to the New Orleans health care system, including the Metairie facility. The use of the term "neighborhood" in the name is intended to depict a more decentralized, accessible type of facility.

The Alton Ochsner Medical Foundation, a non-profit organization, was formed to carry out patient care, medical education, and clinical research activities. The Foundation conducts a postgraduate medical education program, with approximately 250 residents and fellows in twenty-four training programs. Ochsner had an income of approximately $397 million in 1992.

The Ochsner Metairie Neighborhood Clinic houses twelve medical providers: five family practice (in conjunction with the residency program), four Internal Medicine, and three part-time Obstetrician/Gynecologists. Psychiatry and Ophthalmology are also included in this primary care setting. The facility also houses an Ochsner Optical Shop. The building is owned by the Ochsner Medical Foundation which leases the space to the clinic.

There are approximately fifty people on the staff, including physicians, physician assistant, residents, nurses, reception clerks and administrative staff. In addition, visiting ancillary staff include dietary, speech and hearing assistants, diabetic teaching nurses, and social workers (tied to Psychiatry) which provide a secondary level of service.

The physician panel size for family practice is 1,000 to 1,500 managed care patients per physician and 800-1,000 managed care patients per physician for internal medicine. Physician assistants average 3,200 patient visits per year per provider.

Facility Background

The Ochsner Metairie Neighborhood Clinic, opened in 1985, was enlarged and renovated in 1992 from 5,000 square feet to 49,000 square feet. Factors such as proximity to a major freeway (I-10) and the potential to add convenient parking on site made renovation of this facility desirable. The size and location of the site dictated that the facility be multi-story. The architect for the project renovation was Kessels-Diboll-Kessels, who specializes in the design of medical facilities, interior design services were provided by NB Interiors, with the landscape architect being Larson-Rodriguez, Limited, all of New Orleans. Renovation costs ranged between $85 and $95 per square foot.

Ochsner directors actively gathered input and worked together with the architect to achieve what they considered to be the ideal setting which would support the concept of generic work space. The maintenance supervisor was also consulted on ways to minimize potential maintenance problems.

Philosophy

Ochsner's neighborhood clinics support a physiciandirected, collaborative group culture. They aim to provide a service culture for patients, staff, and the community that is responsible, consistent, communicative, and that ensures sensitive, personalized health care services. It is felt that continuity of care is provided at this facility through the team provider concept. One administrator felt that patients were receiving at this primary care facility the kind of care that private health care has been known for. This type of neighborhood clinic provides highquality family medical care in convenient, comfortable settings offering the latest technological services for most routine care.

Facility Description

A four-level parking garage is integrated into the building and comprises levels l-4. Within the eight-story building, the clinic utilizes floors 1, 5, 6, and 7. The eighth floor is currently unfinished shell space.

The first floor includes a small reception area, the optical shop/contact lens, ophthalmology/optometry exam rooms and administrative offices and conference room.

The second through fourth floors are utilized for parking only.

The fifth floor houses medical records, a clinical laboratory with **a** separate venipuncture room, radiology, mammography, ultrasound, radiology reading room, residents library/office and an after-hours clinic (with one procedure room and nine exam rooms).

The sixth floor houses internal medicine, psychiatry, and obstretrics/gynecology with seventeen exam rooms and six physician offices.

Family Practice and the Family Practice Residency Model Clinic are located on the seventh floor. Family Practice utilizes fifteen exam rooms and the Model Clinic uses six exam rooms. Also, there are eight physician offices and an allergy injection room.

Floors 6 and 7 each have a staff lounge, large reception/waiting area (with privacy booths behind the reception desk for scheduling or financial discussions), and an "H" shaped space in the center of each floor which contains eight provider team work stations along the vertical alignments connected by generic shared space within the horizontal alignment. The fifth floor has one procedure room; floors 6 and 7 have two procedure

Exam room with modular wall hung cabinetry and equipment, window curtains.

Waiting area with residential style window treatment and seating in different groupings.

rooms on each floor. Two elevators and two sets of stairs provide access among floors. Access to the clinic can be gained from all levels of the parking garage. After locating a parking spot, patients and visitors walk through the parking garage to the elevator lobby, where a directory next to the elevators directs them to all clinic services. Upon exiting the elevator at the fifth floor, visitors immediately see a reception desk, centrally located and identified, highlighted in muted blue and peach tones. Patients register at the reception desk and the receptionist then directs the patient to wait in the main waiting area until their name is called by a nurse. The patient is greeted at the door separating the waiting area and is escorted into the interior "activity" area and settles them in an exam room. After the patient is examined, conversations between the patient, visitors and health care staff occur in the exam room.

Patients requiring radiology, lab, ultrasound or mammography services are accommodated on the fifth floor. The lab has its own separate venipuncture room. This tends to work better since patients are not brought into the actual lab work area itself.

Patients may stop at the reception desk as their last stop before leaving the facility where the cashier calculates and collects all visit charges.

Scheduled and unscheduled appointments occur at the Metairie facility. The 5th floor functions as an after-hours clinic open until 10:00 p.m. each evening.

Noteworthy Design Features

The design team has developed and implemented several features that have been successfully repeated at three other Ochsner neighborhood clinics.

Generic Work Space

Ochsner's concept of generic work space has been implemented at the Metairie Clinic. The result is a module or "footprint" which can be duplicated in a variety of ways to fit the medical services in mind. This footprint has been utilized at two other Ochsner neighborhood clinics in New Orleans. Even though the exterior may be different, the interior footprint is, for the most part, identical. From the development of this footprint, Ochsner hasidentified specific standards for certain areas, particularly a l0'xl0' exam room size, a "clean corridor" concept in which patients do not have to see medical-related equipment or supplies, and the internal "H" shaped work area for provider teams. Ochsner uses a team concept for their physicians which includes a 2-3 person team consisting of physician, physicians assistant, and nurse. Physicians and nurses had very positive comments about working together as a team in this setting. The design team selected modular furnishings for the majority of the facility.

The footprint is based on a design which incorporates three distinct functional zones:

- 1st zone -- public waiting area/reception,
- 2nd zone -- activity area, i.e., exam rooms, work stations, lab, radiology, etc., and
- 3rd zone -- physicians offices, staff lounge.

Most exam rooms are identical and are described as generic in nature to allow for flexibility in use by a number of provider teams. Each exam room measures l0'xl0' in size, a size deemed by Ochsner to be the ideal exam room size serving mainly primary care. A curtain drawn around the door allows the room to function also as a dressing room with additional privacy. The 10'xl0' module space is ideal for flexibility in expanding a space to l0'x15', for example, to serve another type of use. Exam room size was mentioned frequently by physicians and nurses as being the right size -- enough to perform the tasks, . . . *not too big, not too small.*

Provider teams share work space within the "H" shaped area. There are eight units each serving a provider team. Each nursing station is made up of wall-mounted modular components including slots for forms, covered and open bookshelves, view boxes, countertop adjusted for standing height for the physician, a countertop adjusted for sitting for the nurse, one chair at the nurses work surface, 2 file cabinets, and a phone mounted on a swivel base. The intent was to maximize the physician's time by providing convenient writing space for charting. Computers and printers are located conveniently for all eight teams in the "H" shaped area. The furnishings were selected and combined specifically for this type of teamwork.

Views/Natural Light
Patients and staff commented on the nice views from the numerous vantage points on each floor.

Waiting
The reception desk at the main entry was clearly visible and easily accessible to incoming patients. Each reception/waiting area is identical with variations in color scheme. This opens into a large waiting area facing the reception desk with seating arrangements on either side. Wall coverings are accented with soothing pastel landscape prints. Facing this entry is a rectangular reception desk with a lowered soffit above it, marked "Registration". Ochsner stands by their policy that limits reading material in waiting areas to publications that do not advertise cigarettes. They prefer to have patients wait in the waiting area instead of the exam room.

Comfort
Each waiting area has identical furniture with variations in fabric color, the seating is dark wood frame armchairs upholstered with muted peach and blue fabric lined up next to each other, in conversation groups, and back to back. Draperies and matching valances in similar fabric patterns and tones along with white sheers frame windows on both sides of the waiting area integrating a residential feel with the space. All interior doors are dark wood that match the wood furniture. A small table and chair set for children is located in between one of the chair groupings. Soft orchestral music plays in the background in the waiting areas. Water fountains are available in each waiting area.

Style
Carpeting in coordinated tones is uniform throughout the facility, except in the fifth floor hallways, which has light gray vinyl tile. Blue or peach wall coverings accent most rooms.

The layout for the radiology area was designed so that patients didn't have to see other patients.

The physician and administrative offices have green or blue carpeting and wallcovering similar to the waiting areas. All have large windows with draperies and valances similar to those in the waiting areas and exam rooms.

The halls between exam rooms, nurses stations and physician offices are intended to be a "clean" corridor, in which patients do not have to see medical-related equipment or supplies.

Privacy
Privacy booths attached behind the reception desk are separated by glass dividers and doors for acoustic and visual privacy.

The psychiatry area is not separated from the remainder of the primary care functions and was designed to ensure anonymity for patients. The comfortable therapy space has soundproofing and insulation in walls and on the doors to prevent noise intruding from the outside and conversation being overheard on the outside. Music is zoned separ-

ately for this area where the selection and volume can be controlled.

Convenience
Medical records is located on the fifth floor, where records are pulled and sent to the appropriate floor by use of two dumbwaiters, serving floors 5-8.

Patients having their blood drawn in the separate venipuncture room sit next to the window, having light and positive distraction in their immediate view.

Communications
A number of staff members praised the clinic-wide intercom system. Connected to the telephone system, it allows pages to be broadcast to selected areas of the floors, as well **as** the entire facility.

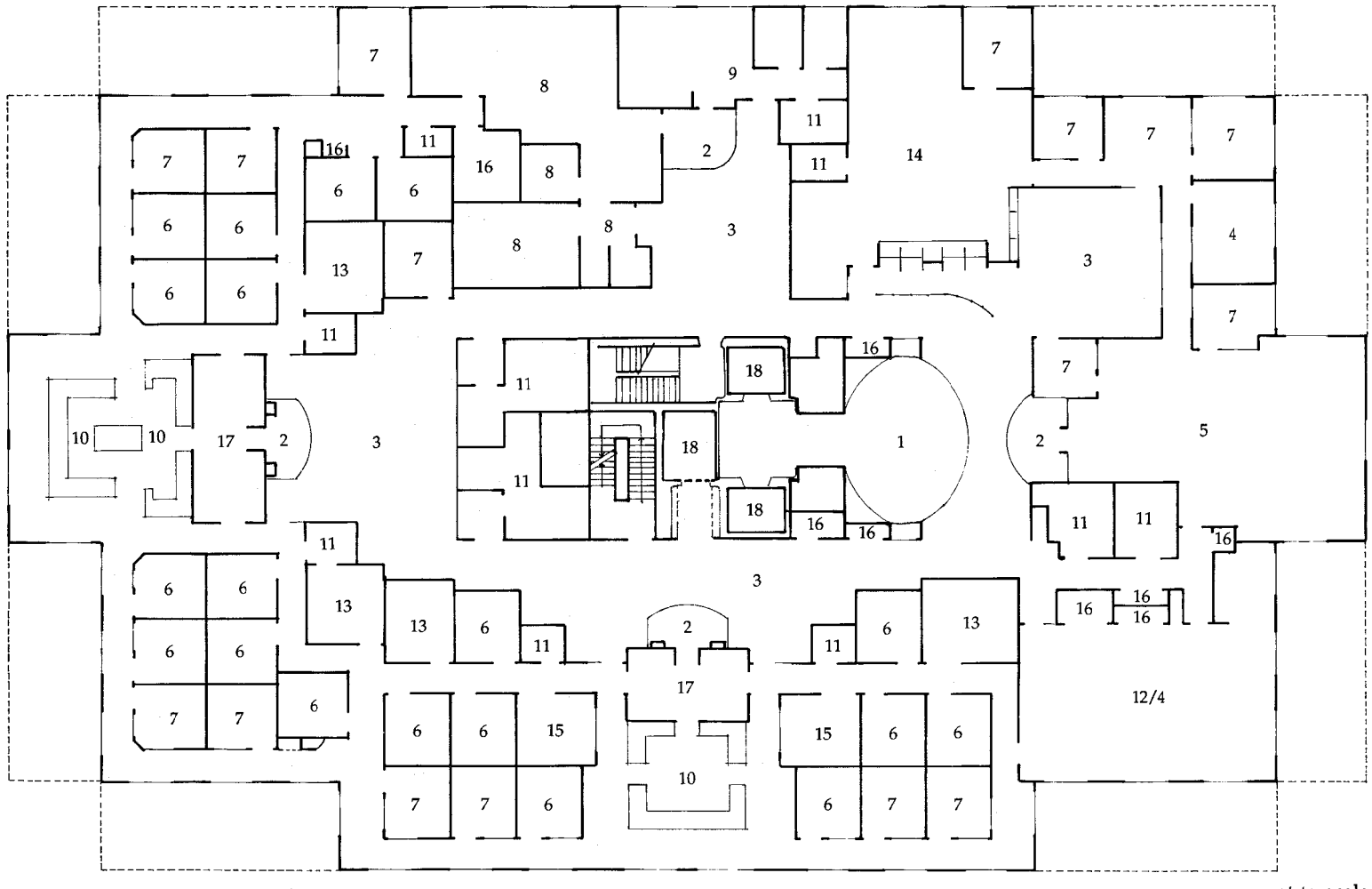
Elements of a Healing Environment
Staff described the facility as very spacious, organized, professional and calming. One staff person commented that the facility was warm and welcoming, and that patient flow was excellent. Staff also felt that patients also have a convenient one-stop setting which offers a variety of services. Other staff members felt that you had the sense that it's . . . *not too big*, and . . . *doesn't look like the typical medical environment.*

When staff was asked whether this is a healing environment, everyone unanimously agreed that the space was uplifting, calming and reassuring.

Response to Trends

Flexibility in the Context of Rapid Change
The facility possesses a very flexible design in which any kind of medical practice could be easily accommodated there. The modular concepts and shell space on the eighth floor allow Ochsner to easily expand and/or reconfigure the space in response to changes in patient demographics, practice profiles, technological innovation, or patient demand.

University Medical Center
Group Health Cooperative
Seattle, Washington



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UNIVERSITY MEDICAL CENTER PLAN LAYOUT

1	ENTRY
2	RECEPTION
3	WAITING AREA
4	CONFERENCE
5	MEDICAL RECORDS
6	EXAM ROOM
7	OFFICE/CONSULT
8	RADIOLOGY
9	LAB
10	NURSING STATION
11	REST ROOM
12	STAFF LOUNGE
13	PROCEDURE ROOM
14	PHARMACY
15	EXAM/OBSERVATION ROOM
16	STORAGE
17	UTILITY/WORK SPACE
18	ELEVATOR

University Medical Center
Group Health Cooperative
Seattle, Washington

Introduction

The Group Health Cooperative University Medical Center was visited by the site evaluation team on July 15 and 16, 1993. The team interviewed eleven individuals representing each function within the facility, and collected twenty-six questionnaires completed by patients and visitors. The team also did observations, a walk-through, and photographic documentation.

Organizational Structure

The University Medical Center is run by Group Health Cooperative (GHC), a consumer-governed health maintenance organization (HMO) with facilities throughout the State of Washington. It is the Northwest's largest HMO, the nation's fifteenth largest overall, and the fifth largest nonprofit HMO. It is the nation's largest consumer-governed healthcare organization, and has it's own Family Practice Residency program. GHC, a non-profit organization, started in 1947, had 1991 income of $765 million. Currently, it runs twenty-nine primary care medical centers, as well as inpatient facilities and speciality centers.

GHC's University Medical Center opened in 1990 and now houses seven full-time medical practices: six Family Practice and one Pediatrician. Since several practices have part-time physicians, there are nine physicians that work at this clinic. There are approximately thirty people on the staff, including physicians, nurses, radiologists, pharmacists, medical assistants, lab technicians, and receptionists. The physician panel size is 1,500 to 1,600 members per physician, The 10,000 square-foot clinic includes laboratory, pharmacy, radiology, and a patient education room, as well as medical records, business and administrative offices, nurses stations, twenty exam rooms, two observation rooms, a cast room, three procedures rooms, a staff lounge, waiting and reception areas.

Facility Background

The fourth floor of an existing brick office building was leased and the interior space designed specifically for these practices. Selected primarily because of patient choice factors, proximity to a major freeway and convenient parking, it is close to the University of Washington, with a large number of Group Health members.

Several physicians and nurses were directly involved in the planning, through a series of planning meetings with the architect. The architect, William Lee, is staff at Group Health, and has seven years experience in designing primary care clinics. GHC has specified standards for certain design features (e.g. exam room size), but many design ideas resulted from the programming

sign ideas resulted from the programming meetings. The cost for completing the interior was approximately $45 per square foot.

Each Group Health Medical Center has a Consumer Council, comprised of elected council members who receive care at that clinic and who serve as volunteer advisors on a variety of clinic matters, including design issues.

Philosophy

Since Group Health's University Medical Center is part of a cooperative, it is committed to consumer involvement and patient/member satisfaction. There is an ongoing consumer satisfaction survey covering issues ranging from parking to quality of care. The clinic philosophy is based on coordination of care, which they feel is grounded in frequent, congenial staff interaction. The staff describe themselves as committed to innovation, and to being open to different staffing models as an example of the application of this philosophy. UGHC is committed to partnership between management, consumers, staff, and physicians.

Nurses say they are, "...trying new ways of working together closely." This is supported by general clinic meetings every four to six weeks. Staff 'do other tasks to fill in' and value having a variety of skills to support general clinic functioning. Staff is directly involved with recruiting and hiring new personnel for this clinic; they describe the process as building a team, not just filling positions. Several staff members described themselves as 'like family', and described the facility as liveable space.

This philosophy was important in the initial concept. It is reflected in the staff lounge/meeting room/lunch room, shared nurses stations, and numerous designed opportunities to pass other staff in the hallways.

As part of GHC, this clinic explicitly values both equity and autonomy. This is translated into design by providing equitable space for staff and patients, and by allowing each clinic some autonomy in space allocation. For example, Group Health's system specified the space standards for exam rooms and offices for the University Medical Center, but supported staff recommendations on overall layout and configuration. Though initially reluctant to provide art in the exam rooms, when GHC agreed to do so, they allowed individual choice.

Facility Description

Most patients make appointments when they come to UGHC. There is no urgent care or formal walk-in clinic. One nurse from each practice responds to patient questions on the phone and refers patients with acute problems directly to the hospital. The phones are open from 8:30 a.m. to 5:30 p.m.; patient appointments are scheduled from 9:30 a.m. to 12:30 p.m. and from 2:00 p.m. to 4:30 p.m. The 'Nurse Advice" line is heavily used; the head nurse spends up to 80% of her time on the phone giving advice and doing triage with patients who are already members of the clinic.

The clinic is located on Roosevelt Avenue, just west of the University of Washington campus. Most patients enter the building from its underground parking garage, although there is a front entry drop-off area at grade. Exiting the elevator at the fourth floor, visitors immediately see a centrally located reception desk, highlighted with a turquoise neon edge treatment. Patients register at the desk, which is raised approximately 8" so the seated receptionist is closer to visitor eye level.

The receptionist registers patients, hands out correct paperwork, and validates the parking ticket, then directs the patient to the appropriate cluster waiting room. The Cooperative is considering decentralizing the registration so that it will occur at each cluster. Upon arrival at the waiting room, the patient deposits paper work into a plexi-

Main registration station, enhanced with neon lighting.

Exam room with upholstered bench, framed artwork and magazine rack.

is located on the side next to the door between the public areas and the interior 'business" areas. The nursing assistant picks up the paper work, personally calls patients in, and settles them in an exam room.

Each exam room has a telephone, art posters on the wall, and a small built-in upholstered bench seat. After the patient is examined, conversations between the patient, visitors, and health care staff occur in the exam room. Patients can make local telephone-calls from the exam rooms. Radiology, laboratory, and pharmacy are located around the corner from the cluster waiting rooms, if patients need them.

The lab has its own check-in desk, which accepts both "drop and go" and standard lab procedures forms. A separate waiting room for the laboratory is located in front of the lab check-in desk. Patients needing to have blood drawn are called by the technician.

Patients with prescriptions drop their forms into a slot marked "Rx" near the pharmacy. The separate pharmacy waiting area is adjacent to the dispensing area, with a window in the wall allowing waiting patients and pharmacists to see each other. When the prescription is ready for pick up, the pharmacist calls the patient's name into a microphone located at the dispensing island. The pharmacy pick-up counter is divided into semi-enclosed "stations" with acoustical treatment, providing a significant amount of acoustic privacy.

Patients stop at the centralized cashier before leaving the facility. The cashier calculates pharmacy, X-Ray and lab costs, as well as patient visit charges.

Noteworthy Design Features

Philosophy

There is a direct relationship between the philosophy of the University Clinic and the design, partially because of the direct interaction between the designers and people who work in the facility. One nurse states, "It's because they talked to us...that's one reason why it works."

Views/Natural Light

The architect aimed to take advantage of the spectacular views from the facility while at the same time getting as much natural light as possible from the exterior into the interior core. These ideas strongly influenced the design of the core and perimeter circulation theme. Facility users recognize this design feature. The presence of natural light and views was specifically mentioned without prompting by every staff person interviewed at this facility.

Generous direct access to natural light, views and outdoor decks are provided for all physicians and nurses from their offices and work stations. Six of the exam rooms also have clerestory windows, allowing a high wash of natural light into the room without compromising visual privacy. The physician offices have large windows (approximately 4′ by 4′) between the office and the perimeter hallway which also has large windows to the exterior of the building.

Artificial lighting is used in exam rooms and waiting areas, but frequently remains turned off in the staff lounge area.

One staff member mentioned control of lighting as one of the most important design features of this facility. Staff commented:

You can see the weather changing.
Access to the outdoor patios makes a BIG difference.
Lots of light and access to the outdoors are wonderful.

Medical records, laboratory and radiology also have natural light. Patients having their blood drawn in the lab sit right next to the window, having light and positive distraction in their immediate view.

Physican reading patient chart by perimeter corridor window; the corner windows of another physician office can be seen in the foreground.

Natural light from windows with view of skyline in background, seen from nurses station.

Circulation
An interior corridor system allows staff to move easily throughout the facility without going through patient waiting rooms. Staff feel this enhances their interactions and specifically contributes to the quality of health care delivery. They have immediate access to radiology and medical records, and easily and informally consult with other health care professionals.

The size of the facility, the shared lounge/ meeting room which functions as an 'interaction room' and the interior corridor system increase contact and interaction among staff members. The design facilitates everyone seeing each other every day; physicians and nurses both mentioned they feel part of the same team. Nurses feel that if the clinic were larger they would lose the sense of personal control and it would be hard to effect change.

Reception
The reception desk at the main entry is clearly visible and accessible to incoming visitors. Although children and people using wheelchairs would find the desk level too high, the receptionists raised floor facilitated eye contact between the receptionist and most patients.

Waiting Areas
Disaggregated waiting areas for each cluster and ancillary service contributed to a sense of personalized service. These small carpeted rooms filled with upholstered chairs were very quiet, with muted music playing, decreasing the sense of hurriedness which often characterizes waiting areas. One nurse commented that even on the busiest days, the waiting areas never feel frantic; another said she never feels rushed. Another stated, "As a patient here, you never feel you're in a crowd." One waiting area has a large cube floor- mounted aquarium with numerous brightly colored tropical fish. A large television set is present in the corner of one waiting area.

Pharmacy
The pharmacy internal layout and pick-up windows allow visual access, acoustic privacy, and efficient functioning. Group Health Cooperative has duplicated this design in several other clinics. It has a number of specific design features that pharmacists feel contribute to quality patient interactions and reliable operation. These include vial and cap storage within easy reach of the pharmacist standing at the dispensing island without opening the drawer; adjustable shelves with dividers that help keep heavy pharmacy books organized, accessible, and upright; and roll-out furniture under the dispensing counter to allow quick rearrangement of drawer and cabinet modules as needed.

The security glazed window between the pharmacy waiting room and dispensing work area provides visual access, allowing pharmacists to see waiting patients, and patients to see pharmacists at work.

Pharmacists also mentioned appreciating the acoustic privacy established by the dividers on both sides of the pick-up counter which, in effect, establish four separate semi-enclosed 'booths" for pharmacist/ patient interaction.

The tall shelving units which hold prescriptions ready for pick up are located where pharmacists at the pick-up counter can reach them without taking any steps. These units have a transparent plexiglass backing which improves acoustical privacy between the patient area and the dispensing area, while allowing visual access.

Nursing Stations and Provider Team Work Stations
Standing "hall desks" located along the hallways were designed to facilitate charting with a minimum of walking. The hall desks with computer monitors are in frequent use. Each of the shared nursing stations serve two practices, each made up of four corner units. Each has room for up to two staff

share a computer located at the corner between their workstation counters. The furnishings were designed specifically for these nursing stations.

Observation Room
In addition to exam rooms, an observation room is located just off the waiting room and directly across from each nurses station; a 3'x4' window with narrow blinds provides visual access between the nurses station and the observation room, allowing nurses to easily monitor patients requiring frequent checks.

Communications
The clinic-wide intercom system is connected to the telephone system and allows pages to be broadcast to selected areas of the facility, as well as the entire floor. Staff felt this increased efficiency and enhanced their feelings of staying in touch with each other.

Style
Staff described the facility as spacious, contemporary, cheery and modern. One technical staff person said, "It's not sterile; not like going to the doctor." A clerical staff member said, "It's a friendly atmosphere, calm, cool colors and doesn't look like the typical medical environment."

The walls are painted gray-blue with pastel colored abstract landscapes of different media on the walls, Staff described the colors as calming.

The carpet throughout the majority of the facility is tweed in a soft green color, with contrast squares of gray, steel blue, mint green, and rose, located at various points throughout the floor. The location of contrast color squares is decorative rather than functional with one notable exception: one square is located 20' from the eye charts in the hallways, so patients are told to stand by the green square and read the chart. The lab flooring is vinyl tile in a mottled white, with contrast squares which match those of the carpet.

Elements of a Healing Environment
When staff were asked whether this is a healing environment, they felt that the size of the facility and the cluster concept helped make the clinic more of a healing setting. They specifically mentioned patient familiarity with a consistent group of caregivers as making the facility more comfortable.

A physician said, "A healing environment has to do with people...quiet, private, personal...if the staff is happy and healthy, it will produce more of a healing environment."

Response to Trends

Productivity Pressure
University Medical Center staff feel that productivity pressure needs to be viewed within the context of the entire health care system. They do not want to increase the number of patient visits to physician per day (a frequent measure of productivity) because they feel that would decrease the quality of care, resulting in an increased patient utilization of the higher cost facilities and services within the system, such as urgent care and inpatient services.

Patient Education
The designated patient education room at University Medical Center, located off one of the waiting rooms, is not currently in use. Instead, notices of public or general seminars, screening programs, and prevention initiatives are located throughout the facility, and nurses do direct problem oriented patient education in the exam rooms. As a result of the experimental population based practice, (described in response to trends), staff anticipate holding more patient education groups in the facility in the future; probably in the staff lounge/meeting room.

Increasing Use of Technological Diagnostic Aids

University Medical Center anticipated widespread computer use by wiring each exam room and nursing workstation with computer cable. They anticipate a new variety of "high tech diagnostic equipment" in radiology and feel that the amount of space available can accommodate it.

Alternative Practice Model. One of the practices at University Medical Center is experimenting with population-based medicine, supported by the Clinically Related Information System (CRIS), a computer information-based patient records system. This is an integrated system in which problem-oriented medical charts, appointments, registration, and patient accounting is integrated within the practice team. This approach facilitates the practitioners developing practice profiles, summaries and descriptions of groups of patients with similar diagnoses, treatment regimens or symptom clusters. They could then provide special programs for groups of patients.

This experimental approach is a first step toward community-oriented primary care, and facilitates population-based medical research. The facility implications of this experiment relate primarily to computer access, placement of the LAN (local area network), and the need for patient education facilities.

Pharmacy Integrated Computer System. A pharmacist indicated that integrated computer systems were a very promising near-term trend that would significantly decrease patient waiting time at the pharmacy. Under this system, yet to be implemented, when the physician prescribes a medication, the patient number and prescription information would be entered into the computer by the nurse or other staff member for direct transmission to the pharmacy.

Critical Design Issues

As a result of thorough review of all the data from the six case study sites, a series of critical design issues was identified. Critical design issues are addressed in every project; yet there are some critical design issues in primary care environments which deserve particular attention. Critical design issues fell into eight major categories:

- Design process
- Humanistic design
- Functional factors
- Technical factors
- Aesthetic factors
- Cost factors
- Materials and furnishings, and
- Primary care practice.

Each case study facility had some particularly outstanding features and some design details worth repeating. They each responded to these issues in their own unique ways. This section describes the categories of critical design issues, identifies a set of specific issues within that category and describes examples of how that critical design issue was addressed in the case study facilities.

Issue 1: Design Process Issues

Design process issues relate to the entire range of processes involved in facility development and design. Rather than examining the case study facilities as space only and viewed independently from the context in which they operate, the research team took a broader view. Four major design process issues contributed to the success of these facilities.

• The physical designs reflect and support the organizational philosophy.

All six facilities integrate the values of their organization into the designs. The designers of the facilities surveyed were careful to assure that the designs of the primary care facilities accurately reflected the philosophical commitments of the health care delivery organizations and the philosophy of primary care delivery they espouse.

For example, the Seattle Group Health facility is part of a member cooperative which embraces interaction and participation as an essential part of their approach. To reflect and support that- approach, the facility was designed with ample opportunity for staff interactions through an internal circulation system, a flexible intercom system, and by providing a staff lounge meeting area that was centrally located and attractive enough to draw staff.

In Boston, the central circular stairwell is not only a major circulation element. It also acts as both a symbolic indicator of the organiza-

tion's commitment to the positive value of exercise, and as an attractive and easily available opportunity for staff, visitors and patients to get a little extra exercise while gaining access to the main reception area.

The Inver Grove Heights facility, also a cooperative, selected a site next to the Centex Farm Cooperative to make a "cooperative statement" to the community. The site drainage patterns are shared by both cooperatives, culminating in a beautiful pond on the grounds between the two cooperatives.

• The design process directly involved a range of medical and administrative staff in design.

Actively seeking the opinions of those persons actually performing tasks on site accomplishes several important goals. It indicates to the participants that they are valued as an integral part of the entire organization. It gives the designers opportunities to understand the complexities of the pattern of practice in that community of caregivers. It gives the staff opportunity to respond to initial design concepts in a meaningful way, thus increasing the sense of "ownership" in the process and the final design.

Five of the facilities, those in Seattle, Minneapolis, Detroit, Chicago, and New Orleans, involved caregiving staff directly in the design process; the New Orleans facility also included maintenance staff in the process.

For example, Group Health Inc. established what they call the Model Clinic Process. The Model Clinic Process is one in which a team of physicians, nurses, other caregivers, administrators, architects, and interior designers work together on facility designs. The Inver Grove Heights facility is the fourth one designed using this process. Inver Grove Heights had a team of eighteen people involved in its design. There are many positive comments from staff and users regarding the use of this unique design team.

Redford Medical Center, University Group Health in Seattle, and Ochsner Metairie Neighborhood Clinic's design teams also worked closely with a range of staff to obtain design input.

• The planners analyzed community needs and designed the facility to meet them.

Design and planning staff developing each of the clinics carefully analyzed the full range of needs in their immediate community and designed their facilities to meet those specific needs.

For example, the MacNeal Medical Center was planned at Bridegview, Illinois, a suburb of southwest Chicago. The MacNeal Hospital team analyzed the specific characteristics of the Chicago community which included a number of large industrial companies. The needs of those companies included a variety of occupational health services as well as drug screening. These services were designed into the clinic.

The Redford Medical Center facility is located in a blue collar community which had some commercial areas in physical decline. The planners decided to locate the Medical Center in a shopping mall which previously had a declining tenant mix. The renovated retail space in which the clinic is located is an important factor in efforts at community and economic development as well as in neighborhood improvement. By locating there and by investing in rehabilitation, Henry Ford has indicated that they are a positive presence for change in that community.

• The planners used feedback from previous facilities in this design.

Four of the facilities, those in Seattle, New Orleans, Boston, and Minneapolis, used feedback gathered by both informal methods and formal research from previously developed facilities to inform their current de-

signs. Through a process of continuous evaluation of design features, teams associated with these clinics were able to identify specific design features that were working well and which they wanted to repeat in future facilities, as well as those features which needed to be refined or replaced in the future.

For example, in Boston, the Harvard Community Health Care Plan Facilities Team directs all Harvard Community Health Care Plan construction efforts. There are specific goals set forth for each facility; these are modified based on feedback from other Harvard Community Health Care Plan facilities.

The Inver Grove Heights facility has conducted in-house surveys of patients and users to refine their design.

Issue 2: Humanistic Design Issues

Humanistic design issues are those which pay particular attention to the relationship between people and the physical environment. It includes six issues, ranging from comfort and satisfaction, to privacy, respect and thoughtfulness expressed through design. In the best cases, humanistic designs support a human value of autonomy, respecting and supporting the full range of human preferences, abilities, and conditions. Humanistic design issues address human needs for meaningful contact with each other and with the natural environment.

• The facilities emphasized client satisfaction based on respecting patients' human needs.

The six facilities studied all identify client satisfaction as a high priority, with an emphasis on respecting patients' human needs.

There are four types of design issues which are important to point out in identifying how these facilities emphasized client satisfaction and human needs: one-stop shopping, range of services, privacy, and waiting.

One-stop-shopping. In recognizing patients' access and transportation needs and respecting their time, the one-stop-shopping concept is offered at all facilities. This approach includes having an appropriate, enlarged menu of services in one convenient location.

All of the facilities provided a range of services, some oriented toward ill patients, others oriented toward well clients. This approach recognizes the normal change and continuity of health status throughout the life cycle. For example, all case study sites had on-site labs and radiology, many had mental health services, pharmacies and optical shops. One includes a dental office and a chiropractic department. The one-stop-shopping idea is consistent with the "medical mall" idea currently being implemented in larger hospital environments, but on a smaller scale.

Privacy needs. All facilities pay special attention to a range of acoustic and visual privacy needs. For example:

-- acoustic privacy is emphasized at Seattle's pharmacist/patient interaction point by partially enclosed pick-up windows.

-- private financial checkout booths in New Orleans provide visual and acoustic privacy as patients discuss their accounts.

-- acoustic privacy, through the use of soundproofing materials in the doors and walls, is emphasized in the mental health area at New Orleans and Minneapolis. After checking in at Minneapolis, the client waits in a space enclosed with Japanese style partitions out of sight of the receptionist and corridor traffic.

-- mixing waiting mental health patients

with others in New Orleans avoids the stigma of having others identify a specific patient as a mental health patient.

Waiting. Each of the facilities thoughtfully addressed the issue of the personal needs and preferences of patients waiting for services. Most had an explicit goal of reducing waiting time in the facility.

In Seattle, Minneapolis, and Boston, cluster or subarea waiting rooms are provided. These are designed to be smaller than many waiting areas, and to be physically connected to a specific practice, physician, or specialty clinic. In comparison with the typical large undifferentiated waiting spaces, these cluster waiting rooms are quiet, allow more people to choose protected seating near walls or other vertical features, and are clearly identified with a small set of caregivers, increasing the clients' sense of identification between the facility and the care.

For example, in Seattle, patients check in at the main desk and proceed to a secondary waiting area. In Boston, patients proceed directly to the department they are visiting and wait in an area near that reception desk.

Chairs with arms. All designers selected waiting room chairs with arms, to clearly identify edges of personal space, and to assist people standing up.

Choice of seating opportunities. All facilities arranged seating and tables to allow for a wide range of family groupings. This could be accomplished either by rearranging chairs, or by groups and individuals choosing from several seating options.

All facilities have some accommodation for child visitors and patients, usually a set of small-scale chairs and table(s). In Chicago, a play area located between ill child and well child waiting areas facilitates children playing within view of their seated parents. The Detroit facility set up a special area for children by arranging the small chairs and table in one part of the larger waiting room.

What do patients choose in these situations? Each facility placed waiting room chairs with patient choice factors in mind. These four options available to the patients and visitors are, listed in order of observed preference, to:

1. sit with their backs against a wall,
2. sit with an unobstructed view of the staff person who will call them into the exam or procedure room,
3. sit close to the door through which they will go into the exam and/or procedure area, and
4. sit with a view of activity in the hallway.

The best solutions included opportunities for people waiting to both have their backs protected and have a clear view of the person who would call them.

- **Case study sites recognize the importance and value of employee and staff satisfaction.**

All sites explicitly value staff satisfaction. They clearly connect it with a good caregiving atmosphere, and with decreased staff turnover and decreased staff training costs. The design concepts which support this recognition include providing attractive staff lounges, access to natural light, lockers, and designing practice clusters.

Attractive staff lounges. In all of these sites, staff lounges are not 'leftover space", but have numerous design amenities, including decorating themes and furnishings which offer an environment of relaxation and calm in the midst of busy schedules. These amenities include natural light and views. For example, staff lounges in both Seattle and Minneapolis are located at the exterior corner of the facility, to take advantage of prime natural light and views. Functional amenities

Minneapolis waiting area; shoji screens at the desk can be slid open or closed.

Waiting area near cluster appointments desk in Seattle.

such as cabinets, sinks, countertops for food preparation, microwaves and refrigerators are standard. In addition, staff lounges hold a variety of attractive furnishings, with choices of large or smaller tables, upholstered chairs or more high-tech tubular steel ones. This facilitates a variety of activities and staff interactions within the same space.

Direct access to outdoor decks or patios. This is provided in two facilities, with permanent patio furniture available to employees/staff. In Seattle, there is exterior deck space for gathering and sitting. This area has potted plants and trees and a beautiful view of the water. In Minneapolis, staff can leave the medical area, pass through administration and enter a room surrounded by windows with pastoral views. This area exits onto a patio.

Views of the outdoors and access to natural light. Windows and views are provided for many levels of professional staff and patients, not just for top administrators and physicians. For example, Seattle has single-loaded perimeter corridors which follow the exterior wall, providing opportunities for borrowed light in the exam rooms and physician offices.

Lockers are provided to enable staff to keep their personal items secure in the New Orleans and Detroit sites. In Seattle, a dedicated staff rest room includes a shower in addition to the staff lockers.

Practice teams. All of the facilities group staff teams together into smaller identifiable groups. Staff "belong" to a specified team. This promotes esprit de corps among the staff and mirrors the small scale and personalized characteristics of private practice. By increasing staff contact and identification with a practice, loyalty and small-scale "corporate culture" reinforce the concept of a team approach to medical care. In New Orleans, an H-shaped corridor offers eight designated work spaces (e.g., writing surfaces, bookshelves, telephone) for eight separate provider teams to function independently, yet almost side-by-side.

- **Designs based on small clusters.**

Designers reinforced the concept of smaller, more intimate surroundings as a way of telling patients that they are seen as individuals, not just numbers in a large impersonal system.

In Boston, the small clustered practices appear almost independent; the numerous smaller-scale areas distributed throughout the four- story building mask the high volume of activity occurring throughout the facility.

The Seattle facility had separate waiting areas for laboratory and pharmacy, as well as for the primary care practice clusters. Patients and staff reported that as a result, the facility never felt crowded or busy.

- **Natural light is a strong design feature.**

All staff, patients, and visitors responded very positively to the presence of natural light. All of the respondents felt it gave them contact with the natural environment, and indicated that this particular feature made them feel valued by the staff and by the organization.

Each facility has it's own philosophy about what user group has access to natural light. In Boston, for example, staff offices are situated along the perimeter of the building, with no interior natural lighting. Natural lighting is brought into numerous procedure and exam rooms in Seattle, New Orleans, Chicago, and Minneapolis.

Staff in Seattle feel that locating the nurses stations near the exterior perimeter of the building with abundant natural light and views is a strong factor in their appreciation of their working environment.

Stairway at Minneapolis provides light, attractive access to second floor; they also provide an opportunity for exercise.

Patio deck in Seattle facilitates relaxed staff interaction.

- **Telephones.**

Telephones with free local calling are readily available to patients and visitors in several facilities. Providing this convenience recognizes a frequent patient need and serves as an indicator of trust in the patient. Seattle has telephones in all exam rooms and in small anterooms outside the public rest rooms. In the Chicago facility, they are located in a quiet area in public space.

- **Music.**

Music is provided in several waiting areas. Patients and visitors in the New Orleans and Seattle sites indicate that they notice and appreciate it. The soft background music overrides or masks the usual conversational and mechanical noises often found in facilities serving the public.

Issue 3: Functional Factors

Functional factors include those which enhance efficiency, support the smooth operation of the facility according to its own philosophy of practice, and allow all groups to use the facility conveniently for the full range of possible functions.

- **The design of each facility supports staff interaction.**

Each facility recognizes that the quality and frequency of staff interaction improves quality of care and continuity of care. Therefore, spaces are designed to facilitate such interaction:

Lounges. Staff lounge spaces are generously sized, centrally located, carefully furnished, and clean.

Contact corridors. Some circulation space is reserved for staff use only, as in the New Orleans site, which increases opportunities for casual interactions among staff regarding specific cases, professional ideas or facility news. The Boston and Seattle facilities both found that the perimeter corridors facilitated inter and intra-departmental interaction daily.

Intercom systems. Systems which broadcast messages selectively, make it easier to communicate with specific locations without disturbing the peaceful atmosphere of the entire facility.

- **Facilities are located for user convenience.**

The organizations understand that convenient location is an important factor in facilitating patient visits to the facility. Each facility is sited close to other familiar patient routes. In Detroit, the facility was located in a retail shopping plaza, occupying a pad which had been previously used by a discount retail store. In Boston, the primary care clinic is located in a retail mall near the subway. The Chicago facility is located next to a large shopping center. The New Orleans site is located on a major commercial thoroughfare. The Minneapolis site is located near an interstate highway. In addition, several of the facilities are located on or close to public transportation routes.

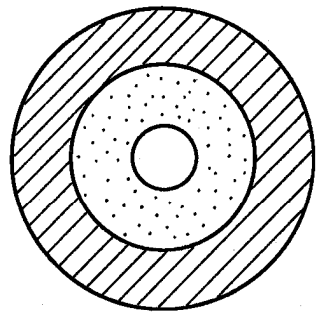
- **Generous, convenient, free parking is provided close to the entry.**

Proprietary research supports the importance of convenient parking to facility users. In Seattle, underground parking provides shelter for people between their automobile and the reception desk, an important feature in this rainy climate. In Minneapolis, there are separate and distinct parking areas for patients and staff.

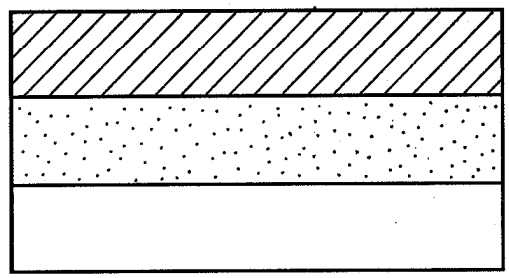
- **Functional zoning is clear.**

Interiors of the clinics are designed with identifiable zones for public, staff and public interaction, and staff activities to clarify

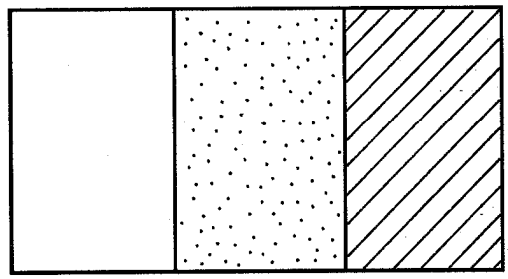
Conceptual User Zones



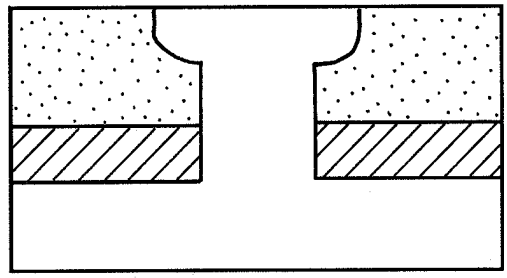
Boston, Seattle



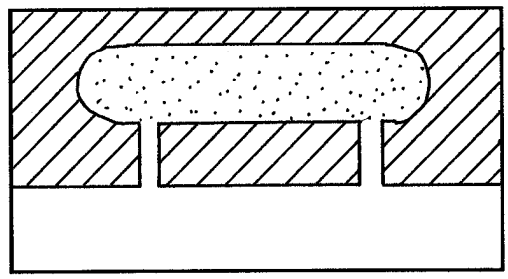
Minneapolis



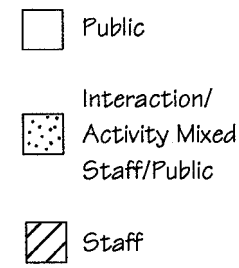
New Orleans



Chicago



Detroit



Not to Scale

functional locations. These zones create well-defined spaces for different activities within the buildings.

Although each facility approached functional zoning in a different way, as illustrated, the clarity of the zoning at each site reinforces the staff functional use patterns.

- **Design details improve efficiency.**

Each facility illustrates a number of detailed design solutions aimed at improving functional efficiency. Examples include:

Procedure box slots. Separate slots in the cabinetry at the nursing stations at Chicago hold pre-packed procedure boxes. These contain the usual equipment and supplies needed for examination of a specific type of problem, for example, "Eye Box".

Pass-through slots. Counter top or in-wall slots hold charts and other paperwork in a pass-through between the reception and staff workstation. This saves steps while efficiently transferring paperwork. This approach is successfully used both in Detroit and Minneapolis.

Eye chart in hall. In Seattle, an eye chart is located at the end wall of an interior circulation hallway. On the floor there is a contrasting color carpet tile indicator at 20 feet, to cue the person about where to stand while taking the acuity test. This allows the hallway to perform "double duty".

Vertical circulation by dumbwaiter. In the multi-story facility in New Orleans, dumbwaiters are heavily used for efficient transfer of medical records, films, and other items.

- **Reception desks are easy to locate.**

Highlighted reception desks assist patients and visitors in wayfinding. Reception desks are designed for ease of location in several ways.

In Detroit, Seattle, and New Orleans, the desk is placed centrally in a symmetrical plan, in Boston and Chicago it is located on the right of a typical entry path, and in Minneapolis it is clearly differentiated from the surrounding area by a variety of design details.

Other design details which highlight the reception desks include lowered soffits in New Orleans, special lighting in Seattle, flooring details in Minneapolis, marble countertops matching flooring details in Chicago, and custom cabinetry in Boston.

- **Flexible spaces.**

Rooms are sized to meet specific needs, yet allow for flexible spatial rearrangements in the future. A variety of flexibility concerns, ranging from ability to reconfigure existing furnishings to the ability to alter uses, are addressed in these sites.

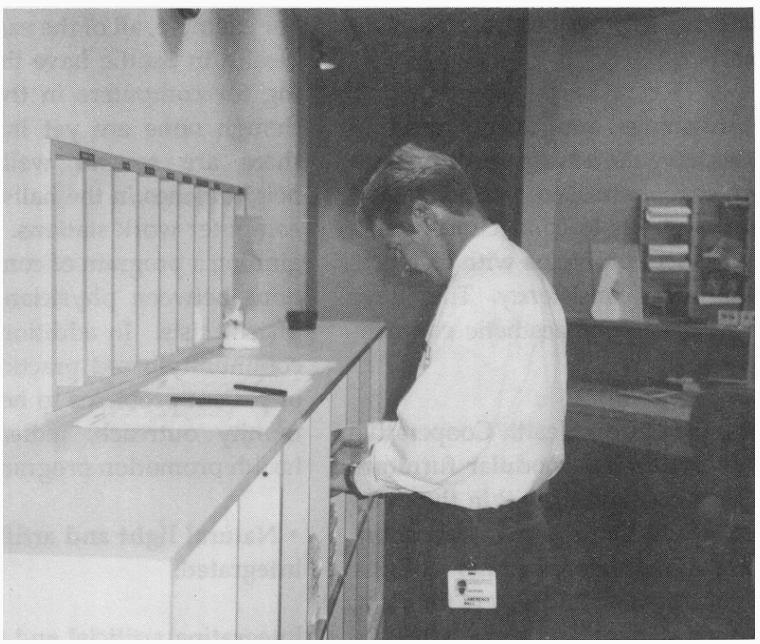
For example, in New Orleans a standard approach uses 10′ by 10′ exam room modules. A set of three 10′x10′ exam room modules would be easy to reconfigure as a set of two 10′ x 15′ procedure rooms.

In Detroit, gerontology exam rooms are larger than standard exam rooms to accommodate special equipment that might be used by the patient, like a wheel chair or walker. These rooms could also be converted to procedure rooms.

In Chicago, unobtrusive gates in the main entrance hallway allow after-hours use of the community room without compromising the security of the rest of the facility.

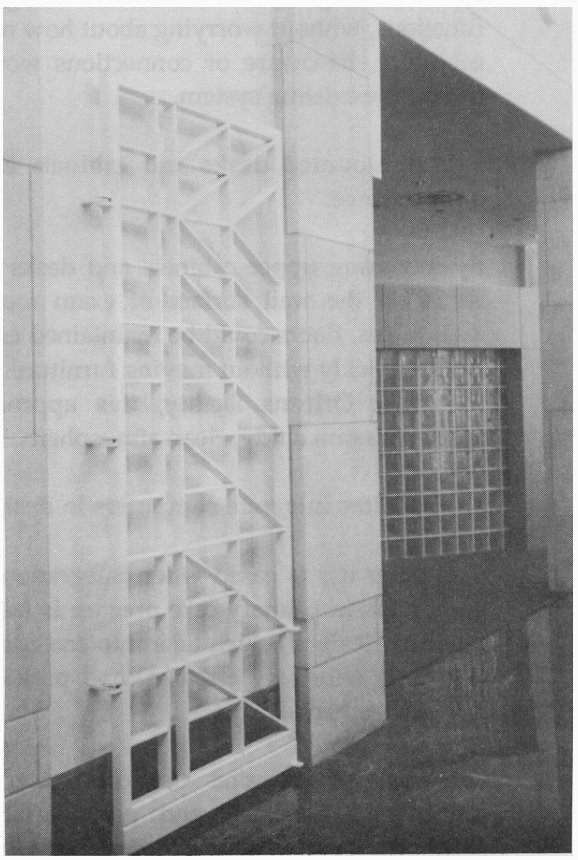
Issue 4: Technical Factors

Technical factors include issues of materials, systems and design integration, adaptability for electronic communications systems, durability, and maintainability.



Staff use pass-through and cubby system to increase their efficiency in Detroit.

Contrasting carpet tiles mark the correct eye chart distance in Seattle hallway.



Gate with angular grid in Chicago secures facility, but allows access to community room.

• **Most facilities rely on modular fumishing systems.**

Modular furnishings and details used in most facilities have the advantage of predictable dimensions, controlled variation, and consistent approaches to connections. As a result, they reduce problems with technical fit and dimensional consistency. They have the added advantage of aesthetic compatibility.

For example, the Group Health Cooperative pharmacy in Seattle has modular furniture which can be reconfigured within the overall scheme. Under each preparation counter there are a number of under counter units, some outfitted with drawers for vials, some with open shelves, and some with cabinet doors. Each unit is the same height and width, and is on rollers, so that pharmacists can easily rearrange the units to best fit their own working style or to meet changing functions, without worrying about how new cabinetry, hardware or connections would fit into the existing system.

• **Wall-mounted desks and cabinets ease maintenance.**

By mounting upper cabinets and desks directly on the wall surface of exam rooms and offices, floors could be maintained easily and quickly without moving furniture. In the New Orleans facility, this approach helps maintain a tidy, clean atmosphere.

• **Most sites integrate computers in design.**

Computer use is eased when integration of computers in primary care practice is facilitated by designs which take into consideration their necessary electrical and positioning requirements.

While all of the sites use computers in scheduling, financial, and administrative functions, several of them are increasing their use in direct care situations. For example, all of the exam rooms at Group Health in Seattle have the appropriate wiring for computers in the exam rooms, although none are yet installed. However, there are several well-used countertop-height niches in the halls which are used as computer work stations. This facility is beginning a program of computer communications between physician/nurse teams and pharmacists. In addition, the experimental community-based practice uses a data base of patient problems to help them plan community outreach, patient education, and health promotion programs.

• **Natural light and artificial light are well integrated.**

Integrating artificial and natural light to obtain a pleasant, well-lit environment which is energy efficient is difficult, but is accomplished well at several of these sites. Natural and artificial lighting are well integrated into the physical setting in Seattle, Chicago, New Orleans and Minneapolis, creating appropriate, pleasant lighting levels with minimal use of artificial lighting. Energy savings are an additional positive result.

This is accomplished by generous use of natural light, by providing a variety of artificial lighting options, and by thoughtful zoning of artificial lighting. By zoning the artificial lights for each functional area, and by careful assessment of distance, configuration, and demand in designing natural light and artificial lighting sources, designers were able to reduce the tendency to turn lights on at the beginning of the day, and never turn them off.

• **Durability is important in all sites.**

Selecting durable materials which withstand heavy and varied use and could be easily maintained is a priority for all sites. This was reflected in choice of flooring materials in three zones: entry, dry interior and wet interior. Entry floors are hard, slip resistant,

Staff routinely gather in the naturally lighted kitchen, conference, education room.

Modular, wall hung cabinets and desk surfaces provide design consistency in New Orleans.

easy to clean and highly durable surfaces. Dry interior floors are carpeted with patterned commercial grade carpets. Wet interior floors are vinyl tile.

Issue 5: Aesthetic Factors

Aesthetic factors relate to a variety of elements contributing to the overall appearance of the setting, its colors, design themes, and visual impact.

- **Facility designs are based on a consistent and identifiable design theme.**

The designers of each facility established and reinforced a specific design theme and colorway throughout the setting. This serves to unify the visual impact of the whole, provide consistency and strengthen facility identity. In each setting, colors in flooring, wall covering and upholstery were selected carefully to present a cohesive visual appearance.

For example, in Boston a nautical design scheme reflects the Atlantic seaboard. This was accomplished through subtle color selections and cabinetry designs which reflect the orientation toward the shipping tradition of the area.

In Seattle, a design theme of four pastel squares is utilized throughout the facility.

The Detroit site has pastel colors used consistently to help integrate a mix of older and new furnishings.

Group Health of Minneapolis uses a logo of six squares aligned in two vertical columns to identify all of the group's sites throughout the metropolitan area. This logo concept is repeated throughout the facility, even in the custom design of the windows.

The New Orleans site evokes a residential atmosphere. This is reinforced through residential-type window treatments, complete with draperies and valances throughout most of the facility.

The design of the Bridgeview facility, located outside Chicago, recalls the American arts and crafts tradition of nearby Oak Park in attention to detail and materials, and makes some visual reference to Frank Lloyd Wright's Prairie Style. The design was characterized by a grid pattern which is subtly integrated throughout the interior design in window, gates, and terrazzo flooring.

- **Natural light and interesting views are significant positive features.**

Patients and staff in all facilities noticed and appreciated the natural light and views. They spontaneously commented positively about the natural light and views more frequently than about any other design feature. Many users commented that the natural light and views 'brought the outside in".

In Boston, views of the historic setting were highlighted whenever possible.

In Seattle, exterior corridors were used both for circulation and to take advantage of scenic views of the city's skyline.

The Bridgeview facility near Chicago allows abundant natural light to penetrate the entire midsection of the facility by use of a central hallway with 18' ceilings flanked by clerestory windows on both sides.

Located in a pastoral setting outside of Minneapolis, the Inver Grove Heights facility takes advantage of views of nearby farmland. It also has a central spine flooded with light and a stairway through a two-story glazed area.

The New Orleans site offers natural light and open, unobstructed vistas of the surrounding area and urban center in the distance.

Interior window at check-out area borrows natural light from hallway in Chicago.

Views from the interior focus on the historical area of Quincy.

• **Some facilities provide selected views of staff at work.**

In a number of facilities, "selected transparency" allows views into staff areas. By carefully choosing specific visual access possibilities, or selected transparency, designers were able to provide visual contact with staff working beyond the public zones. This lets waiting facility users know that the staff is working hard while they wait, and helps pass the time.

In Seattle and Minneapolis, for example, views are provided into the dispensing area of the pharmacy from the waiting area.

In Detroit, a view of the care provider workstation behind the reception area is visible to users checking in, without compromising the privacy or security of the staff.

• **Artwork is carefully selected, and not just limited to public entry areas.**

Visually interesting, unobtrusive artwork is installed in all the facilities studied. Staff at all levels responded favorably to an attractive work environment.

The artwork, usually two dimensional abstracts and landscapes, was selected carefully to blend with the color schemes of the facilities. It was not just limited to the most public spaces, but was also provided beyond the public waiting rooms into exam rooms, staff lounges, and offices. However, the quality and quantity of artwork was better in the large public areas than in the exam and treatment areas.

In Seattle, the physicians who use the exam rooms were asked to select posters from a collection proposed by the interior designer to hang in the rooms they use.

In Chicago, colorful kites and decorative wallpaper borders with child-oriented designs are mounted in pediatric exam rooms, providing additional visual interest for children.

• **Plants enhance the visual environment.**

Exterior landscaping is abundant in several facilities, particularly Minneapolis, Chicago, and New Orleans, realizing, however, that the range of investment in exterior landscaping is related to the fact that these facilities are owned not leased.

Interior plantscaping is provided in the waiting rooms and public areas of all six clinics. In some instances, living flora are supplemented with silk plants, especially in difficult to reach areas.

Issue 6: Cost Factors

Cost factors include both first cost and operational cost concerns. In a health care environment in which there is an ever increasing amount of managed care, primary care finances are directly related to capitation (reimbursement by member prior to care, not by procedure at the time of care). The clinics all recognize that capitation-based financing means that keeping patients healthy makes money. Thus, there is a financial incentive to provide wellness services, and all of the organizations include supportive facilities.

• **All facilities have health education components.**

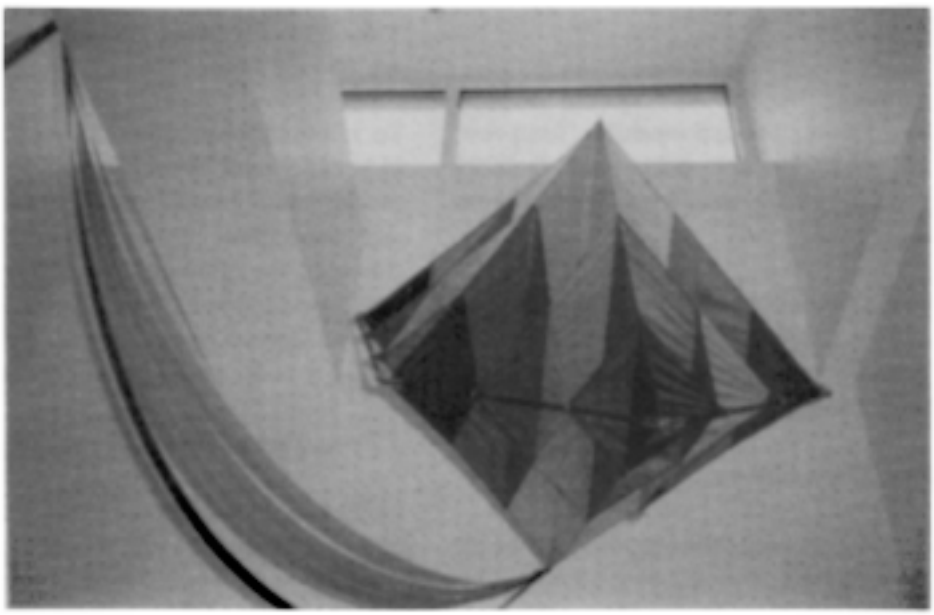
Some provision for health education was present in all six facilities.

Boston and Chicago provide separate patient education rooms with information in both video and printed formats.

Minneapolis and New Orleans make educational brochures readily available.

Detroit and Seattle sponsor a range of health education information sessions and activi-

Scales are placed in corner niches of hallway, near appealing patient education brochures in New Orleans.



Coloful kites suspended in pediatric exam rooms in Chicago.

ties, which they publicize through brochures available throughout the facility.

• **Sites provide staff amenities to decrease turnover and training costs.**

Realizing that staff turnover and training cost the organization money, and that satisfied staff reduce costs, the sites fully supported providing a wide range of staff amenities.

Previously described amenities like light and views, even from usually isolated areas like medical records, attractive staff lounges with complete kitchen facilities, access to the outdoors for break, lockers and showers contribute to staff satisfaction.

• **Sites use standardization to control design costs.**

To decrease design and construction time and costs and furnishing costs, several facilities used a number of specific standardized design features.

For example, the Ochsner system in New Orleans uses a standard modular "footprint" for all of their new outpatient facilities which is based on standard, flexible room sizes.

New Orleans, Seattle, Boston, and Minneapolis standardized a number of specific design features which they have used in several new facilities.

• **Phone triage screens patients.**

Seattle, Detroit, and Minneapolis use nurse telephone advice and triage systems. This helps to reduce costs by directing patients to the proper care facility.

There are facility implications, as the triage nurse needs a quiet setting, comfortable seating, access to reference materials, and acoustic privacy.

• **Facilities provide ancillary services.**

In an attempt to capture a wider range of consumer business, convenient ancillary services are provided at several locations.

For example, complete optical shops are present at Boston, Minneapolis, and New Orleans.

Many of the facilities, Seattle, for example, **include** an on-site pharmacy so that patients can have prescriptions filled before they leave the building.

The Minneapolis site has a full service dental clinic to serve Group Health members.

Issue 7: Materials and Furnishings

Materials and furnishings provide an overall finish to the facility and set the design tone, yet must meet a wide variety of user needs.

• **Systems furniture and modular furniture are widely used.**

To reinforce an overall design theme, provide functional flexibility, and facilitate replacement of furnishings, a number of facilities specified systems furniture. For example, the New Orleans and Minneapolis sites specified furniture lines manufactured by well-known companies, to provide quality and to help assure design consistency.

• **Patterned materials are specified.**

Multicolored patterns are used on carpeting and upholstery to mask dirt and wear. Most of these patterns are not strong or easily discernable; instead they appear as mottled single colors or subtle tweeds.

• **Adjustable casework supports variation.**

Facility designers provided for a variety of on-site rearrangements of cabinetry in order

Ochsner Optical Shop in New Orleans is easily accessible near first floor entry.

Bright, efficient private physician office with modular furnishings in New Orleans.

to meet individual staff and clinic needs while maintaining consistency.

For example, the New Orleans nursing/ physician station, called the provider team workspace, has a countertop which can be adjusted to the height of the physician standing at it, and a matching desk surface which can be adjusted to the height of the nurse sitting at it.

The Seattle pharmacy has slots and slide-in dividers in the upper cabinet bookshelves to help organize heavy pharmacy books, to prevent them from falling over, and to facilitate rearrangements of the materials.

The Minneapolis facility uses Japanese-style shoji screens throughout the facility to selectively screen and/or divide areas.

- **Varied furniture meets a range of user needs.**

By providing a variety of furniture, the facilities meet the full range of staff, patient, and visitor needs.

Seattle has built-in upholstered benches in their exam rooms. These are wide enough for two people, a parent and child for example, to sit together comfortably.

Minneapolis has adult and child chairs, upholstered to match, in the exam rooms, as well as child-sized chairs in the children's waiting area. This facility also provides outdoor patio furniture made of recycled plastic which is so heavy that staff refer to it as "theft-proof".

Chicago has long comfortable benches set in a combined well-child and ill-child waiting area. It features a carpeted play area between them designed to be used by playing children within sight of their parents. This element allows for separation without segregation.

New Orleans provides benches in waiting areas for accommodating the needs of those persons who cannot easily use chairs with arms.

Issue 8: Primary Care Practice

Primary care practice issues refer to some of the philosophical approaches which underlie the designs of these facilities.

- **These medical centers embrace a "continuity of care" approach.**

The six sites studied embrace a "continuity of care" approach which recognizes that humans live within a continuum of physical conditions, which ranges from full health through severe illness and death. This approach accepts and treats people wherever they are along that continuum, by an appropriate team of caregivers.

This approach implies that a wide range of care providers is included in the staff mix of the facilities. For example, at some sites, mental health is considered an integral part of primary care. In the facilities examined, mental health was an integral part of the menu of services in New Orleans and Boston. It was located within the Detroit facility and at Minneapolis, but was actually operated by other organizations which leased the space.

Midlevel staff and/or physician extenders are key elements of this approach; this includes nurse midwives, medical assistants, physician assistants, and nurse practitioners. Several facilities, including New Orleans and Seattle, use a provider team approach to care.

Ancillary services that are offered to enhance opportunities and convenience to the consumers include nutrition counselors and patient educators. Other facilities leased space to related service practices. For exam-

Pediatric waiting area in Chicago has "sick and healthy" sections with shared play space

Comfortable, residential setting psychiatric therapy office in New Orleans.

ple, the Joslin Center for Diabetes leases space in the MacNeal Bridgeview facility near Chicago, and dental and chiropractic practices lease space at the Minneapolis facility.

The organizations play a key role in supporting this team approach to health care by providing space for interaction among the team of health care providers, as well as space for their individual functions.

- **Primary care includes many services.**

The six facilities offer a wide range of services under the title "primary care", as the chart on the facing page illustrates. Only two of these facilities offer an identical range of services.

- **Facilities focus on characteristics of the communities they serve.**

The majority of the sites were very knowledgeable about the communities they serve, and are committed to providing exemplary service.

The Seattle facility is experimenting with a Community-Oriented Primary Care (COPC) practice. A growing trend across the country, this approach includes five major components:

- defining the health care community served and describing their sociocultural characteristics,

- including the community in setting goals by which the practice could help meet the community's needs for health and quality of life,

- identifying health problems in the community using national, state, municipal, and other local data,

- developing intervention programs responsive to the needs of that population, and

- monitoring the impact of their programs within the community.

- **Sites are committed to health care philosophy.**

The organizations operating these facilities are committed to a stated philosophy of health care which includes health maintenance and health promotion.

In New Orleans, for example, their philosophical commitment to healthy lifestyles even extends to their choice of reading matter in the waiting room. They only subscribe to magazines that do not accept cigarette advertising.

What is Primary Care? Range of Primary Care Physician Services in Six Facilities

	Boston	Chicago	Detroit	Mnpls	New Or1	Seattle
Pediatrics	•	•		•	•	•
Ob/Gyn	•	•	•		•	•
Internal Medicine	•	•	•			•
Family Practice	•		•	•	•	
Mental Health		•	•		•	•

Summary and Recommendations

This case study research explored critical design issues at selected facilities in Boston, Chicago, Detroit, Minneapolis, New Orleans and Seattle. In a short, intense research time frame, the team identified issues, visited sites, interviewed key designers and thinkers, and analyzed site findings. This report describes eleven major trends affecting primary care facility design and provides specific examples of how each facility solves common critical design issues.

This project began with a set of important questions:

- Can designers, administrators, and staff and facilities managers of other facilities learn anything useful from just six case studies, performed in a very short time frame?
- How important is design for these primary care environments?
- What are the design challenges that consistently face designers of primary care facilities?
- Are there examples of good solutions to those problems in this set of facilities?
- Are these solutions appreciated, or even recognized, by patients, visitors and staff?
- What is the relationship between a few case studies and the kind of systematic research necessary to assess the contribution of design features to successful facilities with confidence, or even to develop design guidelines for primary care environments?

The answers are hopeful. The research finds that although the definition of primary care varies among these six organizations, these groups have taken the initiative to custom fit the mix of primary care services to meet the needs of the population and communities they serve.

These organizations are finding ways to lessen the sterile, clinical image of medical settings of yesterday and instead, are designing more comfortable, welcoming space in primary care facilities.

There appears to be a shift from large-scale to smaller-scale facilities and facility components that maintain a manageable, yet effective size. Several of the six facilities attempted to decentralize a number of main functions in an effort to enhance the reality and the perception of personal attention and individual care.

Other significant design features noted in these case study sites include the addition of patient education rooms, community rooms,

comfortable, livable and workable space for staff and patients, and staff interaction rooms. The importance of natural light was consistently mentioned by all users.

Although it is not possible to assure that the good design ideas identified in these case studies would lead to success elsewhere, there are patterns that emerge which can give guidance, or even inspiration, to designers and managers of other facilities.

It is clear that medical care staff, administrative staff, patients and visitors notice and appreciate good quality design. Staff feel it helps them do their jobs better, and increases their job satisfaction. Patients and visitors feel valued when the facility design allows them dignity and makes them feel respected; they consistently feel more relaxed and have more confidence in their care when in attractive, calming environments.

There are consistent issues faced in primary care facility design: providing efficient flow and circulation with appropriate functional zoning; maintaining flexibility and cost control in times of high change; accommodating a growing commitment to patient education and wellness; respecting and supporting patient human needs in an often stressful situation; dealing with realistic concerns about first cost investments and staff productivity, and developing the capability to train a wide variety of primary care providers in the same facilities as care is being delivered, are just a few.

These six case studies provide a set of interesting solutions to these issues.

As more primary care environments are designed and built, the need for research-based design guidance increases. These case studies are just a beginning. They represent a very small sample of the types of primary care facilities operating in the United States today.

How are design issues different in the primary care clinic located in the large urban hospital, the health center in the rural community isolated from large medical centers, the multi-physician primary care practice in the small town?

How is the definition of primary care changing? What about urgent care centers -- are they primary care? What about paramedics doing screening in the workplace? How applicable are lessons learned from one primary care setting to another?

How similar are the design issues across these types of facilities? How similar are successful solutions? How are innovative practices incorporating alternative therapies into their patterns of practice and their facility design? How does the type of organization influence design choices?

Are the design concepts which work in one area of the country as effective in another? (Many chain restaurants vary both their menu and their decor according to location, based on research).

How is it possible to know if the design itself, or certain aspects of it, directly influences staff and user satisfaction, along with other issues such as successful team spirit, job security, or bedside manner?

Research-based answers to these questions are crucial to developing a systematic approach to designing high quality primary care facilities which support and enhance quality primary health care for the future.

Facility design would be enriched by the results of further research which expands the scope and depth of these studies. It would be useful to explore ways to share information about facility design successes and challenges without violating valid organizational concerns about proprietary information and competition.

Appendix I: Literature Summary

This literature review examines a selection of the large volume of material available which addresses a variety of health care issues. Much of the existing literature is focused on the processes of health care delivery, independent of facility characteristics, some report on the design features of new facilities, a number discuss financial and administrative issues of operating health care facilities, and a very small number discuss research on health facility design. Of those, the emphasis is on in-patient facilities almost exclusively; publicly available research on design evaluation of primary care environments is virtually nonexistent.

At present, the term primary health care means many things to various authors. One definition is provided by Bill Rostenberg, author of Design Planning for Freestanding *Ambulatory Care Facilities - A Primer for Health Care Providers and Architects.* This definition formed the framework for the literature review primarily because Rostenberg's work is among the most recent publications.

Rostenberg defines ambulatory care facilities as those not attached to a hospital where the client is an ambulatory out-patient. He further defines primary care as Family Practice, Industrial Medicine, and Pediatrics which operate by scheduled appointments. (Primary care is not urgent or immediate and does not include intermediate care such as birthing, surgery, or therapy.) Primary care is an 8:00 a.m. to 5:00 p.m. business with some facilities offering extended hours. The facility is prominent within the community both visually and socially.

Looking back, a hundred years ago there were less than 200 hospitals. By the 1920's there were 5000 or more. The expansion of hospitals in the 1970's slowed and, with the recent changes in reimbursement policies, there are now many vacant beds, and inpatient facilities that are closing or converting to outpatient use.

The trend is toward outpatient programs, group practice, medical malls, and network facilities rather than individual doctors' offices and hospitals. Current trends include value-conscious patients, smaller medical equipment and increased non-invasive treatment modalities.

There was a burst of health care literature during the post World War II era attributable to the trend toward hospital care, and another burst during the 1970's. Published literature, however, has not kept pace with the rapid growth of primary care facilities; in fact, most recent publications consider only the hospital setting and do not reflect on the significant differences between hospital and primary care.

We began with the problem statement from The Center for Health Design: "...lack of design guidance available to inform those who are planning facilities development." We chose to search conventional published resources assuming that these resources would be used by designers, planners, and administrators. Three subject categories were selected: (1) health facilities (2) health care (3) behavior and health facilities. Primary health care as defined by Rostenberg was used to narrow the subject entries.

Over a hundred entries were evaluated for appropriateness to design evaluation of primary care facilities. The literature specific to primary health care design describes a trend away from hospital care. Architectural literature focuses on images of new buildings or on general concepts of how to produce pleasant and safe buildings. Other literature addresses communication between administrators and designers; it clarifies the typical design and construction process from the problem statement through construction and maintenance.

Although exceptions are presented in the annotated bibliography, it is clear from this research that practicing architects do not, as a general rule, publish evaluations of their facilities, nor do health care provider organizations, facility developers, or health care advocacy groups. Although some primary care organizations do facilities research, it is frequently proprietary, and therefore not available in the public literature.

Health care provider literature tends to focus on operational events within a facility. There are some excellent resources prepared by behavioral professionals, but most are typically empirical studies focused on specific design features rather than on whole facility design.

There are several words and phrases found in the literature that provide a direction for examining the issue of a healing primary care environment. These words are important within interdisciplinary design teams.

These include a variety of descriptive terms relating to empowerment, respect and comfort. The literature describes responses to quality design including feelings of privacy, participation, visual clarity, control, productivity, comfort, knowledge, ownership, comprehension, prediction, choice and safety.

The literature also referred to negative responses, including feelings of irritation, stress, manipulation, confusion, fear, endless time, neglect or defense. There was general agreement that design should not evoke feelings of pain, distress, or competition. Bernadine Cimprich points out in her work on attention and patient education that these negative feelings interfere with the brain's ability to process chunks of information necessary for attention. She states that "Information that is vivid and concrete, that is, easily imaged and involving personal interest or experience, is more likely to receive spontaneous, effortless attention..."

The following annotated references were selected because they provide a good foundation for promoting communication between fields. The literature reviewed in three areas of study (health facilities, health care, and behavior and health facilities) is, not surprisingly, found in three separate libraries: one for a medical school, one for general academic studies, and one for fine arts.

This segregation, by itself, is indicative of the communication problems that may currently take place during the planning, design and management of a primary care facility.

Annotated References:

American Institute of Architects Committee on Architecture for Health with Assistance from U.S. Department of Health and Human Services, (1987 edition). *Guidelines for Construction and Equipment of Hospital and Medical Facilities*. Washington, D.C.: American Institute of Architects Press.

This manual provides the basic design standards for medical facilities, including primary care facilities. The list covers access (for people with disabilities), parking (two spaces for each exam room), and privacy for patients, as well as specific standards for each space, i.e., exam and observation rooms (minimum 80 sq. ft.), labs and radiology, etc.

Ballast, David Kent. (October, 1988). *Design and Planning of Ambulatory Facilities*. Monticello, Ill.: Vance Bibliographies.

This bibliography lists 65 publications (from 1975 - 1987) addressing design of ambulatory care facilities. Many articles were published on this subject in 1987 during the rise in the number of health maintenance organizations across the United States.

Berg, Leonard, MD, Buckwalter, K. C., PhD, RN, Chafetz, P. K., PhD, et al (December 1991). "Special Care Units for Persons with Dementia", *Journal of the American Geriatrics Society*, Volume 39, Number 12, pp.1229-36.

Primary care includes health care for patients with Alzheimer's Disease and other dementias. Berg discusses the integration of physical design and programming with the needs of this patient population for security, dignified personal care, appropriate mental and physical stimulation and protection from exploitation or abuse.

Brill, Michael. (1992). "How Design Affects Productivity in Settings Where Office-Like Work is Done". *Journal of Healthcare Design, Volume IV. Proceedings from the Fourth Symposium on Healthcare Design.*, Martinez, CA: National Symposium on Healthcare Design, Inc.

Discusses studies on office productivity, ergonomics, employee satisfaction, and quality of work life. Brill, of the Buffalo Organization for Social and Technical Innovations (BOSTI) suggests applications of this work in health care. An example: their research indicates that windows per se may not be important, but rather the natural light and feeling of not being enclosed.

Bush-Brown, Albert and Davis, Dianne. (1992). *Hospital Design for Healthcare and Senior Communities*, New York: Van Nostrand Reinhold.

This book discusses the design of hospitals, ambulatory care centers, special treatment centers, nursing homes, senior living communities, continuing care retirement communities, and medhotels.

Carpman, Janet Reizenstein; Grant, Myron A.; and Simmons, Deborah A. (1986). *Design That Cares -- Planning Health Facilities for Patients and Visitors*, American Hospital Publishing, Inc.

This book presents research based design solutions for health facilities - primarily hospitals. Focusing on visitors and patients, the book includes information that may apply to primary care. An example: "If a specific room is not dedicated for this purpose (of grieving), these activities will continue to occur, but they will occur in public -- in the hallway, the waiting room or the semi-private room -- and will invade the privacy of those discussing their problems and those inadvertently overhearing the discussion."

Cashman, Suzanne B., DSc; Fulmer, Hugh S., MD, MPH; Klevens, R. Monina, DDS, MPH; Margules, Adela, MS, MBA. (January/February 1992). *Special* Contribution: *Transforming a Neighborhood Health Center Into a Community-Oriented Primary Care Practice*, American Journal of Preventive Medicine, Volume 8, Number 1.

A community-oriented primary care (COPC) medical residency is being implemented at the Bowdoin Street Health Center from the Meetinghouse Hill area of Dorchester, Massachusetts.

The project involves all participants in health care: the medical residents, medical, nursing, dental and other health professionals as well as the community. Cashman, et al, have created criteria for a community -responsive practice which enables medical residents to transform health care in specific areas.

The goals of one project include development of community leadership, awareness of trash problems and potential health effects, and the cleanliness of the neighborhood.

Cimprich, Bernadine, PhD, RN. (March 1992). "A theoretical perspective on attention and patient education." *Advances in Nursing Science.*

Cimprich addresses the trend toward patient education and explores methods for effectiveness of education. Patient education includes health and illness care, self-care skills and strategies, long-term changes.

The process of learning is complex and attention is the key. Cimprich provides measures through which facility design can facilitate attention.

Cohen, Uriel and Day, Kristen. (1993 - Not released at this date). *Contemporary Environments For People with Dementia.* Baltimore: John Hopkins University.

Pre-release information indicates the authors have used the case study method to present current facilities available for people with dementia and their caregivers. Cohen and Day present design examples, current trends and opportunities.

Coppa & Avery Consultants. (September 1986). *Architectural Design for Hospitals: Hospital Planning, Ward Design and Efficiency, Out-patient, Accident and Emergency Departments, and Update of A 148*,. Monticello, Ill.: Vance Bibliographies.

This bibliography lists 90 publications from 1960 to 1985 regarding information on architectural design of hospitals.

Kaplan, R. and Kaplan, *S.* (1989). *The Experience of* Nature: *A Psychological Perspective*, New York, NY: Cambridge University Press.

Kaplan and Kaplan "theorize that four factors are important for a restorative experience: fascination, coherence, sense of being away, and compatibility with inclinations and goals." However, they say that "random fascinations can be distracting". The objective is to provide coherent stimuli which are part of a whole.

"Sense of being away" does not necessarily mean away from the physical environment rather from the content of a specific situation. Compatibility is significant in that one person's fascination may be another's boredom.

Keller, Sharon. (1987). *Interior Decorating in Health Care Facilities*. (1980-86). Monticel-10,111.: Vance Bibliographies.

The scope of this bibliography includes sources of information that can assist in planning those facets of the interior environment/decor in health care facilities which contribute to a functional and pleasing building. There are 279 published works that discuss the psychology of design, art works/color, flooring, furniture, lighting, and wallcoverings, as well as ten different specialized areas, such as outpatient facilities and pediatric areas.

Klein, Burton R. MSE and Platt, Albert J. ACA. (1989). *Health Care Facility Planning and Construction*. New York: Van Nostrand Reinhold.

This book describes the step-by-step process for construction of a health care facility, dealing with financing, zoning, site planning, and code review procedures. Two chapters on Architecture for New Facilities and Architecture for Existing Facilities stress traffic flow, importance of first impressions in the lobby, clearly defined pathways, use of pleasant colors and comfortable furniture.

Lindeman, William E. AIA. (May/June 1991). 'The interaction of facility design with management goals - Design responses to management issues." *Medical Group Management Journal.*

The definition of medical management is elusive and varies from organization to organization. But the typical goal of management is to facilitate a sound financial enterprise, serve a loyal patient base, and have an enthusiastic, loyal staff who would work nowhere else. A primary factor of achieving this goal is facility design. While the facility itself cannot ensure success an exceptionally poor facility can make success difficult. Lindeman identifies succinct design applications for achieving these goals.

Malkin, Jain. (1992). "Medical Office Design: New Possibilities." *Journal of Healthcare Design, Volume IV. Proceedings from the Fourth Symposium on Healthcare Design.*, Martinez, CA: National Symposium on Healthcare Design, Inc.

Malkin presents a number of approaches toward 1990's medical design noting that there is no 'correct' approach. Her design types include retail (mall or galleria), hospitality (style, comfort and convenience), cultural (ethnicity, religion, architectural expression), high tech (architecture, electronics, futuristic interior design), intellectual (designed to stimulate emotionally or intellectually through challenge or controversy), entertainment or theater (children: educate, amuse, distract), comfort (to soften an intimidating situation), corporate (stability, tradition and business) and residential (scale, lighting, detailing, furnishings).

Malkin is the author of a number of useful medical facilities planning books, including "Medical and Dental Space Planning for the 1990's" published by Van Nostrand Reinhold in 1989.

Mullan, Fitzhugh, MD. (October 1991). *The Future of Primary Care in America.*. Volume 44, Number 4.

In 1991 approximately two-thirds of practicing physicians in the United States were sub specialists. Countries of similar culture and health status, conversely indicated only one-half to about one-third as sub specialists. Twenty five percent of medical students expressed interest in primary care in 1989, in contrast to 40% in 1988. To promote primary care practice Mullen proposes a forum for family practitioners, inter-

nists, pediatricians, nurse practitioners, nurse midwives to talk to each other, voice common issues, and express ideas.

Rostenberg, Bill. *(1986). Design Planning for Freestanding Ambulatory Care Facilities: A Primer for Health Care Providers and Architects*, Chicago: American Hospital Publishing, Inc.

Rostenberg is a member of AIA Committee on Architecture for Health and the American Association for Hospital Planning.

The writing is primarily a discussion of programming and factors important to design. He considers image, site, ratio, circulation and room design.

Ruys, Theodorus AIA. (1990). *Handbook* of *Facilities Planning, Vol. I Laboratory Facilities.* New York: Van Nostrand Reinhold.

This handbook addresses laboratory planning and design from space guidelines to managing hazards by design, cost, codes, and equipment.

Sabatino, Frank G. (December 1991). "Health Center's Design Mixes Community Feeling with Individual Decor." *Health Facilities Management Magazine.*

This article describes the construction of a new headquarters for Fenway Community Health Center in Boston. They achieved a non-corporate, and non-institutional atmosphere by paying close attention to varying space needs of patients and staff, created a welcoming lobby, and used details such as open space, soft materials, and adjustable lighting.

Welch, W.P.; Miller, M.E.; Welch, H.G.; Fisher, E.S.; and Wennberg, J.E. (March 4, 1993). "Geographic Variation in Expenditures for Physicians' Services in the United States". *New England Journal* of *Medicine.* Vol. 328 (9), Pg. 621-7.

Documents and discusses distribution of Medicare payments across geographical sections of the United States. Describes the growing importance of primary care.

Appendix II: Questionnaire Summary

The number of questionnaires completed at each facility is summarized below:

Facility	Number of Respondents
Boston	26
Chicago	2
Detroit	38
Minneapolis	25
New Orleans	36
Seattle	26

The majority of respondents were women in the 26 to 64 age range.

Questionnaire responses from all six facilities were generally very positive regarding the design of the facilities. Most people felt that the buildings were professional, business-like, inviting and welcome, not cold and clinical, and most respondents liked the interior furnishings, colors and artwork. Positive reactions were noted on enviromental conditions such as lighting, temperature, sound, or smell. The aspect most often mentioned about all of the facilities was the abundance of natural light. Few, if any, respondents disliked the design of the facilities.

The six facilities reminded respondents most of a corporate office or hotel setting. Patients typically were visiting the facility for scheduled appointments with physicians, however, physician extenders were also mentioned; some of these visits were noted as unscheduled appointments.

Most patients waited no more than twenty minutes before they were seen for their appointment, and many in less than ten minutes. Most patients came to the primary care sites alone; however, over half of the respondents at two of the facilities came with a friend or family member, typically with one or two young children.

When asked how the design of the facility made them feel, the comments most often mentioned were “comfortable”, “relaxed’, “respected’, “secure”, and “welcome.”

Copies of the questionnaire are available from the research team:

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