Designing Safety-Net Clinics for Innovative Care Delivery Models

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I. Introduction

A NUMBER OF TRENDS INSIDE AND OUTSIDE of health care are driving the development of innovative care delivery models. Rapidly increasing health care costs and insurance premiums have produced an expanding uninsured and underinsured population, as well as high utilization of emergency departments and greater use of community clinics.[1–4] A persistent nurse shortage exacerbates the problems.[5]

These factors, along with other changes in health care such as the rise of consumerism, have led to the development of new care delivery models.[6] One such model is the patient-centered medical home, which provides comprehensive primary care by facilitating partnerships between patients, families, and personal physicians.[7] Other innovative care delivery models emphasize the role of nurses and other non-physician health professionals in the whole spectrum of care. A 2008 white paper sponsored by the Robert Wood Johnson Foundation identified the following common characteristics among a variety of new care delivery models:

- Increased authority and accountability of nurses as care integrators;

- Interdisciplinary team approach;

- Expansion of services;

- Frequent use of alternative health care settings;

- Improved efficiency of care for the complex elderly, who are heavy users of medical resources;

- Greater responsiveness to patient needs and preferences;

- Implementation of new technology; and

- Measurement of the improvements in patient satisfaction, quality of care, and cost-effectiveness.[6]

Safety-net clinics deliver a range of primary and specialty care to medically underserved and uninsured people regardless of their ability to pay.[8] As an important component of the health care system, safety-net clinics have been indispensable in fighting epidemic diseases and improving medical outcomes.[8,9] Faced with a series of challenges (cuts in funding from federal, state, or local governments, increased numbers of patients, the credit crisis, etc.), safety-net clinics have consistently engaged with innovative care delivery models such as chronic disease management and service integration. They have also embraced new technologies, including telemedicine and mobile health units, to better serve target populations and reduce health care costs.[9]

The design of the physical environment plays an important role in improving health care quality, work efficiency, and cost-effectiveness.[10,11] Safety-net clinic design can have a substantial impact on the effectiveness of innovative care delivery models, but guidelines are limited. To contribute to a better understanding of the topic, this white paper seeks to identify key characteristics of the physical environment design for new care delivery models and to provide preliminary design recommendations.

II. Methodology

THE AUTHORS CONDUCTED A REVIEW OF
publications and gray literature on the subject of
environmental design for innovative care delivery
models in safety-net clinics. Multiple databases
were searched, including PubMed, EBSCO,
ScienceDirect, and the Center for Health Design's
database of evidence-based design literature. Google
searches also revealed pertinent information.

In addition, a series of site visits and phone
interviews with safety-net clinics in California
and Colorado provided useful information about
current common practices, lessons learned, and
recommendations for environmental design. An
advisory committee of experts selected the clinics to
be studied.

III. Key Design Features and Recommendations

Five common design features supporting innovative care models in safety-net clinics emerged from the literature review, site visits, and interviews. They incorporate the perspectives of patients, staff, and health care administrators:

- Co-location of services;

- Outreach of services;

- Patient-centered care;

- Space for team collaboration; and

- Use of new technology.

Descriptions of these concepts follow, along with case examples illustrating how they have been realized in different settings. Some features interact and overlap. For example, design features such as new technology may enhance others such as co-location and integration of services. Some features may affect different user groups to a different extent or in a different way. Co-location of services, for instance, may impact patients more significantly than staff members. The appendix provides a matrix of relationships between design features and care delivery models in safety-net clinics.

Co-Location of Services

A key characteristic of a number of innovative care models is the co-location of a range of health care services and community services in one building/site.[6] Three examples are the 11th Street Family Health Services in Philadelphia, the Little Clinics in several states, and the medical home at Southcentral Foundation Clinic in Anchorage, Alaska. There are generally two levels of co-location/integration:

consolidation of various health care services (primary care, dental care, behavioral health, social work); and consolidation of health care services with other community services (school, community center, and retail markets).

Co-location of health services provides patients with a one-stop shop at multipurpose clinics or community centers where they receive coordinated preventive or curative care from an interdisciplinary team of professionals, rather than making separate visits for different interventions.[12] This model especially benefits the poor and uninsured patients of safety-net clinics who depend mainly on public transportation for travel to and between clinics. The one-stop shop approach may encourage better patient compliance with treatment plans and proper follow-up.[13] Another advantage is cost-effectiveness in relation to economy of scale. Sharing resources such as personnel and physical space is generally more economical and conducive to savings.[12]

A holistic approach that considers the entire person tends to be more effective than focusing on separate issues.[12] The health problems of the uninsured and poor are often attributable to historic, social, and economic factors. A system that encourages coordination of various factions of society (government agencies, private sector, health care providers, educational institutions) to address patients' problems may improve health care quality and efficiency. People served by safety-net clinics often have co-morbidities, and coordination of health services can produce better results in each component of care delivery.[14]

An example of co-locating services can be found in the health commons model of dental care in

New Mexico. Access to dental care in New Mexico was inferior compared to the rest of the country. Responding to this problem, a consortium of safety-net providers, academicians, legislators, public health officials, and other stakeholders created community health partnerships to provide integrated services at neighborhood care sites. The services include primary medical care, dental care, public health, behavioral health, and social work services. A patient-centered interdisciplinary team, usually consisting of a primary care physician or other provider, a nurse or nurse assistant, a dentist or dental hygienist, and a social worker or community health worker, cares for each patient. Health care has improved significantly as a result of better coordination of services and information.[14, 15]

Many examples of safety-net clinics that co-locate services to better serve their communities can be found throughout California. For instance, La Maestra Community Health Centers at City Heights is a newly opened safety-net clinic that combines community spaces such as retail shops, a pharmacy, and a health education center with medical and dental clinics, a laboratory, and a mental and behavioral health center. The design fits well with La Maestra's approach to care, which includes one-stop shop and circle of care, a holistic model that provides a network of integrated services for health and well-being.

Another example is the Native American Health Center's Seven Directions, a new mixed-use facility in Oakland. On the lower floors are medical and dental clinics, a nutrition service for women, infants, and children, and an outdoor community ceremonial space. Thirty-six units of affordable family housing on the upper floors are available for low-income residents (Figure 1). The housing units are arranged around two courtyards on the third floor. Residential tenants enter through a separate lobby on the ground

Figure 1. Example of a Mixed Use Facility

Location: Native American Health Center's Seven Directions Health Center in Oakland, CA.
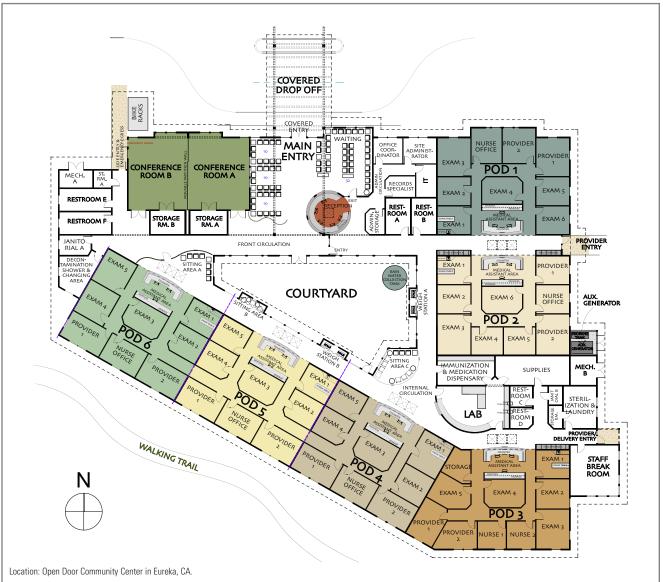Source: www.nativehealth.org.

floor and reach the upper floors by elevators. The idea of co-locating health clinics with housing units was based on the community's need for high-quality health care as well as affordable housing.

Co-location is also found at Open Door Community Health Centers, which operates ten safety-net clinics in Northern California. The Del Norte Community Health Center is an example of co-locating health care services such as family medical practice, women's health, pediatric clinic, teen-only clinic, comprehensive HIV care, family dentistry, behavioral health care, and diabetes education. The clinic provides a children's playground surrounded by exercise paths for diabetic patients who can watch their children during prescribed physical activities.[16]

Open Door is planning a similar integrated health center for Eureka, CA (Figure 2). It will feature six pods surrounding a courtyard, each providing various health care services. The pods will share an entrance lobby with waiting areas, a laboratory, a medication room, conference rooms, and administrative offices. The check-in areas will be decentralized, giving each pod its own space for check-in.

Figure 2. Example of a Pod-Based Design

Location: Open Door Community Center in Eureka, CA.

The pod-based design not only reflects the clinic's new care model, which focuses on population-based medicine and the concept of the medical home, but also provides flexibility in daily use and adaptability for future functional changes. Population-based medicine seeks to identify health care problems of the highest priority in a population, deliver appropriate care in response to those problems, and evaluate outcomes and feedback. It also involves a holistic view that meets patients' unique health care and social needs and takes a systems approach to coordinating and integrating care delivery through multidisciplinary teams.[17]

Retail clinics, a special example of co-location, typically are situated within retail stores, such as groceries and pharmacies (e.g., the Little Clinics).[18] This model shares some common principles with other types of health care service integration,

including the focus on improved access to care, incorporation of electronic medical records and evidence-based guidelines, and the use of non-physician professionals.[19] However, retail clinics especially emphasize patients' convenience by offering basic care in retail locations without appointments and with shorter waiting times. These clinics tend to be smaller and to use relatively inexpensive retail space to provide care at multiple conveniently located, consumer-friendly sites. Retail clinics, which have been growing rapidly, can potentially serve as safety-net providers for patients who might otherwise visit emergency departments or not seek care at all.[20]

Determining which services should be provided, based on the greatest needs of the community, is an important step in planning and designing an integrated health clinic or community center. This determination can be made informally, perhaps by collecting anecdotal information. A more evidence-based method involves documenting existing services in the area, analyzing the special needs of targeted populations, and formally soliciting input from patients, staff, community members, and other stakeholders. Focus groups, community meetings, interviews, and questionnaires are excellent means of gathering this information. The administrators of Hill Country Health and Wellness Center in Round Mountain, CA, for example, initially envisioned a simple expansion of its dental facility. To ensure that it would meet the community's needs, the administrators organized meetings and conducted surveys of the clinic's board of directors, staff, patients, and community members. The process resulted in expansion of the project to include numerous other community services, including a library, children's play area, and community gardens.[16]

A design challenge that could result from co-locating services is facilitating the flow of patients and other users and making it easy for visitors to find their destinations. Crowding, congestion, and difficulty in wayfinding in health care settings can cause patient stress, wasted time, and missed appointments.[21] Features of a cognitively comprehensible layout design include high visibility of major destinations, perpendicular intersections, and location of key facilities near the main hallway. These make wayfinding easier and patient flow more efficient.[22, 23] In Hill Country Health and Wellness Center, the lobby serves as a hub for distributing patient flow. It includes a series of waiting areas and a children's play space. On one side it connects to a classroom, a multipurpose room with kitchen and café, a library, and an outdoor courtyard. On the other side, the lobby connects to medical and dental clinics and acupuncture and massage spaces. This layout, together with properly located signs, greatly enhances patient flow.[16]

In the plans for the Open Door Community Health Center in Eureka, six clinic pods surround one triangular outdoor courtyard. This design can help expedite patient flow within the facility by enhancing the visibility of the six pods and other destinations and by providing orientation for visitors. Other facilities, such as the Clinica Sierra Vista clinics, feature information kiosks that help patients navigate. In addition to improving wayfinding, separation of certain patient flows (e.g., behavioral health) from others helps avoid possible interference between different functional spaces.

Outreach of Services – Mobile Clinics

Mobile health clinics represent an innovative way to reduce health care disparity by moving care settings closer to the homeless and underserved populations, who usually do not have transportation or other resources to seek care. Mobile health clinics may encourage preventive screenings and immunization

and decrease use of emergency departments.[24, 25] These clinics are typically located in self-contained motorized vehicles, ranging from the trunk or tailgate of a station wagon to a towed trailer or a highly sophisticated coach, van, bus, or recreational vehicle. Smaller vehicles are preferable in urban areas because they are less expensive to operate and easier to park, but larger ones can accommodate more services.[26] Mobile health vehicles may make regularly scheduled visits to particular sites or rove around to find reclusive potential patients. Most provide health services on the vehicles, while others transport patients to fixed-site clinics or transport health care professionals to remote sites, including patients' workplaces or homes.[26]

A mobile health clinic is a valuable addition to a safety-net clinic, enhancing its ability to serve patients in remote rural areas. The following mobile clinics are used extensively for this purpose:

- Clinica Sierra Vista's mobile van brings medical and dental services to homeless people in emergency shelters, low-income motels, and homeless encampments, as well as to health fairs and schools.

- Project HOPE (Health Outreach for People Everywhere) of Shasta Community Health Center in Redding, CA, delivers primary medical, dental, and mental health services to the most vulnerable members of local communities. The HOPE van has two exam rooms for medical and dental treatments and a central area for nursing or intake.

- The mobile health unit of Salud Family Health Centers in Colorado (Figure 3) regularly visits the farms, camps, grocery stores, and apartment complexes that serve as gathering places for Mexican immigrants. The mobile unit is typically staffed by a driver, a physician assistant, a medical assistant, a dental hygienist, two outreach workers trained to conduct medical screenings, and up to three bilingual and bicultural volunteers. The unit provides screenings, consultations, vaccinations, prescriptions and medications, patient education, and clinic follow-up and referral. It is equipped with one examination table, three networked computers with wireless Internet access, and medical equipment and supplies. Utilization data suggest that the mobile health unit has expanded coverage of Salud's health services among immigrant workers, especially males, and has facilitated access to follow-up care.[27]

The decision to purchase a mobile health vehicle should be based on detailed analysis of the needs of the targeted populations, the clinic's perception

Figure 3. The Mobile Health Unit Used by Salud Family Health Centers in Colorado

Source: www.life.com

of the problems, and the community's lifestyle characteristics, cultural preferences, and health beliefs. Evaluation of the costs and benefits of a mobile health clinic should be based on the estimated costs, including initial investment, operational and maintenance expenses, and staff overtime costs. Staffing needs can vary significantly depending on the services provided. A mobile health clinic's success is often highly attributable to an appropriate mix of health care professionals and vehicle maintenance personnel.

The design of mobile health vehicles can affect the program's efficiency and cost-effectiveness. The following recommendations have been compiled from the literature.[28]

- The vehicle's size and interior layout should be determined by the services to be provided and the main purpose of the mobile health clinic.

- The design of furniture, storage cabinets, and medical equipment and supplies should fit the vehicle's structure and maneuverability.

- If the vehicle's design and structure permit, large windows should be installed to reduce claustrophobia and provide natural ventilation.

- The location and size of entrance and exit doors may impact traffic patterns inside the vehicle. A barrier-free environment with special mechanical devices may be desirable to serve patients with disabilities.

- The selection of interior finish materials should consider ease of maintenance and disinfection. Interior lighting and color design should be bright and attractive.

- Since the vehicle will operate in a variety of weather conditions, proper insulation and air-conditioning are needed to reduce energy consumption, ensure the comfort of patients and staff, and maintain sensitive medical equipment and supplies.

- Upgrade options such as a back-up generator and a satellite receiver for telemedicine may be added, depending on the needs of the community.

Patient-Centered Care

Patient-centered care is a key component of many innovative care delivery models for the uninsured and underserved. Examples are the patient-centered medical home and the safety-net medical home initiative. The concept of patient-centeredness represents a significant shift in health care philosophy from a professionally driven system toward one that increasingly recognizes and incorporates individual patients' perspectives and engages them in their own health care.[29, 30]

Patient-centered care, as defined by the Picker/Commonwealth Program for Patient-Centered Care, includes seven tenets: respect for patients' values, preferences, and expressed needs; coordination and integration of care; information, communication, and education; physical comfort; emotional support and alleviation of fear and anxiety; involvement of friends and family; and transition and continuity.[31]

Implementation of patient-centered care for underserved populations has proved challenging because of barriers such as language and other cultural differences and a lack of resources.[32] In a paper sponsored by the W. K. Kellogg Foundation, Silow-Carroll, et al, proposed the following key components of a comprehensive approach to patient-centered care for the underserved: [32]

- Welcoming environment (physical, psychological, and social) that is familiar and not intimidating;

- Respect for patients' values and expressed needs;

- Involvement of patients and families in health care;

- Promotion of a mutually respectful patient-provider relationship;

- Patient empowerment or "activation";

- Socio-cultural competence enhanced by understanding and considering patients' cultural, economic, and educational status, health literacy level, family patterns/situation, and traditions;

- Coordination and integration of team-based care and care management;

- Comfort and support, including physical comfort, privacy, emotional support, and involvement of family and friends;

- Access and navigation skills; and

- Community outreach.

A healing, empowering, and supportive physical environment is an essential part of patient-centered care models.[33] Design of the physical environment can support implementation of patient-centered care in safety-net clinics by enhancing certain components of care for the underserved, as described above.[33]

First, the clinic environment can be made more welcoming by incorporating architectural motifs, signs, colors, and materials that are familiar to the local community (Figure 4) and by reducing environmental stressors that are known to cause psychological and emotional discomfort. Acoustic ceiling tiles, for example, can minimize noise, a major source of stress in health care settings.[11] In addition, elements such as day-lighting, window views of nature, gardens, indoor plants, and nature photographs may alleviate patient anxiety and promote healing.[33,34]

Second, extra spaces and amenities that support patients' families can be added to meet patients' need for social support.[33] Large consultation or exam rooms with plenty of seating may encourage family involvement, which can lower stress, promote recovery, and improve outcomes.

Third, environmental measures, including comfortable and adjustable furniture, efficient ventilation and air conditioning, and reduced glare from artificial and natural lighting, can improve patients' physical comfort. Appropriate partition design ensures visual and audio privacy for patients and families.[11]

Space for Team Collaboration

Effective collaboration between health care professionals is a crucial part of high-performing health care delivery systems. It is even more important in innovative care delivery models that emphasize a holistic approach and deploy interdisciplinary teams for care delivery.[6] In the patient-centered medical home model and the health commons models described previously, interdisciplinary teams comprising physicians,

Figure 4. Example of a Welcoming Registration Area

Location: Native American Health Center's Seven Directions Health Center in Oakland, CA.

dentists, nurses, social workers, and other health care professionals play an essential role in providing integrated care to underserved people. The primary care interdisciplinary teams are often flexible and dynamic, and the organization of a team depends on individual patients' needs .

In team collaboration, health care professionals work together in complementary roles, sharing decisionmaking and implementation of care plans.[35] Successful collaboration improves team members' understanding of one another's knowledge and skills, enhances decisionmaking, raises job satisfaction, and boosts efficiency. However, failures of team collaboration are not uncommon and can have a negative impact on clinical outcomes and patient satisfaction.[36] Barriers to effective team collaboration include traditional vertical hierarchies among health care professionals, personality differences, culture and ethnicity, age, language and jargon, and training. An organizational culture characterized by common purpose, trust, and respect is more likely to avoid these obstacles and to achieve successful collaboration.[35]

A supportive environment with space, furniture, and technology that enables group interaction and transactions also encourages collaboration (Figure 5). The following recommendations will contribute to effective environmental design of team collaboration spaces.[37–39]

- Visual connection between spaces and visual display of work information promote workers' awareness of others' locations, activities, and intentions. Windows on doors or partition walls offer some visual access but block annoying noise and audio privacy breaches. Lights can serve as signals of presence. This high level of awareness may improve information-sharing and enable team members to quickly notice others' need for help.

- Proximity of team members, central location of circulating corridors, visually open workstations, and open stairways increase the probability and quality of unplanned interactions. These brief interactions can foster learning, group decisionmaking, and friendships between workers.

- Informal meeting spaces along hallways with flexibly arranged furniture and small niches with surfaces suitable for stand-up work encourage informal, relaxed conversation and teamwork.

- Locating formal team collaboration spaces, such as meeting rooms and team rooms, close to individual spaces will promote problem-solving.

- Furniture in meeting rooms, break rooms, and training rooms should be comfortable and adjustable to support workers with various needs and tasks of different durations.

- Display walls and electronic displays (computer projections) of information should be available in formal collaboration spaces. If needed, the

Figure 5. Example of Group Clinical Workspace

Location: Lafayette Clinic of Clinica Family Health Services in Colorado.

space may be equipped for teleconferencing by telephone, computer, or video link.

- Good visual and acoustic design enhances information security and minimizes distractions.

Use of New Technology – Telemedicine

A number of community clinics have incorporated new technology into their innovative care models. Internet access, electronic health records, biosensors, wearable devices, and intelligent software are examples of technology used in community clinics. In consort, these technologies may revolutionize health care delivery to medically underserved populations. Telemedicine, a fast-growing means of health care delivery, uses information technology and electronic communication to provide care to patients in remote, rural, and underserved areas.

In implementing telemedicine, health care administrators must make important decisions about the system's functions and components. Depending on the needs of providers and patients at specific facilities, telemedicine can encompass a variety of technologies and applications:[40]

- Telephones to connect patients with health care providers;

- Robotic instruments remotely operated by physicians to perform surgeries;

- Interactive videoconferencing and biosensors to allow clinicians to see, hear, examine, and counsel distant patients;

- Integration of automation and artificial intelligence in the home for patient monitoring, examination, and diagnosis; and

- Technologies that store and transmit patient information, including digital images, and

enable remote consultation between health care providers.

A set of functionality components that can be connected through standardized interfaces and protocols provides a cost-effective way to construct a telemedicine system:[40]

- **User interface** – hardware and software that interacts with users;

- **Medical devices** – tools for examination, diagnosis, and treatment of patients;

- **Patient records** – means for storage and retrieval of patient information;

- **Processing** – software or hardware for data manipulation, such as trend analysis, diagnosis, and care planning;

- **Communications** – mechanisms of communicating with other devices;

- **Protocols** – the brain of a telemedicine device that directs the various components to accomplish specific functions of the whole system; and

- **Backplane** – the system that integrates the other six components through intra-device communications.

Various combinations of these functionality components can be selected to build different telemedicine systems. A telemedicine station for health care providers, for example, may include all components, while a patient telemedicine station will probably not have the patient records and processing components. This flexibility allows a facility to purchase only the elements it requires and ensures adaptability for future expansion.

Figure 7. Portable Telemedicine Equipment in an Exam Room

Rapid technological progress may quickly render telemedicine equipment obsolete, necessitating more frequent updates compared to the average life of clinic buildings.[41] Accommodating probable future changes poses a unique challenge in building design. The experience of some of the interviewed clinics that use telemedicine indicates that the server room may need to be expanded significantly due to changes in technology and increasing needs. Further development of wireless networks may alleviate some of these conditions in the future, however.

To improve telemedicine's efficiency, it is essential to construct networks on a large scale to connect health care providers and patients in different geographic areas. Telemedicine implementation may be limited by the extent of infrastructure construction. Systems relying on broadband Internet, for instance, can reach only areas where broadband services are available. Efforts to improve the infrastructure for telemedicine are growing, however; an example is the California Telehealth Network, a coordinated effort to connect more than 800 medical facilities in California to a nationwide broadband network of health care services.

Location: Sidney R. Garfield Health Care Innovation Center in San Leandro, CA

Patient-provider interaction through a fixed or portable videoconferencing system is a major component of telemedicine (Figures 6 and 7). When portable equipment is used, the clinic layout design should take into account the spatial relationship between equipment storage space and telemedicine rooms. Suitable lighting design and interior finish materials are essential to enhance the quality of video images. Daylight must be well controlled (e.g., by window blinds) and artificial lighting set up to reduce facial shadows and allow clinicians to see patients clearly, with accurate color reproduction. Background walls should be a neutral color without busy patterns or direct light reflections.[42] Veiling computer screens can minimize glare and reflections. Locating the telemedicine room away from noise sources helps optimize sound quality, as do high-quality acoustic ceiling tiles that reduce noise in the room. Electric and Internet outlets should be conveniently located near the telemedicine equipment.

Careful selection of telemedicine apparatus enhances the quality of communication, monitoring, and diagnosis. For example, a simple, inexpensive

Figure 6. Example of a Teleconference Room

Location: Open Door Community Center in Eureka, CA. Source: www.opendoorhealth.com.

setup for videoconferencing might consist of a television with a small video camera placed on the top. But this arrangement could hinder visual communication, including eye contact, because cameras aim at individuals' faces from a downward angle. An alternative setup similar to that used in broadcast television can improve clinician-patient interaction.[43]

Summary of Design Recommendations

The following recommendations provide guidelines for successful implementation of innovative care facilities in safety-net clinics.

■ Determine the scope and locations of services (primary medical, dental, behavioral, other community service, mobile clinics, telemedicine) by analyzing data about the health status and needs of the local community.

■ Clearly define patient flows and facilitate wayfinding in multipurpose clinics or community centers.

■ Create a welcoming environment for patients and families by reducing environmental stressors, using positive nature distractions, providing spaces and amenities for families, and ensuring patients' physical comfort.

■ Improve spaces for team collaboration by locating team areas close to individual workspaces, increasing visual connection between workspaces, providing informal meeting spaces close to corridors, and clearly displaying information.

■ Design for flexibility and adaptability in preparation for future changes in community needs and technologies.

■ Use state-of-the-art technologies to improve the infrastructure for telemedicine; enhance the visual and audio quality of videoconferencing by using appropriate lighting, finish materials, and equipment.

IV. Conclusion

IMPORTANT FEATURES OF ENVIRONMENTAL design for new innovative care delivery models in safety-net clinics include co-location of services, mobile health clinics for outreach services, patient-centeredness, team collaboration spaces, and telemedicine. These features apply to different innovative care delivery models to various extents.

Following are questions that clinic administrators should consider during the planning and design of innovative care delivery models in safety-net clinics.

- What care delivery models are best suited to address the health care needs of the targeted populations?

- What physical environment design options (e.g., co-location of services, mobile health unit, telemedicine) are most appropriate for the care delivery models that will be used in the new clinic?

- What health care services and other community services should be offered? Where are the optimal locations for these services?

- If patient-centeredness is a significant component of the care delivery model, how can the physical environment make patients and families feel more welcome?

- What will be the costs and benefits of outreach programs such as mobile health units and new technologies such as telemedicine?

- How can the physical environment support team collaboration patterns that are suitable for the care delivery model in the new clinic?

- What are the measurable goals (e.g., increasing health care coverage) of implementing innovative care delivery models? What are the measurable contributions of clinic design to improved health care outcomes (e.g., creating a welcoming environment that increases patient satisfaction)?

This preliminary examination is not intended to comprehensively consider all design aspects of new care delivery models. Rather, it includes some of the most common themes identified during the literature review and site interviews. It provides a step toward understanding the ways that environmental design can support innovative care delivery in safety-net clinics.

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Round Mountain, CA
www.hillcountryclinic.org

La Maestra Community Health Centers
San Diego, CA
www.lamaestra.org

Native American Health Center
Seven Directions Health Center
Oakland, CA
www.nativehealth.org

Open Door Community Health Centers
Arcata, CA
www.opendoorhealth.com

Salud Family Health Centers
Fort Lupton, CO
www.saludclinic.org

Shasta Community Health Center
Redding, CA
www.shastahealth.org

Appendix: Key Design Features of Innovative Care Models/Safety-Net Clinics

	CO-LOCATION OF SERVICES	OUTREACH OF SERVICES – MOBILE CLINICS	PATIENT-CENTERED CARE	SPACE FOR TEAM COLLABORATION	USE OF NEW TECHNOLOGY – TELEMEDICINE
11th Street Family Health Services[6]	✔		✔	✔	✔
Chronic care coordination[6]	✔		✔	✔	✔
Clinica Sierra Vista*	✔	✔	✔	✔	
Health commons[14,15]	✔		✔	✔	
Heart failure resource center[6]			✔	✔	✔
Home health care/ telemedicine[6]		✔	✔		✔
Hospital at home[6]		✔	✔	✔	
Hill Country*	✔		✔	✔	✔
La Maestra* (one-stop shop and circle of care)	✔		✔	✔	
The Little Clinics[6]	✔		✔		✔
Native American Health Center*	✔		✔	✔	
Nursing model for anticoagulation management service[6]		✔	✔		✔
Open Door* (population-based medicine, medical home)	✔	✔	✔	✔	✔
Patient-centered medical home[7]	✔	✔	✔	✔	✔
Salud in Colorado*	✔	✔	✔	✔	✔
Shasta*	✔	✔	✔	✔	✔
Transitional care model[6]		✔	✔	✔	✔

*Safety-net clinics interviewed.