COMMUNITY HEALTH CENTERS FOR THE MEDICALLY UNDERSERVED: AN AMERICAN CASE STUDY

Abstract  
An American case study in evidence-based research and design is discussed. Two recent outpatient clinics are presented. These examples express the outcome of a program that has been in operation for twenty years and has influenced the facility planning and building design of sixty-five capital improvement projects in the state of Louisiana.

Keywords  
Community health, Outpatient healthcare, Residential image and ambiance, Evidence-based research and design, Medically underserved

Introduction  
Outpatient community-based care is critical to the overall success of the United States’ healthcare system. A network of local, state, and federal health agencies endeavor to serve the Nation’s diverse population. At present, more than 48 million Americans do not have health insurance. Historically, most of these persons reside in medically underserved communities. These persons and places tend to suffer from insufficient access to nearby clinics or hospitals. The lack of access to adequate primary care and disease prevention care forces these persons, who are often poor, to travel far distances to receive far more expensive diagnosis and treatment. More intensive healthcare is sought out elsewhere when prevention-centered local options are few. Hospital care is far more costly and is the usually the result of the condition not being treated earlier. Later-stage illness diagnosis and treatment often requires emergency room care. Even worse, many patients and families, lacking the means of transport such as a private family car, or good rail transport, by default, may fall entirely out of the healthcare equation and opt to not seek out any sort of care at all. In the United States, more than two-thirds of all outpatient clinics for the medically underserved are located in rural communities. Most are located far from urban centers. The physical environment of this national network is uneven in quality, architecturally. The core dilemma facing care providers at this time—especially in the public, not-for-profit governmental sector of the American healthcare industry—is the prevalence of too many poor quality facilities. The lack of high quality facilities is reaching a crisis point. This is particularly true for clinics that provide care for the medically underserved. A physician or nurse might be forced to work in a poorly planned and poorly maintained freestanding outpatient clinic for decades.

The federal Medicaid program was created in 1965 by the U.S. Congress, for Americans without private health insurance. In 2010, the administration of President Barack Obama allocated $15 billion to construction of new clinics. This new wave of construction has been accompanied by a growing awareness of the need to build facilities that are more patient-centered and that improve health outcomes. The Obama Administration has emphasized the importance of evidence-based design in healthcare facilities.

In America, 48.5 million Americans are without health insurance. The lack of access to adequate primary care and disease prevention care forces these persons, who are often poor, to travel far distances to receive far more expensive diagnosis and treatment. More intensive healthcare is sought out elsewhere when prevention-centered local options are few. Hospital care is far more costly and is the usually the result of the condition not being treated earlier. Later-stage illness diagnosis and treatment often requires emergency room care. Even worse, many patients and families, lacking the means of transport such as a private family car, or good rail transport, by default, may fall entirely out of the healthcare equation and opt to not seek out any sort of care at all. In the United States, more than two-thirds of all outpatient clinics for the medically underserved are located in rural communities. Most are located far from urban centers. The physical environment of this national network is uneven in quality, architecturally. The core dilemma facing care providers at this time—especially in the public, not-for-profit governmental sector of the American healthcare industry—is the prevalence of too many poor quality facilities. The lack of high quality facilities is reaching a crisis point. This is particularly true for clinics that provide care for the medically underserved. A physician or nurse might be forced to work in a poorly planned and poorly maintained freestanding outpatient clinic for decades.

The federal Medicaid program was created in 1965 by the U.S. Congress, for Americans without private health insurance. In 2010, the administration of President Barack Obama allocated $15 billion to construction of new clinics. This new wave of construction has been accompanied by a growing awareness of the need to build facilities that are more patient-centered and that improve health outcomes. The Obama Administration has emphasized the importance of evidence-based design in healthcare facilities.

In America, 48.5 million Americans are without health insurance. The lack of access to adequate primary care and disease prevention care forces these persons, who are often poor, to travel far distances to receive far more expensive diagnosis and treatment. More intensive healthcare is sought out elsewhere when prevention-centered local options are few. Hospital care is far more costly and is the usually the result of the condition not being treated earlier. Later-stage illness diagnosis and treatment often requires emergency room care. Even worse, many patients and families, lacking the means of transport such as a private family car, or good rail transport, by default, may fall entirely out of the healthcare equation and opt to not seek out any sort of care at all. In the United States, more than two-thirds of all outpatient clinics for the medically underserved are located in rural communities. Most are located far from urban centers. The physical environment of this national network is uneven in quality, architecturally. The core dilemma facing care providers at this time—especially in the public, not-for-profit governmental sector of the American healthcare industry—is the prevalence of too many poor quality facilities. The lack of high quality facilities is reaching a crisis point. This is particularly true for clinics that provide care for the medically underserved. A physician or nurse might be forced to work in a poorly planned and poorly maintained freestanding outpatient clinic for decades.

The federal Medicaid program was created in 1965 by the U.S. Congress, for Americans without private health insurance. In 2010, the administration of President Barack Obama allocated $15 billion to construction of new clinics. This new wave of construction has been accompanied by a growing awareness of the need to build facilities that are more patient-centered and that improve health outcomes. The Obama Administration has emphasized the importance of evidence-based design in healthcare facilities.
Evidence-based Facility Planning and Design

The ACA will provide $11 billion to bolster and expand the U.S. inventory of outpatient community health centers, beginning on January 1, 2014. $9.5 billion will be earmarked to construct new health center facilities specifically in medically underserved areas, and to specifically expand preventive and primary health care services in these communities. This includes an expansion of dental and behavioral health services.11 Evidence-based research and design, or EBR&D, can and should guide any current and future investments in this system. Few individual states or local towns, however, have established performance-based, i.e., evidence-based, facility planning or architectural minimum policies or standards for outpatient community health centers that reach beyond the most basic national building code-requirements. Evidence-based research and design (EBR&D) for health extends beyond building codes per se, and is defined as the systematic documentation and analysis of empirical data that then is translated into facility planning and design. The post occupancy evaluation, or POE, in this regard, is capable of empowering care providers in helping them learn what works and what does not work in a given healthcare facility.12 The post occupancy evaluation can yield many positive outcomes of great value to healthcare providers. This information is compliant with but yet extends beyond codes to include issues of patient and staff flow, user needs and references, and strategies to reduce occupants’ environmental stress.13 The POE can be of great help to architects and to medical planners.14 The emerging field of EBR&D in healthcare architecture is just beginning to blossom as it gains momentum, acceptance, funding, and increased sponsorship by the federal government and by private philanthropic foundations.15 Scant EBR&D in the U.S. has been completed that is centered on outpatient freestanding primary care settings.16

The State of Louisiana has achieved success over the past two decades in its quest to replace the majority of its publicly-operated freestanding community-based outpatient clinics. This has occurred over a twenty-one year period, and this program has been centered on EBR&D. It has been paid for and supported by Louisiana’s statewide health and hospitals agency. In the fall of 1990, the State of Louisiana Department of Health and Hospitals’ Office of Public Health (DHH-OPH) embarked upon (under the first author’s direction in the role of consultant) a strategic, evidence-based healthcare facility improvement program. This effort, the Strategic Facility Improvement Initiative, or SFI, the poverty人群提供援助和保障。192010年，奥巴马政府推动出台了新的国家医疗法案——《患者保护与平价医疗法案》（Affordable Care Act of 2012），也称为奥巴马医改（Obamacare）预测从2014年起。它将为总计4 800万未参保公民中超过3 100万人群提供医疗保障。21因为医疗法案将在2014年完全生效，人们担忧此前未参保的人群将很快挤满全国各设医疗机构，包括现有的医疗中心，独立的医院以及社区门诊。随着数以十计的人员将被纳入保障范围，社区门诊的负担将会迅速加重。质差的一些医疗机构设施将全面崩溃。即使有些位于经济欠发达社区的诊所能够艰难维持，倘若没有足够的资金支持，最终也将崩溃。遗憾的是，美国一直没有建立这些医疗机构的数据库。对这一数据库的需求将会越来越明显，尤其是奥巴马医改在2014年生效之后。18本文将讨论如何提高全国医疗网络中那些独立的基础医疗与公共卫生门诊的建筑与功能品质。
was created to assess, redefine, and redevelop Louisiana's network of then-132 freestanding program sites across Louisiana's sixty-four parishes (counties). This network consisted of nine regional offices, seven regional laboratories, seventeen specialty clinics, i.e. STD/STB clinics, and nine Children's Special Health Services (CSHS) clinics, and seventy-four parish health centers. This SFI program now stands as the longest running health agency-sponsored EBR&D effort of its kind anywhere in North America. Prior to 1990, Louisiana's network of public health facilities was uneven in quality. Each parish operated autonomously when it came to its clinic facility, without scant coordination or knowledge sharing between jurisdictions. However, every parish is mandated by the 1974 Louisiana State Constitution to pay for, build, and operate its own Parish Health Unit, and DHH-OPH is mandated to staff and operate every program site throughout the State. Suffic e to say, the situation across parishes was anything but equitable in terms of the architecture of this network. New facilities sometimes did not meet Americans With Disabilities Act (ADA) minimum standards for handicapped access; some even lacked sinks in exam rooms, and little concern was paid to patient privacy or confidentiality needs. As of November 1990, 66% of all DHH-OPH facilities had been housed in the same quarters for thirty years or longer. Nearly all of the program sites suffered from a chronic case of deferred maintenance. The system was broken.

The SFI process, beginning in the fall of 1991, first yielded an evidence-based compendium of 140 facility site planning and architectural design guidelines. These, each one page in length, augmented with graphic diagrams, were based on twenty-five on-site post occupancy evaluations. These twenty-five POEs consisted of photos, interviews, focus groups, and detailed walk-throughs. In addition, an 11-page statewide facility survey was administered statewide in 1991, 2003 and again in 2012. The survey's contents centered on external conditions such as on-site parking, nearby public transport, site lighting and the general aesthetic appearance of the exterior of the clinics. Interior issues studied covered the main waiting room and subwaiting room, sign-in station, patient intake/admissions, medical records storage and retrieval spaces, offices, storage spaces, examination rooms, laboratories, nutritional education rooms, workspaces for physicians and nurses, and staff break rooms. Lighting levels, privacy amenities for patients, and the overall appearance and condition of the interior of the facilities were also examined. The facility survey was completed by staff persons in every clinic and support facility in the statewide DHH-OPH network. The survey results were analyzed statistically and the results were translated into the 140 planning and design guidelines. These findings then became the basis of the design of all future renovated facilities and replacement facilities. Concepts (as translated from the survey evidence provided by the building users) included the importance of easy-to-navigate paths and corridors, effective directional signage, courtyards as spatial orientation devices, occupants' preference for nature and natural materials such as wood, natural daylight where feasible, meaningful views to the outside, sustainable design amenities such as solar and geothermal systems, and patient privacy.

Public Health Capital Improvements: 1990-2012
The SFI program's continuous operation since 1991 has been a testament to it being a win for the local community as well as a win for the statewide agency. Its longevity and continued financing has hinged on these five factors: strong grassroots local support, a demonstrated track record of beautiful new replacement facilities, a belief in the power of evidence-based healthcare research and design, perseverance on the part of the SFI team, and a statewide health agency with courage and vision. A total of sixty-five capital improvement projects have been successfully completed as of the

目全名为“战略设施提升计划”(Strategic Facility Improvement Initiative, 简称SFI)，旨在评估和改善路易斯安那州的医疗网络，包括当时68个县的132处独立运营的医疗机构。132处医疗机构9个地方办公室，7个地区实验室，17个专科门诊（如性病门诊，精神科门诊等）以及9个儿童专科医疗服务机构和74个县级医疗中心。SFI项目是经过20年范围广泛地做事情，由政府医疗机构提供资金的循证研究项目。(9)

1990年以前，路易斯安那州的医疗网络在质量上分布不均衡，每个县都有自建的门诊机构。在医疗网络内部缺乏信息共享和协调机制。根据1974年的路易斯安那州宪法，每个县必须出资建立并运营自己的县级医疗机构。同时DHH-OPH被要求提供医护人员并运营州内的所有设施。每个县之间的医疗设施建筑品质参差不齐。有些医疗设施甚至不能满足美国残疾人法案(ADA)里要求的无障碍通道的最低标准。有些在诊室中甚至没有洗手池，而病人隐私和保密的问题依旧没有被考虑到。1990年11月，DHH-OPH管辖下的医疗设施中，66%的诊所已经持续使用30年以上。几乎所有医疗设施都维护不善，医疗设施建设已经支离破碎。

SFI项目开始于1991年，140处医疗设施实施地的循证规划与设计原则的编写标志着项目的正式开展。每个设施有一份手稿以图例的说明，完全基于25处现场的使用状况评估。25处POE工作包括拍照，采访，目标组（focus groups）调查和现场调研组成。除此之外，1991年，2003年和2012年分别有3次11页长的关于医疗设施的问卷调查在全国进行。内容包括医疗设施的外部环境，如停车场，公共交通，场地照明和门诊外观赏审美评估，医疗设施的内部环境同样囊括在内，包括候诊大厅，候诊室，挂号处，住处，病案室，办公室，储藏室，诊室，化验室，非医疗康复室，医护人员工作间和休息室，照明水平，私密设施以及内部的视觉表现和条件也在调查范围内。调查问卷的对象是医院里工作的医护人员和DHH-OPH医疗网络内的医务人员，由统计分析，调查结果被应用在了前面提到过的140项设计导则当中。未来医疗设施和医疗设备更新所依据的基本准则，从调查结果中得出了一些比较重要的概念，比如导向明确的流线设计，有效的标识系统，有引导作用的庭院，使用者对自然和自然材料的偏好（例如木材），尽可能的自然采光，良好的视野，可持续设计的设施如太阳能和热地系统，病人的隐私保护。

公共卫生设施改进建设：1990~2012
SFI项目从1991年持续至今，已经开创了地方社区与州立医疗机构的双赢局面。这个项目得长线继续而且有资金支持。基于以下5个因素——强有力的民间支持，对更新后的高质量医疗设施的完善记录，以循证设计为指导，SFI项目组成员坚持不懈的努力以及全州医疗机构的勇气和远见，SFI共建56个重要改善项目于2012年顺利完成。其中41处为新建设施，15处为已建设施翻新及/或扩建。9处为替换为医疗功能的设
end of 2012. Of these, forty-one completely new replacement facilities were constructed, fifteen facilities were renovated and/or expanded, and nine existing buildings were adapted to healthcare uses. The average project planning phase, inception, to groundbreaking, was 12.8 months; average length of time from groundbreaking to opening day was 10.9 months. With respect to the distribution of construction activity, the average size of a new facility was 9,949 total building gross square feet (BGSF). This represented 407,909 total BGSF in new construction. Renovations and adaptive uses of existing buildings averaged 4,972 BGSF per project, totaling 119,328 BGSF. The average project cost $1,020,512 (unadjusted for inflation). Capital improvement expenditures across the nine administrative regions totaled $66.3 million. This construction activity has been counter-balanced to some extent by thirty (30) facility closures. The services housed in these clinics were consolidated into nearby existing facilities.

As mentioned, the SFI is the longest running EBR&D healthcare program of its kind. In Louisiana, most of the program sites in need of capital improvement are now done, although considerable work remains.22 A number of replacement facility projects remain in the planning stage at this writing.23 The SFI also responds to any clinic that has been damaged in recent Hurricanes. The 2012 statewide facility survey results once again reflected continued support of staff personnel for the SFI program. Staff often reported that a halo effect occurs whenever a new or renovated facility opens. The number of average monthly patient visits can rise as much as 20% as opposed to when the clinic was housed in its old quarters. Longtime patients often comment on the new clinic’s more inviting atmosphere and its uplifting aesthetics.

Two Case Studies

1. Clinic Center in Rayville

For thirty years, the health unit in Rayville, Louisiana was housed in the center of a town of 12,000 residents in a prefabricated mental structure it shared with a branch of the State Office of Social Services. In recent years the occupants had been forced to endure the stench of a broken sewer line running directly beneath the clinic. This, compounded by humid summer months. A section of a map that was drawn in the late 18th century, by the French cartographer Adrian Persac, illustrated every slave plantation parcel between New Orleans and Baton Rouge, on both sides of the Mississippi River. Each plantation was identified by its family name. Today’s pattern of asymmetrical plat boundaries endures as much as a fascination of tiling, interdependent geometries, as a testament to the bygone era of the antebellum Old American South (Figure 1).

The proposed replacement clinic for Rayville, designed by the author, houses an environmental health program, a clinical realm comprising six trans-programmatic exam rooms, and a clerical and administrative realm with a set of five combined intake-staff offices. Square footage totals 10,150, and the building is elevated four feet above the Mississippi River delta flood plain. The building’s “legs” provide structural support in this regard, and HVAC systems are supplied from beneath the main floor via an 18-inch depth interstitial two-way truss system (Figures 2-6). The parti features these planning and architectural concepts:

- Decentralization – the main vehicular and pedestrian access point to the building occurs near its midsection. This allows for direct access to either an autonomous environmental health module, to one side or the clinic on the other side of this arrival/patient drop-off drive.
- Flexible Configuration – the parti is transformable, able to take on any number of alternative shapes, from linear to curvilinear, re-configurable on sites elsewhere of varying size. Project from规划, 立项 (inception) 到动工。平均耗时12.8个月。工程从初步设计到交付使用平均耗时10.9个月；新项目平均建筑总面积为9,949平方英尺（约9924 m²）, 总计407,909平方英尺（约37,895 m²）。

重新设计的平均建筑面积为4,972平方英尺（约462 m²）；总计119,328平方英尺（约11,086 m²）。

设施改善平均每项目耗资1,020,512美元（不计通胀率）。9个行政区域的项目改善耗资总额约6,331,613美元。在新旧的结合中，有30个医疗设备被关闭。其中提供医疗服务数逐渐整合。

如文中所述的SFI是持续时间最长的建筑项目。路易斯安那州项目中大多数需要改善的工程已经完成。尽管还有大量的工作仍在进行。22本文成文之际，一些医疗设施更新的项目处在前期规划阶段。23这一期间最重要的医疗设施修复和维修工作也被列入SFI项目之中。2012年全州设施条件卷查结果再次反映了医护人员对SFI计划的支持。他们常反映，每一处新设施落成或旧设施翻新都会产生一定的连锁效应——新的医疗设施中的月均就诊人次比以前可明显增加20%以上。长期就诊的患者对新医疗设施普遍有积极的评价。认为就医环境更加亲切，美观。

案例研究

1. 雷维尔诊所

路易斯安那州雷维尔镇拥有1.2万居民。但位于雷维尔镇中心的医疗部门三十年来一直与州立社会服务办公室共用一个预设的金属结构建筑。近来，医护人员不得不忍受一条破损的污水管线在医疗中心下穿过污水管线，以及没有窗户的建筑，使医疗中心中的使用者们备受煎熬，尤其在漫长而潮湿的夏季。法国绘图员安德烈·帕萨克（Adrian Persac）18世纪晚期设计的详细地图——皮埃蒙特的西西里河下游地图——展示了密西西比河两岸新奥尔良与巴吞鲁日（Baton Rouge）（路易斯安那州首府）河段的所有历史种植园。每一处种植园都被标识出来并以园主家族名称命名。该地区在新呈示的平面图中，地理特征以河流为轴向两侧均衡分布，呈现出如挂毯一样的迷人的图案。这种挂毯交织的几何形状成为已经远去美国南北战争之前的“旧南方”见证（图1）。

雷维尔诊所医疗中心重建项目(笔者为该项目的设计师)包括一个环境医疗机构。由6间独立诊疗室组成的门诊区、由5间办公/会诊室组成的办公和管理区、建筑面积共10,150平方英尺（约943 m²）。建筑的总架空至密西西比河清水之上4英尺（约1.22 m）的高度，以支撑提供结构支撑，暖通系统被安装在建筑底层之下高18英寸（约46 m）。其双层框架结构体系中（图2-图6）其规划和建筑设计概念具有以下特点。

分散性——通往建筑的主要车辆行和人行通道位于建筑中央，从而使人们从这个落客区直接进入一侧独
proportions. Its pre-manufactured pods can be deployed in a horizontal accordi­
on-like or variable expansion depending on user needs.

Parking/Site Access — the separation of the environmental health program "build­ing" apart from the clinic "building" allows for options regarding the placement of parking areas, access drives, and pedestrian walkways leading to and from the facility.

Minimum on the Site Impact — the thin, linear footprint of the facility allows for the retention of the maximum amount of existing natural vegetation on its en­
vironmentally sensitive site. The building possesses 'lightness' in this regard as it appears to float above the ground plane. Its linearity also affords the direct trans­
mission of natural daylight into interior spaces.

Modularization — ten modular pods are structurally autonomous from one an­
other and yet interconnected and stabilized by steel tubular conduits. The legs of these pods are telescopic. These devices allow for variability in deployment, not unlike the elevated jet ways passengers use to embark and disembark airliners in an airport.

Sustainable Environmental Systems — the building parti’ minimizes the reliance on costly mechanical HVAC systems through the use of passive solar design tech­
techniques, including sunscreens, roof overhangs, and a geothermal system. The building maximizes sustainable 'green' building materials, furnishings, and fixtures throughout.

Decentralized Seating — the building is intensely human-scaled. Six window seat

Figure 1: Eighteenth-century map of lower Mississippi river, depicting slave plantation boundaries(left). Annotated floor plan of Rayville, Louisiana Clinic (proposal)(Right)
bays are placed along the clinic’s undulating pedestrian spine that allows views to the surrounding landscape. This precludes having to sit in an institutional ‘waiting room.’ As for personal space, five or six can sit comfortably here, or perhaps just a nurse and his/her patient, engaged in private consultation.

Flexible Room Spaces – the intake/Admit offices and exam rooms provide flexible space for transactions between the patient and the staff person, from private consultation to diagnostic/treatment use to small group meetings. The examination rooms can be converted in size via mechanically activated panels. Exam rooms are spacious, allowing nurse and physician to also use it for his or her administrative work.

Communal Spaces – the nutritional education kitchen doubles as subwaiting room and a staff conference room. A multipurpose community health education room is housed in the environmental health wing across the arrival/patient drop-off drive. These spaces feature natural daylight and views to the surrounding landscape.

2. New Campus of Clinic Center in New Iberia

Numerous replacement facilities have opened recently, including the new campus in New Iberia, Louisiana (2012). It was designed by the Architects Design Studio (Figure 7) in consultation with SFI project team (including this author). As with other replacement facilities, EBR&D directly helped shape the architecture. The main clinic, its porte co’here and an adjoining environmental health building are connected by a covered walkway (7a). The interior of the facility is attractive and presents a positive, dignified image to its users, with a large main waiting room that adjoins a sign-in station, five spacious intake/clerical offices, and a Vital Records Office for birth certificates and death certificates. Large full height glass doors allow the staff to maintain direct visual contact with the main waiting room without compromising patient confidentiality during intake interviews (7b). The clinic laboratory is linked to an adjoining restroom for use by patients for them to provide

...
pass through specimens through a 1' x 1' stainless steel portal (7c). The intake/clerical offices are spacious (7d). The examination rooms are equipped with a gowning alcove, a flex exam table, sink, charting desk, and supply cabinets. This zone double functions as a nurse/physician workstation (7e). The environmental health program section in the adjoining building features a main waiting area, open plan work area, the laboratory for field specimen storage, and offices for Parish Sanitarians who inspect food establishments, water quality, and who review all sewerage permits for new construction in the local community (7f). The nutritional education demonstration kitchen is configured to simulate the scale and function of a residential kitchen (7g), and an electronic, modular, Spacesaver system houses the medical charts that are non-digital (7h).

Summary
In EBR&D, the daily inhabitants are viewed as possessing knowledge and insights of importance. The sponsoring client, medical planner, interior designer, landscape architect, medical equipment and furnishings specialist, and the Project Architect can all benefit. Too often, unfortunately, the role of the day-to-day occupant is overlooked, or dismissed entirely as a resource. But this is not the way it has worked in the SFI program. The experience and preferences of the direct occupants – staff and patients – have functioned as the bedrock foundation of the SFI and its metrics in Louisiana. The core philosophy of the SFI program is the belief in the importance of early intervention with the building’s users – with this step being essential to the overall success of any construction project. Choosing the most suitable location to build a replacement facility has proven in many cases to be painstaking, requiring weeks, months (even years) of deliberations, and at times, political setbacks. All this, even before the architect is hired. Is the best strategy renovation, new construction, or building in place?

In EBR&D, the daily inhabitants are viewed as possessing knowledge and insights of importance. The sponsoring client, medical planner, interior designer, landscape architect, medical equipment and furnishings specialist, and the Project Architect can all benefit. Too often, unfortunately, the role of the day-to-day occupant is overlooked, or dismissed entirely as a resource. But this is not the way it has worked in the SFI program. The experience and preferences of the direct occupants – staff and patients – have functioned as the bedrock foundation of the SFI and its metrics in Louisiana. The core philosophy of the SFI program is the belief in the importance of early intervention with the building’s users – with this step being essential to the overall success of any construction project. Choosing the most suitable location to build a replacement facility has proven in many cases to be painstaking, requiring weeks, months (even years) of deliberations, and at times, political setbacks. All this, even before the architect is hired. Is the best strategy renovation, new construction, or building in place?

In EBR&D, the daily inhabitants are viewed as possessing knowledge and insights of importance. The sponsoring client, medical planner, interior designer, landscape architect, medical equipment and furnishings specialist, and the Project Architect can all benefit. Too often, unfortunately, the role of the day-to-day occupant is overlooked, or dismissed entirely as a resource. But this is not the way it has worked in the SFI program. The experience and preferences of the direct occupants – staff and patients – have functioned as the bedrock foundation of the SFI and its metrics in Louisiana. The core philosophy of the SFI program is the belief in the importance of early intervention with the building’s users – with this step being essential to the overall success of any construction project. Choosing the most suitable location to build a replacement facility has proven in many cases to be painstaking, requiring weeks, months (even years) of deliberations, and at times, political setbacks. All this, even before the architect is hired. Is the best strategy renovation, new construction, or building in place?

In EBR&D, the daily inhabitants are viewed as possessing knowledge and insights of importance. The sponsoring client, medical planner, interior designer, landscape architect, medical equipment and furnishings specialist, and the Project Architect can all benefit. Too often, unfortunately, the role of the day-to-day occupant is overlooked, or dismissed entirely as a resource. But this is not the way it has worked in the SFI program. The experience and preferences of the direct occupants – staff and patients – have functioned as the bedrock foundation of the SFI and its metrics in Louisiana. The core philosophy of the SFI program is the belief in the importance of early intervention with the building’s users – with this step being essential to the overall success of any construction project. Choosing the most suitable location to build a replacement facility has proven in many cases to be painstaking, requiring weeks, months (even years) of deliberations, and at times, political setbacks. All this, even before the architect is hired. Is the best strategy renovation, new construction, or building in place?

In EBR&D, the daily inhabitants are viewed as possessing knowledge and insights of importance. The sponsoring client, medical planner, interior designer, landscape architect, medical equipment and furnishings specialist, and the Project Architect can all benefit. Too often, unfortunately, the role of the day-to-day occupant is overlooked, or dismissed entirely as a resource. But this is not the way it has worked in the SFI program. The experience and preferences of the direct occupants – staff and patients – have functioned as the bedrock foundation of the SFI and its metrics in Louisiana. The core philosophy of the SFI program is the belief in the importance of early intervention with the building’s users – with this step being essential to the overall success of any construction project. Choosing the most suitable location to build a replacement facility has proven in many cases to be painstaking, requiring weeks, months (even years) of deliberations, and at times, political setbacks. All this, even before the architect is hired. Is the best strategy renovation, new construction, or building in place?

In EBR&D, the daily inhabitants are viewed as possessing knowledge and insights of importance. The sponsoring client, medical planner, interior designer, landscape architect, medical equipment and furnishings specialist, and the Project Architect can all benefit. Too often, unfortunately, the role of the day-to-day occupant is overlooked, or dismissed entirely as a resource. But this is not the way it has worked in the SFI program. The experience and preferences of the direct occupants – staff and patients – have functioned as the bedrock foundation of the SFI and its metrics in Louisiana. The core philosophy of the SFI program is the belief in the importance of early intervention with the building’s users – with this step being essential to the overall success of any construction project. Choosing the most suitable location to build a replacement facility has proven in many cases to be painstaking, requiring weeks, months (even years) of deliberations, and at times, political setbacks. All this, even before the architect is hired. Is the best strategy renovation, new construction, or building in place?
struction, or a combination of both? The project scope, construction and furnishings budget, and the construction site must be established. The reader is referred to Verderber and Kimbrell (2005) for a broader discussion of the SFI protocols, its operationalization at the local community level, and its broader health policy implications. In rural towns and villages across the U.S., a new healthcare facility is an important addition to the community. A beautiful new freestanding outpatient clinic can rival a new public library – as symbols of civic pride and accomplishment. A new clinic in one town will often spark a competitive spirit, with a neighboring town soon electing to follow suit. This is a positive trend and is to be encouraged. Louisiana is a state that persistently ranks at or near the bottom in national health statistics. It has one of the highest poverty rates, lowest median income levels, and highest percentages of uninsured. Approximately 947,000 residents lived below the poverty line in 2011, the state’s poverty rate was 21.1% (second highest in the nation), and the median family income was $40,658 (ranking 46 out of 50 states). Worse, 20.8% of its residents, or 938,000 persons, did not have private health insurance of any sort. Only Texas and Nevada had higher rates of uninsured citizens.

In Louisiana, stubborn rivalries still linger between urban, suburban, and rural communities over the equitable distribution of very limited taxpayer dollars. The SFI and its use of EBR&D transcend political rivalries and turf wars while concurrently embracing local vernacular architecture traditions. As for the Architect, his or her legal responsibility is to serve the best interests of the public’s “health, safety, and welfare.” Unfortunately, the promise of EBR&D in the service of the medically underserved remains largely unfulfilled. Many architects in the United States, and globally, are about to be called upon to rethink their position in this regard. Architectural advancement requires a disciplined commitment to move beyond the status quo. More than 31 million more Americans soon will have healthcare insurance coverage as provided through the Affordable Care Act of 2010. For the first time in many decades, a new source of funds will be available for building new and replacement freestanding outpatient care clinics in medically underserved neighborhoods, towns, and cities. This has not occurred since the demise of the federally funded Hill-Burton capital construction program for national hospital and clinic construction. This program ran from 1946 to 1971.

Patient advocacy – for persons with health disparities – has been at the heart of this twenty-one year program. Sadly, many medically underserved, along with their caregivers, continue to coexist in overcrowded, dysfunctional settings. All this, while governance sector health care providers are being called upon to do more yet with fewer fiscal resources due to budget cutbacks. One highly promising means to increase patient access to care, especially in rural locales, is to bring mobile health clinics into the healthcare delivery system in places where patient access to care remains limited. The absence of a fixed site, permanent clinic will not suffice. These clinics-on-wheels are redeployable, versus always opting to construct a stationary “permanent” building. Furthermore, a mobile clinic is far less costly to build, operate, is less taxing on the environment, and can help alleviate chronic funding shortfalls on the part of the care provider organization. The alternative is unacceptable – coping with an overcrowded forty to fifty year-old fixed-site clinic plagued with a leaky roof and a gravel parking lot, with little hope of meeting federal Health Information Privacy and Protection Act (HIPPA) or federal Americans With Disabilities Act (ADA) minimum facility design and construction standards. Innovative fixed-site and transportable architectural solutions are needed. There has perhaps never been a more opportune moment in the U.S. to innovate – reinvent – freestanding outpatient clinic building types for the medically underserved.
注释

[1] 1965年，美国国会通过了《老年医疗照顾计划》（Medicare，简称医疗照顾）和《穷人医疗援助计划》（Medicaid，简称医疗援助）两大公共医疗保障计划。医疗照顾和医疗援助的基本目标是向老年人、残疾人和穷人提供平等的就医机会。


[2] 证书设计（Evidence-Based Design）的概念是从循证医学（Evidence-Based Medicine）的概念中推演出来的。在美国循证医学与设计领域被广泛采纳的定义是由美国学者柯克·汉密尔顿（Kirk Hamilton）提出的。证书设计是谨慎、明确和明智利用现有最完善的研究证据来指导设计实践和设计决策。


这一针对项目特性的设计过程尤其适用于医疗设施规划与设计。研究成果来自于严谨的学术研究以及工程项目的使用状况评估。


参考文献


[18] Moffit D. Compassion in architecture: evidence-based design for


