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# Evidence-Based Design for Healthcare in Post-Katrina New Orleans: Current Dilemmas

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## Abstract

New Orleans continues to struggle to rebuild from the devastation inflicted by Hurricane Katrina in 2005. More than 1,800 perished in its aftermath. Katrina stands as the costliest catastrophe in U.S. history, and the city's healthcare infrastructure is similarly striving to resuscitate itself. The incorporation of evidence-based design and research (EBD&R) in the reconstitution of the city's healthcare infrastructure offers a promising direction to improve healthcare outcomes. Recent efforts to incorporate EBD&R in New Orleans' recovery are summarized. EBD&R interventions are needed that take certain key dilemmas into consideration—embracing the adaptive reuse possibilities of historic healthcare facilities, private-public sector collaborations in acute care and in neighborhood-based outpatient care environments, and interventions to serve the city's growing population of medically underserved residents.

**Key Words:** *Evidence-based design, adaptive reuse, historic healthcare facilities, private-public sector collaborations, acute care, neighborhood-based outpatient care, Hurricane Katrina*

### *Introduction*

New Orleans continues to struggle to recover from the near-death blow inflicted by Hurricane Katrina in 2005, and the city's healthcare infrastructure remains on life support. The prospect of effective local political leadership remains marginal at best, and federal red tape is having a numbing effect on rebuilding efforts. Skyrocketing insurance and construction costs, crime, and civic uncertainty are compounding matters. More fundamentally, the federal levee system remains subpar, with few improvements having been made toward a bona fide Category 5 federal hurricane protection system for the city and region. Against this backdrop, the metro area's healthcare system has been decimated, including the loss of 90% of its mental health specialists at a time when suicide and chronic depression rates are significantly higher than those of the rest of the nation. Major healthcare facilities have been permanently closed, including the Lindy Boggs Medical Center in Mid City, Chalmette Medical Center, Charity Hospital, and a number of nursing homes, including one of the oldest nursing homes in the United States (Maison Hospitaliere, located since 1843 in the Vieux Carré). Nearly a dozen neighborhood-based outpatient care clinics were ruined in addition to dozens of private physicians' offices, counselors' offices, and dental clinics. Only one general hospital is functioning at pre-Katrina capacity, and 16,800 fewer healthcare sector jobs exist (down 27%) in the post-Katrina urban landscape (Eaton, 2007).

More than 1,800 persons died in the disaster, and nearly 200,000 former residents of the city continue to live elsewhere in one of the largest diasporas in U.S. history. For most Americans it continues to be difficult to comprehend the sheer magnitude of the upheaval caused by this catastrophe. Tens of thousands of would-be returnees remain unable to rebuild their ruined homes and businesses. The U.N. refers to these individuals as *internally displaced persons*. Since Katrina, the metro area's remaining hospitals have lost nearly $50 million in the provision of uncompensated care for the uninsured. This has been largely the result of the closure of Charity Hospital. In the central business district (CBD), Katrina's floodwaters inundated Charity Hospital (its official name is the Medical Center of Louisiana at New Orleans) and the adjacent Department of Veterans Affairs (DVA) Medical Center complex. This iteration of Charity Hospital is the fourth facility on the site, having first opened its doors in 1938. The nearby DVA hospital opened in 1949.

The major focus of the evidence-based design and research (EBD&R) movement has been on the improvement of patient outcomes primarily through new construction. The bulk of research funding has focused on new construction (Ulrich, Quan, Zimring, Joseph, & Choudhary 2004). Through a $1.2 million Robert Wood Johnson Foundation (RWJ) grant to the Medical Center of Louisiana Foundation, a team from Georgia Tech is conducting a much-needed, multiphased research study of the role

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of evidence-based design in the design and construction of six or more neighborhood-based primary care clinics (Bafna, Choudhary, & Zimring, 2007) to be operated by the Louisiana State University Health Sciences Center in New Orleans (LSUHSC). Concurrently, this team is researching a protocol to similarly inculcate EBD&R in the planning and design of the 400-bed LSUHSC replacement hospital in New Orleans. The work is centered on patient outcomes, safety, satisfaction, the promotion of staff retention, and service efficiency. The replacement facility is to be built on a 74-acre tract at the edge of the CBD. The collaborative team of NBBJ's Columbus and Portland offices is designing the replacement facility, in collaboration with the New Orleans firm of Eskew/Ripple/Dumez (Moller, 2007).

However, for EBD&R to fully take root in post-Katrina New Orleans, certain prerequisite conditions are essential to ensure the attainment of successful patient and staff outcomes. This said, it is recommended that three current dilemmas, i.e., challenges, associated with rebuilding be taken into consideration in current and future EBD&R initiatives in New Orleans' healthcare milieu.

## The Function of Memory and Place

Everyone in New Orleans knew of Charity Hospital. It was the place where virtually all uninsured persons received their care, and with 15 floors, its sheer physical presence weighed heavily in the city's collective psyche. Charity Hospital was an architectural landmark, a cultural touchstone, and a place widely celebrated in song and verse. It is impossible to overlook the importance of this esteemed municipal hospital in the everyday life of the city. Charity was a place where generations worked, worshiped, socialized, grieved, commiserated, and celebrated life. Places such as this in the United States have proven to be at once ordinary, transcendent, and inimitable (Hayden, 1995).

If a city's urban landscape is the manifestation of its citizens' shared sense of purpose and identity (Groth & Bressi, 1997), then in the case of New Orleans, the function of Charity Hospital—symbolizing both the best and worst at the intersection of health inequities, race, class, and urban cultural history—continues to merit attention at this critical juncture in its long history if for no other reason than because it is an undeniable part of the cultural mosaic of New Orleans. Paradoxically, in the aftermath of Katrina, New Orleans is destroying its 20th century landmarks at an alarming rate, and many important buildings worthy of placement on the National Register have already fallen to the wrecking ball (MacCash, 2007; Verderber, in press).

This art deco landmark was the premier urban hospital in the United States at the time of its opening. Franklin D. Roosevelt presided over the dedication ceremony. It is considered a classic high-rise Nightingale Hospital because of its open wards, stacked atop one another, comprising its two wings. A basketball court is

**Figure 1.** Charity Hospital, New Orleans, 1938.

housed on the top floor, and the hospital's lobby is adorned with exquisite art deco ornamentation. It was among the most elaborate art deco buildings built in the city (Figure 1). At the street, two exquisitely scaled one-level structures act as sentries guarding the main entrance. When it opened, one "sentry" served as a commissary, the other as a gift shop. The Daughters of Charity founded the original hospital in 1736 (Katz, 1992). The then magnificent-gesture hospital of 1938 was the fourth built on roughly the same site and was an exemplary skyscraper Nightingale hospital of the period, a peer to the Hospital Beaujon in Paris, which opened three years earlier (Thompson & Goldin, 1975).

A growing body of evidence-based outcomes in cities across the United States points to the fact that historic hospitals can have new lives. It is within this context that historic preservation, new construction, and EBD&R need to be viewed together, seamlessly, as interventions fully capable of functioning in synchronicity. Saving old healthcare facilities may, in fact, in certain cases actually conserve energy, lessen the consumption of finite natural resources, and contribute to a project's carbon neutrality. Green, i.e., sustainable, healthcare environments—old and new alike—will remain at the forefront of concern throughout this century in the face of global climate change, and historic healthcare environments will not be immune to pressures to save them if at all possible, because they too symbolize a growing movement to conserve American cultural and civic landmarks (Verderber & Fine, 2000). Advocates of EBD&R and historic preservationists in the healthcare milieu should identify ways to work together rather than be at odds with one another (even unknowingly, if this is the case) to broaden the parameters of what is considered "evidence" in this process. It may be difficult to reach consensus at first because of differences in jar-

gon: the field of historic preservation does not (yet) use the term EBD&R. Preservationists typically use terms such as *due diligence*, *cultural inventory*, *recognizance*, *archival research*, and *fieldwork* to define the ways in which they gather evidence. However, this is a comparatively small hurdle to overcome.

### Placemaking in the Healthcare Milieu

Without question, New Orleans can benefit greatly at this time from an infusion of EBD&R in the planning and design of the full spectrum of healthcare facilities, e.g., primary care clinics, mental health clinics, public health centers, long-term care, hospices, and inpatient acute care settings. This need is great, particularly regarding the intersection of care typology with preservation efforts in historic city centers like the one in New Orleans. Clemson University's Graduate Program in Architecture + Health (CU/A+H) in 2007 initiated a project to focus concurrently on these multiple concerns in the context of the persistent healthcare crisis in post-Katrina New Orleans. In the fall of 2007 a pair of design studios, one at the undergraduate level and one at the graduate level, explored architectural interventions. The city's delicate, unique historical and cultural fabric was the core focus, as well as the application of existing EBD&R knowledge. The undergraduate design studio incorporated EBD&R in the planning and design of a 12,000-square-foot primary and public healthcare clinic, and adjacent to the clinic, 15 affordable apartments earmarked for healthcare professionals returning to the city. The site is in the Central City neighborhood, an area that did not flood in the aftermath of Katrina. The students based their solutions on a set of 145 empirically based design guidelines on this building type, addressing site planning, clinic design, community outreach functions, and mixed-use design concepts. This compendium had been the outcome of 15 years of EBD&R work in Louisiana (Verderber, 2005), and was inspired by pattern-language paradigms (Alexander et al., 1977). This initiative, known as the *strategic facility improvement* process, is centered on the critical importance of what occurs *within* the building envelope as much as what occurs *beyond* it in the community setting, and this work received national recognition in the form of a *Places* Research Award in 2006 (Moffat, 2006).

The CU/A+H graduate studio focused on the site planning and schematic design of the LSUHSC replacement hospital and the DVA replacement hospital on the aforementioned 74-acre site adjacent to downtown. For the DVA portion of the shared campus, the functional program consisted of 300 inpatient beds, and the DVA off-campus portion called for 250 inpatient beds with a common support platform comprising central materials management, power plant, parking, and food services. The design challenge was to insert a large-scale medical center campus into a fragile, historic neighborhood. This neighborhood had been at the center of the city's German immigrant population in the late-19th and early-20th centuries. The proposal of one team (Julie Havens, Alexandra Hill, and Lacy Geary) featured a series of courtyards and a newly created park around which various buildings are deployed in a village cluster (Figure 2). A public park was created in a section of the city that did not previously have a single park nearby. A total of 12 residences and small businesses deemed worthy of preservation were relocated to vacant parcels of land at the edge of the 74-acre site. The existing network of dysfunctional streets and sidewalks was completely rebuilt, with a canopy of the city's signature live oak trees planted (reinstated, in reality, as they had been destroyed over the decades) to create shade for people walking and cycling within the medical district and to and from the surrounding neighborhoods. These health-promoting interventions were therefore centered on outdoor activity and exercise.

### The Needs and Aspirations of the Medically Underserved

The health needs of the medically uninsured remain acute in post-Katrina New Orleans. Forty-seven million Americans lack medical insurance, although the South has the highest percentage of uninsured—19% (compared to 15% nationwide). With a statewide population of 4.2 million, the number of medically uninsured in Louisiana in 2007 (750,000) exceeded the national percentage rate. It is well known that medically underserved populations have less access to care options in their communities and consequently

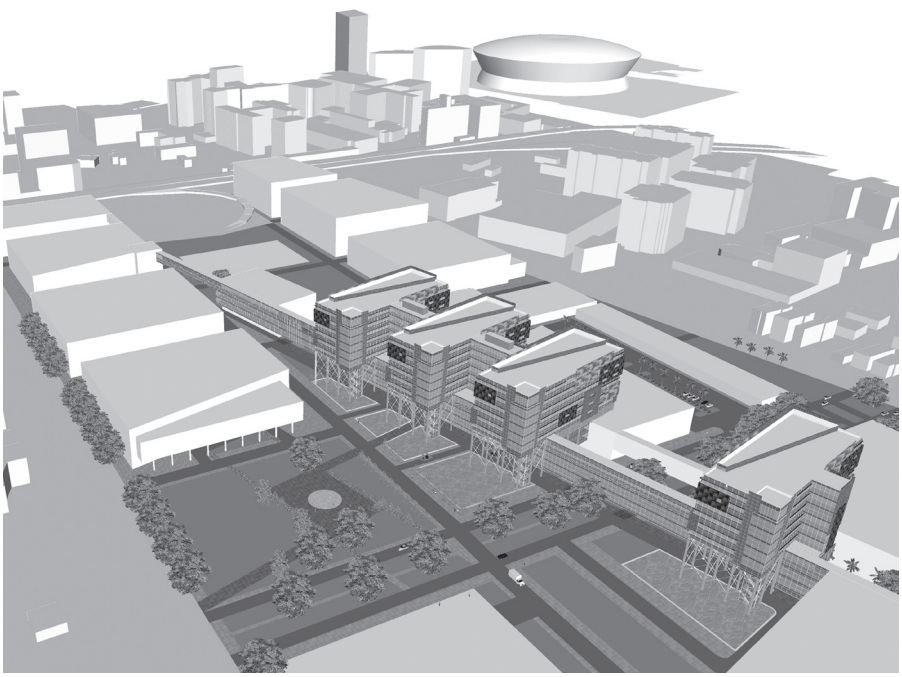

**Figure 2.** CU/A+H proposal for LSUHSC and DVA replacement hospitals, 2007.

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appropriate, timely diagnosis and treatment of illness often is postponed until the last minute. Lack of choice and unawareness of care options are core impediments. Because they wait until their condition becomes critical, the uninsured converge upon the already overburdened emergency departments of hospitals, both public and private.

Louisiana continues to operate the only freestanding network of hospitals in the nation that exists solely to care for the poor and uninsured. The nine public hospitals that constitute the Charity Hospital system continue to be the source of a tremendous amount of political patronage. This has been so since their establishment early in the 20th century by the infamous Governor Huey P. Long. In a move that has exasperated supporters of the Charity system, since Katrina the U.S. Department of Health and Human Services has sought to dismantle the "brick and mortar" aspects of the Charity facility network. This effort has been met with tremendous political resistance locally. Regardless, the RWJ/LSUHSC partnership with Georgia Tech is a positive early step toward applying EBD&R to the needs of the medically underserved. Public-private partnerships such as this are essential if New Orleans is to meet the needs of its medically underserved population adequately. The fact remains, however, that an evidence-based paradigm for health promotion for this marginalized constituency can and should embrace a mix of historic preservation, new construction, neighborhood-building, and public-private partnerships.

### *Summary*

This discussion has been limited to three dilemmas currently facing healthcare environments in post-Katrina New Orleans, although the core thesis is transferable to other places. The three dilemmas discussed are worthy of consideration in ongoing and future EBD&R efforts. Charity Hospital is a civic landmark—the birthplace of many of New Orleans' most famous residents, including Louis Armstrong. Against this backdrop, *no plan whatsoever* is underway to adapt either Charity or the DVA medical center to these altered circumstances. The argument here has not been to keep Charity as an acute care institution. Neither is demolition an acceptable strategy, because it is counter-sustainable and cuts at the heart and soul of the city's extremely deep cultural traditions. There is no "addition by subtraction" in this case. However, both it and the vacant DVA medical center hold much promise for adaptation to affordable housing for returnees, for long-term care, and/or for the creation of dormitory space and offices for the adjacent Tulane University and LSU health science campuses.

Sadly, New Orleans is experiencing a striking level of disinvestment in the private business sector (White, 2007). In this regard, many options exist for their conversion to accommodate biotech start-up companies. Unfortunately, the longer these facilities remain mothballed in a deteriorating state, chances to save them diminish. Meanwhile, private investors have shown little interest in applying for Gulf Opportunity, or *GO Zone,* federally backed tax-exempt bonds for any redevelopment initiatives in the downtown medical district. Making a bad situation worse, the 200-bed 1960s-era Lindy Boggs Medical Center in Mid City is being demolished this year by a Florida real estate developer to make way for a parking lot for a "big box" mall, with no discussion of the merits of its adaptive reuse having taken place (DeGregorio, 2007).

This discussion is a call for EBD&R in the health milieu and the historic preservation of healthcare facilities not to remain mutually exclusive. In times of crisis we all have to think outside the lines. In Chicago a battle is underway between preservationists and healthcare administrators to save the National Register-listed Cook County Hospital (1914) from destruction (Landmarks Preservation Council of Illinois, 2003). In fact, in 2007 Cook County was added to the list of the 11 most endangered places in the United States (National Trust for Historic Preservation, 2007). Proponents of EBD&R can advocate the preservation of historic places and their adaptation to new healthcare uses *or* to non-healthcare uses in the service of medically underrepresented populations. The 2001 demolition of Passavant Hospital in Chicago (Simon, 2002), designed by the Chicago firm of Holabird & Root (1929), symbolized the dismissal of an historic urban hospital as a meaningful *place* within that city's cultural fabric (Figure 3). Too many historic urban hospitals have been senselessly destroyed in the past decade (Gibson, 2006; Levi, 2007). Charity and the DVA hospitals in New Orleans need not meet a similar fate, at least not without having first explored viable alternatives through the lens of EBD&R.

Recent case studies of adaptively transformed former hospitals are numerous and include a Naval Hospital (Chelsea, NY, adapted to 750 apartments in 2001), Bradley Hospital (Bay City, MI, converted to 180 apartments for the aged in 2003), the former New England Hospital for Women and Children (Roxbury, MA, converted to a substance abuse treatment center in 2004), the Maine Eye and Ear Infirmary (Portland, ME, adapted to 36 residential units in 2005), the former City Infirmary and Almshouse (Poughkeepsie, NY, adapted to 85 residential units for the aged in 2004), St. Luke's Hospital (Chicago, adapted to 286 apartments for the aged in 2004), and the Newberry Hospital, completed in 1924 (Newberry, SC, adapted to 36 residential units for the aged in 2003).

Projects in the works to reclaim historic American hospitals at this writing include the former U.S. Public Health Service Marine Hospital in the Presidio in San Francisco, completed in 1932 (conversion to 250 residential units, scheduled for completion in 2009); the aforementioned Cook County Hospital in Chicago (proposed conversion to 320 loft mixed-income residences); the Naval Hospital in Washington, DC, completed in 1865 (converted to The Hill Center, a community performing arts and lifelong learning center); the Chestnut Lodge Asylum, completed in 1887 in Rockville, MD

**Figure 3.** Passavant Hospital demolition, Chicago, 2001.

(converted to seven condominiums); and the Malcolm Bliss Hospital in St. Louis, completed in 1924, adapted to 44 mixed-income condominiums (Jordan, 2006). In addition, the green movement in healthcare design needs to fully embrace the virtues of adaptively transforming historic former-hospital facilities. Accrued benefits include prime sites in established neighborhoods, solid standards of construction, and the creation of walkable neighborhoods, and hence, healthier communities.

In the aftermath of a catastrophe as immense as Hurricane Katrina, an expanded theoretical and operative paradigmatic framework for EBD&R is a logical step. This can expand its sphere of influence in the areas of public policy, private sector entrepreneurship, urban redevelopment, and the mind of the general public. Otherwise, a unique opportunity will have been lost—the opportunity to simultaneously position EBD&R at the forefront of contemporary health culture, American urban medical history, and meaningful placemaking for people in the urban environment.

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