B|W|B|R

INVESTING IN BEHAVIORAL HEALTH FOR BETTER OUTCOMES
Value-driven facility improvements to promote more effective care

Rick Dahl, AIA and Scott Holmes, RA, ACHA, LEED AP

EXECUTIVE SUMMARY

Construction costs for most health care projects are often viewed through the lens of cost-per-square foot or cost-per-bed. The challenge with such views is that they may overlook the qualitative and effective strategies that could improve outcomes, reduce staff injuries, and change the way the community looks at mental health care. Changing the view to see costs through the lenses of operations, opportunities, and society, new valuations emerge to measure the investments in behavioral health spaces.

The conversations around mental health are improving, but there is still much to do. How and where we offer mental health care matters.

It is not an easy path. Organizations providing behavioral health care struggle with reimbursement rates, staff recruitment and retention, aging facilities, insufficient policies, lack of education about mental illness, and societal stigma. Finding the pathways to overcome these barriers will not be done by any single entity; rather, it will be achieved by a larger community determined to invest in higher quality care for those with mental illness and for preventative care and well-being. The World Health Organization advocates for such an approach, including investing in the global health community, raising awareness through education and advocacy, building community mental health services, developing

behavioral health services in general hospitals, and promotion of self-care, among others (World Health Organization, 2012).

HOW CAN ARCHITECTURE AND DESIGN BE A LARGER TEAM PLAYER IN THIS DETERMINED COMMUNITY?

Resources are finite and often scarce. Investing in facilities, whether new buildings or improvements to existing, have a perceived cost impact on the health organization.

These investments are substantial and need to be a conversation not just about construction dollars, but about optimizing the investment to bring more value and achieve better outcomes. Design involves making literally hundreds of choices, large and small, each one balancing functional needs, aesthetics, sustain-

ability, and operational considerations with the desire to improve the patient experience, ensure the safety of staff and patients, and improve patient outcomes.

Specifically in behavioral health facility design, strategies such as sensory rooms, specialty lighting, and reduced noise-emitting mechanical systems are premium targets to be cut because their value is misunderstood and may only be looked at in terms of increasing overall costs. Often, costs are scrutinized as a cost-per-square foot or cost-per-patient bed. While these are common benchmarks in the architectural industry, many factors easily overlooked are important in considering the aggregate cost of any facility — including first costs, operational costs, opportunity costs, and societal costs.

FIRST COSTS

Construction of U.S. specialty hospitals is increasing. In the 2017 Healthcare Construction Survey, 50% of health care organizations indicated a behavioral health specialty hospital project is planned or already in construction. Of the health care construction currently underway, 5% is focused on behavioral health services, with plans to triple the behavioral project construction over the next three years (Health Facilities Management/ASHE, 2017). This is a significant increase to the industry, requiring a need to expand knowledge around costs, value, and best practices for behavioral health facilities.

First costs for a new or renovation project are based on several factors and are often the driver behind most project-related decisions. Health organizations are pressured to take into consideration the expense of facilities with their increasingly thin margins. The total first cost of a building takes into account building construction, cost of land and utility hook-ups, design fees, and all the furniture, fixtures, technology, and equipment. These costs will vary depending on the size, scope, and function of a facility.

For new facilities, one of the higher magnitude expenditures may be land acquisition, particularly in urban dense locations. For suburban- or rural-based new facilities, higher costs may be associated with gaining access to utilities. Renovation projects have a unique set of constraints, often basing improvements on older building planning models, limiting the opportunity to introduce innovative concepts and strategies such as spaces that allow for large muscle movement (e.g., yoga, fitness), which has been shown to effectively support therapy and care models. Each facility is unique in supporting the broader goals and patient outcomes set forth by the organization and, as such, will have exclusive programming designed to support the desired care model.

Behavioral health facilities necessitate unique design strategies for safety, security, and durability. Features such as anti-ligature hardware and fixtures, sally ports, and stable furniture are important to allow caregivers to provide successful treatment. Additional, and equally important, features are intentionally created to set a calmer tone and support the comfort, dignity, and therapeutic needs of the patients.

An environment that is beautiful and evokes feelings of calm is respectful for patients, in lieu of a harsh institutional environment, and can provide a sense of reassurance for patients seeking care who find themselves in unfamiliar surroundings. Features such as sensory rooms and meditation spaces can greatly impact therapeutic responses by offering choice and control in how one interacts with their environment and how patients can utilize these features to help themselves self-regulate and develop coping skills (Trzpuc, Wendt, Heitzman, Skemp, Thomas, & Dahl, 2016).

It is imperative to avoid the temptation of eliminating many of these features from the planning when analyzing quick cuts for first costs, as many of the most effective design strategies are found in small details and spaces.

DESIGN STRATEGIES TO SUPPORT EFFICIENCY

» Nurse stations with direct, open views to dayrooms, corridors, and other shared patient spaces offer efficiency for staff supervision. Open nurse stations (versus enclosed) can encourage higher interaction levels with patients, which can contribute to less violence and greater satisfaction (Christenfeld, Wagner, Pastva, & Acrish, 1989, Ulrich, Bogren, & Lundin, 2014).

» Incorporate Lean planning strategies for supplies and medication storage and flows aimed to reduce the number of staff miles walked per day and therefore, allowing more time spent in direct patient care.

» Look for opportunities to share support spaces between behavioral units when space is limited. Often, behavioral health facilities are relegated to outdated areas of a hospital and are challenged to support modern planning concepts for efficiency and safety.

OPERATIONAL COSTS

While the first costs such as construction are important, long-term operational costs are the most expensive part for any organization. A successful building design must have a clearly defined mission, be based on a detailed operational plan, and support the operational program. Every design idea has a cost implication and needs to be carefully considered for the value it brings to the project and organization's goals. Traditional operational considerations focus on building maintenance and material selection. While these are important to any project, design considerations for behavioral health care facilities can have a far greater impact on daily and annual organizational operating costs, not just building operations.

Efficiency

The most expensive component of operating a behavioral health hospital is the staff. Reducing fatigue, improving safety, and increasing staff satisfaction all become goals for a newly designed unit. Facility design must strive to be efficient for optimizing staffing needs and maintaining a safe environment. Several factors affect staffing plans for behavioral health units: patient characteristics, patient flow, nursing qualifications, skill mix, technology, care delivery model, finances, and the physical environment. The American Psychiatric Nurses Association (APNA) (2012) notes the physical layout, design, and age of facility to be contributing factors in developing an appropriate staffing plan to achieve optimal patient, hospital, and staff outcomes.

The physical environment directly and indirectly impacts eight major workflows: admission-discharge-transfer, communication, care delivery, medication, documentation, patient movement, management of supplies and equipment, and care coordination (APNA, 2012; Bolton, Gassert, & Cipriano, 2008).

Flexibility of Space

As with many specialty facilities, it is common practice to design a space to serve a single purpose — operation room, recovery room, or an isolation unit with negative air flow. Specific medical equipment, containment requirements, or workflow support often necessitate such design strategies.

In behavioral health, the very nature of the illness — mental rather than physical — presents a different challenge to such a specialized unit. Rigidity must give way to flexibility to serve patients who present with varying diagnoses that manifest into individual and unique behavioral issues. Coupled with diverse age groups and gender cohorts as well as unpredictable census volumes on a day-to-day basis, the operations of a behavioral health unit demand a space that can flex with the daily flow.

Behavioral health facilities can offer a unique opportunity to offer more flexibility in how some spaces are used. Flexibility means a space can be multi-functional and adaptable to the changing care protocols or patient census. Greater flexibility in space utilization can have a direct impact on square footage needed for the space program.

Safety and Security

Safety is considered on an acuity level ranging from outpatient clinics and partial hospitalization to the highest acuity level — those receiving long-term treatment at state institutions for severe mental health diagnoses and dangerous histories. Generally speaking, the higher the acuity, the higher the cost. The costs for care is especially high for medically complex patients (those presenting with a behavioral illness and a chronic condition). Persons with a mental or behavioral illness have high rates of cardiovascular disease, respiratory ailments, pulmonary issues, diabetes, and

DESIGN STRATEGIES TO SUPPORT FLEXIBILITY

» Consider all spaces as an opportunity for care to take place. At the University of Minnesota Masonic Children's Child-Adolescent Mental Health Unit, the corridors serve a larger purpose than just to move from one space to another. The extra-wide corridors were intentionally designed to support large muscle movement (e.g., children ride small floor scooters) as well as a place for engaging in conversations. "Front porches" are provided just outside the patient room entrances, featuring small benches where patients can take their time transitioning from private to public spaces and will often engage in meaningful conversations with staff at these areas.

» The census cycle for many child and adolescent inpatient mental health units mimics the school calendar, with volumes typically highest from September through May, dropping dramatically during the summer months. The planning concept for Pine Rest Christian Mental Health in Grand Rapids, Mich. includes new construction of adolescent and young adult inpatient units with 26 beds and features a series of doors that offer the flexibility to size the individual units according to fluctuations in census throughout the year. The units share (through scheduling) spaces such as group therapy, recreation, and support areas.

DESIGN STRATEGIES TO SUPPORT SAFETY & SECURITY

» Go beyond anti-ligature applications of hardware solutions. Connect and integrate all elements of a care environment: medical models, provider needs, security, facility maintenance, and institutional culture.

» Technology can be a powerful tool for safety. Too much, and it can overwhelm and create a false sense of security. Technology is a key component in designing a secure facility that is healing and dignified. Seamless and unobtrusive, technology connects, supports and enables staff to do their best work...safely. It can create a "smart" facility to protect patients and provide choice and control.

» The small and not-so-small elements that make a space complete can have some of the largest impacts to the design of safe and human-centered environments — from handles that help staff open doors without losing control of patients to break-away doors and two-way hinges.

» The physical layout can reduce adversarial events by avoiding spaces that don't allow for supervision by others and creating a layout with common spaces to encourage interaction with other patients and staff.

obesity, among others. These are the most prominent barriers to effective medical care for the mental health population (Bolter, 2010).

Unlike medical-surgical hospitals with requirements for intensive medical gases and imaging suites, behavioral health units are deserving of their own cost-per-square foot benchmarks due to the layers of security measures, such as reinforced walls, technology, and anti-ligature devices.

In all types of behavioral health settings, staff are vulnerable to, and often the target of, physical aggression from patients. Considerable attention to safety and security for staff is paramount in all design strategies as well a high priority for behavioral health professionals (Shepley et al., 2017).

When patients in extreme crisis present at a behavioral health care facility, they are often experiencing the powerful effects of prolonged isolation, confusion, paranoia, trauma, fear, and anger. Greeted by an institutional and harsh environment prioritizing security first, the patient might anticipate the care to be more adversarial than helpful.

Cameras, sally ports, and anti-ligature devices are what people often imagine regarding the safety and security of a behavioral health unit. However, the greatest measures in addressing safety are in the gestures that are less obvious, from movement sensors to marked zones of personal space to quiet acoustics.

Putting safety and security of patients, families, staff, and providers at the center of the design process while creating a therapeutic and healing environment manifests itself through an approach called Human-Centered Safety®. This approach of looking at safety through the eyes of all who enter the space recognizes the many layers of safety that can be addressed through design decisions. These are critical decisions, shaped by an understanding of the behavioral operations and culture delivered far upstream from those of hardware, devices, and technology.

Virtually every decision in behavioral health care design represents an opportunity to move the needle on the safety scale. Human-Centered Safety® is integrated through a comprehensive and holistic view, seeing safety and security as seamless elements enhancing the care environment and enabling staff to focus on delivering compassionate and effective care.

Supporting Care Models
Care systems can be complex, scattered, and in multiple arenas: integrated care, primary care in behavioral health, behavioral health in primary care, HRSA-supported safety-net providers, and health homes, among others (SAMHSA, 2017). Options for providing care include crisis response services, inpatient and residential treatment, basic clinical services, community services, and health promotion and prevention (Minnesota Management and Budget Results First, 2016).

Most state systems have a range of care options to support individuals with mental illness. No system is currently without trying to address gaps in service and inconsistencies in care. In Minnesota, the Governor's Task Force on Mental Health Care recommends a comprehensive continuum of care. This continuum is determined necessary to support the full range of conditions, from wellness to mental illness to serious mental illness (Department of Human Services, 2016).

Regardless of where care is offered, the importance lies in making sure the care is delivered in the most effective means possible. A prominent emphasis of several care models is lowering or remov-

ing the need for seclusion and restraint (e.g., Goulet, Larue, & Dumais, 2017; Pollastri, Lieberman, Boldt, & Ablon, 2016). To support this emphasis, intentional design strategies incorporate a range of elements that, when combined, emerge into "a single theme that encompasses the social and psychological aspects of environmental design" called *therapeutic mileu* (Connellan, Gaardboe, Riggs, Due, Reinschmidt, & Mustillo, 2013). These strategies provide a foundation for a more calming environment as well as one that offers environmental supports to help patients prevent escalation by removing stressors. These calm environments allow care to happen and be more effective, potentially resulting in fewer readmissions.

OPPORTUNITY COSTS

Can a behavioral health care facility that is designed to be better and safer for patients and staff actually provide financial gains or prevent losses? Quantifying environmental influence and design

DESIGN STRATEGIES TO SUPPORT CARE MODELS

» Physical space influences how care teams work together. Gunn et al. (2015) found the design of clinical space for integrating primary and behavioral care to be an important consideration. The benefits of professional proximity for improving communication were highly recommended as was the consideration for providing private space for focused work.

» Access to daylight has been shown to have a positive impact on patients in a variety of health care settings. Daylight exposure has been identified as a contributor to improved mood (Partonen & Lonngvist, 2000) and better sleep (Boubekri et al., 2014). These design strategies, among others, can reduce aggression and allow for therapy and care to occur more effectively.

» Destination spaces such as group therapy rooms can be strategically located at the ends of corridors to encourage physical movement and the opportunity for social interactions along the travel paths to these shared spaces. Additional social interaction can occur in dining spaces to build a sense of community.

impacts on patient outcomes and staff recruitment and retention (as examples) is an incredibly arduous task.

Staff Recruitment and Retention

Workforce challenges are prevalent across the health care spectrum, notably more challenging for behavioral health professions. The difficulty in recruiting and retaining mental health professionals impacts organizations not only in the direct costs associated with hiring but also indirectly with the potential inconsistency in care delivery.

Recent studies have shown an unbalanced concentration of psychiatrists, psychologists, and other behavioral health professionals in affluent urban and suburban areas. Additionally, there is an estimated shortage of 2,800 professionals to serve in rural and underserved areas. Studies of health care employers have referenced low wages and benefits, heavy caseloads, and the social stigma as barriers to staff retention (American Hospital Association, 2016). Hall et al. (2015) found additional barriers for the behavioral health workforce to be insufficient training capacity and lack of practical experience opportunities.

Specialty RN turnover is highest among behavioral health nurses at 26.5% in 2015. The national turnover rate for all RNs over the past two years is 17.2%. The average cost per turnover of an RN can range between $37,700 and $58,400 (NSI Nursing Solutions, 2016); additional estimates exceed $60,000 (APNA, 2012). It has been noted for each percent retained, the average hospital will save an additional $373,200, resulting from preventing lost productivity, contract labor expenses, and excess overtime to help offset the compression felt by staff turnover (NSI Nursing Solutions, 2016). Burnout from stress is a major contributor to turnover of behavioral health professionals, prompting many organizations to hold a strategic focus on retaining staff.

Aimed at reducing stress from lack of team accessibility and visibility, staff spaces can be designed to facilitate team functioning and encourage collaboration. Highly functional workspaces can also reduce staff stress by more effectively supporting workflows.

Pressures on Emergency Departments and Correctional Facilities

When care is unavailable, or options for care remain unknown to the person in need, other facilities bear the burden. For adults, as well as children and adolescents, emergency departments are experiencing higher utilization for patients with mental health conditions. While hospitalizations for children and adolescents with mental health conditions have increased nearly 50% over the past decade, emergency department visits have also increased over 20% (Torio, Encinosa, Berdahl, McCormick, & Simpson, 2015).

Inpatient care is often seen as the only choice because there is a lack of adequate outpatient care. It can also be increasingly difficult

DESIGN STRATEGIES TO SUPPORT STAFF RECRUITMENT & RETENTION

» Several large contributors to staff stress come from inadequate staffing levels, ineffective care processes, and inefficient interdisciplinary team functioning (Hanrahan, Aiken, McClaine, & Hanlon, 2010). Effectively planned units can increase visibility to patients and other staff, decrease travel distances, and encourage more dynamic team communication — all of which can contribute to decreased stress from the aforementioned factors.

» A highly functional and professional-looking unit can contribute to recruitment of new, younger staff and also serve to reinforce an organization's commitment to retain current staff (Hanrahan et al., 2010).

» An organization's long-term commitment to improve care quality and outcomes can greatly impact staff satisfaction, reducing staff burnout over time.

to get an appointment to see a psychiatrist, spending months on a waiting list. Emergency departments become the primary way of seeking care for those in behavioral crisis. These environments are typically not appropriately designed to help de-escalate patients in crisis and patients could spend days boarded in the emergency department waiting for a behavioral health bed to become available. Recently, one urban emergency department was forced to divert patients to other hospitals for several days because all of their treatment bays were full with behavioral health patients waiting for placement in a more appropriate unit. In terms of an opportunity cost, typically 50% of a hospital's admissions originate in the emergency department. These revenues can be greatly impacted if they are faced with boarding large numbers of behavioral health patients.

The APNA (2012) reports with adequate staffing in a psychiatric unit, length of stay should decrease and subsequently, shorten the wait time of psychiatric patients in the emergency department as well as in the medical inpatient units for those awaiting transfer to a behavioral health care unit. APNA further describes the potential

for revenue generation for hospitals as a result of faster admissions to more appropriate treatment environments.

With a steady and drastic decline in available behavioral beds over the past several decades, an estimated 356,000 mentally ill persons are being held by an unfortunate de facto mental health institution: jails and prisons. An additional 200,000 are homeless and 34,000 are lost to suicide each year (Szabo, 2014). This puts tremendous pressures on our correctional system and does not fulfill the needs of those in crisis.

A well-executed continuum of care — from outpatient to inpatient to social services — affords the ability to serve the underserved mentally ill while allowing emergency departments and correctional facilities to serve their appropriate populations.

Care Quality Metrics

Each health care organization has a unique set of performance metrics, balanced with national care quality measures and metrics. For behavioral health, SAMHSA offers recommended criteria for measures as the National Behavioral Health Quality Framework (NBHQF). This framework has three aims: better care, healthy people/healthy communities, and affordable (accessible) care. Risk assessments and screenings during primary care and other visits are now more common. Discharge management, medication management, and patient experience during hospitalization are frequently measured quality metrics. With broader goals of reduced boarding time and fewer readmissions, optimizing care and treatment is a higher priority.

Increasing evidence constructs a strong link between mental health and physical health. Collaborative care models are increasingly becoming embedded in our health care systems. A collaborative care model (integrating mental health care with physical health care) can substantially lower health care costs. Unutzer, Harbin, Schoenbaum, and Druss (2013) found that for every $1.00 spent on collaborative care, a savings of $6.50 was realized in overall health care costs. These savings were found in nearly every category including pharmacy, inpatient and outpatient care, and specialty care.

SOCIETAL COSTS

It is estimated nearly 10 million people in the U.S. (about 4% of the population) have a serious mental illness. Forty percent of those with an illness have or are receiving treatment (National Institute of Mental Health, 2015). Up to 20% of children in the U.S. have experience with a mental health condition in a given year. These experiences are associated with low educational achievement, substance abuse, violence, self-harm, and lower health outcomes

(Perou et al., 2013; Case, Fertig, & Paxson, 2005; Patel, Flisher, Hetrick, & McGorry, 2007; Torio et al., 2015).

The impact on society is considerable. "Mental health or psychological well-being is an integral part of an individual's capacity to lead a fulfilling life, including the ability to form and maintain relationships, to study, work or pursue leisure interests, and to make day-to-day decisions about education, employment, housing or other choices. Disturbances to a person's mental well-being can adversely compromise this capacity and the choices made, leading not only to diminished functioning at the individual level but also to broader welfare losses for the household and society (World Health Organization, 2013)."

The importance of investing in mental health care, including facilities to support more effective treatment, is imperative for our communities. Minnesota Management and Budget Results First presents a cost-benefit analysis for mental health investments. For every $1.00 invested, an estimated $2.00 will be realized through taxpayer benefits ($0.75) and societal benefits ($1.25). Taxpayer benefits include avoided hospitalizations, reduced use of emergency departments as primary treatment options, and avoided costs to the criminal justice system. Societal benefits were shown through increased labor market earnings and in some cases, avoided premature deaths from depression and serious mental illness (Minnesota Management and Budget, 2016).

CONCLUSION

As studies are showing, there is a return on investment for organizations, especially when measured outside of the traditional parameters of cost-per-square foot or bed. From better community access to services to a reduction in staff injuries to improved outcomes for patients, facilities are proving to be tools for care, not just places to receive care. By allocating the right amount of resources to shape the appropriate tool, organizations are able to leverage environments that advance mental care and alleviate the pressures on other parts of the organization serving patients with physical ailments.

There is already a cost to doing nothing: costs to operate inefficient and poorly maintained facilities, costs to support patients through alternate care streams, among others. As progress continues to form a better understanding of the physical environment's influence on overall behavioral health and well-being, the financial justification for behavioral health care investment becomes clear. There are many options to respond to mental illness. The most effective option is with health care organizations who bring the compassion, knowledge, and integrated health approach that makes care more accessible and less stigmatizing for patients, staff, and the community.

"The way in which each health care system is organized and financed, and how resources are allocated towards facilities and workforce, allows each of these drivers to have more or less influence." (Saini et al, 2017)

Rick Dahl, AIA and Scott Holmes, RA, ACHA, LEED AP are design and medical planning professionals specializing in mental and behavioral health environments. They are actively involved in leading organizations to discover innovative facility design strategies for health care delivery. BWBR is a design solutions firm with expertise in planning and design for health care facilities, including mental health.

REFERENCES

American Hospital Association. (2016). The state of the behavioral health workforce: A literature review. Retrieved from http://www.aha.org/content/16/stateofbehavior.pdf

APNA. (2012). APNA position statement: Staffing inpatient psychiatric units. Journal of the American Psychiatric Nurses Association, 18, 16-22. doi: 10.1177/1078390311432133

Bolter, C. (2010). Managing the medically-complex psychiatric patient. The Fifth Annual Behavioral Health Care Symposium, California Hospital Association, La Jolla, California.

Bolton, L., Gassert C., & Cipriano, P. (2008). Smart technology, enduring solutions: Technology solutions make nursing care safer and more efficient. Journal of Healthcare Information Management, 22, 24-30.

Bouberkri, M., Cheung, I., Reid, K., Kuo, N., Wang, C., & Zee, P. (2014). Impact of windows and daylight exposure on overall health and sleep quality of office workers: A case-control pilot study. Journal of Clinical Sleep Medicine, 10(6), 603-611. doi: 10.5664/jcsm.3780

Case, A., Fertig, A., & Paxson, C. (2005). The lasting impact of childhood health and circumstance. Journal of Health Economics, 24, 365-389. doi: 10.1016/j.jealeco.2004.09.008

Christenfeld, R., Wagner, J., Pastva, G., & Acrish, W. (1989). How physical settings affect chronic mental patients. Psychiatric Quarterly, 60, 253-264.

Connellan, K., Gaardboe, M., Riggs, D., Due, C., Reinschmidt, A., & Mustillo, L. (2013). Stressed spaces: Mental health and architecture. Health Environments Research and Design Journal, 6(4), 127-168.

Department of Human Services, Mental Health Division. (2016). Governor's Task Force on Mental Health Care Final Report. Retrieved from https://mn.gov/dhs/assets/mental-health-task-force-report-2016_tcm1053-263148.pdf

Goulet, M., Larue, C., & Dumais, A. (2017). Evaluation of seclusion and restraint reduction programs in mental health: A systematic review. Aggression and Violent Behavior, in press, doi: 10.1016/j.avb.2017.01.019

Gunn, R., Davis, M., Hall, J., Heintzman, J., Muench, J., Smeds, B., Miller, B., Miller, W., Gilchrist, E., Levey, S., Brown, J., Romero, P., & Cohen, D. (2015). Designing clinical space for the delivery of integrated behavioral health and primary care. Journal of the American Board of Family Medicine, 28, S52-S62.

Hall, J., Cohen, D., Davis, M., Gunn, R., Blount, A., Pollack, D., Miller, W., Smith, C., Valentine, N., & Miller, B. (2015). Preparing the workforce for behavioral health and primary care integration. Journal of the American Board of Family Medicine, 28(S1), S41-S51. doi: 10.3122/jabfm.2015.S1.150054

Hanrahan, N., Aiken, L., McClaine, L., & Hanlon, A. (2010). Relationship between psychiatric nurse work environments and nurse burnout in acute care general hospitals. Issues in Mental Health Nursing, 31(3), 198-207. doi: 10.3109/0162840903200068

Health Facilities Management/ASHE. (2017, February 2). 2017 hospital construction survey. Health Facilities Management. Retrieved from https://hfmmagazine.com

Minnesota Management and Budget Results First. (2016). Adult mental health benefit-cost analysis. Retrieved from https://mn.gov/mmb-stat/results-first/adult-mental-health-report.pdf

National Institute of Mental Health. (2015). Statistics. Retrieved from https://www.nimh.nih.gov/health/statistics/index.shtml

NSI Nursing Solutions. (2016). 2016 National healthcare retention & RN staffing report. Retrieved from http://www.nsinursingsolutions.com/Files/assets/library/retention-institute/NationalHealthcareRNRetentionReport2016.pdf

Partonen, T. & Lönngvist, J. (2000). Bright light improves vitality and alleviates distress in healthy people. Journal of Affective Disorders, 57(1), 55-61.

Patel, V., Flisher, A., Hetrick, S., & McGorry, P. (2007). Mental health of young people: A global public-health challenge. The Lancet, 369(9569), 1302-13. doi: 10.1016/S0140-6736(07)60368-7

Perou, R., Bitsko, R., Blumberg, S., Pastor, P., Ghandour, R., Gfroerer, J., Hedden, S., ... Huang, L. (2013). Mental health surveillance among children – United States, 2005-2011. Morbidity and Mortality Weekly Report Supplement, 62(2), 1-35.

Pollastri, A., Lieberman, R., Boldt, S., & Ablon, S. (2016). Minimizing seclusion and restraint in youth residential and day treatment through site-wide implementation of collaborative problem solving. Residential Treatment for Children & Youth, 33(3-4).

Saini, V., Carcia-Armesto, S., Kelmperer, D., Paris, V., Elshaug, A., Brownlee, S., Ioannidis, J., & Fisher, E. (2017). Drivers of poor medical care. The Lancet. doi: 10.1016/S0140-6736(16)30947-3

SAMHSA. (2017). Quality metrics. Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/quality-metrics

Shepley, M., Watson, A., Pitts, F., Garrity, A., Spelman, E., Fronsman, A., & Kelkar, J. (2017). Mental and behavioral health settings: Importance & effectiveness of environmental qualities & features as perceived by staff. Journal of Environmental Psychology, 50, 37-50.

> "At a purely conceptual level, a solid case can be made for investing in mental health, whether on the grounds of enhancing individual and population health and well-being, reducing social inequalities, protecting human rights, or improving economic efficiency."
> (World Health Organization, 2013)

Szabo, L. (2014). Cost of not caring: Nowhere to go. The financial and human toll for neglecting the mentally ill. USA Today. Retrieved from http://www.usatoday.com/longform/news/nation/2014/05/12/mental-health-system-crisis/7746535/

Torio, C., Encinosa, W., Berdahl, T., McCormick, M., & Simpson, L. (2015). Annual report on health care for children and youth in the United States: National estimates of cost, utilization and expenditures for children with mental health conditions. Academic Pediatrics, 15(1), 19-35.

Trzpuc, S., Wendt, K., Heitzman, S., Skemp, S., Thomas, D., & Dahl, R. (2016). Does space matter? An exploratory study for child-adolescent mental health inpatient unit. Health Environments Research and Design Journal, 10(1), 23-44. doi: 10.1177/1937586716634017

Ulrich, R., Bogren, L. & Lundin, S. (2014). Towards a design theory for reducing aggression in psychiatric facilities. Arch 12: Architecture/Research/Care/Health conference. Gothenburg, Sweden: Chalmers Institute of Technology.

Unutzer, J., Harbin, H., Schoenbaum, M. & Druss, B. (2013). The collaborative care model: An approach for integrating physical and mental health care in Medicaid health homes. Issue brief. Center for Health Care Strategies and Mathematica Policy Research. Centers for Medicare & Medicaid Services. https://www.medicaid.gov

World Health Organization. (2012). The optimal mix of services for mental health. (Mental Health Policy, Planning and Service Development Information Sheet). Retrieved from http://www.who.int/mental_health/policy/services/2_Optimal%20Mix%20of%20Services_Infosheet.pdf

World Health Organization. (2013). Investing in mental health: Evidence for action. (World Health Organization Publication). Retrieved from http://www.who.int/mental_health/publications/financing/investing_in_mh_2013/en/

B|W|B|R

Created March 2017