

ACHIEVING WORLD CLASS



An Independent Review of the Design Plans for the Walter Reed National Military Medical Center and the Fort Belvoir Community Hospital



**National Capital Region Base Realignment and Closure
Health Systems Advisory Subcommittee of the Defense Health Board**

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Considering the time constraints, budget limitations and ambiguities of vision and command structure associated with the design of the new Walter Reed National Military Medical Center and Fort Belvoir Community Hospital, commendable progress has been made towards designing facilities that are likely to better serve the National Capital Region.

This report highlights some of the ways that these facilities will be able to achieve the goal of becoming *world-class medical facilities*.

EXECUTIVE SUMMARY

REPORT PURPOSE

The National Capital Region (NCR) Base Realignment and Closure (BRAC) Health Systems Advisory Subcommittee (HSAS) of the Defense Health Board (DHB) was convened in May 2008 to advise the Department of Defense (DoD) on the planned integration of military medical facilities in the NCR service area. In response to the National Defense Authorization Act for Fiscal Year 2009 (NDAA 2009, Public Law 110-417; Appendix A), in September 2008, the NCR BRAC HSAS was further charged to review the design and construction plans for the new Walter Reed National Military Medical Center (WRNMMC) and the new Fort Belvoir Community Hospital (FBCH) to determine if they were being designed and constructed to be *world-class medical facilities* and, if not, what should be done to remedy any perceived deficiencies. This report responds to this latter charge.

FINDINGS

Based upon its review, the NCR BRAC HSAS finds that:

- A. The integration of the Walter Reed Army Medical Center (WRAMC), the National Naval Medical Center (NNMC) and other military medical commands in the NCR is likely to better serve the area's active duty and retired military personnel and their dependents.
- B. Congress specified that the new WRNMMC and FBCH should be designed and constructed to be *world-class medical facilities*, and indicated that this should be taken to mean that they incorporate "...the best practices of the premier private health facilities in the country as well as the collaborative input of military healthcare professionals into a design that supports the unique needs of military personnel and their families". This verbiage conveys Congressional intent, but it does not provide operational or functional details about the meaning of the term *world-class medical facilities* that would support completion of the review required by the NDAA 2009.
- C. To date, no recognized body has established an operational definition of *world-class medical facility*. Based on a review of relevant reports and other literature, the HSAS's collective experience and judgment, and extensive review by prominent healthcare leaders, a definition of *world-class medical facility* was developed and used as a yardstick for this review (Appendix B).
- D. The creation of a *world-class medical facility* must begin with a clear vision. This vision is realized through integrated facility design and operational plans, skilled and appropriately empowered leadership, and the provision of necessary funding and other resources, among other things. If funding and other resources come from more than one source, they must be integrated to match the integrated facility design and operational plan.
- E. The BRAC funding process entails a number of constraints and limitations that do not support the creation of a comprehensive plan and construction strategy, particularly for renovation of existing facilities. These limitations have been, and continue to be, a major impediment to designing the new WRNMMC to be a *world-class medical facility*.
- F. The Service-specific and facility-centric cultures of the Army, Navy and Air Force medical commands conflict with the needs of an IDS, and there is no evidence of a concerted, organized effort to engineer

the new integrated military healthcare culture needed to achieve and sustain a joint Armed Services IDS that provides *world-class* medical care.

- G. Many dedicated individuals have worked diligently to achieve what they have perceived to be the goals of the regional integration effort; however, there are multiple circumstances beyond their control that have impeded, and continue to impede, their efforts. Among these are Service-specific and facility-centric military healthcare cultures, a confusing and redundant chain of command, and ambiguity about the vision, goals and expectations for the future NCR IDS and the WRNMMC. There is an urgent need to clarify the vision, goals and expectations for the future NCR IDS, especially for the WRNMMC, and to consolidate organizational and budgetary authority in a single entity.
- H. A comprehensive, forward-looking demand analysis that includes the capability to accommodate surge needs has not been completed for the WRNMMC.
- I. There does not appear to be a comprehensive “master plan” for the WRNMMC that includes the combined and augmented assets of the WRAMC and NNMC and that integrates the Uniformed Services University for the Health Sciences (USUHS), the Joint Pathology Center (JPC) and other specialized centers or institutions on the grounds of or proximal to the WRNMMC.
- J. Significant input from frontline clinicians and other stakeholders does not appear to have been incorporated into the current plans for the WRNMMC.
- K. The current plans for the WRNMMC are not those of a *world-class medical facility*. Significant deficiencies exist, especially with regard to the existing NNMC. The final facility design will more likely be able to achieve world-class status if the deficiencies detailed below are addressed and if the definition of *world-class medical facility* detailed in Appendix B is used to guide further work.

The following specific issues need to be addressed in the design and construction plans for the WRNMMC:

1. Several areas are not in conformance with the Joint Commission’s hospital design standards.
2. The current bed plan does not provide for broad conversion to single-patient rooms.
3. The design of the surgical suite has several problems.
 - a. It appears that after construction and renovation there will be too few operating rooms (ORs) and that the ORs will be too small to accommodate current and expected future surgical technologies.
 - b. The frozen section/surgical pathology space is to be located in an area remote from the surgical suite. Such an arrangement is problematic because it “designs in” inefficiencies and could lead to patient safety problems.
 - c. It is unclear whether the post-anesthesia care unit (PACU) will be used for services unrelated to post-anesthesia care. Any decision in this regard should be informed by analyses of the demand for PACU services and of the experience and skills of PACU staff relative to the skills needed to properly care for other potential PACU patients.
4. Plans for observation care are unclear. The capability to provide observation care is important, especially for emergency patients, and should be specifically designed and planned for in accordance with the projected need for this level of care.

5. On-site simulation labs for surgery, cardiac catheterization, gastrointestinal endoscopy and pulmonary endoscopy are not included. Provision of these labs in an off-site location will likely create barriers to the utilization of these important resources.
 6. Information management and information technology (IM/IT) support and services are absolutely essential to the operation of a *world-class medical facility*; however, the plans for these essential services appear to be incomplete:
 - a. It is unclear whether the IM/IT infrastructure needs (e.g., fiber optic cabling, wireless technology) are being addressed.
 - b. Plans for the electronic health record do not appear to have addressed significant issues such as inter-system interoperability, ease of physician use, transportability and use of open source software.
 - c. Plans to support the transfer of medical records from WRAMC into the new facility are inadequate.
 7. The new facility design does not seem to account for expansion of support services (e.g., food service, day care, community services, medical records, materiel management) to accommodate the anticipated growth in staff, patients and families.
 8. Parking limitations imposed by the National Capital Planning Commission (NCPC) appear likely to have a detrimental impact on the operations of the WRNMMC.
 9. The new WRNMMC facility design locates the dialysis unit above several environmentally-sensitive areas of the hospital. The rationale for this is not obvious.
 10. There does not appear to be a strategic technology master plan for use of advanced diagnostic and treatment technologies.
- L. The plan for the new FBCH is well conceived and incorporates many important evidence-based design (EBD) features; however, the current plan would benefit from addressing the following specific issues:
1. There does not appear to be a plan to evaluate the impact of incorporating EBD features into the facility's design. Such an assessment would be valuable for informing plans for future federal hospital construction.
 2. FBCH representatives have talked about a "facility-based master plan", but the existence of this master plan could not be documented.
 3. More complete plans should be created for IM/IT and for diagnostic and treatment technology along the lines as those outlined for the WRNMMC.
- M. The BRAC timeline required an accelerated process for designing and building these two new facilities. Since different processes were used, it would be instructive to evaluate the two different processes to determine their relative value in an effort to inform planning for the design and construction of future federal medical facilities.
- N. There is no need to halt construction of the new facilities if a properly devised master plan can be developed to ensure that backfill renovations can be accomplished in a timely manner. Halting construction would be very costly and highly demoralizing and should be avoided if at all possible.

RECOMMENDATIONS

- A. Further planning for the new WRNMMC and FBCH, as well as development of the NCR IDS, should be guided by the definition of *world-class medical facility* detailed in Appendix B of this report.
- B. One official should be empowered with singular organizational and budgetary authority and staffed appropriately to manage and lead the healthcare integration efforts and operations in the NCR. This should be accomplished as quickly as possible, and this official's authority should extend over all DoD healthcare facilities and resources that impact healthcare operations within the NCR.

This official should *not* have day-to-day operational responsibility for any individual facility in the NCR, so that his/her primary concern is always the operation of the integrated system.

The selected official should give high priority to:

1. developing a shared vision and a clear mission statement for the NCR IDS and the WRNMMC;
 2. creating a comprehensive master plan for both the NCR IDS and the WRNMMC;
 3. engineering a culture that will support the NCR IDS and *world-class medical facilities*;
 4. developing a strategic technology master plan for the WRNMMC, FBCH and NCR IDS;
 5. ensuring that all further planning is informed by user groups and reflects input from patients and their families and frontline clinicians (e.g., physicians, nurses, pharmacists); and
 6. implementing a mechanism for the ongoing independent review of the design and construction of the new WRNMMC.
- C. Deficiencies in the current plans for the WRNMMC should be corrected and the funding needed to correct these deficiencies should be identified as soon as possible. Specifically:
 1. All design and construction plans should be in conformance with the Joint Commission's standards, at a minimum.
 2. The bed plan should be reconsidered so that single-patient rooms are the norm throughout the facility.
 3. Plans for the surgical suite should be reconsidered, addressing especially the specific concerns identified in this regard. A model of the perioperative process and a demand analysis should be developed and used to guide further planning for the surgical suite.
 4. Plans for patients requiring observation should be further considered and clarified.
 5. Plans for on-site simulation laboratories should be developed and funded.
 6. The IM/IT infrastructure plan should be further considered. Funding and other resources to ensure that the facility will have a forward-looking IT infrastructure should be ensured and electronic health record-related issues of inter-operability, ease-of-use, open-source applications and portability should be addressed.
 7. Current plans should be reviewed for their adequacy to address expected increased needs in support services such as food service, day care, parking, medical records processing and storage, and materiel management, among others. Modifications to current plans should be made based on this review.

- 8. Placement of the dialysis unit in the new WRNMMC should be further considered.
 - D. A plan to assess the outcomes, benefits and return on investment, among other things, of the design processes used for the new WRNMMC and FBCH, as well as the benefits of incorporating EBD principles in these facilities, should be developed, funded and implemented.
 - E. New construction should proceed as currently planned, assuming that the needed master plans are developed in a timely manner. Going forward, modifications should be made as needed.
- Backfill renovation should be deferred until it can be coordinated with and, if necessary, redesigned in conjunction with the master plan and the recommendations detailed in this report.

highly-skilled professionals working together with precision and passion as practiced teams within an environment of inquiry and discovery that creates an ambience that inspires trust and communicates confidence. A *world-class medical facility* constantly envisions what could be and goes beyond the best known medical practice to advance the frontiers of knowledge and pioneer improved processes of care so that the extraordinary becomes ordinary and the exceptional routine.

Defining Characteristics of a *World-class Medical Facility*

What is a Medical Facility?

In trying to define what it means to be a *world-class medical facility* it is understood that the physical structure, or facility per se, only provides the setting in which persons with health conditions are housed while doctors, nurses and myriad supporting personnel diagnose, administer treatment and provide other services needed to address health-related conditions and improve a person's health and functioning. While the facility does not diagnose, treat or provide any specific service, it is now well established that the design and construction of facilities can substantially affect the efficiency and effectiveness of making correct and timely diagnoses; the ease and accuracy of administering appropriate therapy; the attitude and morale of patients, visitors and healthcare workers; the culture of the organization and an environment that promotes the healing process.

In the following discussion, reference to *medical facility* is taken to mean the composite of the physical structure, the healthcare professionals who work there, the technology that they employ, and the processes and procedures used to accomplish their work, among other things.

Operational Characteristics of a World-class Medical Facility

To be considered world class, a medical facility must meet at least the 18 conditions in the 6 domains specified below.

I. Basic Infrastructure

The facility:

1. Has attained and maintains all accreditations and certifications that satisfy licensure and other statutory and regulatory requirements relating to the provision of the services offered at the facility.²
2. Provides comprehensive and definitive acute healthcare services in an integrated and coordinated manner that meets patient needs from birth (including the pre-term neonate) through the end of life, as demonstrated by, but not limited to:
 - a. providing services in all the specialty areas recognized by the American Board of Medical Specialties (ABMS), in so far as these specialties are reasonable and appropriate for the needs of the patient population and community served;
 - b. offering services in a preponderance of the subspecialty areas recognized by the ABMS; and
 - c. having clearly specified policies and procedures for referral and transfer of patients for highly specialized services that are generally centralized to a few locations (e.g., definitive burn care,

² For example, the Joint Commission, American Osteopathic Association (AOA) or Det Norske Veritas (DNV) accreditation; Accreditation Council for Graduate Medical Education (ACGME) postgraduate physician residency program accreditation; certifications by the American Association of Blood Banks, American College of Radiology, American College of Surgeons, College of American Pathologists, Nuclear Regulatory Commission, and the Food and Drug Administration's Division of Mammography Quality and Radiation Programs

- organ transplants, spinal cord injury care and rehabilitation), if such services are not provided at the facility.
3. Has a high degree of facility readiness to provide high quality care as demonstrated by at least the following characteristics:
 - a. application of contemporary evidence-based knowledge and principles of design and construction and the utilization of state-of-the-art technology to, among other things:
 - 1) create a healing environment and continuous healing relationships;
 - 2) optimize the patient room environment and functionality for:
 - a) providing patient/family-centered care;
 - b) supporting the patient's and family's direct involvement in care delivery;
 - c) minimizing the need for patient movement; and
 - d) allowing direct visual monitoring by caregivers.
 - 3) facilitate effective communication between and among caregivers, patients and families;
 - 4) support information management, as reflected by attaining at least stage 6 of the Healthcare Information and Management Systems Society (HIMSS) Electronic Medical Record Adoption Model;
 - 5) minimize the occurrence of healthcare-related infections;
 - 6) facilitate real time location tracking of patients and staff;
 - 7) reduce patient and staff stress;
 - 8) encourage retention of staff;
 - 9) utilize unified communications;
 - 10) support facility navigation and way-finding; and
 - 11) achieve functional integration of component parts and processes into a coordinated system;
 - b. assurance of equal access for all patients, families and staff to all clinical and routine non-clinical areas and activities throughout the interior and exterior areas of the facility by providing a physical barrier-free environment that exceeds minimum American with Disabilities Act (ADA) requirements;
 - c. development and regular testing of plans for continuity of operations during times of emergency or catastrophe due to epidemic, weather or other acts of nature, technological failure or terrorism, inter alia;
 - d. incorporation of significant flexibility and adaptability in the facility design and construction to accommodate changing practices and processes of care resulting from new knowledge, as well as optimization of surge capacity to accommodate the need to treat and manage unexpected large numbers of additional patients as might occur with an epidemic or disaster.
 4. Assures that caregivers and other staff are prepared to perform competently and otherwise appropriately by, among other things:

- a. promulgating policies for and standards of performance, conduct, and ethical behavior for all personnel, including job-specific and specialty-specific standards, as appropriate;
- b. monitoring the performance of all employee's on a regular basis (at least annually) by direct observation of performance, formal testing, supervisor and peer review, patient feedback and/or other methods, as appropriate to the position;
- c. providing feedback of monitoring results to the employee and, if relevant, concerned parties, together with counseling, mentoring and personal improvement or remediation programs, as needed;
- d. promptly investigating all complaints or concerns voiced about the competence or safety of a caregiver's performance; and
- e. carrying out whatever other actions are necessary to ensure that all caregivers and other staff are properly trained, equipped, fit and otherwise fully prepared to perform their assigned jobs.

II. Leadership and Culture

1. Provides executive leadership that is:
 - a. visionary and mission-focused;
 - b. experienced with demonstrated competence in the critical competencies identified by the National Center for Healthcare Leadership and the American College of Healthcare Executives (1);
 - c. stable over time; and
 - d. empowered with organizational and fiscal authority.
2. Organizes its governance structure and processes to, among other considerations:
 - a. ensure that the governing body is composed of appropriately knowledgeable and dedicated individuals who reflect and represent the interests of the organization and its stakeholders and who recognize the competencies required for excellent leaders;
 - b. facilitate effective communication with its medical staff and employee representatives;
 - c. assure that patient and patient family's views and perspectives about facility operations are known to facility management and the governing board; and
 - d. ensure that the governing board is actively involved in overseeing the operation of the institution, and especially in overseeing the quality and safety of care provided.
3. Manifests an organizational culture that:
 - a. continually strives for excellence, as demonstrated by, among other things:
 - 1) the organization's mission, vision, core values, bylaws and strategic objectives;
 - 2) the attainment of, or being in the process of attaining, the highest level of certification or designation for specialty services having generally recognized tiered levels of service;³
 - 3) having been awarded "magnet status" by the American Nurses Credentialing Center (ANCC);

³ For example, level 1 trauma center or comprehensive cancer center.

- 4) receipt of awards for excellence in organizational performance;⁴
 - 5) establishment of multidisciplinary Centers of Excellence; and
 - 6) the reputation and professional accomplishments of its staff;
- b. seeks to be a high reliability organization by demonstrating, among other characteristics, proactive and relentless vigilance in
 - 1) avoiding preventable patient harm, and
 - 2) improving process effectiveness and efficiency;
 - c. actively encourages and rewards innovation;
 - d. promotes and supports teamwork, collaboration and partnerships, as demonstrated by, among other manifestations:
 - 1) formally established collaborative relationships with other institutions and professional organizations;
 - 2) routine utilization of one or more formal teamwork training methodologies for staff; and
 - 3) recognition and awards for exceptional team performance and success;
 - e. creates a work environment that promotes employee satisfaction and well being by, among other things;
 - 1) fostering an environment of civility and respect for patients and employees;
 - 2) reporting and addressing lateral violence;
 - 3) supporting professional development; and
 - 4) offering services such as child and elder care programs, telecommuting, flexible work schedules, and employee wellness and fitness programs;
 - f. is pro-active and non-punitive in identifying medical errors and recognizes medical errors and preventable adverse events as opportunities for process improvement, as demonstrated by, among other things:
 - 1) utilization of a formal adverse event and near-miss reporting system;
 - 2) routine application of clearly defined policies and procedures for root cause analysis and failure mode and effects analysis; and
 - 3) establishment of formal processes of learning from the occurrence of adverse events;
 - g. recognizes the importance of culture, education, spiritual beliefs, life experience and health literacy on a person's response to injury or illness, their understanding and acceptance of diagnostic interventions and treatment, and in the healing process;
 - h. nurtures efforts to advance the frontiers of knowledge and to pioneer improved processes of care; and
 - i. understands that its responsibility does not stop at the hospital walls and recognizes the need to support, among other activities:

⁴ For example, Malcolm Baldrige National Quality Award or state or regional quality awards.

- 1) patient-focused care coordination, and
- 2) systematic examination of antecedents of hospitalization to reduce the need for such care.

III. Processes of Care

1. Organizes its services so that they are integrated and seamless between and among services in the facility and with home and community-based services.
2. Consistently applies contemporary evidence-based knowledge and principles and utilizes state-of-the-art technology in executing the following processes, among others:
 - a. diagnosis;
 - b. treatment;
 - c. documentation and records keeping;
 - d. medication management;
 - e. communication and care coordination;
 - f. knowledge management;
 - g. materiel management; and
 - h. business processes.
3. Routinely operationalizes evidence-based practices and processes in the delivery of care, including, but not limited to, those that:
 - a. implement the most recent set of “Safe Practices” endorsed by the National Quality Forum (2);
 - b. minimize the likelihood of the occurrence of the “never events” identified by the National Quality Forum (3);
 - c. implement the 6 aims and 10 “design rules” for healthcare in the 21st century espoused by the Institute of Medicine (4);
 - d. comply with the most recent National Patient Safety Goals and related specific expectations set by The Joint Commission (5);
 - e. are connected with known life-saving interventions such as evidence-based care for myocardial infarction, medication reconciliation and the ventilator bundle;
 - f. evaluate the quality of care provided to its sickest patients (i.e., those who die) by routinely utilizing the autopsy for quality assurance and education; and
 - g. utilize formal quality and process improvement methodologies as an integral element of all care processes.
4. Demonstrates transparency of processes by, among other manifestations:
 - a. routinely involving patients, patient families and employees in reviewing and determining the processes of care;
 - b. ensuring that patients are provided with complete information about their care that is appropriate to their level of healthcare literacy so that they can make informed decisions and fully participate in all decisions about their care;

- c. responding openly, promptly and honestly when patients are injured by unanticipated adverse events or anticipated complications by:
 - 1) informing the patient and/or the patient's designated representative, as appropriate, of what has happened and what will be done to remediate any injury and mitigate further injury;
 - 2) investigating the cause(s) of the event and reporting the findings to the patient and/or the patient's designated representative, as appropriate;
 - 3) providing emotional support for the patient as well as the caregivers involved in the adverse event; and
 - 4) apologizing to the patient and his/her family and/or the patient's designated representative, as appropriate, when the institution or caregivers are responsible for the event; and
 - 5) compensating the patient for costs associated with injury.
- d. making publicly available performance data and de-identified results of root cause analyses.

IV. Performance

- 1. Complies with all relevant federal government performance reporting requirements
- 2. Demonstrates superior performance (e.g., greater than the 90th percentile) against standardized industry metrics, including but not limited to those for:
 - a. clinical care;⁵
 - b. patient satisfaction;⁶
 - c. employee satisfaction;
 - d. employee sick leave, absenteeism and retention;
 - e. work-related injuries and illnesses; and
 - f. stewardship of resources as reflected by expense control, operating efficiency and adequacy of revenue or appropriation to support sustained high level performance, among other considerations.

V. Knowledge Management

- 1. Is regularly engaged in a full spectrum of scholarly activities, including, but not limited to:
 - a. providing graduate medical education and other health professional training;
 - b. conducting research, having its faculty and staff speak at scientific meetings and publish in peer-reviewed professional journals; and
 - c. utilizing a dedicated process to monitor, translate and apply research findings into clinical care, including a process for evaluating the results of new processes or pilot programs.
- 2. Has simulation laboratories for surgery, cardiac catheterization, endoscopy and emergency care, at a minimum.

⁵ NQF endorsed performance measures for hospital and ambulatory care

⁶ NQF endorsed performance measures for patient satisfaction(H-CAPHS), American Consumer Satisfaction Index) and loyalty

VI. Community and Social Responsibility

1. Demonstrates a population health focus by routinely being involved in activities aimed at improving the community and constituency that it serves, as demonstrated by, but not limited to:
 - a. hosting or supporting health maintenance and disease early detection programs; and
 - b. participating in local and regional disaster readiness programs; and
 - c. working with other organizations on community improvement projects.
2. Demonstrates environmental responsibility and sustainability in the facility design, construction and operation by, but not limited to:
 - a. having achieved Leadership in Energy and Environmental Design (LEED) certification;
 - b. embracing the recommendations contained in the latest edition of the *Green Guide for Healthcare*; and
 - c. disposing of potentially reusable medical devices with a Food and Drug Administration (FDA) cleared medical device reprocessor.
3. Demonstrates prudent use of resources by continually striving to reduce waste and inefficiencies.

The Spectrum of *World-class Healthcare Facilities*

A spectrum of healthcare facilities may seek to achieve world-class status, and the above defining characteristics may require modification when appropriate to a specific organization's mission. For example, a world-class community hospital may provide services in fewer specialties and subspecialties than a world-class academic medical center and may be engaged in relatively few scholarly activities, but would otherwise be expected to demonstrate the same characteristics.

Likewise, a world-class military medical center must meet the requirements for being a world-class healthcare facility but also needs to ensure that it addresses the unique needs of active duty and retired military personnel, as well as the needs of the branch or branches of the Armed Forces served.

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