

**CALIFORNIA
PRISON HEALTH CARE
RECEIVERSHIP CORP.**

J. Clark Kelso
Receiver

April 9, 2008

Bill Proctor, Project Director
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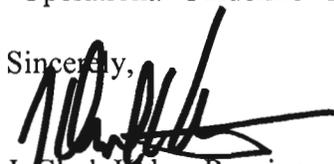
Dear Mr. Proctor:

We have reviewed your final Options Report dated April 9, 2008. As you know we discussed the main issues raised in the report with the core planning team in a meeting on March 4, 2008. The Court Monitors in the *Plata, Coleman, Perez, and Armstrong* class action cases attended the meeting and participated in the decision. Based on the core group's recommendation, the opinions of my staff, and the opinions of the Court Monitors, the Office of the Receiver concurs with the three fundamental recommendations in the Report:

- Direct supervision for patient management minimizing physical barriers between staff and patients.
- Facility size no larger than 1,500 beds for most effective management size.
- Locations near urban centers to allow for staff recruitment and retention.

We understand the concepts in the Options Report will be further developed in your "Operational Guideline" Report later this month.

Sincerely,



J. Clark Kelso, Receiver
California Prison Health Care Receivership

cc: John Hagar



Options Report

The Framework for the Development of the New California Health Care Facilities

Prepared for the
California Prison Health Care Receivership Corporation

Previous Drafts
February 14, 2008
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January 10, 2008
December 10, 2007

Acknowledgements

This **Options Report** summarizes the preliminary findings, research and recommendations of the CPR/CDCR/Coleman “Core Planning Team” and the URS/BLL Facility Programming Team. Each of the members of this group contributed significantly to the planning concepts and organization/operational attitudes reflected in this summary report. We wish to acknowledge their participation and to thank them for their contributions.

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Executive Summary

This Executive Summary describes the findings and recommendations of the Core Planning Team during the preparation of the Options Report. The attached Options Report examines the organizational, operational, and location options for the development of 10,000 new health care beds for the State of California and its correctional system.

Purpose of the Options Report

The purpose of this Options Report is to address the following:

Define and describe the programming and planning options available to the State of California to meet the requirement of the Federal Courts for the delivery and accommodation of the proposed 10,000 health care beds.

Two separate consulting studies forecasted the need for health care beds. Abt Associates (Cambridge, MA), authored the report, "Chronic and Long-term Care in California Prisons: Needs Assessment", which forecasted the 2017 need for long-term medical care beds within the CDCR prison system. Navigant Consulting authored a study of mental health care bed needs through FY 2012. These studies served as the basis of bed needs for the proposed 10,000 health care beds.

Establish a framework for choosing the most efficient, therapeutically appropriate and cost effective option for meeting these bed needs in a timely manner.

Recommendations by the Core Planning Team

The Core Planning Team recommends the following, which are based upon the principles as outlined in the Options Report:

1. Direct Supervision

The planning and programming of these health care facilities will be based upon a management and organizational commitment to direct supervision. Direct supervision represents a concept of inmate/patient management based on minimal physical barriers between custody officers and inmates/patients, direct contact between custody officers and inmate/patients, and maximum interpersonal communication.

Further efforts will need to be made to achieve an operational model of direct supervision which is responsive to staffing levels while also sensitive to staffing costs.

2. Interdisciplinary Health Care and Custody Model

The management and organizational structure for health care delivery will be based upon an interdisciplinary model of health care and custody. The interdisciplinary approach to health care delivery requires the collaboration of multiple clinical specialties and custody representation in the development of care management plans for all patients. This will ensure a safe and secure environment, while still advancing the principle of treatment and recovery, and not merely management of symptoms.

3. Urban Locations

Proposed new facilities will be located in geographic areas close to urban centers of the State that will provide opportunities for staff recruitment and retention. Location in or near urban centers will also improve the opportunity for patient visitation by family members.

4. Shared Medical and Mental Health Resources

Organizationally, it is recommended that these proposed new facilities maximize the sharing of resources (space, staff, and equipment) so that the traditional boundaries between medical and mental health treatment and programs are appropriately minimized. This refers to the “hybrid” model presented in the Options Report.

5. Maximum Facility Size of 1,500 Beds

The recommended “operational model” for the proposed health care facilities is based upon a facility size no larger than 1,500 beds determined to be the maximum effective management size. Depending upon the available sites and/or land for the proposed health care facilities, one or more of these 1,500 bed units could be co-located on a single site, but the management of each unit would be substantially independent.

6. Housing Unit Sizes

Specific unit sizes (measured by the number of beds or rooms) are presented in the Options Report that reflects current attitudes proposed by the Core Planning Team. These recommendations are based upon providing an appropriate mix of housing environments for the medical/mental health needs of specific patient populations to achieve the most positive outcomes while still providing for a safe, secure and efficient housing unit.

7. Integration into CDCR

A specific and sustained effort will be necessary to ultimately integrate the management, long-term operations, systems, and procedures of the proposed new health care facilities with the existing prisons and health care facilities

currently operated by the CDCR. With a highly integrated system, the proper assignment and management of all patients will be enhanced throughout the system.



Infirmary at Falkenburg Road Facility; Tampa, FL



Use of natural light; FMC-Butner, NC

1.0 Introduction

This Options Report is one in a series of papers and reports prepared by the URS/BLL Joint Venture Team to document phases of the planning and programming process for the proposed 10,000 health care beds, under the auspices of the California Prison Health Care Receivership (CPR) and the California Department of Corrections and Rehabilitation (CDCR) system.

The planning and programming phase of this engagement is dynamic and influenced by a variety of factors. The charge to the Core Planning Team and the URS/BLL Facilities Programming Team is to openly discuss the strategic and organizational options available for the delivery of medical care and mental health care, and to challenge conventional thinking and attitudes to arrive at a consensus for how best to meet the future needs of the patient populations to be served.

As the planning and programming process continues, this Options Report will serve as a “baseline” of modeling from which future decision-making will be based. As new information becomes available, or as conditions change, some of the “baseline” assumptions may be revisited and modified.

A. Purpose of the Options Report

The primary purposes of the Options Report include the following:

Choices

Identify and clarify the choices available to the CPR to meet the requirement of the Federal Courts for the delivery and accommodation of health care services for the proposed 10,000 medical and mental health beds.

Framework for Decision-Making

Establish a framework for choosing the most efficient and cost effective option for specifically meeting the health care needs of the patient population, as outlined in the Abt Associates Report (for medical care) and Navigant Consulting Report for the CDCR Mental Health Bed Plan (for mental health care).

Management Models

Identify preliminary and preferred management models for how to provide the level of desired services. Determine the preferred organizational and operational models to effectively and appropriately manage the patient population.

B. Participants in the Planning Process

The Core Planning Team is represented by two specific groups. The first is the group representing the interests of CPR, CDCR, and the *Coleman Office of the Special Master (OSM)*. The second is the URS/BLL Facility Programming Team. Please see the Acknowledgements page of this Options Report for the complete listing of these representatives.

These individuals were chosen by the Receiver because of their responsibilities within the CPR, CDCR, and OSM organizations, and because of their individual experience in clinical matters, custody, management, and facility planning.

The collective skills and experience of the entire Core Planning Team have enabled a complete and thorough discussion of planning issues and options to help influence the delivery and organization of proposed new health care facilities.

The specific areas addressed by the Core Planning Team include the appropriate planning for new facilities for medical, medical health, dental, and accessibility services. The attitude of the Core Planning Team was to objectively explore new paradigms and models to achieve a higher integration of medical and mental health services for greater efficiency and improved patient outcomes.

The specific role of the Core Planning Team is to provide guidance and direction to the URS/BLL programming team, and to ultimately make the key recommendations on all programmatic, functional, and operational issues for the proposed new health care beds.

C. Methodology for the Development of Options

The evaluation and development of strategic and management options were achieved through a highly participatory process with members of both the CPR/CDCR/Coleman and URS/BLL Facility Programming Team. Starting in September 2007 a number of all-day workshops were held to openly discuss a variety of topics which were intended to ultimately lead to a direct discussion about preferred management models for proposed facilities, levels of integration between medical and mental health services, and the preferred number of beds to be located within a single facility.

Specifically, the Core Planning Team participated in the following activities to develop the strategic options:

Objectives to Support the Receiver's Plan of Action

Through a dedicated workshop session, the group confirmed the goals of this particular engagement, as stated in the CPR Plan of Action. Specific objectives were identified to reinforce the conceptual basis for the CPR Plan of Action. These objectives are summarized later in this report in Section 2.0.

Comparable Facility Tours

The Core Planning Team and URS/BLL participated in meetings and site visits to other correctional systems across the country in an effort to benchmark current or evolving practices in the organization, service delivery, and facility design of correctional health care related facilities. These tours are summarized in the appendix B.

Project Research

Conducted interviews and studies of health care and correctional literature, and polled professionals in the field to support the discussions and recommendations to the CPR concerning organization, service delivery, and design parameters for the proposed development options.

Development Options

Continued to test and refine the development options with the Core Planning Team over several meetings.

Implementation Strategies

Documented the implementation strategies (and anticipated consequences) for each development option identified and evaluated by the Core Planning Team.

Operational Considerations

Initiated some preliminary discussions about broad operational considerations which will be explored in greater detail during subsequent phases of the programming and planning effort.

2.0 A Value Basis for Medical and Mental Health Care Services

One of the most important activities undertaken by the Core Planning Team was to dedicate one entire workshop session to a broad discussion of the mission statement of the CPR and CDCR in the provision of health care services. This workshop discussion reinforced the conceptual basis for the CPR Plan of Action, part of which is excerpted here:

“The overall goals of a constitutionally-adequate prison medical care system are to reduce unnecessary morbidity and mortality, improve inmates’ health status and functioning, coordinate care with mental health and dental, and protect public health. The Receiver must create a sustainable, evidence-based, cost-effective system of care that is continually monitored and revised to meet those overall goals”.

The CPR Plan of Action is organized into seven domains, one of which is the focus of this particular program management engagement.

Goal F, Objective F.3 of the CPR Plan of Action states the following: Plan, design, and build 5,000 new medical beds and 5,000 new mental health beds (estimates) in various regions to provide additional bed space and appropriate levels of care.

A. Underlying Design Foundations

At the December 13, 2007 Core Planning Team workshop, Dr. Terry Hill, CPR Chief Medical Officer, led a discussion about the inherent and underlying foundations for this project and for correctional health care. The group reached consensus that the following narrative was appropriate in defining the basis of the foundation and the core values that will follow.

Purpose and Aims of Correctional Health Care - Prisons function as a vital part of the public health system and the health care safety net, along with public hospitals, community clinics, and the Veterans Health Administration. Correctional health care shares the purpose and aims of American health care as a whole, articulated by the Institute of Medicine as follows:¹

- All health care organizations, professional groups, and private and public purchasers should adopt as their explicit purpose to continually reduce the burden of illness, injury, and disability, and to improve the health and functioning of the people of the United States.

¹ Committee on Quality Health Care in America. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press; 2001. Of the Committee’s thirteen recommendations, these comprise the first and second. See page 6.

- All health care organizations, professional groups, and private and public purchasers should pursue six major aims; specifically, health care should be safe, effective, patient-centered, timely, efficient, and equitable.

Correctional health care shares the moral and ethical obligations that are deeply embedded in the healthcare professions, articulated in the Nurenberg Code, and subsequent Presidential Commissions as the principles of respect for persons, justice, beneficence, and non-maleficence (providing benefit and doing no harm).²

Impact of Facility Design - The physical design of correctional healthcare facilities has direct impacts on safety and security; quality of care and patient outcomes; errors, adverse events, and patient safety; operational efficiency and costs; interdisciplinary functioning; staff stress and well-being; and infection control.³

Physical environments and facility locations play major roles in the ability to recruit and retain qualified staff, promote professionalism, and facilitate new career opportunities for current staff. Facility locations, if near urban centers, also can positively influence the ability of many family members to visit patients.

Roles of Health Care and Custody - In prisons, the missions of health care and custody are interdependent and share a common commitment to safety, security, and well-being of patients, staff, visitors, and the community.

Health care professionals have responsibility and authority for diagnosis and treatment decisions, including admission to and discharge from health care facilities.

Mental Health and Medical Care Integration - As stated by the Institute of Medicine, “Mental, substance-use, and general illnesses are highly interrelated, especially with respect to chronic illness and injury. Improving care delivery and health outcomes for any one of the three, depends upon improving care delivery and outcomes for the others.”⁴ California prisons, like other health care providers, “should transition along a continuum of evidence-based coordination models from (1) formal agreements among mental, substance-use, and primary health care providers; to (2) case management of mental, substance-use, and primary health care; to (3) collocation of mental, substance-use, and primary health care services; and then to (4)

² Beauchamp TL and Childress JF. Principles of Biomedical Ethics, 5th Ed. New York: Oxford University Press, 2001.

³ For health care facilities in general, there is evidence to support each of these elements. References available upon request.

⁴ Committee on Crossing the Quality Chasm. *Improving the Quality of Health Care for Mental and Substance-Use Conditions*. Washington, DC: National Academy Press; 2006, page 71.

delivery of mental, substance-use, and primary health care through clinically integrated practices of primary and M/SU care providers.”⁵

Individualized Care and Individual Responsibility - Most patients have the ability to make responsible choices regarding personal health and wellness, if provided the guidance and support to do so within an environment that embraces recovery and rehabilitation, reinforces positive behaviors, and fosters self-discipline.

Patients suffering from acute or chronic mental health conditions are entitled to treatment that facilitates recovery rather than mere management of symptoms.

Patients have the right to be assessed and treated as individuals; they bear responsibility for their behavior and relationships.

B. Project Objectives

The following specific **objectives** define the parameters which are anticipated to provide for the medical and mental health needs of the patient populations at the institutional and housing unit levels.

Standards

To achieve and maintain recognized medical and mental health standards which could be extended, if appropriate, on a system-wide and individual institution basis.

Long-Term Care

To provide and sustain long-term care medical beds and enhanced outpatient beds for a percent of the correctional system’s population that is defined through research, analysis, and case management.

Range of Acuity Levels

To achieve a balance in the allocation of acuity levels within new establishments that is based on recognized and accepted nursing models of care. Having a range of acuity levels will enable the desired transfer of patients from higher to lower acuity levels, if medical treatment are effective in restoring health and/or relative levels of independence and/or personal functioning.

⁵ Ibid, page 248.

Location

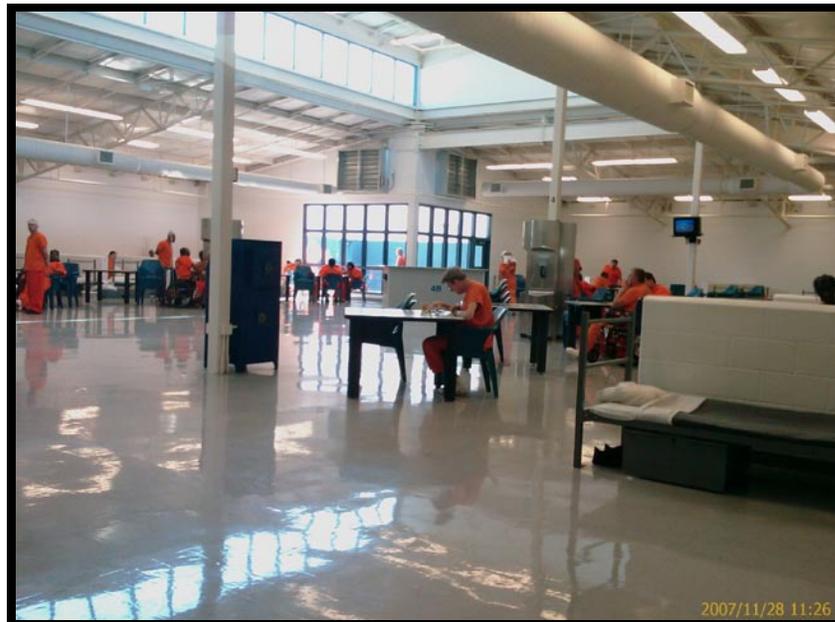
To deliberately seek locations of new care health facilities as close to urban population centers as is feasible. This will help address staff recruitment and retention, as well as improved convenience for family members for visitation.

Assignments Based on Need

To assign patients to the new health care facilities based upon medical and mental health needs, and recent behavior patterns, and not exclusively on historical custody parameters.

Staff Training

To provide appropriate training opportunities for medical, mental health, and custody staff that reinforces desired medical/mental health models of care and patient/custody management.



General Population Dormitory; Falkenburg Road Facility; Tampa, FL

3.0 Project Research

The Core Planning Team is employing a number of research techniques to add to the body of information from site visits and meetings with others within the field. The URS/BLL Facility Programming Team is also, where feasible, taking advantage of research and interviews as well as opinions from professionals with extensive relevant experience to help determine organizational and operational approaches to locating, sizing, and designing new health care facilities.

A. Purpose and Approach to Project Research

The information obtained through this process was reviewed during our workshop sessions with the Core Planning Team, and helped shape areas of investigation at specific site visits. The fundamental areas of project research included the following:

Evaluation of Existing Evidence Based Design Research

There is a growing body of evidence-based design research within the health care field that has applicability in the planning and programming of correctional health care environments. The URS/BLL Team reviewed available information to help shape the relevant planning and programming for this specific project. Evidence-based design research can assist in the following ways:

- It is a process for optimizing the roles of planning, programming, and design to achieve improved healthcare outcomes such as increased quality, safety, and efficiency.
- It uses a disciplined process that is based on knowledge of research and of best practices in the field.
- It helps reduce risk because it suggests ambitious but achievable goals.
- It can help in challenging existing “paradigms” of existing models of delivery and management.
- It is normally informed by “hard” data, when available, and also educated opinions from a variety of sources.
- It seeks to create environments that are:
 - Therapeutic
 - Supportive of family involvement
 - Safe

- Supportive of staff performance
- Mindful of security and patient management needs.

Approach to Research - The URS/BLL Facility Programming Team, in concert with the Core Planning Team, is employing additional research techniques, including some of the following:

- Phone and on-site interviews with administrators of existing correctional and non-correctional medical and mental health facilities outside of California.
- Site visits - This effort elicited a broad range of experiences that are occurring in other facilities across the country.
- Documented literature review of journal articles, research reports, and other printed materials published in medicine, nursing, psychology, ergonomics, and corrections periodicals and books.

Preliminary Research Topics - Preliminary research topics are presented below. These are ongoing efforts and will be summarized in a formal manner and are included in Appendix C.

- Mixing or separating medically ill and mentally ill patients within correctional and non-correctional treatment facilities.
- Mixing or separating patients of various security and custody levels within correctional mental health and medical facilities.
- Attributes of appropriate housing units for mentally ill and medically ill patients.
- Programs to provide for specific populations, how these should be provided, and where these should be located (e.g., in housing units or centralized).
- Types of supervision (custody, treatment, medical) and types of staff stations.

B. Bed Needs by Population Category

Medical Beds - The Core Planning Team is organizing the proposed medical beds and delivery model into three levels of service intensity, from lowest to highest level of care, as follows:

- Specialized general population
- Low Acuity
- High Acuity

The following tables indicate estimates of “current” (or recent) need for medical beds in the California State prison system. This is based on levels of care in existing institutions, and is re-printed from “Chronic and Long-Term Care in California Prisons: Needs Assessment – Final Report – August 31, 2007”, by Abt Associates, Inc. This report was commissioned by the Receiver to analyze existing patient’s medical needs and project future needs and population increases.



Natural Light in Housing; Falkenburg Road Facility; Tampa, FL

Existing CDCR Facilities	No. of Patients by Category as of August 2007			
	Specialized GP	Low Acuity	High Acuity	TOTAL
Current Medical Beds – All Prison Facilities	183	92	91	366
• California Medical Facility	173	43	18	233
• 8 other sampled facilities	567	125	46	738
• 24 un-sampled facilities	934	208	77	1,219
• TOTAL – all prisons – unadjusted ⁶	1,856	469	232	2,557
• Adjustment Factor for un-sampled Strata				1.19
Total – All prisons, adjusted for LTC need within un-sampled stratum	2,174	541	259	2,974
Percent of Total	73%	18%	9%	100%
95 percent confidence interval (lower bound, upper bound)				(2,713 to 3,233)

According to the Abt Report by the year 2017, the continued aging of the population is projected to increase the medical bed needs to between 4,970 and 5,750 beds for patients who need to be in High Acuity, Low Acuity, and/or Specialized General Population beds.

This equates to roughly 230 additional beds per year over the next decade.

The Abt Report also indicates that:

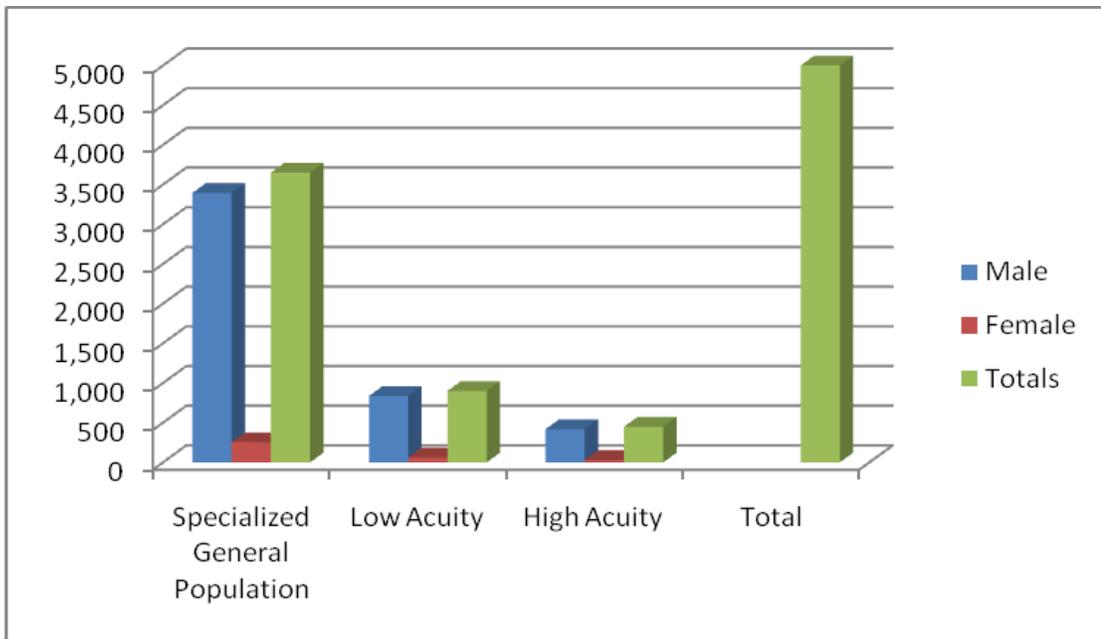
Many current patients could be effectively served at a lower level of care than they presently receive.

Health care infrastructure and services could be reorganized to accommodate patients in “Specialized General Population” units.

⁶ Based on a population of 135,863 that does not include ~ 28,000 inmates in reception centers or ~ 7500 in community corrections.

Based upon the Receiver’s current plans to improve health care access and services in all 33 CDCR prison facilities, the Receiver has instructed the URS/BLL Facility Programming Team to program and plan the proposed 5,000 new beds as follows:

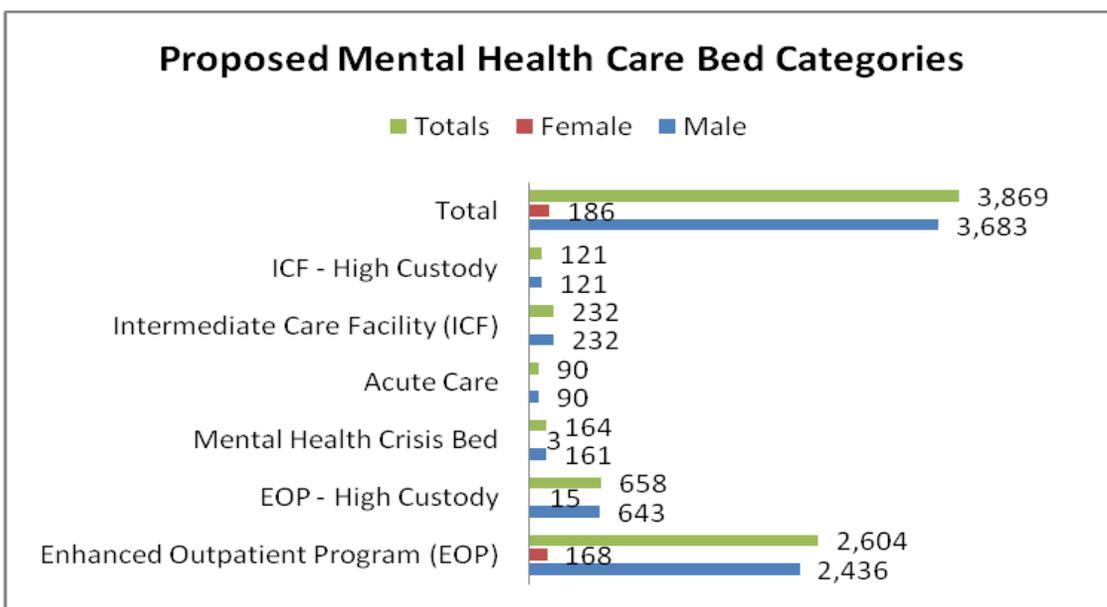
Proposed Medical Care Bed Categories	Male	Female	Totals
Specialized General Population	3,395	255	3,650
Low Acuity	837	63	900
High Acuity	419	31	450
Total			5,000



Mental Health Beds - The *Coleman Court* approved the August 2007, Supplemental Bed Plan, which identifies the need for additional housing and treatment space for its mentally ill population. The table below identifies the planned mental health beds that are currently included in the proposed new health care facilities.

Additional Mental Health Bed Needs for Fiscal Year 2011/2012

Proposed Mental Health Care Bed Categories	Male	Female	Totals
Enhanced Outpatient Program (EOP)	2,680	297	2,977
EOP – High Custody	650	44	694
Mental Health Crisis Bed	113	22	135
Acute Care	90	45	135
Intermediate Care Facility (ICF)	230	-	232
ICF – High Custody	120	-	120
Total	3,883	408	4,293



As part of the supplemental bed plan, the above bed numbers were listed by locations. These are listed below:

- CSP – Sacramento; Folsom
- R.J. Donovan; San Diego
- California Men’s Colony; San Luis Obispo
- California Institution for Men; Chino
- CSP – Los Angeles; Lancaster
- California Institution for Women; Corona

The CDCR Supplemental Bed Plan proposes to:

- Consolidate mental health care for male patients in five prisons.
- Maintain mental health programs at Salinas Valley State Prison (SVSP), Pelican Bay State Prison (PBSP), and California Medical Facility (CMF), along with selected mental health crisis beds located throughout the State.
- Expand mental health beds at the California Institution for Women (CIW) for female inmate/patients; as noted previously.
- These additional bed numbers are projected to meet the mental health bed needs through the fiscal year 2011/2012.

C. Integration of Medical and Mental Health Care Services

There are very few, if any, correctional health care facilities in this country which are comparable to the ones being proposed as part of this program, that is, a facility which provides for the full integration of medical and mental health patients for approximately 1,500 total patients. Specific and empirical data on the experience of mixing mentally ill patients with those needing medical treatment within the correctional settings is not available.

In the absence of specific empirical data, experience-based feedback was obtained from institutions that have program or inmate elements similar to those proposed for the medical and mental health program for the State.

Appendix C contains the research and interviews as develop.

D. Lessons Learned from the Site Visits

Presented below is a brief summary of “lessons learned” from the site visits that the Core Planning Team and URS/BLL Facility Programming Team conducted during the week of November 26, 2007. A more detailed report, included in Appendix B, has been prepared by the URS/BLL project team.

Federal Medical Complex-Butner (Butner, North Carolina)

- Dependent on level of illness and disability; medical and mental health patients can share programs, space, and support areas not only at different times, but also simultaneously.
- Inmate Companion Program (ICP) is beneficial for assisting other patients with ADL's and Hospice Companions are critical members of the team. In many cases, inmate workers can be drawn from patient ranks. For example, Federal Bureau of Prison (FBOP) uses dialysis patients as aids. Iowa uses lifers as Hospice companions, who may or may not have health problems of their own.

- A Clinical Director (versus an Administrative Director) with broad management skills and authority is essential to the success of the program. Case managers must have the authority to move patients within the system and back to the general population when appropriate to keep long term care medical and mental health beds available for new patients. The case management structure is also critical to controlling costs when using outside providers.
- To the fullest extent possible, meals are served to patients in the central dining facilities instead of the housing pods or patient rooms. The purpose is to encourage and support patients to move around and to interact with others. This model is particularly beneficial for mental health patients.
- Major retrofitting has occurred to meet accessibility requirements of the Americans with Disability Act (ADA). Many doors have been enlarged to 42-inches to accommodate extra large wheelchairs, heavy duty equipment has been installed, and beds have been reinforced.
- Insure adequate space for laboratory and pharmacy activities. The equipment needs change frequently and occupies more and not less floor space.
- The medical equipment manager recommends purchasing the best that money can buy, which can be upgraded as new technology becomes available. Cheaper equipment must be discarded as it becomes obsolete, as opportunities for upgrades are inherently more limited in lower cost equipment.
- The facility design seemed too restrictive for good provider/patient interaction. Providers and overall philosophy of the institution seems to lean towards a direct supervision model, but providers are constantly striving to overcome the design limitations.
- FBOP estimates they currently have 17% of their mental health patients in segregation cells (50 out of 300).
- Unit size of 30 beds for high and low acuity patients was confirmed as a good working model.
- Wide corridors for use as day-space were stated as desirable by clinical staff.

State Hospital – North Carolina Dept. of Mental Health (Butner, North Carolina)

- Forensic unit designed for direct supervision. Nurse' station and day room share open space. Disruptive patients can be locked in their rooms

and room hallways can be isolated via barred doors, but intent is for open movement and informal patient/staff contact.

- Supervision within the “old-style” double loaded corridor design is limited.

North Carolina – Department of Corrections (Raleigh, North Carolina)

- Meeting stressed the importance of cooperation between medical and custody.
- Also noted was the importance of utilization review services manager.
- NCDOC stated that they no longer have a parole program, which leaves the responsibility for after-care to various community based programs.

Falkenburg Road Facility – Hillsborough County (Tampa, Florida)

- Jail staff and jail design provide consistent message of the effectiveness of direct supervision.
- The Falkenburg infirmary housing unit was an open bay with beds clustered in groups of pairs or 4 beds, within the center of the building. On either length of the building, there were an additional 10 private cells that were being used for lock-up purposes for disruptive patients or patients needing medical isolation. There were also two pairs of suicide watch cells, with each pair monitored directly by a custody officer. The resulting atmosphere in the main open infirmary was a quiet, relaxed environment very conducive to rest and recovery. All members of the Core Planning Team expressed support that this model of patient housing should be seriously considered for most of the patients planned for these new facilities.
- The outpatient clinic is designed with central, open nurses’ station and surrounding treatment bays with privacy curtains similar to a typical hospital emergency department; inmates wait in an open seating area; the clinic serves males and females; staff and treatment support areas are located on a staff only access corridor surrounding the outpatient clinic treatment space.
- High ceilings with sky lights and clerestory windows ensure bright, natural light filled space; this seemed to encourage a quieter environment. These design features seemed to achieve a physical environment that is more conducive to better behavior patterns of the patients, quieter activities, and generally more pleasant surroundings for both patients and staff.
- Corridors were also glazed for more natural light.

- Open construction removes expense associated with door openings.
- This level of patient care generally does not require three-sided access, but some of the open wards had three-sided access to the beds, with medical gasses and vacuums built into the low head wall.
- The concrete tilt-up construction that was used provides a cost effective solution for many of the housing units.
- Dining could take place in the day rooms or a central dining room. Bed-side dining should be restricted to those patients with the most severe needs.
- Jail management estimates 5 to 10 percent of all jail patients will need segregation in a higher level (hardened cells) of security environment.
- Hillsborough County Director was vehemently opposed to double-celling or the provisioning for future upper bunks. Presumably, the objection was centered around the desire to maintain an effective direct supervision environment.
- One particular and highly attractive feature viewed in the low security housing dorm at Falkenburg was the availability of an electronic “information kiosk”, which the patients could use to view inmate program schedules and other activities within the facility. They are also able to register for programs, which provide them independent decision-making autonomy.



Covered Exterior Walkways; Falkenburg Road Facility; Tampa, FL

Clinical Care Unit – Iowa State Penitentiary – (Fort Madison, Iowa)

- Discharge planning is essential for successful movement both within the prison system and release to the community. For example, they have lock-up patient rooms, four (4) to a pod for the most disruptive, 12 rooms to a pod for step-down, and the regular population mental health in large pods. Without careful planning and supportive care, some patients are unable to move into the less-restrictive environment and tend to decompensate.
- Mental health patients are objectively classified using the Interqual protocols. Interqual may or may not be the answer, but some system is needed.
- Hospice rooms were pleasingly decorated with comfortable seating for either the patient or visitors. Rooms should be open and accessible to nursing. Inmate companions/aides were said to be essential to the success of the program.
- There was privacy within the hospice room, with a separate toilet space being ideal.
- Training is critical for all staff members. Custody staff were carefully chosen, exposed to proper training, and considered part of the treatment team.
- Iowa utilizes the American Correctional Association courses for training.
- Careful screening, selection, and training is especially important for the inmate aids to avoid potential for exploitation and intimidation of the weaker inmate.
- Training also extends to the patients, who will be more medication compliant as they are educated on their medication needs and side effects.
- Mental health clinic and housing design are too restrictive. Far too much security is built in and far too little program and therapy space is available.

Iowa Medical & Classification Center – (Oakdale, Iowa)

- University Hospital is available to provide medical services for Oakdale, since Iowa uses a State funded program. However, because of location and logistical challenges in transporting patients, there is not extensive utilization of the University Hospital.

- Mental health patients are objectively classified using the Interqual protocols. Interqual may or may not be the answer, but some system is needed.
- Training is critical for all staff members.
- Mental Health Clinic and Housing Design are too restrictive. Far too much security is built in and far too little program and therapy space is available. Adequate outdoor recreation space is also not available. The new mental health director has questioned many of the existing design features of this facility.
- The mental health housing is designed as all single cells, but the staff does not object to double-celling with careful classification.
- Design of the medical housing and treatment areas features double occupancy rooms typical of community hospital design; open and separate nursing and custody stations; an open dayroom for use by patients and companion/ADLs workers; and operated under the direct supervision model.



Open Clinic Staff Station; Falkenburg Road Facility; Tampa, FL

4.0 Organizational Models for Medical and Mental Health Services

A. Linkages to the CDCR System

There is a need to ultimately create a linkage, operationally and attitudinally, between the proposed CPR model and the existing CDCR system for medical and mental health services. When fully operational, the CPR model of correctional health care will become a critical part of the larger CDCR system, and organizational linkages will be necessary to ensure the success of both systems.

- Mutual development of the criteria for admission and discharge into these facilities is critical.
- The management and organizational model and its connection to the CDCR must be clear to support linkages.
- Include responsibility for correctional officers to assist the treatment teams is expected and necessary; custody officers will be active participants on the treatment teams and be hand selected for these positions.
- Development of pre-release or re-entry programs and facility criteria. The treatment programs and the continuum of care for patients after release or parole should be coordinated with the State's pre-release and post-release programs.
- Effective linkages will be supported by a clear definition of operational and service delivery for all functions within the new facilities.
- Effective linkages will also benefit from a clear definition of responsibility between custody and medical/mental health staff.

B. Overlap Of Medical and Mental Health Needs

Although the Options Report reflects the common practice of discussing medical patients and mental health patients as distinct populations, there is in fact a large overlap of the two populations. Overall, about one in six prison inmates have severe mental illness, and many have personality disorders. Furthermore, inmates with mental disorders have increased rates of chronic illness and functional impairments. The Abt Associates Report found that patients who had been in the mental health EOP program were 5.6 times as likely to need medical long-term care as inmates who had no mental health history. This large overlap population of patients with both medical and mental health needs has design and operational implications. Medical treatment teams, for example, must incorporate mental health staff and

behavioral health competencies in order to manage patients with chronic illness. (See also Section 2.0)

C. Operational and Organizational Models

There are a number of organizational models that differ in how management of the facility is structured, and how services (housing, program areas, medical services) are distributed. A number of potential organizational models were discussed with the Core Planning Team. The merits of the alternative models were reviewed and discussed. Presented below are three of the organizational models that were reviewed.

Model 1 - Consolidated Facility

The consolidated facility model of management and operations assumes that there are maximum levels of integration and sharing between medical and mental health services. While some patient disease and medical conditions will require specialized housing or treatment support, the intent is for the facility to operate maximally as a unified facility from health care, patient needs, custody, and support perspectives.

- Facility management shall be under a single, health care administrator.
- Each major discipline will be represented by service line organization.
- Highest acuity level of medical and mental health patients accommodated in appropriately designed single rooms.
- Some low acuity and almost all specialized G.P. patients will share generic bed (multi-inmate rooms or dorm-like) settings.
- Medical and mental health patients will be housed together in the same facility.
- Treatment staff will be co-mingled, and work with medical and mental health patients.
- Program space will be shared.
- Some programs will be shared.
- Support services and dining will be shared.
- Medical patient housing will be dictated by primary diagnosis and level of functioning. Mental health patient housing will be dictated by level of functioning.

Model 2 - Parallel Universe Model

This model represents that within a single facility, operated under a single health care administrator, there is a high degree of separation between activities aimed at medical patients versus those designed for mental health patients. Except for specialty services or equipment, it is assumed that each of the medical and mental health programs would be autonomous with little sharing of spaces, support teams, housing, and other patient programs.

- Facility management operates under a single health care administrator.
- Separate management for mental health and medical areas will exist.
- Medical patient housing will be dictated by primary diagnosis and level of functioning. Mental health patient housing will be dictated by level of functioning.
- Treatment staff will be separate, except as required for consultation and dual diagnosis.
- Program space will be shared between mental health and medical patient populations and needs to the extent appropriate. Separate dedicated space may be necessary for specific needs.
- There will be sharing of patient and medical resources, such as medical records, laboratories, etc.
- Patient programs will be separated by major diagnosis and or levels of patient functioning.
- Separate dining facilities will be provided for each of the major patient populations.
- Some support services will be shared, if appropriate.

Model 3 - Hybrid Model

This is a “hybrid” model that is based on the assumption the sharing of resources, space, treatment teams, and inmate support programs will be encouraged to the levels supportable by patient needs and ability to achieve quality patient outcomes. This is based on the model that not all areas of patient needs can be met within a fully integrated model, but that there is a high degree of interest for appropriate sharing of services.

- The facility management will be under a single health care administrator.

- Each major discipline will be represented by its own service line organization.
- Medical housing will be dictated by primary diagnosis and level of functioning. Mental health patient housing will be dictated by level of functioning.
- Treatment staff will be shared as needed, and if appropriate.
- Program space will be shared, but patients could usually be separated by scheduling. Co-mixing of patients in program space will be achieved under supervised circumstances.
- Some of the dining will be shared. Separate dining will also be provided.
- Support services will be shared.

D. Core Planning Team Preferred Model

After deliberating the attributes for each of these models, and others, the Core Planning Team recommended that the “Hybrid” model of facility organization and management be further explored as the model of choice. This model was judged to most completely and satisfactorily address the core mission and objectives of the CPR and the clinical custody objectives as articulated by the Core Planning Team.



Nursing Station; FMC-Butner; Butner, NC

5.0 Operational Options for the Delivery of Services

This section of the Options Report provides further insight into some of the potential and/or desirable operational needs and characteristics of the proposed new CPR health care facilities. As the planning of these new CPR facilities progresses, more specific and departmental operational guidelines will be established, with direct input by departmental and functional services staff.

This level of operational options is, however, at a broader level, and includes preliminary references to the following: broad operational issues; admissions criteria; levels of care; security principles; release and transfer.

A. Broad Operational Framework for Medical Services Delivery

Guidelines - The following guidelines begin to describe some of the opportunities for an operational framework for the delivery of medical care services:

- The health services facility will have a security presence to ensure patient and staff safety and perimeter containment.
- Housing and clinical services should be patient need driven.
- Patient involvement in their individual care and treatment is encouraged e.g., patient use of computer kiosk in housing units to sign up for sick call, programs, visiting, access resource information, etc.
- Free movement, with appropriate limitation, for the patients should be encouraged, except where current behavior or physical limitations prohibits this freedom.
- There shall be no barriers to access to care.
- Maximization of service provision and programming should be encouraged, including up to seven days per week for patient services.
- There should be an appropriate mix of centralized and de-centralized services that supports the desired model of patient management for the facility.
- A treatment mall approach to programs and services should be encouraged.
- Housing and treatment environment should be supportive of treatment, safety, and personal responsibility.

- Management and services may be provided through the State or by private vendor, full service and management, or mix of State and vendor provided.
- Normalization of the environment through use of windows, light, space, color, and art in treatment units.
- Incentive system rewarding positive behavior and treatment participation to process patients through a continuum of housing and programming with the goal of attaining the least restrictive environment and maximization of functionality.
- Use of screened, trained, and supervised inmate workers for activities of daily living (ADL) and companion services.
- Blending and sharing of services by medical and mental health populations as much as possible, e.g., dining, education, religious services, recreation, and vocational programming.

Conditions for Admission to Health Care Facilities - General conditions for a patient's admission to one of these proposed CPR health care facilities are presented below. The Abt Report also provides specific patient needs that are conducive to a long-term care facility environment, and these are summarized in the following section. General conditions for admission include the following:

- Medical condition(s) makes management in a regular general population setting difficult or impossible.
- Medical condition(s) are not severe enough to require a traditional and more costly, acute-care setting.
- Impaired mobility, difficulty performing ADLs (or prison ADLs) and/or cognitive impairment which makes management in a general population setting difficult or impossible.

Levels of Care - The levels of care proposed within the CPR health care facilities are summarized below, and are referenced by the Abt Report. The Abt Report assigned patients to medical long-term care if they had significant functional or cognitive impairment. Patients with diabetes and HIV, for example, but without functional impairment, were not considered appropriate for the new health care facilities. The schematic descriptions of the three levels of long-term care are as follows:

- High Acuity Medical:
 - Registered Nurse (RN) availability 24 hours/day for assessment, monitoring, and/or complex management.
 - IV hydration for more than three days.
 - Complex or high risk medication regimen.
 - Complex wound care regimen.
 - Extensive assistance with Activities of Daily Living (ADLs) (or totally dependent).

- Low Acuity Medical:
 - RN availability 8-16 hours/day for assessment, monitoring, and/or management, and 24-hour phone consultation capabilities.
 - IV hydration for less than three days.
 - Straightforward IV antibiotics (e.g., for osteomyelitis)
 - Straightforward wound care regimen.
 - Supervision or limited assistance with ADLs.
 - Pre-procedure care and routine post-hospital care can usually be done at the Specialized General Population level.

- Specialized General Population Medical:
 - Vision, hearing, or mobility impairment preventing residence in the regular general population.
 - AIDS.
 - High Risk.
 - Frailty due to age or medical condition.

Security Principles

The following security principles may be appropriate for the management of medical care patients. The Core Planning Team is encouraging and embracing a stronger movement towards direct supervision models of patient management for these new facilities. The principles presented below reinforce this strategic direction:

- Special and focused training of custody staff is imperative to achieve success in the direct supervision model. The basic principles of direct supervision need to be universally accepted and practiced at all levels of the facility's management and front line custody officer structure.

- Provide the appropriate levels of training for staff safety, under the direct supervision model of delivery.

- Develop and implement of adequate safety and security for patients and staff. This concept is consistent with the principles of direct supervision, and is based on positive and supportive communication between staff and patient.

- Require team training for security and health care staff (this relies on a clear definition of responsibility between custody and medical/mental health staff).
- Train custody staff on patient privacy and confidentiality issues.
- Fully evaluate the impact of custody designations on housing options, rooms vs. dorms.
- Identify potential and necessary revisions to CDCR policy and procedures currently utilized where these policies conflict with the desired and proposed management or organizational models of these new health care facilities.

Release and Transfer

- Re-entry services instituted within the facility, unless able to move to a re-entry facility, 6 -12 months prior to release date if being released to the community, e.g., medication management, independent living, accessing community services, etc.
- Discharge planning services including residential treatment setting placement, e.g., SNF, assisted living, home with a visiting nurse, instituted in advance of release date for patients requiring continuing care.
- An Interdisciplinary treatment team's assessment of the patient's clinical status determines if the patient has reached maximum functional level that can be achieved at the health care facility.
- Re-integration services (discharge planning) instituted in preparation for transfer back to a general prison population setting.
- Central patient bed management determines bed availability in appropriate custody classification.
- Transfer to a designated prison with follow-up outpatient care as needed shall be done within a timely manner.
- Orientation, training, policies, and procedures in existing prison settings in preparation for receiving and supporting patient transfers to facilitate health maintenance and optimum functionality.
- Transfer to acute hospital setting.

B. Broad Operational Framework for Mental Health Services Delivery

1. **Guidelines** - The following guidelines are broad in nature, but begin to describe some of the opportunities for an operational framework for the delivery of mental health services:
 - Health services facility with security presence to ensure internal safety and perimeter containment.
 - Housing and clinical services are patient need driven.
 - Patient involvement and decision-making in care and treatment encouraged, e.g., patient use of computer kiosk in housing units to sign up for sick call, programs, visiting, access resource information, etc.
 - Free movement of patients with appropriate limitations except where current behavior prohibits.
 - No barriers to access to care.
 - Maximization of programming including up to seven days per week.
 - Mix of centralized and de-centralized services.
 - Treatment Mall concept of patient program accessibility.
 - Housing and treatment environment supportive of treatment, safety, and patient independence.
 - Normalization of the environment through use of windows, light, space, color, art in treatment units, except when high custody issues need to be taken into consideration.
 - Incentive system rewarding positive behavior and treatment participation to process patients through a continuum of housing and programming with the goal of attaining the least restrictive environment and maximization of functionality. Similar in those currently in CDCR psychiatric service unit (PSU).
 - Blending and sharing of services by medical and mental health populations as much as possible, e.g., dining, education, religious services, recreation, and vocational programming.

2. Conditions for Admission for Mental Health Patients

- Clinical determination that the patient is in need of acute, Mental Health Crisis Bed (MHCB), Enhanced Outpatient Program (EOP), or Intermediate Care Facility (ICF), or acute level of care.
- Endorsed for transfer to this type of treatment facility assignment by the central patient bed management.
- Intake assessment/evaluation by an inter-disciplinary treatment team.

3. Levels of Care – Descriptions are from CDCR’s “Acronyms & Definitions for California Correctional Health Care”

- Enhanced Outpatient Program (EOP) – Second lowest of five levels of mental health care. This level needs the following:
 - Weekly contact with clinician.
 - Medication management at least every 30 days.
 - Structured treatment at least 10 hours per day.
- Mental Health Crisis Bed (MHCB) – Third lowest of five levels of mental health care. This level needs the following:
 - 24-Hour inpatient care for those with serious mental disorders with marked impairment in most areas of functioning.
 - Individual and group therapy.
 - Medication management.
- Inpatient Acute Care (Acute) – Highest level of five levels of mental health care, this level needs the following:
 - 24-Hour inpatient care to prevent patients from causing danger to themselves or others.
 - Grave disabilities (e.g., inability to use food in appropriate ways).
 - Individual and group therapy.
 - Medication management.

4. Security Principles

- Endorsed for transfer; treatment facility assignment by Central Patient Bed Management.
- Treatment focused training of custody staff is necessary to facilitate the direct supervision model.
- Develop the appropriate level of “Physical Environment” for staff safety.
- Development and implementation of adequate safety and security for patients and staff. This concept is consistent with the principals of

direct supervision, and also encourages communication between staff and patients.

- Level of cross training for security and mental health staff (this relies on a clear definition of responsibility between custody and medical/mental health staff). Health care and custody staff must have basic overall understanding of the holistic approach to treatment.
- Level of impact of all custody designations, except for condemned patients. Categorization should be based on medical and/or mental health need and recent behavior.
- Require necessary revisions to existing CDCR policy and procedures currently utilized when these policies are in conflict with the goals and objectives of the proposed new facilities.

5. Release and Transfer

- Re-entry services instituted on-site 6-12 months prior to release date if unable to be transferred to a re-entry facility. These programs are designed to prepare patients to re-enter society. Services provided could include as appropriate, education, mental health and substance abuse treatment, job and life skills, training, medical management, and full diagnostic and risk assessment.
- Discharge planning services, including residential treatment setting placement, linkage with adult parole and the parole outpatient clinics instituted in advance of release date.
- An Interdisciplinary treatment team will utilize a set of criteria for assessment of the patient's level of functioning.
- Central patient bed management determines bed availability in appropriate custody classification institution.
- Transfer to designated prison with outpatient care as needed or to acute care setting.
- Orientation, training, policies, and procedures in existing prison settings in preparation for receiving and supporting patient transfers to facilitate health maintenance.
- Re-integration preparation (discharge planning) for general population prison setting should be instituted as soon as possible.

C. Factors Influencing Medical Service Delivery

Presented below are some of the preliminary factors which may influence the delivery options for the provision of medical services. These factors were discussed at the Core Planning Team workshop sessions. These factors begin to illustrate the attitudes, ideas, and growing consensus of the Core Planning Team on preferred models of care and delivery of services.

1. Treatment Unit Sizes by Acuity Levels

- High Acuity Medical Housing – Single rooms, semi-private rooms, 2-8 bed rooms or large open residential setting.
- Low Acuity Medical Housing – Single rooms, semi-private rooms, 4-bed rooms or large open residential settings.
- Specialized G.P. Medical Housing – Single rooms, semi-private rooms, 4-bed rooms or large open residential setting.

2. Management Unit Sizes (Treatment Units under one (1) Management)

- Medical management units may consist of one (1) each of the housing types for a total of 250 - 300 patients.
- Other configurations of units may be used depending upon location, but the total number of patients should not exceed 500.

3. General Staff Guidelines by Treatment and Management Unit Sizes

- Use of direct supervision.
- Determination of unit sized by patient types and behavior issues.

D. Factors Influencing Mental Health Service Delivery

Presented below are some of the preliminary factors which may influence the delivery options for the provision of mental health services. These factors were discussed at the Core Planning Team workshop sessions. These factors begin to illustrate the attitudes, ideas and growing consensus of the Core Planning Team on preferred models of care and delivery of services.

1. Treatment Unit Sizes by Acuity Levels

- MHCB – Single rooms
- EOP - Open residential dorm setting with some single and multiple occupancy rooms.
- ICF – Single rooms
- High Custody Patients - Designated high security unit(s) designed to support behavior control through a restrictive environment and high observation with treatment programming and single rooms

2. **Management Unit Sizes** - Clusters multiple treatment units to comprise a management unit sharing some common support services.

3. **Types and Levels of Support Services Required** – Providing appropriate services by patient level of care as specified in CDCR's Health Services Delivery System (MHSDS). Continue to provide and update unique programs for specific patient needs and investigate current ADL programs for design issues.

6.0 Operational Approaches to Sizing of Proposed CPR Health Care Facilities

There continues to be considerable discussion about the appropriate sizing of proposed health care facilities within the CPR's projects. This discussion will continue into subsequent phases of the planning and programming, in part, because some of the criteria may be dependent upon the specific proposed locations, potential scheduling, and timing of project implementation, staffing considerations, and cost.

The sizing of facilities will also affect the total number of sites to be developed. Within the proposed 10,000 bed target (5,000 medical, 5,000 mental health beds), there is a broad spectrum of options for both the sizing and the total number of sites or facilities.

The general approaches presented in this section on the potential number of sites begin to summarize some of the discussion points that have been elevated by the Core Planning Team.

A. One Site Model

1. **Basic Organizational/Operational Description** - Large campus of separate buildings designated/designed to provide a continuum of medical and mental health housing, treatment, and programming on one site. Provide connectivity to facilitate sharing and blending of programming and service delivery to management units. Patients move along the continuum of medical and mental health housing, treatment services, and programming as indicated by acuity level and functionality.
2. **Implications for Medical/Mental Health Service Delivery** – Provides a full complement of the continuum of care for both medical and mental health services thus facilitating treatment options.
 - Potential for long distances between management units affecting access to centralized services such as specialty clinics and diagnostic services which creates a need for an intra-facility transportation system.
 - Challenge to effective management and coordination of services within a facility of this magnitude.
 - Large staffing and service components have the potential to limit or prohibit sharing and blending and team building to support the desire for a stronger case management model of patient care.

- 3. Implications for CDCR System** - Provides large capacity, one (1) site of the full range of levels of care and treatment for both medical and mental health patients. This will centralize services for the State and contains impacts, some of which are listed below:

Positive:

- Potential to achieve Center of Excellence Status.
- Population numbers would support purchase of state-of-the-art diagnostic and treatment equipment to provide maximal level of services on-site.
- Potential cost benefits from economy of scale.

Negative:

- Challenge to effective management with such a large complex.
- Challenge to recruitment of adequate numbers of qualified professional and support staff.
- Challenge to provision of effective support services such as food, laundry, and visiting.
- Transporting distances from referring institutions will be considerable, and very costly.
- Locating patients away from family support will adversely influence the patient recovery model.

B. The Three Site Model

- 1. Basic Organization/Operational Description** - Prototype campus, treatment, and support space providing the full continuum of medical and mental health levels of care, treatment, programming, and housing.

- Some centralization of services can occur to blend medical and mental health patient populations that will facilitate sharing of services and programming as much as possible.
- Patients move along the continuum of housing, treatment, and programming based upon acuity of need and ability to function. Unit management clusters provide the continuum.

- A central medical facility provides medical specialty clinics and diagnostic services, central pharmacy, laboratory, and the high acuity medical unit and mental health crisis bed unit services.
- The initial triage and pill lines are decentralized in the management units. EOP and ICF units are designed and operated as a “Treatment Community” fostering and facilitating patient participation in treatment.

2. Implications for Medical/Mental Health Service Delivery

- Large patient population size presents management and staffing challenges.
- More manageable campus size although distances between residential settings, treatment, and programming services could be considerable.
- Provides population size to support the full continuum of levels of care/treatment services.

3. Implications to CDCR System

- Provides an opportunity for regional accessibility for existing prison sites.
- Provides an opportunity for better family visiting access.
- More manageable complex/institution size.

C. The Five Site Model

1. Basic Organizational/Operational Model - Same as the Three-Site Model but smaller size affords more opportunity for sharing and blending of services; less of a management and staffing challenge; potential for more compact facility model.

2. Implications for Medical/Mental Health Service Delivery

- Smaller patient population groups afford opportunities for sharing and blending of services for medical and mental health.
- Improved management service and staffing size.
- Reasonable intra-facility distances for staff and patients.
- Population size supports the provision of the full continuum of housing and treatment service levels.

- Opportunity for cohesive care and treatment community concept.

3. Implications for CDCR System

- Multiple locations provides for greater/closer access by a greater number of existing prison sites results in less long distance transportation.
- Potential for greater family visiting access.
- Potentially more costly model due to redundant resources and services assigned to five sites.
- Challenge of recruiting five sets of medical/mental health leadership.

4. The “Regionalized” Seven Site Model

Basic Organizational/Operational Description - Fifteen hundred or less beds on multiple sites, or some co-located on one site each operated as freestanding, independently managed, and operated facilities. They may be distributed around the State at existing prisons or other selected locations.

- Provides a smaller-sized, full continuum of housing and treatment service levels, and centralization of higher acuity medical and mental health treatment services, medical outpatient clinic, specialty services, diagnostic services, food preparation and dining, laundry, educational, and treatment programs.
- Most reasonable size for the management and delivery of treatment services of the models presented.

5. Implications for Medical/Mental Health Service Delivery

- Reasonably sized treatment populations which support the recovery treatment model, establishment of treatment communities, and Treatment Mall concept.
- Smaller population affords greater opportunities for sharing and blending of medical and mental health services and resources.
- Manageable service and staffing size.
- Smaller, more compact campus provides greater/closer access by staff and patients to campus treatment and support services.

6. Implications for CDCR System

- Potentially more costly due to duplication and redundancy of services, equipment, support and infrastructure systems.
- Potential for less long distance transportation of patients from referring prison sites.
- Potential for greater family visiting access.
- Provides opportunity for establishment of site specific specialization/centers of excellence resulting in less duplication and maximum utilization of specialized staff, resources and equipment.



Emergency/Triage Facility; FMC-Butner, NC

7.0 Future Discussion Issues

There will be considerable and ongoing discussion on a variety of topics relating to program needs, sizing of facilities, location of facilities, management models, etc.

The last Core Planning Team workshop session (held 12/13/07) generated broad discussion on topics that may impact the larger CDCR prison and health care system, and which are not necessarily being directly addressed by this particular effort managed by the URS/BLL Program Management Team. These issues and topics may require additional discussion at a higher governmental or oversight level as they impact the effective delivery of correctional health care potentially beyond the scope of the 10,000 beds proposed for this project.

In summary, these issues are presented below:

A. Operational Linkage with CDCR to Achieve a “Total” System of Care

In both the short-term, and the long-term, these new correctional health care facilities must be integrated (operationally and functionally) with the larger CDCR system, so that a single integrated system of health care can be achieved. Patients will continue to be transferred to and from these correctional health care facilities, and practices must be in place to achieve an appropriate transfer of patients so that their medical needs can continue to be met without compromising progress that has been made. Examples of integration issues include the following:

- Admissions criteria to these new facilities.
- Best ways to modify the original/current CDCR structure.
- Inmate intake procedures/criteria.
- Release/transfer back to other facilities.
- Case management requirements.
- Procurement methodologies.
- Discharge criteria.

B. On-Going Planning Issues

- Housing designation based on behavior and health care needs.
- Facility operation guidelines.
- Medical equipment planning and procurement.
- Medical consumables.
- Fixtures, furnishings, and equipment.

- Food service – system wide.
- Staffing, recruitment, training, and opportunities programs.
- Transition planning, including staff, policies and procedures, operational procedures, equipment planning, purchasing, etc.

C. Facility Work Force

- Number of inside versus outside inmates for housekeeping, patient aides, etc.
- Locations of inmate workers, inside or outside the secure perimeter.

D. Female Patients

- Location of women patients.
- Consolidation of women patients.
- Specialty services required for women patients.
- Extent of separate programs versus shared programs.
- Housing options and policies for women patients.
- Policies for women patients who are housed on campuses with men.



Space for Emergency Services; FMC-Butner, NC

Appendix A Literature Review & Summary

The reviews included within this section include summaries of selected Health Care Publications submitted by Terry Hill, M.D., Chief Medical Officer of the California Prison Health Care Receivership Corporation. These reviews were done for the programming study performed by the URS/BLL Facility Programming Team for relevance in establishing the program and planning criteria and parameters for the proposed 10,000 medical and mental health beds:

Title/Author of Health Care Publications Reviewed/Summarized:

1. ***The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity*** by Roger Ulrich and Craig Zimring, September 2004
2. ***The Role of the Physical and Social Environment in Promoting Health, Safety, and Effectiveness in the Healthcare Workplace*** by Anjali Joseph, Ph.D, November 2006
3. ***Health Promotion by Design in Long-Term Care Settings*** by Anjali Joseph, Ph.D, August 2006
4. ***Facility Design for Safety, Evidence-Base Design Creates Safer, Healthier Facilities published*** by *Environment of Care News*, March 2004
5. ***Enhancing the Traditional Hospital Design Process: A Focus on Patient Safety*** by John G. Reiling et al, March 2004
6. ***Creating a Culture of Patient Safety through Innovative Hospital Design*** by John G. Reiling in *Advances in Patient Safety: Vol.2*, no date
7. ***Healthcare Boom: Nursing Stations for the 21st Century*** by Larry Flynn, Senior Editor, *Building Design and Construction*, February 1, 2005
8. ***Building in Infection Control for the Ground Up: Northwestern Memorial Hospital Fights Infection*** by *Design in Environment of Care News*, October 2004

ARTICLE 1:

The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity by Roger Ulrich and Craig Zimring, September 2004

Premise:

Review of current scientific articles (600 reference articles in appendices!) for how hospital design can impact clinical outcomes and make hospitals safer, more healing, and better places to work:

- Single bed vs. multi-bed rooms
- Reduce noise
- Improve lighting
- Better ventilation
- Better ergonomic designs
- Supportive workplaces and improved layout that will help reduce errors, improve sleep, reduce pain and drugs
- Reduce levels of risk and stress

Results:

Reduce Staff Stress and Fatigue and Increase Effectiveness in Delivering Care:

- Improve staff health and safety through environmental measures
- Increase staff effectiveness, reduce errors, and increase staff satisfaction by designing better workplaces
- Improve Patient Safety:
- Reduce hospital-acquired infections by airborne pathogens and hand washing
- Reduce medical errors by adequate lighting, interruptions/distractions, reduced patient transfers
- Reduce patient falls by proximity to bathrooms, improved lighting, securing carpeting
- Improve patient confidentiality and privacy

Reduce Stress and Improve Outcomes:

- Reduce noise from muting paging systems, sound absorbing materials, single rooms
- Improve sleep
- Reduce spatial disorientation with way finding, clear entrance/parking, logical room numbering, “integrated” routes, “logical” building layouts
- Reduce Depression:
- Increase lighting and maximize use of day lighting and full spectrum lighting
- Provide nature and positive distraction, gardens and art in healthcare environments
- Provide Social Support:
- Provide lounges with moveable furniture in small flexible groupings
- Maximize opportunity for social interaction that include family space
- Presence of roommates usually is a source of stress rather than social supports

ARTICLE 1: (continued)

The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity by Roger Ulrich and Craig Zimring, September 2004

Improve Overall Healthcare Quality:

- Provide single-bed patient rooms
- Climate and sunlight and sleep-wake patterns reduce length of stay
- Increase patient satisfaction with quality of care by providing better environment

Conclusions:

Evidence Based Design, with the goal of improving outcomes and of continuing to monitor the success of designs for subsequent decision-making, helps patients recover and be safer and help staff do their jobs better with the following recommended actions for new facilities:

- Provide single-bed rooms and use of adaptable-acuity planning
- Quieter hospitals reduce stress and improve sleep
- Provide patient stress reducing views of nature and other positive distractions
- Develop way finding systems that heighten efficiency and reduce stress
- Improve ventilation through use of improved filters and appropriate pressurization.
- Improve lighting and use of natural and full spectrum lighting
- Design nursing unit layout and nurse stations to reduce staff walking and increase patient care time

Review:

The focus of article is on new acute care hospital design and not on skilled care and assisted living care living units which would be more appropriate for our use. Concepts may be more useful for patient/custody medical and healthcare units when stated ideas are more abstracted and seen with a custody overlay.

ARTICLE 2:

The Role of the Physical and Social Environment in Promoting Health, Safety, and Effectiveness in the Healthcare Workplace by Anjali Joseph, Ph.D, November 2006

Premise/Abstract:

Key Findings that combination of proper design and institutional culture can correct inherent problems in the healthcare workplace that:

- Lead to staff injuries
- Hospital-acquired infections
- Medical errors
- Operational failures
- Wastage

Thesis:

Improve health and safety of the care team through environmental measures that:

- Reducing infections
 - Ventilation and hand washing
- Decrease back pain and work-related injuries
 - Installing ceiling lifts and instituting a no-manual lift policy
 - Using softer floors
 - Through ergonomic evaluation of work areas
- Reducing injuries from medical equipment
- Improving adjustment to night-shift work
- Lessening noise stress
 - Noise induced stress is related to reported emotional exhaustion and burnout
 - Reduced noise results in improved speech intelligibility and reduced perceived work demands and pressures among staff.

Staff effectiveness is undermined by poorly designed work systems resulting in:

- Multiple patient transfers within the hospital
 - Increased costs
 - Reduced quality of care
 - Medical errors
 - Wastage of staff time
 - Reduced staff productivity

ARTICLE 2: (continued)

The Role of the Physical and Social Environment in Promoting Health, Safety, and Effectiveness in the Healthcare Workplace by Anjali Joseph, Ph.D, November 2006

- Time wasted hunting and gathering people and supplies
 - Nurses spend close to one-third of their time walking on the unit between patient rooms, the nursing unit core, and the nurses' station
 - This walking results in fatigue
 - Bringing staff and supplies closer to patients is likely to reduce time spent walking and increase time spent in direct patient-care activities
 - It is important to consider the impact of decentralized care on staff socialization and communication

- Frequent communication breakdowns
 - Different types of spaces for interactive team work
 - Visual connections to facilitate information seeking and interaction
 - Flexible workspaces
 - Smaller unit size to foster interaction
 - Neutral spaces that minimize professional and status hierarchies

- Medical errors
 - Low light levels
 - Inadequate private space for work
 - Frequent distractions and interruptions
 - Noisy chaotic environment

- Improve staff and patient satisfaction and morale through integrated environmental design
 - Incorporating patient and family spaces to support family participation in the care process
 - Design of pleasant, attractive environments
 - Smaller units with good visual access between staff and patients

Summary/Review:

Good information for all nursing types and acuity/levels of patient care and applicable to developing programming and planning work flows, ergonomic evaluation of staff work areas, location/relationship of functions, sources of infection and injury to staff (and patients), study of noise generation/absorption and manual lift required of staff.

ARTICLE 3:

Health Promotion by Design in Long-Term Care Settings by Anjali Joseph, Ph.D,
August 2006

Long Term Facilities because of disability or chronic illness that limits his or her ability to function for:

- Resident Quality of Life
 - When rigid routine dictates when they eat and when they sleep, residents have few choices, resulting in a loss of dignity and sense of self.
- Resident Safety
- Staff Stress
 - Environmental Factors:
- Unit layout
- Supportive features and finishes
- Reduced noise
- Access to outdoor spaces

Potential Outcomes:

- Improved sleep
 - Sleep deprivation due to “daytime sleepiness”, “nighttime insomnia”, and “sleep disturbance” are associated with increased mortality among institutional elderly
- Better orientation/way finding
 - Culturally relevant landmarks in key locations support way finding and orientation
- Reduced aggression and disruptive behavior
 - Higher among residents with dementia and non-demented residents
 - Unit Size and ambiance important
 - Private rooms support reduced aggression
 - Music (white noise), relaxing music helpful
 - Light important
 - Access to outdoors in a controlled environment
- Increased social interaction
 - No conclusion on private vs. shared rooms in long-care environments
 - Placement of furniture in small flexible groupings in public spaces support social interaction
- Increased overall satisfaction and well-being
 - Promote physical activity
 - Eden Alternative: Interaction with pets, plants, and children for 8-10 elders per house/units
 - Environment that reduces potential falls: bathroom access at night, frictional floor variations
- Environment should not only support functional abilities but provide opportunities for residents to be physically active and healthy

ARTICLE 4:

Facility Design for Safety, Evidence-Base Design Creates Safer, Healthier Facilities published by *Environment of Care News*, March 2004

Summary:

Use of Failure Modes and effects Analysis (FMEA)

- FMEA conducted at every stage of design—data driven
- Stakeholder input is Critical
- Create an Organizational Leadership Structure
- Design Should Focus on Organizational Processes
 - Simulations, workflow analyses, and full-scale mock-up
- Design Should Reflect an Understanding of Human Factors
 - Examine and revise major work processes (admission, discharge, medications)
- Design Should Keep Vulnerable Populations in Mind
 - Design must work for most vulnerable patients
- Design Should be Flexible Enough to Accommodate Change
- Design Should be Standardized
- Design Should Allow Immediate Access to Information
- Design Should Address Known Threats

ARTICLE 5:

Enhancing the Traditional Hospital Design Process: A Focus on Patient Safety by

John G. Reiling et al, March 2004

Summary:

Staff of St. Joseph's Hospital in West Bend, Wisconsin use safety-driven design principles (called the Synergy Model) for their new, replacement 80 Bed Acute Care Hospital. Innovative design elements are: truly standardized patient rooms, new technology to minimize falls, and patient care alcoves for every patient room. Hospital maintained design for maximum adaptability and flexibility to accommodate changes and provide for future growth.

Precarious Events:

- Operative/post-op complications/infections
- Inpatient suicides
- Correct Tube-correct connector-correct hole
- Wrong-site surgery
- Oxygen cylinder hazard
- Events Relating to medical errors
- Patient Falls
- MRI Hazards

Facility Design Principals:

- Visibility of Patients to Staff
- Standardization
- Scalability and Adaptability
- Immediate access to information at the point of service
- Noise Reduction
- Patients Involved in Care
- Minimize fatigue
- Use FMEA (Failure Mode and Effect Analysis) at each stage of the design process
- Design for Vulnerable Patients
- Human Factors Review
- Design Around Precarious Events

ARTICLE 5: (continued)

Enhancing the Traditional Hospital Design Process: A Focus on Patient Safety by John G. Reiling et al, March 2004

Creating a Culture of Safety:

- Create culture of safety that allows confidential and anonymous reporting
- “Shared values” (what is important) and “beliefs” (how things work) that interact with an organization’s structures and control system’s to produce behavioral norms

Safety Features of the Patient Rooms:

- Standardization in room size and layout
- In-room sink to allow physician/staff hand washing in patient view
- Charting alcove with window to increase patient visibility for nurses, physicians, and staff
- Private room to provide personal privacy
- Close proximity between bed and bathroom to reduce the potential for patient falls
- Bedside computers for:
 - Patient access to records for scheduled medications, etc.
 - Allows nurses to double check medication or other scheduled treatment
- Oversized window to increase natural light and provide a “healing” view
- Ceiling heights and room size adaptability/suitability
- Sitting area and guest fold-out bed to encourage family support and involvement of care
- Noise reduction through use of low-vibration steel and special noise-absorbing ceiling tiles and eliminate of overhead paging
- Improved technology, including electronic medical records (EMR’s), computerized physician order entry (CPOE), and advanced nurse call system (including wireless phones)
- Use of infrared technology to reduce the potential for patient falls

Review:

Good description of design process for patient safety design in Acute Care Hospitals that could be incorporated in CPR planning process, but limited potential for use of actual safety features in CDPR facilities.

ARTICLE 6:

Creating a Culture of Patient Safety through Innovative Hospital Design by John G. Reiling in *Advances in Patient Safety: Vol.2*, no date

Summary:

More academic description of Article 5 description of St. Joseph Hospital, West Bend, Wisconsin planning process (same author as Article 5). Need for Patient Safety Design stated in statistics like:

- Probability of hospital preventable medical death of 3-6 per 1,000 admissions
- Adverse event will occur in the range of 3-4 per 1,000 admissions

Top 10 recommendations from learning lab during St. Joseph Design Process:

- Design FMEA at each design stage
- Standardize location of equipment, supplies, room layout, and care processes
- Involve patient/families in the design process
- Use an established checklist for current/future design
- Bring critical information for decision-making close to the patient
- Reduce Noise
- Use adaptive systems that will allow function in the future
- Articulate a set of principles by which everything is measured
- Begin equipment planning on Day 1
- Begin mock-ups on Day 1

Facility safety design principles:

- Noise Reduction
- Scalability, adaptability, flexibility
- Visibility of patients to staff
- Patients involved with care
- Standardization
- Automate where possible
- Minimize fatigue
- Immediate accessibility of information, close to point of service

ARTICLE 6: (continued)

Creating a Culture of Patient Safety through Innovative Hospital Design by John G. Reiling in *Advances in Patient Safety: Vol.2*, no date

Latent conditions: Ones that are present in the healthcare system, facility, equipment, and processes that contribute to, or combine with, active failures to produce error

- Noise Reduction
- Standardization

Active Failures: Errors made by those who provide direct care such as nurses, physicians, technicians

Infections:

- 2,000,000 patients develop infections in US Hospitals annually
- 90,000 of these patients die as a result of their numbers (mainly infants or seniors)

Medication Errors:

- 7,000 deaths annually attributable to medication errors
- 1 out of 854 inpatient hospital deaths resulted from a medication error

Safety Culture goals:

- Shared values and beliefs about safety within the organization
- Always anticipating precarious events
- Informed employees and medical staff
- Culture of reporting
- Learning culture
- “Just” culture
- Blame-free environment recognizing human infallibility
- Physician team work
- Culture of continuous improvement
- Empowering families to participate in care of patients
- Informed and activated patient

ARTICLE 7:

Healthcare Boom: Nursing Stations for the 21st Century by Larry Flynn, Senior Editor, *Building Design and Construction*, February 1, 2005

Summary:

Traditional centralized paper-charting stations moving to smaller decentralized stations and charting substations located closer to patient rooms with a trend toward team-oriented care.

Successful central stations serve as information centers for traffic control between units. New focus on acuity adaptable nursing units depend on appropriate geometry layout of patient rooms or the unit will be limited to Acute Care or Intensive Care and lose any benefit for flexibility and benefit for leaving the patient in a single location.

ARTICLE 8:

Building in Infection Control for the Ground Up: Northwestern Memorial Hospital Fights Infection by *Design in Environment of Care News*, October 2004

Summary:

Description of design for the Infection Control at Northwestern Memorial Hospital, Chicago.

Infection control requires: HEPA Filters and Copper-Silver Ions cleaning, clean all cavities before enclosure, design for potential containment of mold producing within wall cavities by surface finishes that keep potential infection source from room environments until wall replacement can be made, check drinking water quality at frequent intervals, check air quality/air exchange frequency at frequent intervals, compromise other “design aspects” with finishes that minimize infection spread potential.

HEALTH CARE CORRECTIONAL CENTERS
STATE OF CALIFORNIA

Prepared for:
California Prison Health Care Receivership Corporation
San Jose, California

Lessons Learned from the Tour

Federal Medical Complex-Butner

- Dependent on level of illness and disability, mental health and medical patients can share programs, space, and support areas. Not only at different times, but also simultaneously.
- Inmate Companion Program (ICP) is beneficial for assisting inmates with ADLs and hospice companions are critical members of the treatment team. In many cases, workers can be drawn from patient ranks. For example, BOP uses dialysis patients as aids. State of Iowa uses lifers, who may or may not have health problems of their own.
- A strong utilization review/case manager is essential to the success of the program. Case Manager must have the authority to move inmates within the system and back to the general population when appropriate to keep long term care (LTC) medical and mental health beds available for new patients. Position is also critical to controlling costs when using outside providers.
- To fullest extent possible, meals are served to patients in central dining facilities instead of pods or patient rooms. The purpose is to force patients to move around and to interact with others. Felt to be particularly beneficial for mental health patients.
- Ensure adequate space for laboratory and pharmacy activities. The equipment needs change frequently and occupies more and more floor space rather than less space.
- The facility design seemed too restrictive for good provider/patient interaction. Providers and overall philosophy of the institution seems to lean towards direct supervision model, but providers are constantly striving to overcome the design limitations.
- FBOP estimates they currently have 17 percent of their mental health patients in segregation cells (50 out of 300).
- Wide corridors for use as day-space were stated as desirable by clinical staff.

Falkenburg Road Facility-Hillsborough County

- Jail staff and jail design provide consistent message of the effectiveness of direct supervision. (Direct Management)
- The sub-acute medical housing was an open bay with only two lock up cells for disruptive patients. The result was a quiet, relaxed environment very conducive to rest and recovery. A frequently heard comment was “we can do this.”
- High ceilings with sky lights insure bright, quiet environment.
- Corridors are glazed to the extent possible which provides more natural light into facility spaces.
- Open construction removes expense associated with door openings.
- Tilt-up construction provides cost effective solution for many of the beds.
- Dining could take place in the day rooms or a central dining room. Bed side dining should be restricted to the most severe need.
- Jail management estimates 5 to 10 percent of all jail inmates will need segregation in a direct supervision environment.
- “Time-Out” cells should presumably be single occupant.

Clinical Care Unit-ISP Fort Madison

- Discharge planning is essential for successful movement both within the prison system and release to the community. For example, they have lock-up patient rooms 4 to a pod for the most disruptive, 12 rooms to a pod for step-down and then regular population mental health in large pods. Without careful planning and supportive care, some patients are unable to move into the less-restrictive environment and tend to decompensate.
- Mental health patients are objectively classified using the Interqual protocols. Interqual may or may not be the answer, but some system is needed.
- Hospice rooms should be pleasingly decorated with comfortable seating for either the patient or visitors. Rooms should be open and accessible to nursing. Inmate companions/aids were said to be essential to the success of the program. The CDCR has specific concerns about this type of program that should be explored in detail.
- There should be privacy within the Hospice room, ideally a separate toilet space.
- Training is critical for all staff members. Custody staff should be carefully chosen, exposed to proper training, and considered part of the treatment team.
- Iowa utilizes the American Correctional Association courses for training.
- Careful selection and training is doubly important for the inmate aids.
- Training also extends to the patients, who will be more medication compliant as they are educated on their medication effects and side effects.
- Mental health clinic and housing design is too restrictive. Far too much security is built in and far too little program and therapy space is available.

Medical & Classification Center-Oakdale

- Extensive utilization of University Hospital for services, since Iowa uses a State funded program.
- Mental health patients are objectively classified using the Interqual protocols. Interqual may or may not be the answer, but some system is needed.
- Training is critical for all staff members.
- Mental health clinic and housing design is too restrictive. Far too much security is built in and far too little program and therapy space is available. The new mental health director would love to have the medical design. Neither had adequate outdoor recreation space available.
- The mental health housing is designed as all single cells, but staff do not object to double celling with careful classification.

1.0 Introduction - The Facilities Planning Team along with representatives from CPR and CDCR participated in a series of tours to review current thinking on health care services & delivery options within a correctional setting. The following is a listing of tour members:

- Steve Cambra, CPR, Inc.
- Steve Carter, Carter Goble Lee
- Barbra Cotton, The Cotton Group
- Kim Garcia, DCHCS
- Robert Glass, Robert Glass & Associates, Inc.
- Bill Hamilton, Lee Burkhart Liu
- I.C. Haunani Henry, Colman
- Terry Hill, CPR, Inc.
- Nadim Khoury, DCHCS
- Ken Lee, Lee Burkhart Liu
- Peg McAloon, DCHCS
- Dave Michaels, Robert Glass & Associates, Inc.
- John O'Shaughnessy, DCHCS
- Kathy Page, CPR, Inc.
- Bill Proctor, URS/BLL
- Cindy Ricker, DCHCS
- Bert Rosefield, Carter Goble Lee
- Tim Rougeux, CPR, Inc.

2.0 Schedule - The following travel schedule was utilized for the tours:

November 26, 2007 - Monday

- Travel to Durham, NC

November 27, 2007 - Tuesday

- 8:30am - 8:45am Drive to FMC - Butner
- 9:00am - Noon Tour FMC - Butner
- Noon - 1:15pm Lunch
- 1:30pm - 2:30pm Tour new State Mental Health Facility (Not yet opened)
- 2:30pm - 3:00pm Drive to NC - Division of Prisons
- 3:00pm - 4:30pm Meeting with NC-Division of Prisons
- 7:10pm - 9:00pm Fly Raleigh to Tampa

November 28, 2007 - Wednesday

- 9:00am - 12:00am Tour Orient Road & Falkenburg Detention Center
- 3:19pm - 7:09pm Fly Tampa to Cedar Rapids

November 29, 2007 - Thursday

- 6:45am - 9:00am Drive to Fort Madison
- 9:00am - 11:00pm Tour Clinical Care Unit; Iowa State Penitentiary; Fort Madison
- 11:00pm - 12:00pm Lunch at Iowa State Penitentiary
- 12:15pm - 2:15pm Drive to Oakdale
- 2:30pm - 5:30pm Tour Iowa Medical & Classification Center
- 6:30pm - 9:30pm Wrap Up Dinner

November 30, 2007 - Friday

- Return travel day

3.0 Report Outline - The following outline is utilized for each of the facilities visited to develop a consistent level of information:

.1 General Description

.2 Key Issues

.3 Housing

- .3.1 Medical General Population Housing
- .3.2 Low & High Acuity Housing
- .3.3 Mental Health General Population Housing
- .3.4 Administrative Segregation Unit Housing (ASU)

.4 Diagnostic, Treatment and Therapeutic Services

- .4.1 Physical Medicine and Rehabilitation
- .4.2 Diagnostic Imaging
- .4.3 Laboratory
- .4.4 Pharmacy
- .4.5 Dialysis Clinic
- .4.6 Outpatient Clinics
- .4.7 Telemedicine
- .4.8 Reception & Discharge
- .4.9 Emergency/Urgent Care (TTA)

.5 Inmate Community/Inside Support

- .5.1 Visiting
- .5.2 Education
- .5.3 Recreation
- .5.4 Religious Programs
- .5.5 Library
- .5.6 Food Services

- .5.7 Receiving & Release
- .5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)
- .5.9 Board of Prison Terms (BPT) & Hearings

.6 Administration

- .6.1 Public Access
- .6.2 Outside Administration
- .6.3 Staff Services/Training
- .6.4 Inside Administration
- .6.5 Central Control Room

.7 Outside Facility Support

- .7.1 Warehousing
- .7.2 Plant Maintenance
- .7.3 Central Power Plant
- .7.4 Vehicles
- .7.5 Laundry
- .7.6 Fire Station
- .7.7 Utilities Structures (pump houses, elect vaults)
- .7.8 Waste Treatment Plant
- .7.9 Inmate Work Crew

.8 Perimeter

- .8.1 Perimeter Fencing
- .8.2 Towers
- .8.3 Armory & Lockshop
- .8.4 Entry Traffic Station
- .8.5 Parking
- .8.6 Vehicle Sallyport

4.0 Federal Medical Complex-Butner, North Carolina

The tour was at the medical facility, which is one of five facilities on the Medical Center Campus that includes the following:

- Medical Center (current count is 900, 300 medical, 300 mental health and 300 workers)
- FCI-I (Medium Custody)
- FCI-II (Medium Custody)
- LSCI (Low Custody)
- Camp (Pre-Release)



4.1 General Description - This facility opened in 2000 and is the only FMC in the country and is a “Center of Excellence-Restoration of Competency” for treatment of oncology, orthopedics, diabetes and pharmacy services. The complex handles 4,591 inmate patients in the five facilities. A 2003 Supreme Court case has shifted the mental health mission for the facility to evaluation/forensics rather than treatment.



The facility now handles civil and criminal commitments for competency evaluation. If a civil commitment, the inmate must sign a waiver to be mixed with general population inmates or is isolated.

The complex wide cost of daily care was quoted at \$70/\$80 per day; could be as high as \$180/\$190 per day in the medical center.

4.2 Key Issues

- Patients have gotten “harder” over time; 7% of the patients are causing 95% of the write-ups.
- Medical and mental health patients have daily interaction at recreation, food/dining, clinic functions, and some education.
- Staff mentioned that the complex should have had a high security housing area so these patients could be kept on-site rather than being transferred else-where because they come back relatively quickly.
- The facility was originally designed for all decentralized services; staff has centralized many of functions for treatment reasons.
- ADA is a large issue that was not completely thought through, the FBOP is still installing automatic openers on door openings. There is close to 200 of the 900 patients in wheel chairs or utilizing assisted walkers, about 20%.
- The facility keeps stretchers in the housing unit sallyports, which seems to work well since responding staff knows where these are at.
- The tour group felt that this facility should be re-visited after the first of the year to see the other complex facilities.

4.3 Housing

4.3.1 Medical General Population Housing

- These inmate patients are housed in other complex facilities, we did not see them, but most participants would like to return and tour the other facilities on the complex.



4.3.2 Low & High Acuity Housing

- Paracentric locks on the swing doors, not locked for 16 hours per day.
- China fixtures utilized, toilets have a toilet seat.
- Corridors have lay-in ceilings, 12-14 feet wide.
- There is no Hospice unit, there is a palliative care unit.
- Large nurse station enclosed with tempered glass and staff lockers.
- All housing units had individual laundry machines for personal laundry.

4.3.3 Mental Health General Population Housing.

- Seclusion rooms have temperature control for each room.
- Paracentric locks on the swing doors, not locked for 16 hours per day.
- Suicide watch was configured so one staff could watch two cells, these cells have individual temperature controls, individual light controls.

4.3.4 Administrative Segregation Unit Housing (ASU)

- Not allowed to see this unit, staff mentioned that the cells are swing doors.



4.4 Diagnostic, Treatment and Therapeutic Services

4.4.1 Physical Medicine and Rehabilitation

- This area has an exercise room, gym and modality room.

4.4.2 Diagnostic Imaging

- PET/CT scanning equipment.
- Linear accelerator, which has paid for itself through reduced transport to Duke medical center.



4.4.3 Laboratory

- Full service reference lab.

4.4.4 Pharmacy

- This handles 42 FBOP institutions and includes 9 pharmacists and 9 techs.



4.4.5 Dialysis Clinic

- Currently has 20 stations and is doing about 32-48 patients per day, could do up to 80-90 per day.



4.4.6 Outpatient Clinics

- Oncology is for the entire FBOP system, at any given time, there are 300 patients on inpatient & outpatient status. This includes two full time chemo-pharmacology staff.
- Orthopedics - On-site surgery, initial rehab, and then move to FCI-II for additional rehab.



4.4.7 Telemedicine

4.4.8 Reception & Discharge

- The criteria for placement at the FMC comes from a centralized function “Medical Designator” in D.C. it’s a group of clinicians that make the call. The FBOP is moving towards “Inter-Qual” as a standard to transfer out and back through the medical designator.

4.4.9 Emergency/Urgent Care (TTA)

4.5 Inmate Community/Inside Support

4.5.1 Visiting

- Medical & mental health patients visit in a common visiting room, no outdoor visiting allowed.
- There is on-floor or bedside visiting for the very sick.
- Materials were CMU walls, vinyl floor, and acoustical lay-in ceiling.



4.5.2 Education

- All programs are mixed (medical/mental health) to the extent possible.
- Computer assisted vocational programs.
- Extensive horticulture program for mental health patients.
- Miscellaneous cottage industry programs exist.



4.5.3 Recreation

- None available for the high/low acuity in this facility only the cadre workers.

4.5.4 Religious Programs

- There is a chapel for services.
- Memorial services are conducted monthly for those patients that have passed away, the facility sews a quilt with a square for each patient that had passed during the year.



4.5.5 Library

- Decentralized model with recreational reading materials located within each housing unit.
- Law library is all computer access within each unit.



4.5.6 Food Services

- Inmate patients are taught “self selection” from the main line kitchen, special diets are satellite feed within their units.

4.5.7 Receiving & Release

4.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)

- Centralized barbershop, with some bedside access as required, the norm is inmates moving to the central barbershop.
- Decentralized canteen, mail, etc., which is delivered to each housing unit by staff.

4.5.9 Board of Prison Terms (BPT) & Hearings

- This a recent occurrence since the FBOP handles the D.C. inmates as well as FBOP inmates. They utilize a conference/meeting room nothing special.

4.6 Administration

4.6.1 Public Access

- Central open workstation (very professional staff) “front door-first impression.” The waiting area is arranged off to one side for staff supervision; lockers are available to store disallowed items. All visitors are screened, except for those with law enforcement identification.



4.6.2 Outside Administration

- Extensive management offices as the entire complex is managed from this facility.
- IT space was an after-thought and the facility is still catching up with technology.
- Standard office building construction.

4.6.3 Staff Services/Training

4.6.4 Inside Administration

- Standard office building construction.
- Located along the central corridor.



4.6.5 Central Control Room

- The only secure control room in the facility.
- Handles the following: Keys, emergency keys, radio charging and issue, personal alarm units, 30 to 40 facility door controls including the facility vehicle sallyport gates and other doors by CCTV.
- Staffed with a 4-4-2 shift number.
- The facility has older CCTV monitors and cameras. Many are black & white which gives staff identification problems.

4.7 Outside Facility Support

4.7.1 Warehousing

4.7.2 Plant Maintenance

4.7.3 Central Power Plant

4.7.4 Vehicles

4.7.5 Laundry

4.7.6 Fire Station

- Relies upon local municipal contracted response.

4.7.7 Utilities Structures (pump houses, elect vaults)

4.7.8 Waste Treatment Plant

4.7.9 Inmate Work Crew

- Facility utilizes an Inmate Companion Program (ICP), which work with the patient's ADLs, it's a work assignment at the facility.
- There are approximately 300 workers, many of the workers have medical issues that has them placed here.

4.8 Perimeter

- 4.8.1 Perimeter Fencing
- 4.8.2 Towers
 - No towers on the perimeter of this facility.
- 4.8.3 Armory & Lockshop
- 4.8.4 Entry Traffic Station
 - None
- 4.8.5 Parking
 - Separate visitor and staff parking lots.
- 4.8.6 Vehicle Sallyport



5.0 Falkenburg Road Facility-Hillsborough County, Tampa, Florida

5.1 General Description - 2,400 beds on site currently building new housing units 2-256 bed units for a total of 512 beds. Current construction will add a 200 bed infirmary, and a new food service unit for the county. The county utilizes 10%-15% maximum security cells, the rest are in dormitories.

5.2 Key Issues - Direct management as an operational philosophy is a long term commitment to a concept and it is pervasive throughout the system. The facility utilizes covered open walkways, which work well and are less maintenance; the county uses staff escorts at a 1 to 15 ratio. During budget cuts the commitment to staff the direct management housing units has to remain.

5.3 Housing

- 5.3.1 Medical General Population Housing
 - The county builds all single level housing units, it's the only model that's built.
 - Each unit is designed as a 64-bed pod, grouped with four pods for 256 total.
 - They are planning to stack them 6 high for 768 total.
- 5.3.2 Low & High Acuity Housing
 - These are living in an open dorm setting.



- 5.3.3 Mental Health General Population Housing
- Staff felt these inmate patients could live in an open dorm.

- 5.3.4 Administrative Segregation Unit Housing (ASU)
- County is building these as a two level unit with mezzanines.



5.4 Diagnostic, Treatment, and Therapeutic Services

- 5.4.1 Physical Medicine and Rehabilitation
- The county contracts to a private company for services.

5.4.2 Diagnostic Imaging



- 5.4.3 Laboratory
- Small space for blood draw.

5.4.4 Pharmacy



5.4.5 Dialysis Clinic

- 5.4.6 Outpatient Clinics
- Clinic space is small, only three exam rooms, staff would like more.



5.4.7 Telemedicine

5.4.8 Reception & Discharge

5.4.9 Emergency/Urgent Care (TTA)

5.5 Inmate Community/Inside Support

- 5.5.1 Visiting
- All video visiting, video units located inside each housing unit.



5.5.2 Education

5.5.3 Recreation

5.5.4 Religious Programs



- 5.5.5 Library
- 5.5.6 Food Services
 - Inmates are tray fed via carts, in each housing unit dayroom.
- 5.5.7 Receiving & Release
- 5.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)
- 5.5.9 Board of Prison Terms (BPT) & Hearings

5.6 Administration

- 5.6.1 Public Access
- 5.6.2 Outside Administration
- 5.6.3 Staff Services/Training
- 5.6.4 Inside Administration
- 5.6.5 Central Control Room



5.7 Outside Facility Support

- 5.7.1 Warehousing
- 5.7.2 Plant Maintenance
- 5.7.3 Central Power Plant
- 5.7.4 Vehicles
- 5.7.5 Laundry
- 5.7.6 Fire Station
 - Local municipal services.
- 5.7.7 Utilities Structures (pump houses, elect vaults)



- 5.7.8 Waste Treatment Plant
 - Local municipal service

- 5.7.9 Inmate Work Crew

5.8 Perimeter

- 5.8.1 Perimeter Fencing
 - Double fence, first one is a standard 12-foot fence, outer one is the “First Defense” arched fencing.
- 5.8.2 Towers
 - None
- 5.8.3 Armory & Lockshop
- 5.8.4 Entry Traffic Station
 - None
- 5.8.5 Parking
 - Separate lots for visitors/staff.
- 5.8.6 Vehicle Sallyport



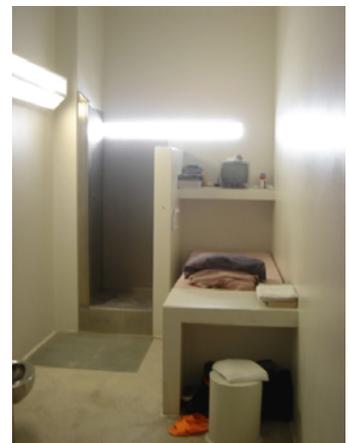
6.0 Clinical Care Unit-Iowa State Penitentiary; Fort Madison, Iowa

6.1 General Description - This unit is a 190 bed facility that is attached to the ISP facility. An inmate patient must be an Axis 1 diagnosis, they don't rely on Gaff score. Iowa uses a tentative discharge date which is set in conjunction with the parole board, this is the date to have the inmate patient ready for release.

6.2 Key Issues - The design started as a prison building that houses mental inmates. Staff would do it differently now as it is a difficult design to deliver treatment services.

6.3 Housing

- 6.3.1 Medical General Population Housing
- 6.3.2 Low & High Acuity Housing
 - Blind, deaf, wheelchair & walker assisted inmates are housed all over the system. Most of them at Mt. Pleasant.



6.3.3 Mental Health General Population Housing

- Mental health programs include: relapse prevention, intensive substance abuse counseling, substance abuse awareness & education, alternatives to violence, GED/literacy/work readiness, criminal thinking, calm, victim impact and family violence prevention.



6.3.4 Administrative Segregation Unit Housing (ASU)

6.4 Diagnostic, Treatment, and Therapeutic Services

6.4.1 Physical Medicine and Rehabilitation

6.4.2 Diagnostic Imaging

6.4.3 Laboratory

6.4.4 Pharmacy

6.4.5 Dialysis Clinic

6.4.6 Outpatient Clinics

6.4.7 Telemedicine

6.4.8 Reception & Discharge

6.4.9 Emergency/Urgent Care (TTA)



6.5 Inmate Community/Inside Support

6.5.1 Visiting

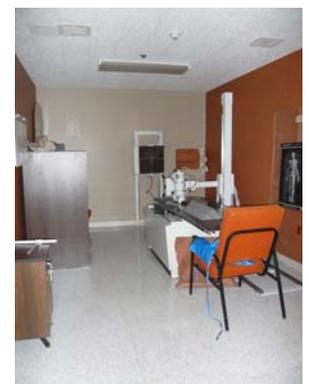
6.5.2 Education

- Staff mentioned that the design should have two doors into these spaces so staff has a way out should a problem develop.

6.5.3 Recreation

- Inmates use the attached ISP prison yard, which was not the original design but it works well. And these inmates share the hobby-craft building.

6.5.4 Religious Programs



6.5.5 Library

6.5.6 Food Services

- Currently, the facility uses a cook-to-serve operation, inmates move to the central dining area in the attached ISP facility. The facility is planning to move to a food factory concept with cook/chill and dining/re-thermalization pantries.

6.5.7 Receiving & Release

6.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)

6.5.9 Board of Prison Terms (BPT) & Hearings

6.6 Administration

6.6.1 Public Access

6.6.2 Outside Administration

- Built new with the facility addition.

6.6.3 Staff Services/Training

6.6.4 Inside Administration

6.6.5 Central Control Room



6.7 Outside Facility Support

6.7.1 Warehousing

- Large outside building and industries warehouse.

6.7.2 Plant Maintenance

6.7.3 Central Power Plant

- Centralized steam, power, and emergency power.

6.7.4 Vehicles

6.7.5 Laundry

6.7.6 Fire Station

- 6.7.7 Utilities Structures (pump houses, elect vaults)
 - Water is pump from the Mississippi River to storage and treated by the facility, 270,000 gal/day are used.

6.7.8 Waste Treatment Plant

- 6.7.9 Inmate Work Crew
 - These workers come from two camps and provide outside work force.

6.8 Perimeter

- 6.8.1 Perimeter Fencing
 - Walled compound.

6.8.2 Towers

6.8.3 Armory & Lockshop

- 6.8.4 Entry Traffic Station
 - Entry shack with a tower above.

- 6.8.5 Parking
 - Multiple areas for parking, it's a tight site.

6.8.6 Vehicle Sallyport



7.0 Iowa Medical & Classification Center; Iowa City, Iowa

7.1 General Description - This facility was just occupied at the end of August. Staff is still working on opening part of the facility. The clinic is being utilized, part of medical housing is being utilized and none of the mental health patients are currently being housed in the facility.

This facility has close ties to the state university hospitals, the state funds the university hospitals to provide services to indigents and inmates qualify for those services. Mental health services are not provided by the university hospitals.

7.2 Key Issues - The most difficult on going concern is the integration of medical & mental health services and the continuum of care services. Staff felt the medical side was very well developed, not the mental health side. Mental health facility does not meet national standards, as well as ACA standards.

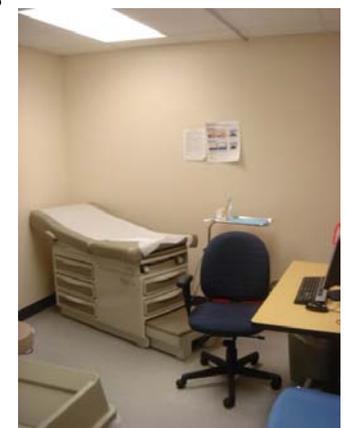
7.3 Housing

- 7.3.1 Medical General Population Housing
- 7.3.2 Low & High Acuity Housing
 - Gyp. Board walls with standard plumbing, mechanical, and electrical fixtures. Exterior windows large with bars.
- 7.3.3 Mental Health General Population Housing
- 7.3.4 Administrative Segregation Unit Housing (ASU)



7.4 Diagnostic, Treatment, and Therapeutic Services

- 7.4.1 Physical Medicine and Rehabilitation
- 7.4.2 Diagnostic Imaging
 - X-ray equipment on-site.
- 7.4.3 Laboratory
 - Small set-up, just getting started.
- 7.4.4 Pharmacy
- 7.4.5 Dialysis Clinic
- 7.4.6 Outpatient Clinics
- 7.4.7 Tele-medicine
 - Tele-medicine & Tele-consulting are both used at this facility, extensive tie-in with university hospital.
- 7.4.8 Reception & Discharge
- 7.4.9 Emergency/Urgent Care (TTA)



7.5 Inmate Community/Inside Support

- 7.5.1 Visiting
- 7.5.2 Education
- 7.5.3 Recreation
- 7.5.4 Religious Programs
- 7.5.5 Library
- 7.5.6 Food Services
 - Pantries associated with housing areas, food delivered by cart, plugged in to keep warm until serving.
- 7.5.7 Receiving & Release
- 7.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)
- 7.5.9 Board of Prison Terms (BPT) & Hearings

7.6 Administration

- 7.6.1 Public Access
- 7.6.2 Outside Administration
- 7.6.3 Staff Services/Training
 - State utilizes ACA “on-line” training courses for mental health.
 - Custody staff have a bid system for life on positions, six months minimum.
 - 290 FTE positions are authorized for this 197-bed facility, this includes 100 C.O.’s; 64 nursing staff. LPN’s were easy to get since they could not work in hospitals to the extent they can in this facility.
- 7.6.4 Inside Administration
- 7.6.5 Central Control Room

7.7 Outside Facility Support

- 7.7.1 Warehousing
- 7.7.2 Plant Maintenance
- 7.7.3 Central Power Plant
- 7.7.4 Vehicles
- 7.7.5 Laundry
- 7.7.6 Fire Station
- 7.7.7 Utilities Structures (pump houses, elect vaults)
- 7.7.8 Waste Treatment Plant
- 7.7.9 Inmate Work Crew

7.8 Perimeter

- 7.8.1 Perimeter Fencing
- 7.8.2 Towers
- 7.8.3 Armory & Lockshop
- 7.8.4 Entry Traffic Station
 - None.
- 7.8.5 Parking
 - Combined lots, not separated.
- 7.8.6 Vehicle Sallyport

HEALTH CARE CORRECTIONAL CENTERS
STATE OF CALIFORNIA

Prepared for:
California Prison Health Care Receivership Corporation
San Jose, California

Lessons Learned from the Tour

Federal Medical Complex-Butner

- Dependent on level of illness and disability, mental health and medical patients can share programs, space, and support areas. Not only at different times, but also simultaneously.
- Inmate Companion Program (ICP) is beneficial for assisting inmates with ADLs and hospice companions are critical members of the treatment team. In many cases, workers can be drawn from patient ranks. For example, BOP uses dialysis patients as aids. State of Iowa uses lifers, who may or may not have health problems of their own.
- A strong utilization review/case manager is essential to the success of the program. Case Manager must have the authority to move inmates within the system and back to the general population when appropriate to keep long term care (LTC) medical and mental health beds available for new patients. Position is also critical to controlling costs when using outside providers.
- To fullest extent possible, meals are served to patients in central dining facilities instead of pods or patient rooms. The purpose is to force patients to move around and to interact with others. Felt to be particularly beneficial for mental health patients.
- Ensure adequate space for laboratory and pharmacy activities. The equipment needs change frequently and occupies more and more floor space rather than less space.
- The facility design seemed too restrictive for good provider/patient interaction. Providers and overall philosophy of the institution seems to lean towards direct supervision model, but providers are constantly striving to overcome the design limitations.
- FBOP estimates they currently have 17 percent of their mental health patients in segregation cells (50 out of 300).
- Wide corridors for use as day-space were stated as desirable by clinical staff.

Falkenburg Road Facility-Hillsborough County

- Jail staff and jail design provide consistent message of the effectiveness of direct supervision. (Direct Management)
- The sub-acute medical housing was an open bay with only two lock up cells for disruptive patients. The result was a quiet, relaxed environment very conducive to rest and recovery. A frequently heard comment was “we can do this.”
- High ceilings with sky lights insure bright, quiet environment.
- Corridors are glazed to the extent possible which provides more natural light into facility spaces.
- Open construction removes expense associated with door openings.
- Tilt-up construction provides cost effective solution for many of the beds.
- Dining could take place in the day rooms or a central dining room. Bed side dining should be restricted to the most severe need.
- Jail management estimates 5 to 10 percent of all jail inmates will need segregation in a direct supervision environment.
- “Time-Out” cells should presumably be single occupant.

Clinical Care Unit-ISP Fort Madison

- Discharge planning is essential for successful movement both within the prison system and release to the community. For example, they have lock-up patient rooms 4 to a pod for the most disruptive, 12 rooms to a pod for step-down and then regular population mental health in large pods. Without careful planning and supportive care, some patients are unable to move into the less-restrictive environment and tend to decompensate.
- Mental health patients are objectively classified using the Interqual protocols. Interqual may or may not be the answer, but some system is needed.
- Hospice rooms should be pleasingly decorated with comfortable seating for either the patient or visitors. Rooms should be open and accessible to nursing. Inmate companions/aids were said to be essential to the success of the program. The CDCR has specific concerns about this type of program that should be explored in detail.
- There should be privacy within the Hospice room, ideally a separate toilet space.
- Training is critical for all staff members. Custody staff should be carefully chosen, exposed to proper training, and considered part of the treatment team.
- Iowa utilizes the American Correctional Association courses for training.
- Careful selection and training is doubly important for the inmate aids.
- Training also extends to the patients, who will be more medication compliant as they are educated on their medication effects and side effects.
- Mental health clinic and housing design is too restrictive. Far too much security is built in and far too little program and therapy space is available.

Medical & Classification Center-Oakdale

- Extensive utilization of University Hospital for services, since Iowa uses a State funded program.
- Mental health patients are objectively classified using the Interqual protocols. Interqual may or may not be the answer, but some system is needed.
- Training is critical for all staff members.
- Mental health clinic and housing design is too restrictive. Far too much security is built in and far too little program and therapy space is available. The new mental health director would love to have the medical design. Neither had adequate outdoor recreation space available.
- The mental health housing is designed as all single cells, but staff do not object to double celling with careful classification.

1.0 Introduction - The Facilities Planning Team along with representatives from CPR and CDCR participated in a series of tours to review current thinking on health care services & delivery options within a correctional setting. The following is a listing of tour members:

- Steve Cambra, CPR, Inc.
- Steve Carter, Carter Goble Lee
- Barbra Cotton, The Cotton Group
- Kim Garcia, DCHCS
- Robert Glass, Robert Glass & Associates, Inc.
- Bill Hamilton, Lee Burkhardt Liu
- I.C. Haunani Henry, Colman
- Terry Hill, CPR, Inc.
- Nadim Khoury, DCHCS
- Ken Lee, Lee Burkhardt Liu
- Peg McAloon, DCHCS
- Dave Michaels, Robert Glass & Associates, Inc.
- John O'Shaughnessy, DCHCS
- Kathy Page, CPR, Inc.
- Bill Proctor, URS/BLL
- Cindy Ricker, DCHCS
- Bert Rosefield, Carter Goble Lee
- Tim Rougeux, CPR, Inc.

2.0 Schedule - The following travel schedule was utilized for the tours:

November 26, 2007 - Monday

- Travel to Durham, NC

November 27, 2007 - Tuesday

- 8:30am - 8:45am Drive to FMC - Butner
- 9:00am - Noon Tour FMC - Butner
- Noon - 1:15pm Lunch
- 1:30pm - 2:30pm Tour new State Mental Health Facility (Not yet opened)
- 2:30pm - 3:00pm Drive to NC - Division of Prisons
- 3:00pm - 4:30pm Meeting with NC-Division of Prisons
- 7:10pm - 9:00pm Fly Raleigh to Tampa

November 28, 2007 - Wednesday

- 9:00am - 12:00am Tour Orient Road & Falkenburg Detention Center
- 3:19pm - 7:09pm Fly Tampa to Cedar Rapids

November 29, 2007 - Thursday

- 6:45am - 9:00am Drive to Fort Madison
- 9:00am - 11:00pm Tour Clinical Care Unit; Iowa State Penitentiary; Fort Madison
- 11:00pm - 12:00pm Lunch at Iowa State Penitentiary
- 12:15pm - 2:15pm Drive to Oakdale
- 2:30pm - 5:30pm Tour Iowa Medical & Classification Center
- 6:30pm - 9:30pm Wrap Up Dinner

November 30, 2007 - Friday

- Return travel day

3.0 Report Outline - The following outline is utilized for each of the facilities visited to develop a consistent level of information:

.1 General Description

.2 Key Issues

.3 Housing

- .3.1 Medical General Population Housing
- .3.2 Low & High Acuity Housing
- .3.3 Mental Health General Population Housing
- .3.4 Administrative Segregation Unit Housing (ASU)

.4 Diagnostic, Treatment and Therapeutic Services

- .4.1 Physical Medicine and Rehabilitation
- .4.2 Diagnostic Imaging
- .4.3 Laboratory
- .4.4 Pharmacy
- .4.5 Dialysis Clinic
- .4.6 Outpatient Clinics
- .4.7 Telemedicine
- .4.8 Reception & Discharge
- .4.9 Emergency/Urgent Care (TTA)

.5 Inmate Community/Inside Support

- .5.1 Visiting
- .5.2 Education
- .5.3 Recreation
- .5.4 Religious Programs
- .5.5 Library
- .5.6 Food Services

- .5.7 Receiving & Release
- .5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)
- .5.9 Board of Prison Terms (BPT) & Hearings

.6 Administration

- .6.1 Public Access
- .6.2 Outside Administration
- .6.3 Staff Services/Training
- .6.4 Inside Administration
- .6.5 Central Control Room

.7 Outside Facility Support

- .7.1 Warehousing
- .7.2 Plant Maintenance
- .7.3 Central Power Plant
- .7.4 Vehicles
- .7.5 Laundry
- .7.6 Fire Station
- .7.7 Utilities Structures (pump houses, elect vaults)
- .7.8 Waste Treatment Plant
- .7.9 Inmate Work Crew

.8 Perimeter

- .8.1 Perimeter Fencing
- .8.2 Towers
- .8.3 Armory & Lockshop
- .8.4 Entry Traffic Station
- .8.5 Parking
- .8.6 Vehicle Sallyport

4.0 Federal Medical Complex-Butner, North Carolina

The tour was at the medical facility, which is one of five facilities on the Medical Center Campus that includes the following:

- Medical Center (current count is 900, 300 medical, 300 mental health and 300 workers)
- FCI-I (Medium Custody)
- FCI-II (Medium Custody)
- LSCI (Low Custody)
- Camp (Pre-Release)



4.1 General Description - This facility opened in 2000 and is the only FMC in the country and is a “Center of Excellence-Restoration of Competency” for treatment of oncology, orthopedics, diabetes and pharmacy services. The complex handles 4,591 inmate patients in the five facilities. A 2003 Supreme Court case has shifted the mental health mission for the facility to evaluation/forensics rather than treatment.



The facility now handles civil and criminal commitments for competency evaluation. If a civil commitment, the inmate must sign a waiver to be mixed with general population inmates or is isolated.

The complex wide cost of daily care was quoted at \$70/\$80 per day; could be as high as \$180/\$190 per day in the medical center.

4.2 Key Issues

- Patients have gotten “harder” over time; 7% of the patients are causing 95% of the write-ups.
- Medical and mental health patients have daily interaction at recreation, food/dining, clinic functions, and some education.
- Staff mentioned that the complex should have had a high security housing area so these patients could be kept on-site rather than being transferred else-where because they come back relatively quickly.
- The facility was originally designed for all decentralized services; staff has centralized many of functions for treatment reasons.
- ADA is a large issue that was not completely thought through, the FBOP is still installing automatic openers on door openings. There is close to 200 of the 900 patients in wheel chairs or utilizing assisted walkers, about 20%.
- The facility keeps stretchers in the housing unit sallyports, which seems to work well since responding staff knows where these are at.
- The tour group felt that this facility should be re-visited after the first of the year to see the other complex facilities.

4.3 Housing

4.3.1 Medical General Population Housing

- These inmate patients are housed in other complex facilities, we did not see them, but most participants would like to return and tour the other facilities on the complex.



4.3.2 Low & High Acuity Housing

- Paracentric locks on the swing doors, not locked for 16 hours per day.
- China fixtures utilized, toilets have a toilet seat.
- Corridors have lay-in ceilings, 12-14 feet wide.
- There is no Hospice unit, there is a palliative care unit.
- Large nurse station enclosed with tempered glass and staff lockers.
- All housing units had individual laundry machines for personal laundry.

4.3.3 Mental Health General Population Housing.

- Seclusion rooms have temperature control for each room.
- Paracentric locks on the swing doors, not locked for 16 hours per day.
- Suicide watch was configured so one staff could watch two cells, these cells have individual temperature controls, individual light controls.

4.3.4 Administrative Segregation Unit Housing (ASU)

- Not allowed to see this unit, staff mentioned that the cells are swing doors.



4.4 Diagnostic, Treatment and Therapeutic Services

4.4.1 Physical Medicine and Rehabilitation

- This area has an exercise room, gym and modality room.

4.4.2 Diagnostic Imaging

- PET/CT scanning equipment.
- Linear accelerator, which has paid for itself through reduced transport to Duke medical center.



4.4.3 Laboratory

- Full service reference lab.

4.4.4 Pharmacy

- This handles 42 FBOP institutions and includes 9 pharmacists and 9 techs.



4.4.5 Dialysis Clinic

- Currently has 20 stations and is doing about 32-48 patients per day, could do up to 80-90 per day.



4.4.6 Outpatient Clinics

- Oncology is for the entire FBOP system, at any given time, there are 300 patients on inpatient & outpatient status. This includes two full time chemo-pharmacology staff.
- Orthopedics - On-site surgery, initial rehab, and then move to FCI-II for additional rehab.



4.4.7 Telemedicine

4.4.8 Reception & Discharge

- The criteria for placement at the FMC comes from a centralized function “Medical Designator” in D.C. it’s a group of clinicians that make the call. The FBOP is moving towards “Inter-Qual” as a standard to transfer out and back through the medical designator.

4.4.9 Emergency/Urgent Care (TTA)

4.5 Inmate Community/Inside Support

4.5.1 Visiting

- Medical & mental health patients visit in a common visiting room, no outdoor visiting allowed.
- There is on-floor or bedside visiting for the very sick.
- Materials were CMU walls, vinyl floor, and acoustical lay-in ceiling.



4.5.2 Education

- All programs are mixed (medical/mental health) to the extent possible.
- Computer assisted vocational programs.
- Extensive horticulture program for mental health patients.
- Miscellaneous cottage industry programs exist.



4.5.3 Recreation

- None available for the high/low acuity in this facility only the cadre workers.

4.5.4 Religious Programs

- There is a chapel for services.
- Memorial services are conducted monthly for those patients that have passed away, the facility sews a quilt with a square for each patient that had passed during the year.



4.5.5 Library

- Decentralized model with recreational reading materials located within each housing unit.
- Law library is all computer access within each unit.



4.5.6 Food Services

- Inmate patients are taught “self selection” from the main line kitchen, special diets are satellite feed within their units.

4.5.7 Receiving & Release

4.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)

- Centralized barbershop, with some bedside access as required, the norm is inmates moving to the central barbershop.
- Decentralized canteen, mail, etc., which is delivered to each housing unit by staff.

4.5.9 Board of Prison Terms (BPT) & Hearings

- This a recent occurrence since the FBOP handles the D.C. inmates as well as FBOP inmates. They utilize a conference/meeting room nothing special.

4.6 Administration

4.6.1 Public Access

- Central open workstation (very professional staff) “front door-first impression.” The waiting area is arranged off to one side for staff supervision; lockers are available to store disallowed items. All visitors are screened, except for those with law enforcement identification.



4.6.2 Outside Administration

- Extensive management offices as the entire complex is managed from this facility.
- IT space was an after-thought and the facility is still catching up with technology.
- Standard office building construction.

4.6.3 Staff Services/Training

4.6.4 Inside Administration

- Standard office building construction.
- Located along the central corridor.



4.6.5 Central Control Room

- The only secure control room in the facility.
- Handles the following: Keys, emergency keys, radio charging and issue, personal alarm units, 30 to 40 facility door controls including the facility vehicle sallyport gates and other doors by CCTV.
- Staffed with a 4-4-2 shift number.
- The facility has older CCTV monitors and cameras. Many are black & white which gives staff identification problems.

4.7 Outside Facility Support

4.7.1 Warehousing

4.7.2 Plant Maintenance

4.7.3 Central Power Plant

4.7.4 Vehicles

4.7.5 Laundry

4.7.6 Fire Station

- Relies upon local municipal contracted response.

4.7.7 Utilities Structures (pump houses, elect vaults)

4.7.8 Waste Treatment Plant

4.7.9 Inmate Work Crew

- Facility utilizes an Inmate Companion Program (ICP), which work with the patient's ADLs, it's a work assignment at the facility.
- There are approximately 300 workers, many of the workers have medical issues that has them placed here.

4.8 Perimeter

- 4.8.1 Perimeter Fencing
- 4.8.2 Towers
 - No towers on the perimeter of this facility.
- 4.8.3 Armory & Lockshop
- 4.8.4 Entry Traffic Station
 - None
- 4.8.5 Parking
 - Separate visitor and staff parking lots.
- 4.8.6 Vehicle Sallyport



5.0 Falkenburg Road Facility-Hillsborough County, Tampa, Florida

5.1 General Description - 2,400 beds on site currently building new housing units 2-256 bed units for a total of 512 beds. Current construction will add a 200 bed infirmary, and a new food service unit for the county. The county utilizes 10%-15% maximum security cells, the rest are in dormitories.

5.2 Key Issues - Direct management as an operational philosophy is a long term commitment to a concept and it is pervasive throughout the system. The facility utilizes covered open walkways, which work well and are less maintenance; the county uses staff escorts at a 1 to 15 ratio. During budget cuts the commitment to staff the direct management housing units has to remain.

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 - The county builds all single level housing units, it's the only model that's built.
 - Each unit is designed as a 64-bed pod, grouped with four pods for 256 total.
 - They are planning to stack them 6 high for 768 total.
- 5.3.2 Low & High Acuity Housing
 - These are living in an open dorm setting.



- 5.3.3 Mental Health General Population Housing
 - Staff felt these inmate patients could live in an open dorm.
- 5.3.4 Administrative Segregation Unit Housing (ASU)
 - County is building these as a two level unit with mezzanines.



5.4 Diagnostic, Treatment, and Therapeutic Services

- 5.4.1 Physical Medicine and Rehabilitation
 - The county contracts to a private company for services.
- 5.4.2 Diagnostic Imaging
- 5.4.3 Laboratory
 - Small space for blood draw.
- 5.4.4 Pharmacy
- 5.4.5 Dialysis Clinic
- 5.4.6 Outpatient Clinics
 - Clinic space is small, only three exam rooms, staff would like more.
- 5.4.7 Telemedicine
- 5.4.8 Reception & Discharge
- 5.4.9 Emergency/Urgent Care (TTA)



5.5 Inmate Community/Inside Support

- 5.5.1 Visiting
 - All video visiting, video units located inside each housing unit.
- 5.5.2 Education
- 5.5.3 Recreation
- 5.5.4 Religious Programs



5.5.5 Library

5.5.6 Food Services

- Inmates are tray fed via carts, in each housing unit dayroom.

5.5.7 Receiving & Release

5.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)

5.5.9 Board of Prison Terms (BPT) & Hearings

5.6 Administration

5.6.1 Public Access

5.6.2 Outside Administration

5.6.3 Staff Services/Training

5.6.4 Inside Administration

5.6.5 Central Control Room



5.7 Outside Facility Support

5.7.1 Warehousing

5.7.2 Plant Maintenance

5.7.3 Central Power Plant

5.7.4 Vehicles

5.7.5 Laundry

5.7.6 Fire Station

- Local municipal services.

5.7.7 Utilities Structures (pump houses, elect vaults)



- 5.7.8 Waste Treatment Plant
 - Local municipal service

- 5.7.9 Inmate Work Crew

5.8 Perimeter

- 5.8.1 Perimeter Fencing
 - Double fence, first one is a standard 12-foot fence, outer one is the “First Defense” arched fencing.
- 5.8.2 Towers
 - None
- 5.8.3 Armory & Lockshop
- 5.8.4 Entry Traffic Station
 - None
- 5.8.5 Parking
 - Separate lots for visitors/staff.
- 5.8.6 Vehicle Sallyport



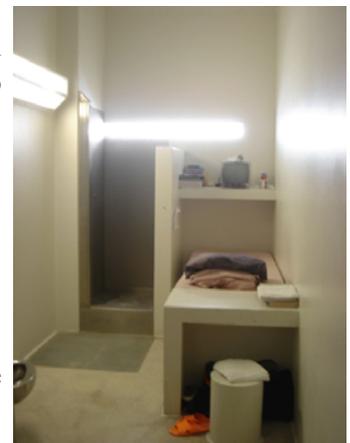
6.0 Clinical Care Unit-Iowa State Penitentiary; Fort Madison, Iowa

6.1 General Description - This unit is a 190 bed facility that is attached to the ISP facility. An inmate patient must be an Axis 1 diagnosis, they don't rely on Gaff score. Iowa uses a tentative discharge date which is set in conjunction with the parole board, this is the date to have the inmate patient ready for release.

6.2 Key Issues - The design started as a prison building that houses mental inmates. Staff would do it differently now as it is a difficult design to deliver treatment services.

6.3 Housing

- 6.3.1 Medical General Population Housing
- 6.3.2 Low & High Acuity Housing
 - Blind, deaf, wheelchair & walker assisted inmates are housed all over the system. Most of them at Mt. Pleasant.



6.3.3 Mental Health General Population Housing

- Mental health programs include: relapse prevention, intensive substance abuse counseling, substance abuse awareness & education, alternatives to violence, GED/literacy/work readiness, criminal thinking, calm, victim impact and family violence prevention.



6.3.4 Administrative Segregation Unit Housing (ASU)

6.4 Diagnostic, Treatment, and Therapeutic Services

6.4.1 Physical Medicine and Rehabilitation

6.4.2 Diagnostic Imaging

6.4.3 Laboratory

6.4.4 Pharmacy

6.4.5 Dialysis Clinic

6.4.6 Outpatient Clinics

6.4.7 Telemedicine

6.4.8 Reception & Discharge

6.4.9 Emergency/Urgent Care (TTA)



6.5 Inmate Community/Inside Support

6.5.1 Visiting

6.5.2 Education

- Staff mentioned that the design should have two doors into these spaces so staff has a way out should a problem develop.

6.5.3 Recreation

- Inmates use the attached ISP prison yard, which was not the original design but it works well. And these inmates share the hobby-craft building.

6.5.4 Religious Programs



6.5.5 Library

6.5.6 Food Services

- Currently, the facility uses a cook-to-serve operation, inmates move to the central dining area in the attached ISP facility. The facility is planning to move to a food factory concept with cook/chill and dining/re-thermalization pantries.

6.5.7 Receiving & Release

6.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)

6.5.9 Board of Prison Terms (BPT) & Hearings

6.6 Administration

6.6.1 Public Access

6.6.2 Outside Administration

- Built new with the facility addition.

6.6.3 Staff Services/Training

6.6.4 Inside Administration

6.6.5 Central Control Room



6.7 Outside Facility Support

6.7.1 Warehousing

- Large outside building and industries warehouse.

6.7.2 Plant Maintenance

6.7.3 Central Power Plant

- Centralized steam, power, and emergency power.

6.7.4 Vehicles

6.7.5 Laundry

6.7.6 Fire Station

- 6.7.7 Utilities Structures (pump houses, elect vaults)
- Water is pump from the Mississippi River to storage and treated by the facility, 270,000 gal/day are used.

6.7.8 Waste Treatment Plant

- 6.7.9 Inmate Work Crew
- These workers come from two camps and provide outside work force.

6.8 Perimeter

- 6.8.1 Perimeter Fencing
- Walled compound.

6.8.2 Towers

6.8.3 Armory & Lockshop

- 6.8.4 Entry Traffic Station
- Entry shack with a tower above.

- 6.8.5 Parking
- Multiple areas for parking, it's a tight site.

6.8.6 Vehicle Sallyport



7.0 Iowa Medical & Classification Center; Iowa City, Iowa

7.1 General Description - This facility was just occupied at the end of August. Staff is still working on opening part of the facility. The clinic is being utilized, part of medical housing is being utilized and none of the mental health patients are currently being housed in the facility.

This facility has close ties to the state university hospitals, the state funds the university hospitals to provide services to indigents and inmates qualify for those services. Mental health services are not provided by the university hospitals.

7.2 Key Issues - The most difficult on going concern is the integration of medical & mental health services and the continuum of care services. Staff felt the medical side was very well developed, not the mental health side. Mental health facility does not meet national standards, as well as ACA standards.

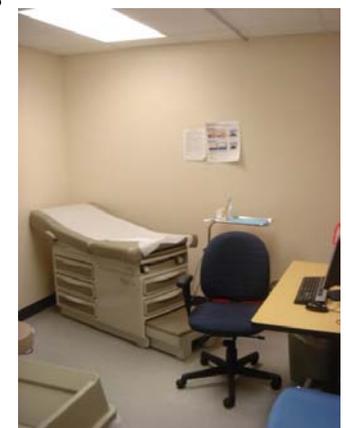
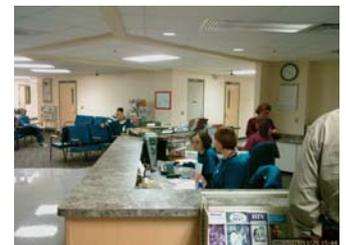
7.3 Housing

- 7.3.1 Medical General Population Housing
- 7.3.2 Low & High Acuity Housing
 - Gyp. Board walls with standard plumbing, mechanical, and electrical fixtures. Exterior windows large with bars.
- 7.3.3 Mental Health General Population Housing
- 7.3.4 Administrative Segregation Unit Housing (ASU)



7.4 Diagnostic, Treatment, and Therapeutic Services

- 7.4.1 Physical Medicine and Rehabilitation
- 7.4.2 Diagnostic Imaging
 - X-ray equipment on-site.
- 7.4.3 Laboratory
 - Small set-up, just getting started.
- 7.4.4 Pharmacy
- 7.4.5 Dialysis Clinic
- 7.4.6 Outpatient Clinics
- 7.4.7 Tele-medicine
 - Tele-medicine & Tele-consulting are both used at this facility, extensive tie-in with university hospital.
- 7.4.8 Reception & Discharge
- 7.4.9 Emergency/Urgent Care (TTA)



7.5 Inmate Community/Inside Support

- 7.5.1 Visiting
- 7.5.2 Education
- 7.5.3 Recreation
- 7.5.4 Religious Programs
- 7.5.5 Library
- 7.5.6 Food Services
 - Pantries associated with housing areas, food delivered by cart, plugged in to keep warm until serving.
- 7.5.7 Receiving & Release
- 7.5.8 Other Inmate Services (clothing exchange, canteen services, mail & special services, hair care)
- 7.5.9 Board of Prison Terms (BPT) & Hearings

7.6 Administration

- 7.6.1 Public Access
- 7.6.2 Outside Administration
- 7.6.3 Staff Services/Training
 - State utilizes ACA “on-line” training courses for mental health.
 - Custody staff have a bid system for life on positions, six months minimum.
 - 290 FTE positions are authorized for this 197-bed facility, this includes 100 C.O.’s; 64 nursing staff. LPN’s were easy to get since they could not work in hospitals to the extent they can in this facility.
- 7.6.4 Inside Administration
- 7.6.5 Central Control Room

7.7 Outside Facility Support

- 7.7.1 Warehousing
- 7.7.2 Plant Maintenance
- 7.7.3 Central Power Plant
- 7.7.4 Vehicles
- 7.7.5 Laundry
- 7.7.6 Fire Station
- 7.7.7 Utilities Structures (pump houses, elect vaults)
- 7.7.8 Waste Treatment Plant
- 7.7.9 Inmate Work Crew

7.8 Perimeter

- 7.8.1 Perimeter Fencing
- 7.8.2 Towers
- 7.8.3 Armory & Lockshop
- 7.8.4 Entry Traffic Station
 - None.
- 7.8.5 Parking
 - Combined lots, not separated.
- 7.8.6 Vehicle Sallyport

HEALTH CARE CORRECTIONAL CENTERS
STATE OF CALIFORNIA

Prepared for:
California Prison Health Care Receivership Corporation
San Jose, California

Appendix C

Preface

As part of the planning and programming process, the URS/BLL engaged the services of Mark Goldman & Associates to provide technical and staff support on a variety of relevant research topics which the Core Planning Team thought would be appropriate and helpful. The research topics were chosen to provide more independent perspective on a number of issues that were being discussed between the URS/BLL facility programming team and the Core Planning Team.

Some of the research topics included the following:

- Mixing or separating medically ill and mentally ill patients within correctional and non-correctional treatment facilities.
- Mixing or separating patients of various security and custody levels within correctional mental health and medical facilities.
- Attributes of appropriate housing units for mentally ill and medically ill patients.
- Programs to provide for specific populations, how these should be provided, and where these should be located (e.g., in housing units or centralized).
- Types of supervision (custody, treatment, medical) and types of staff stations.

Some of the following research techniques were used:

- Phone and on-site interviews with administrators of existing correctional and non-correctional medical and mental health facilities outside of California.
- Site visits.
- Documented literature review of journal articles, research reports, and other printed materials published in medicine, nursing, psychology, ergonomics, and corrections periodicals and books.

Finding empirically based data and information precisely mirroring the functional, management and patient care goals of the CPR was extremely difficult, given the scale and unique program descriptions of the Receiver's proposed health care facility program. There is a growing body of research on health care environments, mostly limited to acute care settings. The Core Planning Team, during several planning workshops where research findings were presented, made a diligent effort to apply relevant and/or appropriate research concepts to this proposed project to further the operational and functional goals of the proposed program.

**Research Impacting the Design of
California's General Health
& Mental Health Care Facilities
for State Inmates**

**For the California Prison Receivership, CDCR,
& the URS/BLL Team**

Draft Covering Initial Research Topics

February 14, 2008

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Mark Goldman & Associates, Inc. in association with The Brookwood Group

**Research Impacting the Design of
California's General Health & Mental Health Care Facilities for State Inmates**

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Research Impacting the Design of California's General Health & Mental Health Care Facilities for State Inmates

1. Introduction

Purpose of Research for the New Health Care Facilities

California is planning on spending billions of dollars on new health care facilities for up to 10,000 patients currently in Department of Corrections and Rehabilitation prisons. These facilities are likely to be operated for 50 or more years, and the operational costs will be staggering.

As determined by the federal courts and California Prison Receiver, the new facilities and their operations will be dramatically different than the existing CDCR facilities. The new facilities will be "patient-driven." In other words, the principle objective will be to provide physical and mental health care to the patients who happen to be inmates. Of course, there are many other objectives. These revolve around patient management, security, custody, cost efficiency, access for visitors, attractiveness for staff, flexibility, and longevity.

Whenever an entity wants to meet other goals and objectives, there is good reason to explore what has been learned from research studies and by others' experience and knowledge.

As stipulated in the November 2007 Research Work Plan research was intended to:

"Help ensure that appropriate research is obtained, reviewed, interpreted, presented, and applied to mental health and physical health care facilities for California's patient inmates;" and to help the planning and design team "Think and explore 'outside of the box'."

Types of Research Conducted

In spite of the massive numbers of patients, inmates, correctional officers, nurses, doctors, facility managers, health care facilities, and prisons that exist, "hard," "cause and effect" research on health care and correctional environments is scant. The two main reasons for this are:

- It is extremely difficult to isolate variables within the built environment. For example, to do a study on the relationship between the amount of space per inmate and stress a researcher should isolate other possible variables such as color, noise/sound, lighting, type of supervision, and characteristics of other inmates.
- Limited to no funding.

Therefore, relatively little has been obtained that has shown perfectly clear causal relationships between health care and correctional environments and objectives related to patient care, such as decreased morbidity.

Most of the research that has been undertaken is of several other types:

- Data from research studies in which associations between environmental variables – often which are near impossible to isolate -- and behaviors appear likely.

Example: "Personal space" – physical separation from others – reduces stress.

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- Experience-based opinions from researchers.
Example: "All of the interviews conducted in health care settings indicate that patient satisfaction is much higher in single occupancy rooms compared with multiple occupancy rooms."

- Experience-based opinions from psychologists, psychiatrists, unit managers, facility administrators, physicians, nurses, and health care administrators.
Example: "For the last 30 years I've worked in housing units with as many as 120 inmates and I don't see inmates behaving any differently in larger housing units or smaller housing units."

Research & Evidence Based Design

In this paper the term "Research" is used to include all four types of research discussed in the previous paragraphs.

Evidence Based Design (EBD), as defined by its primary practitioners, is a process for optimizing the role of building design in achieving improved outcomes such as increased quality, safety and efficiency. It uses a disciplined process that is based on a deep knowledge of the research literature and of best practices in the field. This knowledge helps reduce risk because it suggests ambitious but achievable goals. Evidence can help in "paradigm busting."

According to national figure in Evidence-Based Design (EBD) of health care facilities (Hamilton, D. K. (2006). Evidence-based design supports evidence-based medicine in the ICU. *ICU Management Journal* 6 (3), page 31, 2006), EBD is:

"a process for the conscientious, explicit, and judicious use of current best evidence from research and practice in making critical decisions, together with an informed client, about the design of each individual and unique project"

Another EBD leader, Craig Zimring (Implementing Healthcare Excellence: The Vital Role of the CEO in Evidence-Based Design), states that:

"While there is no single approach to EBD, it generally includes a process that starts from identifying key overall principles and goals, understanding how the facility can enable these goals, often in concert with technology integration, cultural transformation and re-engineered care processes and business processes. EBD is a performance-based approach to building... EBD is often value-driven, in the sense that the organization wants to significantly improve healthcare quality, safety and patient-and-family centeredness and is willing to consider innovative approaches to achieve those improvements."

Evidence-based healthcare designs are informed by data from a variety of sources that are used to create environments that are therapeutic, supportive of family involvement, efficient for staff performance, and restorative for workers under stress. There are many more rigorous studies than most people realize; over 1,000 are listed in the reference list of a paper on EBD written for the Robert Wood Johnson Foundation.

Good EBD processes also collect data about the impact of design decisions and contribute to knowledge within the organization and for the field. Together with an informed client, it

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results in decisions based on the best information available from research and project evaluations. However, critical thinking is required to draw rational inferences about design from information that seldom fits a unique situation precisely. It may take some adaptation to apply some outcomes of the studies reviewed to apply to health care environments within secure settings.

EBD is having a large and growing impact. It is at the foundation of Kaiser Permanente's \$38B hospital development program; the Military Health System's \$6B replacement for Walter Reed and for their 70 hospitals and 800 clinics worldwide; Ascension's \$10B construction program and many others.

The EBD process works particularly well in the health care field since it appeals to physicians whose practices are based on medical evidence. It gives patients and family higher quality experiences. It appeals to administrators by reducing costs and improving organizational effectiveness. It helps hospital boards justify costly decisions. And it benefits the public, consumer groups, and those paying the bills as they seek effective, lower-cost health care. In the last analysis, an evidence-based healthcare design should result in demonstrated improvements in the organization's clinical outcomes, economic performance, productivity, customer satisfaction, and cultural measures.

To achieve full benefit, EBD requires culture change for many organizations and requires changes to design processes. For example, it requires organizations to be clear about desired outcomes and to explore how the built environment can work with technology, business processes, care processes and culture to achieve outcomes; and it requires representatives from those functions to be involved consistently from the beginning. This leads to thinking about the built environment as a strategic tool where decisions about the built environment have a return on investment (ROI). Examples:

- Kaiser has decided to use resilient flooring because it reduces by 60 percent or more injuries due to falls, and it also reduces noise. Each un-litigated fall in a US hospital costs the hospital an average of \$19,000.
- Ascension is considering significant re-design of nursing floors to reduce the 30-40 percent of nursing time that is wasted hunting-and-gathering for supplies and equipment.
- The new AIA guidelines have mandated single rooms for acute care facilities to reduce infections that come from shared rooms. Typically each hospital-acquired infection costs the hospital from \$19,000 to \$42,000.

To apply EBD, health care organizations have their senior managers, design team members and clinicians meeting regularly. Reportedly, the most difficult aspect of such planning is to get clinicians to think "out of the box" and to imagine how they might deliver care 10, 20, 30 years out.

In short, it is critically important to consider how the built environment can facilitate or inhibit technology integration, care process re-design, and cultural transformation. If this is done correctly, it is believed that dramatic improvements can be made in health care outcomes, safety, and quality.

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Specific Approach to CPR Facility Research

The approach of research conducted for the California Health Care facilities to develop, assess, and select options for the proposed medical and mental health facilities is twofold:

- 1) Interviews, evaluative surveys, and site visits are being conducted with existing correctional and non-correctional physical and mental health facilities outside of California. This effort is eliciting a broad range of best practices that are occurring in other facilities across the country.

The list of research topics has evolved based on issues raised by the Receiver's office, other project team members, planners and designers. Telephone interviews have been used to obtain information on the following topics:

- Mixing or separating mental health and physical health patients/inmates within correctional and non-correctional treatment facilities;
- Mixing or separating inmates of various security and custody levels within correctional mental health and medical health facilities;
- Attributes of appropriate housing units for mentally ill and physically ill patients/inmates;
- Capacity of facilities and units for mentally ill and physically ill patients/inmates;
- Types of housing accommodations: single rooms, multi-occupancy rooms, dormitories;
- Programs to provide for mental health and physical health populations;
- Accommodations for group therapy (e.g., therapeutic modules);
- Types of perimeter security to provide for the various populations (underway, not in this report);
- Costs of construction (underway, not in this report).

Lengthy telephone interviews with structured questions were conducted with the following individuals:

- Scott Chavez, PhD, MPA, PA, CCHP-A, Vice President, National Commission on Correctional Health Care (NCCHC);
- Judy Stanley, NCCHC, and former health care administrator, New York State;
- Patricia Ottolini, Director of Health & Addiction Services, Connecticut Department of Corrections, ACA auditor, consultant to other states;
- Tom Fagan, Professor, Nova Southeastern University, Fort Lauderdale, FL, board member and standards-developer, NCCHC, former psychiatrist and health care administrator for the Federal Bureau of Prisons (for 23 years);
- Jennifer Oades, Director General, Strategic Policy & Intergovernmental Relations, Correctional Service of Canada;
- Grace Ferguson, Assistant Administrator Health Services, Carswell Federal Bureau of Prisons, Ft. Worth, TX;

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- Dr. Andy Simcox, Mental Health Chief of Psychiatry, Rochester Federal Bureau of Prisons Medical Center, MN;
 - Dr. Cassandra Newkirk, forensic psychiatrist, Vice President of Correctional Mental Health and Chief Medical Officer for GeoCare. Former Staff Psychiatrist, Mental Health Director, and Medical Health Director for Georgia Dept. of Corrections; has served as a Special (Court) Master and expert witness in prison litigation.
- 2) Documented literature review of journal articles, research reports, and other printed materials published in medical, psychology, ergonomics, corrections, and architecture periodicals and books. Information has been sought on design decisions that have impacted health and behavioral outcomes for inmates/patients, as well as for staff. While this literature is largely available from organizations not directly related to corrections, critical thinking enables the drawing of inferences that permit applications to correctional health care.

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2. Mixing of Medical & Mental Health Patients

The question of mixing of Mental Health inmate/patients and Medical inmate/patients was addressed to recognized authorities and correctional health care administrators¹. The notations below are the experience- based opinions of the noted professionals regarding mental and medical mixing.

- Medically ill and mentally ill should not be in same sleeping rooms or dorms. They are generally housed in separate buildings (Rochester FMC), or on separate floors within the same building (Carswell FMC). Generally, they have their own dayrooms within their units.
- Many programs should be different for medically and mentally ill inmates -- which also drives different types of environments. Some programs allow mixing (i.e., Religious services, clinic, Unicorp Vocational program at Carswell [answering 411 calls]); horticulture program, chapel, recreation, education, food services at Rochester). Duration of stay, level of care, security level, etc. largely dictates access to programs. The FMC's look at a number of variables to determine access to programs whether mixed or not – not everyone fits into one category.
- Some could mix for some activities -- based on medical and mental health conditions and behaviors. Evidence found of mixing for vocational, academic, dining, visiting, and recreation programs (Rochester, Carswell); mixing often depends on behavior level more than diagnosis.
- Some mental health inmates are part of work cadre, where they work in health and mental health units, maintenance, and food services (FMC's).
- Most medically ill and mentally ill have different types of needs that dictate different types of physical environments. High acuity patients, those with infectious diseases, and/or those with severe mental conditions, may be housed in single rooms. There are locked mental health units where food and services are delivered to them.

¹ Scott Chavez, PhD, MPA, PA, CCHP-A, Vice President, National Commission on Correctional Health Care (NCCHC); Judy Stanley, NCCHC, and former health care administrator, New York State; Patricia Ottolini, Director of Health & Addiction Services, Connecticut Department of Corrections, ACA auditor, consultant to other states; Tom Fagan, Professor, Nova Southeastern University, Fort Lauderdale, FL, board member and standards-developer, NCCHC, former psychiatrist and health care administrator for the Federal Bureau of Prisons (for 23 years); Jennifer Oades, Director General, Strategic Policy & Intergovernmental Relations, Correctional Service of Canada; Grace Ferguson, Assistant Administrator Health Services, Carswell Federal Bureau of Prisons, Ft. Worth, TX; Dr. Andy Simcox, Mental Health Chief of Psychiatry, Rochester Federal Bureau of Prisons Medical Center, MN; Dr. Cassandra Newkirk, forensic psychiatrist, Vice President of Correctional Mental Health and Chief Medical Officer for GeoCare. Former Staff Psychiatrist, Mental Health Director, and Medical Health Director for Georgia Dept. of Corrections; has served as a Special (Court) Master and expert witness in prison litigation. Similar positions at Rikers Island (New York City) and Philadelphia were also interviewed.

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- Some patients/inmates are both mentally ill and physically ill and, therefore, need to be in units planned for both conditions. The Federal Bureau of Prisons designates certain facilities for certain diagnoses – high security medical and mental are sent to Springfield, more feeble; those with infectious diseases or in need of dialysis treatments to Rochester; cancer patients to Butner.
- Always balance privacy and security.
- Medically ill and mentally ill who are able to leave their units (based on behavior and health reasons) should leave their units for dining, programs, and recreation if physically able -- this is better for mental and physical health. At Carswell FMC, for example, there is free access to the inmate cafeteria, for variety, by both mental and medical inmates. Housing units seem to be the most separate.

3. Mixing or Separating Patients of Various Security/Custody Levels Within Correctional Medical & Mental Health Facilities

Literature Review

No "hard" research findings found so far regarding separating/collocating various security classifications within correctional health care facilities – but a great deal of research (below) supports housing patients/inmates in separate single-occupancy rooms:

- Do not mix patients/inmates when such increases levels of stress.
Source: Nurse, J, Woodcock, P, Ormsby, J. Influence of Environmental Factors on Mental Health Within Prisons: Focus Group Study. Journal: BMJ, Aug, 2003.
- Healing is promoted by surroundings that reduce stress which include for some single occupancy rooms and separation from those who intimidate others, have violent tendencies, and exhibit anger.
Source: Malkin Jain. The Business Case for Creating a Healing Environment. Boardroom Press, Oct. 2002.
- (indirectly related) Single occupancy rooms, among other design elements, promote lower sound levels; and lower sound levels improve communications, decrease staff errors, help control blood pressure, and decrease staff exhaustion and burnout.
Source: Anjali, Joseph, Ph.D. and Ulrich, Roger, Ph.D. Sound Control for Improved Outcomes in Healthcare Settings. Issue Paper, The Center for Health Design, January 2007.

Experienced-Based Opinions

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- Does not separate mentally ill or physically ill inmates by security/custody category. Inmates are separated according to their recent and current behavior.
Source: John Coloutti, Case Manager Coordinator, Federal Bureau of Prisons' Devens FMC (Massachusetts).

- Based on her extensive experience, Dr. Newkirk believes that most mentally and physically ill and disabled inmates do not need to be separated by security level or custody classification. The main exception is that high risk inmates – including those who are likely to be assaultive -- should be separated from other patients/inmates.
Source: Casandra Newkirk, forensic psychiatrist; Vice President for Correctional Mental Health and Chief Medical Officer, GEOCare; formerly Staff Psychiatrist and Mental Health Director for Georgia DOC, similar positions at Rikers Island (New York City) and Philadelphia prison system; has been a Special Master.

- The states of Washington and Oregon both mix security levels from low to high security in mental health and physical health areas. According to Ms. Knox, this is safe and works fine. She believes in separating patients/inmates when needed due to their current behaviors, not their previous histories. To accommodate a range of both illnesses and behaviors, Ms. Knox recommends mixing single rooms with 2-person and 4-person rooms.
Source: Catherine Knox, Director of Nursing, Washington State Department of Corrections; also had similar position in Oregon.

4. Capacity of Facilities, Housing Units, and Sleeping Rooms for Mentally Ill & Physically Ill Patients

Summary: Evidence from both the literature and anecdotal sources is very slim on “optimal” patient numbers for either facilities or sub-units within those facilities. The Environment and Behavior literature offers the most information on unit sizes, but focuses mainly on Alzheimer’s patients and those in some form of assisted living. The sizing of units/facilities in correctional settings is far more driven by construction and operational costs than those in the private sector.

For the mentally impaired populations not in correctional settings, the most therapeutic environments tend to be smaller; eight to ten residents in non-institutional, home-like settings, with private rooms and smaller social groups, seems to offer the most normative environment where healing is more possible.

For the medically or mentally impaired who only need minimal assistance in daily living, the numbers can be somewhat larger – but the type of housing recommended for these

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populations is still less institutional, and more "home-like," albeit within a secure setting. Numbers of 26 residents in units, each with its own living/dining and shared kitchen have been suggested.

The image of "village – houses, neighborhood, downtown" – underlies the new movement in psychiatric facilities. This is a concept that could be constructed within secure settings such as correctional facilities.

In short, however, "smaller is better."

Single Rooms, Double Rooms, Multi-Occupancy Rooms, Dormitories

Thoughts and recommendations from the Federal Bureau of Prisons:

- Most mentally ill inmates should be in single rooms or double rooms; most mentally ill inmates react poorly when they are in dormitories with larger number of roommates/dorm mates. Lockdown patients are in single cells. (Federal Bureau of Prisons)
- Some medically ill/disabled could be in 4-person rooms, some should be in doubles, and others in single rooms -- the latter for medical isolation and/or behavioral reasons. The FMC's, for example use mostly doubles for medical patients; two and three person rooms handle psychiatric inmate/patients.
- Never put an odd number of inmates in a room (no 3's, no 5's) (although FMC's have some 2 and 3 person rooms due to existing conditions in some facilities).
- Always balance privacy and security.
- All inmate/patients should be in direct supervision units. Most units have nursing staff 24/7 in every unit; correctional officers are either assigned to a unit depending on numbers of inmate/patients, or float between units (FMC's)
- Having roommates can help some with life-skills -- learning to live with others -- although this can also be accomplished in dayrooms and other activity areas.

Federal Bureau of Prisons

- Healing is promoted by surroundings that reduce stress which include for some single occupancy rooms and separation from those who intimidate others, have violent tendencies, and exhibit anger.

Source: Malkin Jain. The Business Case for Creating a Healing Environment. Boardroom Press, Oct. 2002.

- Single occupancy rooms, among other design elements, promote lower sound levels; and lower sound levels improve communications, decrease staff errors, help control blood pressure, and decrease staff exhaustion and burnout.

Source: Anjali, Joseph, Ph.D. and Ulrich, Roger, Ph.D. Sound Control for Improved Outcomes in Healthcare Settings. Issue Paper, The Center for Health Design, January 2007.

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- Single occupancy rooms originated from “1) attempts to reduce hospital acquired infections and 2) to provide an enhanced healthcare experience”. It did have favorable outcomes in patient allocation (reduction in undesirable rooms) also. The downside, from the caregiver's perspective: 1) with private rooms come larger floor plates, that increase caregiver's walking, and could contribute to stress and fatigue, 2) affected team work, since peer lines of sight are difficult to maintain in large floor plates, 3) visibility of patients got affected, especially with centralized supplied and medications.

Source: Debajyoti Pati, Director of Research, HKS, Inc. Dallas, TX.
12/12/07 email.

- Provide private rooms to increase patient and staff satisfaction and reduce nursing turnover.

Source: Livingston, Heather. Design Matters in Health Care Facilities. AIArchitect, April 19, 2004.

- Provide private rooms to promote good health, reduce medical errors, limit falls and improve recovery times.

Source: Landro, Laura. New Standards for Hospitals Call for Patients to Get Private Rooms. The Wall Street Journal Online, March 22, 2006; page A1.

- Provide adaptable-acuity single bed rooms to minimize infections, reduce room transfers and medical errors, lessen noise, improve patient confidentiality and privacy, facilitate social support, and improve staff/patient communication.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

- Provide private rooms to aid healing.

Source: Bilcheck, Gloria S. A Better Place to Heal. Health Forum Journal, July/Aug 2002.

- “Single or non-dormitory-style patient rooms enhance privacy and autonomy and, in some cases, may promote participation in treatment activities. Private visiting areas increase privacy and intimacy.”

Source: Karlin, BE, Zeiss, RA. Environmental and Therapeutic Issues in Psychiatric Hospital Design: Toward Best Practices. Psychiatric Services, October 2006; 57: pp 1376 -1378.

- In a study conducted by Lawon & Phiri (2000) in England, patients were moved from conventional psychiatric and orthopedic wards to refurbished wards that were mainly composed of single-occupancy rooms. Patients rated their experience and treatment higher on the refurbished wards; psychiatric patients also stayed for shorter periods of time, while orthopedic patients required lower levels of analgesia.

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Source: Chaudhury, H. et al. The Use of Single Patient Rooms vs. Multiple Occupancy Rooms in Acute Care Environments. Simon Fraser University, November 20, 2003.

- "Preventing crowding is likely to enhance the ward atmosphere and may improve safety. We feel that unless contraindicated, as may be the case with suicidal or self-mutilating patients, every inpatient should be provided with a bedroom of his or her own."

Source: Nijman, H.L.I., Rector, G. Crowding and Aggression on Inpatient Psychiatric Wards. *Psychiatric Services*, June 1999; 50 (6): pp. 830-831.

- "At the ward level, environmental stress may be reduced by creating units with enough privacy by providing patients with their own rooms, preventing overcrowding, and making sure ward activities fit the needs and capacities of patients."

Source: Nijman, H.L.I et al. A Tentative Model of Aggression on Inpatient Psychiatric Wards. *Psychiatric Services*, June 1999; 50 (6); pp. 832-834.

- "...contrary to much of the folklore of the psychiatric ward, it is the multiple-occupancy room and not the private room that fosters the patient's withdrawal."

Source: Ittelson, W.H., et al. A Study of Bedroom Use on Two Psychiatric Wards. *Hospital and Community Psychiatry*. 1970: 21: pp. 177-180.

Unit Sizes

Recommendations from Joan Arehart-Treichel:

- Assisted living: 13-person resident houses, two 26-person units, each w/ living/dining and shared kitchen and secure courtyard garden
- Skilled nursing units: 24 beds
- Alzheimer's units: eight residents each in two units creates an intimate secure setting where environmental stimulation can be carefully controlled

Woodside Place, in western Pennsylvania, was America's first home-type assisted-living facility designed expressly for Alzheimer's patients (based on facility in England). Its construction cost less to build than a traditional nursing home. Surrounded by a fence so residents can go outside but not wander away, it contains meandering paths that intersect but never end so residents can wander, but never find themselves in a frustrating and confusing cul-de-sac. The main building includes a great room, with comfortable chairs, sofas and other home-like amenities, and a separate television room, a music room, and an art therapy room. The main building is connected to three individual houses, so residents can come and go between the main building and the houses (each of which has its own visual theme (a star, a tree, or a house to help orient residents. Each house contains a kitchen where residents can help staff prepare food if they want and bedrooms for residents, with Dutch doors to allow them to look outside their rooms, but discourage other residents from barging in. Residents reportedly feel useful and communicate more with others when they can assist in meal preparation. Ability to

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walk (wander) reduces patient agitation and irritation, and patients are able to be managed without much medication to control their behavior.

A comparative evaluation of Woodside patients with patients in a traditional nursing home setting by Myrna Silverman, Ph.D., of the University of Pittsburgh Graduate School of Public Health, 1995 underscores the benefits:

- Woodside residents declined more slowing in functional capacity than comparative group.
- Functions that were especially well preserved in Woodside residents: ability to walk, feed oneself, bathe oneself, and dress oneself.
- Woodside residents spent three times as much time socializing as comparative group. "The division of the facility into three "houses" automatically created smaller social groups within the total population."

Other comments: Tendency at Woodside to try to make residents feel happy had some patients avoiding dealing with more painful emotions, such as grief, loss, etc. Also, you can build a beautiful setting but if not accompanied by a philosophy of care, it is not going to help. Due to nature of Alzheimer's disease, patients on average remain there only one and a half years before being placed in more traditional nursing home with higher level of care.

Source: Arehart-Treichel, Joan. Innovative Alzheimer's Residence Tries New Models of Care. *Psychiatric News*, May 4, 2001, Vol. 36 (9), p 14.

New mental hospital in Worcester, MA (that replaces Worcester State Hospital is being designed as a decentralized campus loosely based on the idea of a New England village, with patients' rooms in clusters of 8-10; single loaded corridors with views on one side avoid an institutional feel, and connect patients to meeting areas, gyms, social areas, etc.

Source: Allen, Scott. State Expected to Propose New Mental Hospital. *The Boston Globe*, March 28, 2006.

Comparative study of three direct supervision facilities found that when staff are asked how many inmates they can "comfortably supervise", numbers were close to what they currently supervised – Facility #1 at 35 inmates, Facility #2 at 48 inmates. Facility #3 currently had 64 in unit but staff noted could comfortably supervise 36-48 inmates.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

The literature suggests that social density is at least as important in contributing to stress (and all its bad outcomes) as physical density. No magic numbers, but smaller is better – and in the context of CDCR, where 100 cell units are occupied at up to 190% of capacity, the size should be reduced drastically. This needs to be examined for each inmate type and with the assumption that the dominant mode should be direct supervision. If they were really doing direct supervision, the custody staff could contribute as part of the treatment team, since they observe and interact with the inmates/patients over a more extended period of time compared to

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the treatment staff. This would...require a real culture shift for CDCR – lots of training and organizational leadership.

Source: Farbstein, Jay, Ph.D. email communication 12/08/07.

5. Attributes of Appropriate Housing Units for Mentally Ill & Physically Ill Patients

Summary: Most of the reviewed literature deals with attributes of “healing” environments as opposed to strictly “correctional” environments. Extrapolation of some concepts that are applicable in the community at large to a more secure environment such as prisons is necessary, but possible. There is a huge emphasis in the literature on what constitutes “therapeutic” environments and the need to provide such environments if healing and/or improvement is the goal.

The types of settings that appear to be most successful in offering the possibility of future health (mental or physical) are:

- Enriched – with color, art, music, views of nature, opportunities for positive stimulation, etc.
- Normative – allowing patients to maintain as complete a behavioral repertoire as patient had prior to institutionalization
- Supportive – designed so as not to diminish the scope and range of patients’ behavioral repertoires; i.e., cueing, wayfinding, recognizable, etc.
- Meaningful – so as to offer the fullest possible support to patient’s strengths with opportunities for information, choice, and activity within a recognizable (even though secure) environment

A brief summation of the documentation found to date:

- Softer, more normative (homelike) finishes and living quarters are appropriate and often not abused by the mentally and physically ill. These environments are cheaper to build than highly secure, institutional settings and they can work.
- Indoor air quality is very important for the functioning and health of residents and staff.
- Natural and full spectrum lighting improves health outcomes, lowers stress and depression, can shorten length of stay, and helps retain staff.
- Quieter environments lessen stress in residents and staff.
- Configuration of resident rooms for visibility to nursing/custodial stations is a big issue. Standardization of resident rooms is said to reduce errors, improve staff efficiency, and reduce movement of patients. Smaller, decentralized nurse’s stations appear to improve communication between caregivers, reduce errors, reduce staff walking and fatigue, and increase patient care time.

Healing Environments

The Committee on Quality Health Care in America cites that “...between the health care we have and the care we could have lies not just a gap, but a chasm.” The Committee offers a strategy for improving health care overall. They recommend that care (in whatever setting) must be safe, effective, patient-centered, timely, efficient,

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and equitable. Systems of care must be designed to serve the needs of patients, and to ensure that they are fully informed, retain control and participate in care delivery whenever possible, and receive care that is respectful of their values and preferences. The 21st-century health care system envisioned by the Committee—providing care that is evidence-based, patient-centered, and systems-oriented—implies new roles and responsibilities for patients and their families, who must become more aware, more participative, and more demanding in a care system that should be meeting their needs. The Committee offers ten “rules” for redesigning care delivery:

- Care based on continuous healing relationships.
- Customization based on patient needs and values.
- The patient as the source of control.
- Shared knowledge and the free flow of information.
- Evidence-based decision making.
- Safety as a system property.
- The need for transparency.
- Anticipation of needs.
- Continuous decrease in waste.
- Cooperation among clinicians.

Source: Crossing the Quality Chasm: A New Health System for the 21st Century. Committee on Quality Health Care in America. Washington, DC: National Academy Press, 2001.

- Health care for mental and substance-use conditions has a number of distinctive characteristics, such as the greater use of coercion into treatment, separate care delivery systems, a less developed quality measurement infrastructure, and a differently structured marketplace. These and other differences raised questions about whether the Quality Chasm approach in the study above is applicable to health care for mental and substance-use conditions and, if so, how it should be applied. This report finds that the Quality Chasm framework can be applied to health care for mental and substance-use conditions, and describes a strategy for doing so:
 - Mental, substance-use, and general illnesses are highly interrelated, especially with respect to chronic illness and injury. Improving care delivery and health outcomes for any one of the three depends upon improving care delivery and outcomes for the others. This means that health care for general, mental, and substance-use problems and illnesses must be delivered with an understanding of the inherent interactions between the mind/brain and the rest of the body.
 - M/SU health care—like general health care—is often ineffective, not patient-centered, untimely, inefficient, inequitable, and at times unsafe. It, too, requires fundamental redesign. This infers that the aims, rules, and strategies for redesign set forth in Crossing the Quality Chasm should be applied throughout M/SU health care on a day-to-day operational basis, but tailored to reflect the characteristics that distinguish care for these problems and illnesses from general health care.

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Source: Improving the Quality of Health Care for Mental and Substance-Use Conditions. Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders. Board on Health Care Services, Institute of Medicine of the National Academies. The National Academies Press, Washington, DC. 2006.

- The optimum hospital environment, irregardless of where it is, should be designed with four principles in mind:
 - Provide enriched settings that will aid in the recovery and rehabilitation of patients
 - Provide settings that allows patients to maintain as complete a behavioral repertoire as patient had prior to institutionalization
 - Design the facility so as not to diminish the scope and completeness of patient's behavioral repertoires
 - Design institutional environment with meaning in mind so as to offer the fullest possible support to patient's strengths.

Source: Spival, Mayer. Institutional Environments. Arts and Minds. November 05, 2007.

- Based on their identification of "best practices in psychiatric hospital design" synthesized from important findings and themes reported in the extant literature and from first hand experience, the Veteran's Administration incorporated five design principles into their new inpatient psychiatry building with four 20-bed units at the VA Palo Alto Health Care System, to be completed by January 2009 (and they plan to incorporate these design efforts at other VA facilities as well):
 - Ambient features
 - soft, indirect, and pervasive or full-spectrum lighting
 - sparingly used and carefully located spotlight type recessed fixtures
 - ample natural daylight (and sunlight)
 - fresh air, good ventilation, neutral odors
 - avoid highly reverberant spaces.
 - Architectural features
 - single or non-dormitory-style patient rooms
 - private visiting areas
 - views of nature with large, low windows (found to improve sensory abilities and reduce delirium and paranoia)
 - laminated safety glass in group rooms to open up the interior and provide visual connection to outside
 - outdoor gardens
 - avoidance of long, echoic corridors
 - flexible dividers for larger areas to maximize use of available spaces
 - location of seclusion rooms near and within sight of nursing stations but outside of main patient corridors and activity areas

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- providing a staff lounge, garden, or similar congregate space improves staff morale and job satisfaction; also encourages professional communication
- sufficient group meeting spaces
- Interior design features
- designing a clearly identifiable reception area and a method of greeting patients and visitors (reflects customer service values and patient centeredness)
- interior design that reinforces treatment goals and positive expectations of patient and staff
- reduce the institutional feel of facility and incorporate a "homelike" atmosphere whenever possible
- patient rooms with a "familiar tone" – upholstered furniture (not easy to throw but not too heavy to move)
- images of nature
- avoid monochromatic, bland color schemes as well as trendy colors
- use warm blue tones for a soothing and calming effect ; blue/green colors have been found to have a negative effect on mood for patients with depression and less energy
- seclusion rooms of a "calm, definitive colors", but not white or grey
- differentiate functional areas through color, lighting, carpeting, wall graphics, and furnishings
- inclusion of natural plans
- shatterproof windows, breakaway curtain rods, tamperproof electrical outlets, stainless steel mirrors, lockable water taps
- avoid blind corners
- use natural wood veneer to soften look of doors, hallway rails, nursing stations
- avoid highly reflective surfaces (glare)
- Social features
 - design spaces where patients can retreat, including spaces where they can form social relationships
 - avoid areas prone to overcrowding
 - open and flexible dayrooms that allow for personal autonomy and encourage interaction with staff
 - small – group circular arrangements of furniture
- Other features
 - open (vs. closed) nursing stations with no glass partitions (found to have significant positive psychological, behavioral and social effects); closed stations convey image of staff inaccessibility
 - contiguous, secure space, closed to patients, for patient records
 - moderate environmental stimulation for older patients – avoid glare and noise; add high levels of illumination for geriatric patients

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- include pictures of familiar images and eras and a familiar dining experience (stimulates memory and enhances meaning and adjustment in elderly)
- include opportunities for exercise, energy outlets
- provide shorter corridors for older patients, that limit reverberation
- provide visual cues for older patients to promote orientation and reduce wandering
- provide suicide proof (enclosed bottom) handrails and grab bars
- for elderly, provide higher chairs (with longer arms) and commodes with adequate back support
- increase visibility of toilets for older patients with cognitive impairments

Source: Karlin, B.E., Zeiss, R.A. Environmental and Therapeutic Issues in Psychiatric Hospital Design: Toward Best Practices. Psychiatric Services. Ps.psychiatryonline.org. October 2006, Vol. 57, No. 10.

- A healthcare environment is considered therapeutic when it does all of the following:
 - Supports clinical excellence in the treatment of the physical body
 - Supports the psycho-social and spiritual needs of the patient, family, and staff
 - Produces measurable positive effects on patients' clinical outcomes and staff effectiveness.

"The characteristics of the physical environment in which a patient receives care affects, in a positive or negative way, patient outcomes, staff satisfaction, and organizational outcomes. No environment is neutral. "

Source: Smith, R., AIA, ACHA, Therapeutic Environments. The Therapeutic Environments Forum, AIA Academy of Architecture for Health. May, 2006.

Ambiance

A cheerful treatment setting helps patients with physical ailments heal faster; patients left hospital after abdominal surgery on average a day earlier if they were in a room with natural light compared with artificially lit rooms. "If the setting is important in medical care, it's even more important in psychiatric care (Elizabeth Childs, Massachusetts State Mental Health Commissioner.)

Source: Allen, S. State Expected to Propose New Mental Hospital: Worcester Complex Eyed. The Boston Globe, March 28, 2006.

Distractions -- views out, artwork, aquariums, etc. -- are part of a healing environment.

Source: Malkin, Jain. Hospital Interior Architecture. 1992. (Echoed by Farbstein, Wener, Farling, et al).

A drop in the number of psychiatric patients who need to be restrained has been found when placed in "therapeutic" environments with bright open spaces. Therapeutic environments include: non-institutional materials with cheerful and varied colors and

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textures; ample natural light; views of nature; direct and easy access to controlled outdoor areas; adequate separation and sound insulation; acoustic privacy and avoidance of mechanical, toilet, etc. noises; visual privacy and control over it as consistent with need for supervision; control over TV, radio, etc.; computer stations for patient use; features for patient orientation; way-finding processes in design; exercise equipment, etc.

Source: Carr, R. F., VA Office for Facilities Management. Psychiatric Facility. Whole Building Design Guide. National Institute of Building Sciences. 2007.

A "cheerful" treatment setting helps patients with physical ailments heal faster. In one study, patients left the hospital after abdominal surgery on average a day earlier if they were in a room with natural light compared with artificially lit rooms (also saves costs). These environments are particularly important in psychiatric care settings.

Source: Allen, Scott. State Expected to Propose New Mental Hospital. The Boston Globe, March 28, 2006.

Psychologically appropriate art affects such patient outcomes as high blood pressure, anxiety, intake of pain medication, and length of hospital stay.

Source: Friedrich, MJ. The Arts of Healing, Journal of the American Medical Association, 1999.

A normalized environment within a safe and secure design shape the environment and expectations in Maine's latest psychiatric hospital:

- Separate but connected buildings – campus environment
- Impact proof Mylar or steel mesh backed drywall in lieu of concrete block walls – looks residential but is impenetrable
- Clear but unbreakable safety glass in lieu of barred windows
- Central security hub
- Treatment "mall" with art studios, library, teaching kitchen, computer lab, quiet lounges, greenhouse, medical and dental services;

Source: Hanson, T. Maine's Latest Psychiatric Hospital. Behavioral Health Management. September 1, 2005.

An enriched prosthetic environment provides the attachment points for meaning, behavior and social interaction that we all need all the time. "Enriched" translates architecturally into familiar and useful components, tools, behavior-places and furnishings that the mentally ill can recognize as familiar when they are in their healthiest periods. The stripped down environments of many institutional settings, being stimulus poor and barren of meaning, are "actually dangerous to mental functioning; it is altogether too sterile. It can drive one crazy." A sterile environment that starves the senses and the mind is not appropriate for the mentally ill.

Source: Spival, Mayer. Institutional Environments. Arts and Minds. November 05, 2007.

Four key factors that improve patient outcomes if applied in the design of a healthcare environment:

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- Reduce or eliminate environmental stressors – lighting, noise, “off-stage” areas for staff respite, proximity to other staff
- Provide positive distractions – views of nature, access to nature, healing gardens, Chapel, meditation room or gardens, artwork depicting nature, music (live piano, recorded), mild physical exercise, pets or other activities or elements that allow sense of stimulation.
- Enable social support – family zone in patient room; places where patients can engage socially with family and other caregivers; accommodation for family member; culturally sensitive environments;
- Give a sense of control – private patient rooms; privacy and control over radio, TV, reading light, night light; provide clear visual cues to orient patients and guide them to destination and return; mini-medical library and computer terminals so patients can research conditions and treatments; choice of lighting and personal dimming controls; choice of artwork; volume and programming control of TV; menu selection/room service.

Source: Smith, R., AIA, ACHA, Therapeutic Environments. The Therapeutic Environments Forum, AIA Academy of Architecture for Health. May, 2006.

Settings which deprive people of choices will eventually devolve to a totalitarian mode, and deny “humanness” to their users. The longer a person is confined to places that restrict opportunity and activity, the more serious and disturbing will be their effects on him.

Source: Spival, Mayer. Institutional Environments. Arts and Minds. November 05, 2007.

Schizophrenics (who make up the majority of all mental hospital diagnoses) are more likely to drift off into private worlds when their environment is sterile of sensory stimulation, empty, and meaningless. Enriching their environment may not have a noticeable effect on their illness, but it will make them appear less bizarre to each other, to their visitors, and to themselves. An enriched setting helps create the expectation of possible future health.

Source: Spival, Mayer. Institutional Environments. Arts and Minds. November 05, 2007.

The typical prison environment does much to foster or reinforce mental illness due to a variety of stressors, not the least of which are fear and isolation – as well as an impoverished environment.

Source: Kupers, Ph.D., Terry. Prison Madness: The Mental Health Crisis Behind Bars and What We Must Do About It. Jossey Bass, Inc. Publishers. 1999.

“A Psychiatric hospital should recapitulate a real community in which patients will live after treatment”. Richard Lippincott, MD, professor of psychiatry at University of Arkansas for Medical Sciences. The inside should represent the community outside while still offering a secure setting.

Source: Levin, Aaron. Psychiatric Hospital Design Reflects Treatment Trends. Psychiatry News, January 19, 2007, Vol. 42, No. 2.

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Finishes

Highest risk patient rooms, BMT units, etc. should have hard surface floors, not carpet, epoxy paint (retards mold; a copper-silver ionization process to thwart microbial growth in the hot water system aids in infection control).

Source: Building in Infection Control from the Ground Up. Environment of Care News, Oct. 2004, Vol. 7, Issue 10.

Comparative study of three new jails showed that the use of "softer," less expensive finishes (carpet, wood doors, and porcelain plumbing fixtures) hold up well in direct-supervision units and provide "cues" to inmates as to the expected, more normal behavior. (Maintenance staff at one of three facilities report very little need to replace items due to vandalism).

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Shower curtains in lieu of even securely anchored shower doors eliminate inmates swinging on shower doors (maintenance issue).

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Safety design in therapeutic environments: tamper-proof MEP devices; breakaway shower rods/bars (no clothes hooks); elimination of jumping opportunities; control of entrances/exits by staff; laminated glass for windows in inpatient units, fiber-reinforced gypsum board for walls, outward opening doors with no inside hardware in seclusion rooms; appropriate locations for grab bars and handrails; elimination of door knobs/handles; solid material specified ceilings.

Source: Carr, R. F., VA Office for Facilities Management. Psychiatric Facility. Whole Building Design Guide. National Institute of Building Sciences. 2007.

Solely polycarbonate window units less subject to breakage than laminated polycarbonate and glass units.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Vinyl tile performs better than sheet goods. Rubber tile flooring holds up well except where heavy carts or trucks are used (should not be used in kitchen areas where moisture and temperature differences cause the tile to lift).

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

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Plastic laminate cabinets in dayrooms do not hold up well under intensive use. Wire handles on doors/drawers can easily be removed by inmates.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Window blinds enclosed between glass panes allow patients an element of control over their environment, but patients cannot damage the blinds or injure themselves.

Source: Levin, Aaron. Psychiatric Hospital Design Reflects Treatment Trends. *Psychiatric News*, January 19, 2007., Vol. 42, No. 2.

Building Systems & Air Quality

A robust body of scientific evidence indicates that the health of children and adults can be affected by indoor air quality. A growing body of evidence suggests that teacher productivity and student learning may also be affected by indoor air quality. The reduction of pollutant loads through increased ventilation and effective filtration has been shown to reduce the occurrence of building-associated symptoms (eye; nose, and throat irritations; headaches; fatigue; difficulty breathing; itching; and dry, irritated skin) and to improve the health and comfort of building occupants (pg 77).

Source: Green Schools: Attributes for Health and Learning. Committee to Review and Assess the Health Benefits of Green Schools. National Research Council, 2006.) (Findings and Recommendations)

Plug in switches make consoles easier to work on. Control panels with switches arranged in rows, rather than on a graphic representation of the floor plan are harder to learn and less efficient to operate (may require second officer to be posted at station).

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Flooding due to flushing of large items down inmate toilets can be reduced (study facility by 90%) by installing interceptor pins behind each trap (because causes inmate to flood his/her own cell).

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Water saving fixtures in inmate cells were found to not move enough volume to carry waste.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

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TB infection among health care workers is associated with ventilation of general or non-isolation patient rooms of less than two air exchanges per hour (findings from evaluation of 17 acute-care or university hospitals in Canada.)

Source: Center for Health Design Releases Findings on How Design Can Improve the Standard of Care in Health-Care Facilities. AIA Architect, Best Practices, Feb. 21, 2005.

Technologies, such as use of automatic lights that go on when patient attempts to get out of beds, and beds with the head of the bed with a handrail from bed to bathroom, beds that lower to reduce harm to patient falling, and rubber flooring (non-skid) reduce the potential for patient falls.

Source: Environment of Care News, Aug 2005, Vol. 8, Issue 8.

Description of design for infection control at Northwestern Memorial Hospital, Chicago. Infection control requires: HEPA Filters and Copper-Silver Ions cleaning, clean all cavities before enclosure, design for potential containment of mold producing within wall cavities by surface finishes that keep potential infection source from room environments until wall replacement can be made, check drinking water quality at frequent intervals, check air quality/air exchange frequency at frequent intervals, compromise other "design aspects" with finishes that minimize infection spread potential.

Source: Building in Infection Control for the Ground Up: Northwestern Memorial Hospital Fights Infection, Design in Environment of Care News, October 2004. (*Publication review provided by Terry Hill, MD, Chief Medical Officer of the California Prison Receivership.*)

Light

"Some of the benefits of natural light in terms of spectrum and variability could be achieved with borrowed light... (but) "scale" matters – a little borrowed light coming from a substantial distance is not going to cut it. Since glazing offers both light and view – and since view is so important (including what is seen) – I don't think borrowed light is going to address the whole issue well enough.

Source: Farbstein, Jay, Ph.D. email communication 12/08/07.

Access to natural lighting and full-spectrum lighting reduces depression and fatigue and improves alertness; affects mood and perception. Abundant natural light cuts energy costs.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

Natural light and views do not just benefit patients; healthcare staff are highly stressed (and presumably correctional staff also). A study at Children's Atlanta found that exposure to natural light and views (did not get a chance to separate the two) had a significant effect on acute stress and alertness in nurses.

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Source: Debajyoti Pati, Director of Research, HKS, Inc. Dallas, TX.
12/12/07 email.

In one study, patients left the hospital after abdominal surgery on average a day earlier if they were in a room with natural light compared with artificially lit rooms (saves costs). These environments are particularly important in psychiatric care settings.

Source: Allen, Scott. State Expected to Propose New Mental Hospital. The Boston Globe, March 28, 2006.

"It is very important to consider how the healthcare, MH, and general housing settings can be responsive to neuro-biological factors. I was particularly struck with the potential impacts of lighting (not just natural light – but a lack of darkness during the night) on the diurnal cycle and the ability to sleep. Similarly for noise, which is often very disruptive in all these settings (explosively flushing toilets, slamming steel doors.) As we speculated, the disruption of sleep patterns could be expected to have a variety of unfortunate outcomes, including irritability (leading perhaps to increased violence), shortened attention span, poorer performance on problem-solving tasks which might be engaged in during programs, etc. These factors could also be expected to have an impact on staff.

Source: Farbstein, Ph.D., Jay. Email communication of 12/19/07.

Bright light – both natural and artificial – can improve health outcomes such as depression, agitation, sleep, circadian rest-activity rhythms, as well as length of stay in demented patients and persons with seasonal affective disorders (SAD) and bipolar disorder. Exposure to morning light is more effective than exposure to evening light in reducing depression. Patients in brightly lit rooms have a shorter length of stay than patients in dim rooms. Patients exposed to an increased intensity of sunlight experiences less perceived stress, less pain, took 22 percent less analgesic medication per hour, and had 20 percent less pain medication costs.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

Current lighting technologies and lighting standards are designed exclusively for providing visual sensation. However, light affects the visual system very differently than it affects the circadian system. Relative to the visual system that underlies conventional photometry and all lighting standards, the circadian system needs a much higher light level on the retina for activation (McIntyre et al., 1989a,b); it has a peak spectral sensitivity to much shorter wavelengths (Brainard et al., 2001; Thapan et al., 2001); it has greater sensitivity to light in the inferior retina (such as would be involved when a person looks at the sky) than in the superior retina (Glickman et al., 2003); it requires much longer exposures for activation (McIntyre et al., 1989a,b; Rea et al., 2002); and, most important, its sensitivity to light depends on the time of day (Jewett et al., 1997).

There is a growing body of literature indicating that the effect of light on circadian rhythms can affect productivity as well as health. Seasonal affective disorder (SAD), or the "winter blues," is recognized by the medical community as a psychiatric disorder.

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Apparently, seasonal reductions in the amount of daylight available in the winter at extreme northern and southern latitudes can induce depression (Rosenthal, 1998). Light treatment, typically provided as bright light from electric lighting systems, is recognized by the medical community as the preferred method of treating SAD (Rosenthal et al., 1985). Pgs 85-86: LIGHTING AND THE CIRCADIAN SYSTEM

Source: Green Schools: Attributes for Health and Learning. Committee to Review and Assess the Health Benefits of Green Schools. National Research Council. 2006.). (Pages 85-86: LIGHTING AND THE CIRCADIAN SYSTEM

Lighting in therapeutic settings should support natural circadian rhythms = natural daylighting or bright white lights (400-600nm) in the daytime. Absolute darkness in evening; for nighttime movement only red lights (650-700nm) should be present in rooms (J. Roberts, Ph.D.)

Source: Smith, R., AIA, ACHA, Therapeutic Environments. The Therapeutic Environments Forum, AIA Academy of Architecture for Health. May, 2006.

While lights in cells at night allow officers to check on inmates, "sleep deprivation can have an acutely adverse affect on any individual, especially one already suffering from mental illness" (pg. 8).

Source: Report on Mental Health Programs and Services at Bedford Hills Correctional Facility. Women in Prison Project. Correctional Association of New York. September 2007.

A growing body of evidence suggests that lighting may play an important non-visual role in human health and well-being through the circadian system. However, little is known about the effects of lighting in schools on student achievement or health through the circadian system (pg. 90).

Source: Green Schools: Attributes for Health and Learning. Committee to Review and Assess the Health Benefits of Green Schools. National Research Council. 2006.). (Pages 85-86: LIGHTING AND THE CIRCADIAN SYSTEM

Because light is important in regulating daily biological cycles, both acute effects on learning and lifelong effects on children's health should be researched, particularly the role that light lighting in school environments plays in regulating sleep and wakefulness in children (pg. 91).

Source: Green Schools: Attributes for Health and Learning. Committee to Review and Assess the Health Benefits of Green Schools. National Research Council. 2006.). (Pages 85-86: LIGHTING AND THE CIRCADIAN SYSTEM

Noise/Acoustics

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Reducing noise levels through single patient rooms, sound absorbing ceiling tiles, removing/reducing loud noise sources on hospital units improves effective communication, decreases staff errors, and may assist in patient confidentiality.

Source: Anjali, Joseph, Ph.D. and Ulrich, Roger, Ph.D. Sound Control for Improved Outcomes in Healthcare Settings. Issue Paper, The Center for Health Design, January 2007.

Live musical performances in health care facilities results in reduced requests for pain medication and reduced length of stay, resulting in cost savings.

Source: Environment of Care News, Aug 2005, Vol. 8, Issue 8.

Sufficient scientific evidence exists to conclude that there is an inverse association between excessive noise levels in schools and student learning. Page 103.

Source: Green Schools: Attributes for Health and Learning. Committee to Review and Assess the Health Benefits of Green Schools. National Research Council. 2006.). (Pages 85-86: Lighting and the Circadian System.

Lower noise levels are linked with a number of positive effects on staff, including reduced perceived work demands, increased workplace social support, improved quality of care for patients, and better speech intelligibility (finding from Blomkvist et al., in press, 2004 study).

Source: Center for Health Design Releases Findings on How Design Can Improve the Standard of Care in Health-Care Facilities. AIA Architect, Best Practices, Feb. 21, 2005.

Lessening noise levels reduces stress, improves sleep, lowers blood pressure, and increases levels of job satisfaction. Levels reduced via single bed rooms, sound – absorbing ceilings, and elimination of noise sources.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

Configuration

A study of Bedford Hills Correctional Facility (New York's only maximum security facility for Women) Mental Health Services in Special Housing Unit (SHU), consisting of 24 individual cells, found that "inmates suffering from serious mental illness should not be placed in SHU's. The unit's restrictive setting aggravates most mental health conditions and can cause inmates to decompensate, even if they are able to meet with counseling staff on a regular basis" (pg. 8) .

Source: Report on Mental Health Programs and Services at Bedford Hills Correctional Facility. Women in Prison Project, Correctional Association of New York. September 2007.

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In mental health facilities, be careful not to provide any dark spaces – patients will more likely retreat into their illness without some stimulation and encouragement.

Source: Melissa Farling, ISI, LEED AP, Jones Studio, Inc. email communication 12.17.07.

Identical rooms (where staff can find everything quickly), nurses stations placed so all patients are visible, and healthier airflow devices reduce nursing errors and provide financial benefits.

Source: Naik, Gautam. To Reduce Errors, Hospitals Prescribe Innovative Designs. The Wall Street Journal Online, May 8, 2006; page 1.

Increased foot space on both sides of bed, standardized headwalls (the “plate” attached to the wall in which gases, electric, and other patient care resources are housed) on both sides of bed, and heightened ceilings will allow for more services – such as enhanced radiology procedures, endoscopy, or minor surgery – to be delivered in the patient room enhances safety through flexibility and adaptability.

Source: Environment of Care News, Aug 2005, Vol. 8, Issue 8.

Patient outcomes may be worsened by intra-hospital transport (IHT), which is defined as transport of patients within the hospital. This article reviewed 22 scientific studies which indicated that IHT's are subject to a wide range of complications, many of which occur frequently and have distinctly detrimental effects on patient stability and outcomes. The research suggests that higher patient acuity and longer transport durations are associated with more frequent and serious IHT-related complications and outcome effects. Design implications include the importance of minimizing transport delays due to restricted space and congestion, and creating layouts that shorten IHT times for high-acuity patients. Limited evidence raises the possibility that elevator-dependent vertical building layouts may increase susceptibility to transport delays that worsen complications. The strong evidence indicating that IHT's trigger complications and worsen outcomes suggests a powerful justification for adopting acuity-adaptable rooms and care models that substantially reduce transports.

Source: Ulrich, Roger S., Zhu, Xuemei. Medical Complications of Intra-Hospital Patient Transports: Implications for Architectural Design and Research. Health Environments Research and Design Journal, Vol. 1, No. 1, Oct. 1, 2007.

The image of ‘village’ – houses, a neighborhood, downtown – underlies the new movement in psychiatric hospitals. The ‘house’ is the patient’s room – comfortable and familiar. The ‘neighborhood’ is outside the room, down the hall, to more shared space. The ‘downtown’ may include the treatment areas, program areas, common areas. In the village model, patients can exercise more responsibility and control of their actions.

Source: Source: Levin, Aaron. Psychiatric Hospital Design Reflects Treatment Trends. Psychiatric News, January 19, 2007., Vol. 42, No. 2.

A place to sit near a dayroom allows patients to see and understand what is going on in the room before entering. Corners or bay windows in a dayroom add decorative

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"texture" that allows patients the choice of being alone or with others – allowing patients to find their own safety.

Source: Source: Levin, Aaron. Psychiatric Hospital Design Reflects Treatment Trends. Psychiatric News, January 19, 2007., Vol. 42, No. 2.

Paths for circulation should end in activity areas, and offer choices concerning movement thru the unit and garden.

Homelike organization and detailing helps cue residents into making appropriate choices.

The above recommendations are based on Uriel Cohen and Gerry Weisman's seminal book on design of dementia facilities, which was based on extensive analysis of early successful facilities. These principles are being instituted in the Alzheimer's Care Center of Viera, FL and in the 70 bed continuum of care facility, Harbor Hill, Maine.

Source: Stevens, Paul S., Designing Therapeutic Environments. Medquest Communications, 1996.

Authors note that "...many apparent amenities, such as a ward kitchen, are significant milieu therapy resources..."

Source: David, C., et al. The Architectural Design of a Psychotherapeutic Milieu. Psychiatric Services, July, 1979; 30: pp. 453 – 460.

Providing a window between the charting alcove and patient room will enhance visibility as well as patient safety. Wire patient rooms for cameras and have proper lighting for staff views, day or night.

Source: Reiling, J.G, Knutzen, B.L., Wallen, T.K., McCullough, S, Miller, R, Chernos, S. Enhancing the Traditional Hospital Design Process: A Focus on Patient Safety. Joint Commission Journal on Quality and Safety, Vol. 30, No. 3, March, 2004.

Space should be provided for patients to be with their families, as family involvement in care promotes safety and teamwork. (Also provides more space for staff to provide care).

Source: Reiling, J.G, Knutzen, B.L., Wallen, T.K., McCullough, S, Miller, R, Chernos, S. Enhancing the Traditional Hospital Design Process: A Focus on Patient Safety. Joint Commission Journal on Quality and Safety, Vol. 30, No. 3, March, 2004.

Post-surgical patients with a view of trees vs. patients with a view of a brick wall had shorter post-operative stays, required less medication, and experienced fewer post-surgical complications.

Source: Ulrich, Robert, 1984. View Through a Window May Influence Recovery from Surgery, Science, Volume 224, April 1984.

In 2000, a research collaborative of progressive healthcare organizations came together with The Center for Health Design to evaluate their new buildings. These partner institutions are called "Pebbles", and the core principle shared by all is rigorous

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measurement of outcomes associated with facility design initiatives (evidence based design). The "Pebble Projects" include hospital replacements, critical care units, cancer units, nursing stations, and ambulatory care centers. The Pebble experiences are synthesized in a composite 300-bed "Fable Hospital" to present evidence in support of the business case for better buildings as a key component of better, safer, and less wasteful healthcare. The evidence indicates that the one-time incremental costs of designing and building optimal facilities can be quickly repaid through operational savings and increased revenue and result in substantial, measurable, and sustainable financial benefits.

The framework proposed by the Pebble Projects applies to all healthcare facilities. The "Fable Hospital", a composite of recently built or redesigned healthcare facilities that implemented the below facets of evidence-based design, had a per-bed cost of \$800,000. The design innovations and upgrades listed below collectively added \$12 M to the construction budget, but resulted in savings of \$11,475,406 in its first year of operation (estimate is on the low side) through reduced patient falls, patient transfers, nosocomial infections, drug costs, nursing turnover (total reduction of \$7,807,306), and increased market share and philanthropy (total increase of \$3,668,200).

Stress Reducers for Patients and Staff

- connection to nature and natural light
- a sense of control over one's environment through patient, family, and caregiver "zones"
- space and infrastructure for social interaction including furniture placement and floor/room layouts that foster sociability
- positive distractions = artwork, music, aquariums, water elements, healing gardens
- elimination of environmental stressors = noise from people, systems, movement, surfaces

Patient Safety Issues

- computerized physician order entry and bar code verification technology
- improved air filtration systems
- separation of "clean" and "dirty" areas on patient floors
- transportation modalities that separate patients from potentially infectious materials and wastes
- standardization and consistency of layout
- glare free lighting
- readily available hand-hygiene stations
- single occupancy patient rooms (reduces opportunity for cross-transmission of infections eliminates patient transfers which open opportunities for medical errors)
- acuity-adaptable patient rooms (eliminates patient transfers which open opportunities for medical errors)

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- alcohol hand rub preparations and soap and water (alcohol rub dispensers near patient beds)

Ecological Health Issues

- Polyvinyl chloride (PVC)-reduction or PVC-free policies
- no or low volatile organic compounds (VOC's) in paints and adhesives, tiles, etc.
- "Green" design

Source: Berry, Leonard L., Parker, Derek, Coile, Jr., Russell C., Hamilton, D. Kirk, O'Neill, J.D., David D, Sadler, J.D., Blair, L. The Business Case for Better Buildings. *Frontiers of Health Services Management*, 21:1.

Providing large patient rooms that can adjust for acuity, and a decentralized design that offers better sight lines of patients improves patient's quality of life, and supports staff. Length of healing is promoted by surroundings that reduce stress and engage the senses in therapeutic ways. This design strategy improves the bottom line.

Example: Methodist Hospital, Indianapolis, Indiana built a large patient room that could adjust for acuity, with equipment that tucks out of site until needed, and a decentralized design. This resulted in:

- 90 percent reduction in patient transport.
- Patient/family dissatisfaction dropped from 6.7% to 2.7%.
- Patient days per bed increased from 320 to 345.
- Falls dropped 75% due to unit's decentralized design permitting better observation.
- Medical errors decreased.

Example: Barbara Ann Karmanos Cancer Institute, Detroit, MI implemented healing design concepts such as angled doorways, better lighting, room layouts that offer patients' better sight lines in renovation of inpatient nursing units. Results:

- 18 percent decrease in patient satisfaction.
- Lower daily variable costs.
- Decrease in nurse attrition from 23% to 3.8%.
- Decrease in pain medication requirements.
- 53% decrease in pain which led to reduction in overuse of pain meds.
- 30% reduction in medical errors resulted from the location of and increased space in the medication room, organization of medical supplies and visual cues, and better acoustics.
- Medical paid hours per day decreased.
- Savings of \$12 M per year.

Source: Malkin Jain. The Business Case for Creating a Healing Environment. Boardroom Press, Oct. 2002.

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Private rooms, better air inflow design, and location/visibility of (hand washing) sinks increases patient and staff satisfaction, reduces nursing turnover, and affects the bottom line.

Source: Livingston, Heather. Design Matters in Health Care Facilities. AIArchitect, April 19, 2004.

Adaptable-acuity single bed rooms lowers nosocomial infections, reduces room transfers and associated medical errors, lessens noise, improves patient confidentiality and privacy, facilitates social support, improves staff/patient communication, and increases patients overall satisfaction with health care. Research found that up front costs are higher but lower in the long-run due to above.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

Larger single bed rooms, acuity adaptable standardized rooms, double door bathroom access, hand hygiene dispensers in each room to reduce staff to patient results in initial and long term cost savings from reduced falls, fewer transfers, and reduced drug costs.

Source: Sadler, Blair L. No Opportunity Wasted. *Interiors & Sources*, Jan/Feb. 2005.

Prisons designed to address the path of travel can reduce operational costs. Intercoms and design that includes color, texture, light and attention to size and safety issues can reduce security costs and improve outcomes while reducing violence. Woodford, Jeanne. (Former warden of San Quentin and Director of CDC).

Source: The Future of Prison Design. Newsletter of the Academy of Architecture for Justice. Summer 2007.

Acuity adaptable patient rooms allows crossover of nursing staff, supplies, and equipment, reduces patient transfers maximizes staff efficiencies, reduces expenses, and provides a better healing environment. Providing "places of respite" where nurses can go to "recharge" helps in recruitment and retention.

Source: Flynn, Larry. Healthcare Boom: Nursing Stations for the 21st Century. Feb. 1, 2005. BDCNetwork.com/article.

Rooms standardized in layout and placement of equipment and supplies allows staff to remain in room with patient, thus reducing nurse fatigue and increasing time spent with patient.

Source: Environment of Care News, Aug 2005, Vol. 8, Issue 8.

Lift infrastructures installed in every room minimizes patient and staff risks during transfers.

Source: Environment of Care News, Aug 2005, Vol. 8, Issue 8.

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The Veterans Health Administration (VA) established psychosocial residential rehabilitation treatment programs (RTP's) to treat eligible veterans with psychiatric and substance use disorders in a less intensive and more self-reliant inpatient setting. Forty-two (25 %) VA medical centers adopted RTP's in 1995. Panel regression models using data from 1993 through 1999 indicated that RTP's were associated with 8.6 and 24.4 % decreases in the average cost/day for inpatient psychiatry and substance use care, respectively. During this time, VA transitioned much of the inpatient mental health care to ambulatory services; yet medical centers with RTP's had smaller decreases in the number of inpatient days than those without RTP's. Because centers with RTP's provided more services, this offset the per diem savings, resulting in no significant differences in total costs between medical centers with and without RTP's.

Source: Wagner, Todd H. and Chen, Shuo. An Economic Evaluation of Inpatient Residential Treatment Programs in the Department of Veterans Affairs. *Medical Care Research and Review*, Vol. 62, No. 2, 187-204 (2005)

Long term facilities because of disability or chronic illness that limits his or her ability to function for:

Resident Quality of Life - When rigid routine dictates when they eat and when they sleep, residents have few choices, resulting in a loss of dignity and sense of self.

Environmental Factors:

- Unit layout
- Supportive features and finishes
- Reduced noise
- Access to outdoor spaces

Potential outcomes:

- Improved sleep
 - Sleep deprivation due to "daytime sleepiness", "nighttime insomnia", and "sleep disturbance" are associated with increased mortality among institutional elderly
- Better orientation/way finding
 - Culturally relevant landmarks in key locations support way finding and orientation
- Reduced aggression and disruptive behavior
 - Higher among residents with dementia and non-demented residents
 - Unit Size and ambiance important
 - Private rooms support reduced aggression
 - Music (white noise), relaxing music helpful
 - Light important
 - Access to outdoors in a controlled environment
- Increased social interaction
 - No conclusion on private vs. shared rooms in long-care environments
 - Placement of furniture in small flexible groupings in public spaces support social interaction

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- Increased overall satisfaction and well-being
 - Promote physical activity
 - Eden Alternative: Interaction with pets, plants, and children for 8-10 elders per house/units
 - Environment that reduces potential falls: bathroom access at night, frictional floor variations
- Environment should not only support functional abilities but provide opportunities for residents to be physically active and healthy

Source: Anjali, Joseph, Ph.D., Health Promotion by Design in Long-Term Care Settings. August 2006. *Review provided by Terry Hill, M.D, Chief Medical Officer of the California Prison Receivership.*

Patient Safety

Decrease in distractions at centralized nurses stations results in fewer medication errors and reduced stress.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

St. Joseph's Hospital, West Bend, WI, at \$55 M, was designed to include some innovations aimed at reducing human error and increasing patient safety. Specifics:

- Slip proof floors
- Soundproof walls
- Identical rooms and floors - so staff can find everything quickly since in same place in every room (negatives: some disoriented patients get lost because of lack of differentiation; longer hallways for nurse's to walk because larger rooms)
- Placement of nurses stations so all patients are visible – no pillars to block views
- Filters and ultraviolet devices to trap and kill germs, making for healthier airflow throughout hospital
- Lighting that simulates natural light
- Windows that enclose blinds behind the glass (blinds are germ catchers)
- Glass fronted alcove next to each patient room, with computer, for nurses to order drugs, enter medical data while patient in view

Results: Demonstrable benefits on both safety and financial fronts

- Infection rates, fall related injuries, medication errors are down
- Average length of stay declining

Other safety-related design innovations elsewhere:

- Round edges on all corners in hospital interior – University of Michigan Health System's new \$523 M children and women's hospital, Ann Arbor, MI

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- No use of vinyl coverings on exterior walls because attracts infection-causing mold – HCA Inc., Nashville, TN – which runs 180 hospitals
- Medicines passed to patients via a small sliding drawer from adjoining alcove to limit number of times nurse enters room, thus lowering infections. – SSM Health Care's new hospital, St. Louis, MO

Source: Naik, Gautam. To Reduce Errors, Hospitals Prescribe Innovative Designs. *The Wall Street Journal Online (WSJ.com)*, May 8, 2006.

Use of Failure Modes and Effects Analysis (FMEA)

- FMEA conducted at every stage of design—data driven
- Stakeholder input is critical
- Create an organizational leadership structure
- Design should focus on organizational processes - simulations, workflow analyses, and full-scale mock-up
- Design Should Reflect an Understanding of Human Factors - examine and revise major work processes (admission, discharge, medications)
- Design Should Keep Vulnerable Populations in Mind - design must work for most vulnerable patients
- Design should be flexible enough to accommodate change
- Design should be standardized
- Design should allow immediate access to information
- Design should address known threats

Source: Facility Design for Safety, Evidence-Base Design Creates Safer, Healthier Facilities, *Environment of Care News*, March 2004. (*Publication review provided by Terry Hill, MD, Chief Medical Officer of the California Prison Receivership.*)

Staff of St. Joseph's Hospital in West Bend, Wisconsin used safety-driven design principles (called the Synergy Model) for their new, replacement 80 Bed Acute Care Hospital. Innovative design elements: truly standardized patient rooms, new technology to minimize falls, and patient care alcoves for every patient room. Hospital maintained design for maximum adaptability and flexibility to accommodate changes and provide for future growth.

Precarious Events:

- Operative/post-op complications/infections
- Inpatient suicides
- Correct tube-correct connector-correct hole
- Wrong-site surgery
- Oxygen cylinder hazard
- Events relating to medical errors
- Patient falls
- MRI hazards

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Facility Design Principles:

- Visibility of patients to staff
- Standardization
- Scalability and adaptability
- Immediate access to information at the point of service
- Noise reduction
- Patients involved in care
- Minimize fatigue
- Use FMEA (Failure Mode and Effect Analysis) at each stage of the design process
- Design for vulnerable patients
- Human factors review
- Design around precarious events

Creating a Culture of Safety:

- Create culture of safety that allows confidential and anonymous reporting
- "Shared values" (what is important) and "beliefs" (how things work) that interact with an organization's structures and control systems to produce behavioral norms

Safety Features of the Patient Rooms:

- Standardization in room size and layout
- In-room sink to allow physician/staff hand washing in patient view
- Charting alcove with window to increase patient visibility for nurses, physicians, and staff
- Private room to provide personal privacy
- Close proximity between bed and bathroom to reduce the potential for patient falls
- Bedside computers for: patient access to records for scheduled medications, etc. allows nurses to double check medication or other scheduled treatment
- Oversized window to increase natural light and provide a "healing" view
- Ceiling heights and room size adaptability/suitability
- Sitting area and guest fold-out bed to encourage family support and involvement of care
- Noise reduction through use of low-vibration steel and special noise-absorbing ceiling tiles and eliminate of overhead paging
- Improved technology, including electronic medical records (EMR's), computerized physician order entry (CPOE), and advanced nurse call system (including wireless phones)
- Use of infrared technology to reduce the potential for patient falls

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Review: Good description of design process for patient safety design in Acute Care Hospitals that could be incorporated in CPR planning process, but limited potential for use of actual safety features in CDCR facilities.

Source: Reiling, John G., et al. Enhancing the Traditional Hospital Design Process: A Focus on Patient Safety, March 2004. (Publication review provided by Terry Hill, MD, Chief Medical Officer of the California Prison Receivership.)

This study offers a more academic description of the need for patient safety design stated in statistics like:

- Probability of hospital preventable medical death of 3-6 per 1,000 admissions
- Adverse event will occur in the range of 3-4 per 1,000 admissions

Top 10 recommendations from learning lab during St. Joseph Design Process:

- Design FMEA at each design stage
- Standardize location of equipment, supplies, room layout, and care processes
- Involve patient/families in the design process
- Use an established checklist for current/future design
- Bring critical information for decision-making close to the patient
- Reduce noise
- Use adaptive systems that will allow function in the future
- Articulate a set of principles by which everything is measured
- Begin equipment planning on Day 1
- Begin mock-ups on Day 1

Facility safety design principles:

- Noise Reduction
- Scalability, adaptability, flexibility
- Visibility of patients to staff
- Patients involved with care
- Standardization
- Automate where possible
- Minimize fatigue
- Immediate accessibility of information, close to point of service

Source: Reiling, John G., Creating a Culture of Patient Safety through Innovative Hospital Design, Advances in Patient Safety: Vol.2, no date. (Publication review provided by Terry Hill, MD, Chief Medical Officer of the California Prison Receivership.)

Stress/Anxiety Factors

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"Monotony and boredom is a stressor". Go with good design and interesting spaces – access to nature AND natural light is critical for these populations. Daydreaming out the window and mentally projecting oneself to a landscape might be an important release from a boring and institutional life.

Source: Richard Wener, Ph.D. professor and environment and behavior researcher and author, based on his knowledge and experience. E-mail communication 12/12/07.

To reduce fatigue which is correlated with increased errors, reduce noise, allow staff to sit as much as possible, have a "soft" floor, and minimize distances staff must travel to provide care.

Source: Reiling, J.G, Knutzen, B.L., Wallen, T.K., McCullough, S, Miller, R, Chernos, S. Enhancing the Traditional Hospital Design Process: A Focus on Patient Safety. Joint Commission Journal on Quality and Safety, Vol. 30, No. 3, March, 2004.

Reducing staffing or training, curtailing program offerings, or adopting a punitive philosophy in direct-supervision units could result in idleness, resentment, reduced morale, and other associated problems.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Multi-cueing in the environment aids in patient way-finding. Access within a facility can be indicated via a comfortable fabric canopy over the indoor or outdoor "social rehabilitation mall" that connects patients units and administration, dining, gym, etc. Provides easy transition cue from light to darker spaces, in to out, and lessens frustration of patients in finding way; also reduces questions to staff.

Source: Melissa Farling, ISI, LEED AP, Jones Studio, Inc. email communication 12.17.07

Music therapy reduces anxiety and distress.

Source: Anjali, Joseph, Ph.D. and Ulrich, Roger, Ph.D. Sound Control for Improved Outcomes in Healthcare Settings. Issue Paper, The Center for Health Design, January 2007.

Private rooms are healthier, reduce medical errors, result in fewer falls and fewer patient transfers, and improve recovery times. Shared rooms lead to higher infection rates, more medical errors, privacy violations, and harmful stress. Guidelines for new construction will call for single patient rooms.

Source: Landro, Laura. New Standards for Hospitals Call for Patients to Get Private Rooms. The Wall Street Journal Online, March 22, 2006; page A1.

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Offering opportunities for personal control of environment (light, temperature, meals, etc) aids healing and reduces stress.

Source: Malkin, Jain. Hospital Interior Architecture. 1992.

Control in the hands of patients as to when and what they will eat reduces length of stay and assists in patients keeping up their nutritional levels.

Source: Environment of Care News, Aug 2005, Vol. 8, Issue 8.

Views of nature and other positive distractions reduce stress.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

Clear way-finding systems reduce stress and improve staff efficiency.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Concord, CA: The Center for Health Design, 2004.

Care and training of dogs calms and matures inmates and has a positive impact on morale of staff and inmates.

Source: Across America: Ohio Inmates Train Dogs for Adoption. CNN.com Transcripts, Sept. 10, 2000.
www.pathwaystohope.org/prison.htm cites other prisons with same program and same results: Washington State Correctional, WA, North Central Correctional, MA, Sanger B. Powers Correctional, WA, Downeast Correctional, ME, Maine Correctional at Windham, ME, CA Institute for Women, James River Correctional Center, VA.

Long periods of isolation with little mental stimulus contributed to poor mental health and intense feelings of anger, frustration and anxiety. A "circle of stress" including prison culture, organization, and staff shortages caused high staff stress levels, resulting in staff shortages, which in turn caused greater stress in remaining staff. Staff shortages affected inmates who were locked up for longer times, with ensuing frustration released on staff.

Source: Nurse, J, Woodcock, P, Ormsby, J. Influence of Environmental Factors on Mental Health Within Prisons: Focus Group Study. Journal: BMJ, Aug, 2003.

Healing environments should not be "institutional". Carpet, indirect lighting, warm tones, artwork "message" to occupants a sense of care and humanity.

Source: Pitts, Francis M, Hamilton, D. Kirk, Therapeutic Environments, HFM Magazine.com, Dec. 1999.

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Positive spaces that preserve a sense of privacy, provide stimulation, offer opportunities for personal control, and promote positive feelings of wellness are key factors in healing, particularly for the frail elderly and those with mental impairments. They reduce agitation, restlessness and confusion and promote competence and independence while slowing functional and psychological decline.

Source: Stevens, Paul S., Designing Therapeutic Environments. Medquest Communications, 1996.

Health and mental health care, and general housing settings can be responsive to neuro-biological factors...(including the) potential impacts of lighting (not just natural light – but a lack of darkness during the night) on the diurnal cycle and ability to sleep. Similarly for noise, which is often very disruptive in all these settings (explosively flushing toilets, slamming steel doors), The disruption of sleep patterns can be expected to have a variety of unfortunate outcomes, including irritability (leading perhaps to increased violence), shortened attention spans, poorer performance on problem-solving tasks which might be engaged in during programs, etc. These factors can also be expected to impact staff.

Source: Jay Farbstein, Ph.D., architect, author and researcher on healthful and correctional environments, email communication, 12.12.07.

Staff-Related Environmental Conditions

Correctional officers can play a valuable role in the delivery of multidisciplinary mental health services in jails and prisons. Despite differences in training, culture, and mission, correctional and clinical staff have some common goals. Clinicians have only brief contact with inmates compared with correctional officers who essentially "live" with inmates 40 hours a week on the housing units. Officers have better opportunities for observation, can play an important role in intervention such as assisting a functionally impaired inmate with prompts or supports, and they can have an important and unique role in functioning as part of the treatment team. When correctional officers share appropriate information with clinicians and assist in the management of inmates who have mental disorders, both the quality of treatment and the safety of the correctional environment improve. Mutual respect, proper orientation and training, and ongoing communication and cooperation provide the foundation for meaningful contributions to mental health care by correctional officers.

Source: Appelbaum, Kenneth L., MD, Hickey, James M., Psy.D., and Packer, Ira, Ph.D. The Role of Correctional Officers in Multidisciplinary Mental Health Care in Prisons. *Psychiatric Services* 52:1343-1347, October 2001.

Findings from a comparative study of three facilities, all of which use direct supervision, show that inmates were positive about feeling safe, not needing weapons, the low frequency of fights, the absence of vandalism, and the almost nonexistence of sexual assaults.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

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Findings from a comparative study of three facilities indicate that in order for staff and supervisors to be effective in a direct-supervision jail, they must be fully conversant with how it works. Those who came up through the ranks and worked in direct-supervision housing units are more conversant than those who transfer in from patrol, for example. Extensive training in direct-supervision principles, interpersonal communication skills, de-escalation, etc. is critical to effective management.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

"Having a reasonably well trained staff person in direct contact with inmates allows the direct-supervision jail to succeed in the face of a certain level of degradation, crowding, or deteriorating morale". Finding based on comparative study of three jails using direct supervision. Study indicates that direct supervision has a significant degree of "robustness", and that all aspects of facility do not necessarily need to be functioning at optimum levels in order to provide a safe, orderly, humane jail environment. This raises the issue, however, of how far a direct supervision system can be pushed before its effectiveness is eroded.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

A combination of proper design and institutional culture can correct inherent problems in the healthcare workplace that: lead to staff injuries hospital-acquired infections medical errors operational failures wastage

Thesis: Improve health and safety of the care team through environmental measures that:

- Reduce infections: ventilation and hand washing
- Decrease back pain and work-related injuries: installing ceiling lifts and instituting a no-manual lift policy; using softer floors; through ergonomic evaluation of work areas
- Reduce injuries from medical equipment
- Improve adjustment to night-shift work
- Lessen noise stress: noise induced stress is related to reported emotional exhaustion and burnout; reduced noise results in improved speech intelligibility and reduced perceived work demands and pressures among staff.

Improve staff and patient satisfaction and morale through integrated environmental design

- Incorporating patient and family spaces to support family participation in the care process
- Design of pleasant, attractive environments
- Smaller units with good visual access between staff and patients

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Summary/Review: Good information for all nursing types and acuity/levels of patient care and applicable to developing programming and planning work flows, ergonomic evaluation of staff work areas, location/relationship of functions, sources of infection and injury to staff (and patients), study of noise generation/absorption and manual lift required of staff.

Source: Anjali, Joseph, Ph.D., *The Role of the Physical and Social Environment in Promoting Health, Safety, and Effectiveness in the Healthcare Workplace*, November 2006. *Review provided by Terry Hill, M.D., Chief Medical Officer of the California Prison Receivership.*

Better environments not only impact patients, but also staff. With concern over being able to attract/retain good, trained medical and mental health professionals, one should understand that natural light, views, low noise levels, and so forth can help attract and retain staff, and positively impact their performance.

Source: Debajyoti, Pati, Ph.D., AIA, Director of Research, HKS, inc.. Email communication 12/13/07.

Configuration, opportunities for patient control of environment, distractive elements such as views, natural light, indoor gardens, aid in healing time and improves caretaker's organizational culture.

Source: Bilcheck, Gloria S. *A Better Place to Heal*. Health Forum Journal, July/Aug 2002.

Providing "places of respite", near the nurses' station, where nurses can go to "recharge" helps in recruitment and retention.

Source: Flynn, Larry. *Healthcare Boom: Nursing Stations for the 21st Century*. Feb. 1, 2005. BDCNetwork.com/article.

Convenient location of linen storage, supply closets, and medicine rooms reduces nurse "walking" which reduces stress.

Source: Flynn, Larry. *Healthcare Boom: Nursing Stations for the 21st Century*. Feb. 1, 2005. BDCNetwork.com/article.

Ward layouts and decentralization of nurse's stations closer to patient rooms can reduce staff walking and fatigue, increase patient care time, and support staff activities such as medication supply, communication, charting, and respite from stress.

Source: Ulrich, R., Quan, X., Zimring, C., Joseph A., Choudhary, R. *The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity*. Concord, CA: The Center for Health Design, 2004.

Smaller, decentralized nursing stations and charting substations located closer to patient rooms keep nurses closer to their patients (but may distance nurses from their colleagues).

Source: Flynn, Larry. *Healthcare Boom: Nursing Stations for the 21st Century*. Feb. 1, 2005. BDCNetwork.com/article.

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Decentralized nursing stations improve workflow, patient satisfaction, and caregiver efficiency.

Source: Gurascio-Howard, L, and Malloch, K. Centralized and Decentralized Nurse Station Design: An Examination of Caregiver Communication, Work Activities, and Technology. *Health Environments Research and Design Journal*, Vol. 1, No. 1, Oct. 1, 2007.

While considerable attention has been paid to how the design of nursing units can help reduce nurse fatigue, improve safety, and reduce nosocomial infection rates. Yet the literature consistently cites communication among diverse caregivers as a critical component for improving quality of care. This paper reviews relevant literature related to nursing unit design and communication patterns, and suggests that reduction in the amount of walking nurses have to do during shifts can help in the recruitment and retention of nurses. Also cites decentralized nursing stations aid in increasing informal communication patterns, on-the-job learning, and job satisfaction.

Source: Becker, Franklin. Nursing Unit Design and Communications Patterns: What is Real Work? *Health Environments Research and Design Journal*, Vol. 1, No. 1, Oct. 1, 2007.

Horseshoe shaped decentralized nurses stations leave nurses feeling isolated and unable to "pitch in" for each other. A triangle shaped decentralized station (one station per triangle, 10 beds on a side, with a 1:5 nurse to patient ratio, and with a work room, patient support, supplies, pantry and breakroom in the center, enables a place to get together as well as having everyone go to same place to get supplies.

Source: Flynn, Larry. Healthcare Boom: Nursing Stations for the 21st Century. Feb. 1, 2005. BDCNetwork.com/article.

Traditional centralized paper-charting stations are moving to smaller decentralized stations and charting substations located closer to patient rooms with a trend toward team-oriented care. Successful central stations serve as information centers for traffic control between units. New focus on acuity adaptable nursing units depend on appropriate geometry layout of patient rooms or the unit will be limited to Acute Care or Intensive Care and lose any benefit for flexibility and benefit for leaving the patient in a single location.

Source: Flynn, Larry. Healthcare Boom: Nursing Stations for the 21st Century. Feb. 1, 2005. BDCNetwork.com/article. (*Publication review provided by Terry Hill, MD, Chief Medical Officer of the California Prison Receivership.*)

Docking stations for portable computers, or computers on wheels allow nurses to be more mobile and untethers them from one Nursing Station.

Source: Flynn, Larry. Healthcare Boom: Nursing Stations for the 21st Century. Feb. 1, 2005. BDCNetwork.com/article.

Small charting alcoves adjacent to patient rooms allow nurses to observe without disturbing patients rest, creating a better healing environment.

Source: Reiling, John G. Creating a Culture of Patient Safety through Innovative Hospital Design. *Advances in Patient Safety*: Vol. 2.

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Circulation throughout the housing unit, closely observing and interacting with inmates is necessary for effective management, but is dependent on the facility's design and management. Design affects visibility and the location of equipment like telephones, computers, and controls – if they are at a fixed post, officer must be there to operate them. Management affects the extent to which officers are instructed or encouraged to circulate among, observe, and communicate with inmates.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

Double loaded or “racetrack corridors” obscure views into patient rooms, and require staff to walk long distances. A “fishbowl” layout, where nurses can see into many rooms from a single point, allows different acuity level rooms – more upfront costs but reduces patient transfers, and staff crossover – great ROI.

Source: Flynn, Larry. Healthcare Boom: Nursing Stations for the 21st Century. Feb. 1, 2005. BDCNetwork.com/article.

Decentralized nursing stations, consisting of several organized and well-lit spaces close to patient rooms, are a highly beneficial alternative to a central nurse's station requiring staff to walk down long hallways to reach patients and supply rooms; found to decrease distractions and interruptions which results in reductions in medication errors and stress, more time spent in patient care, and quicker response to calls for assistance.

Source: Designing to Heal: A New Trend in Evidence-Based, ‘Nurse-Friendly’ Hospital Design. American Journal of Nursing (AJN) Reports. November 2006, Vol. 106, No. 11.

Review of current scientific articles (600 reference articles in appendices!) for how hospital design can impact clinical outcomes and make hospitals safer, more healing, and better places to work:

- Single bed vs. multi-bed rooms
- Reduce noise
- Improve lighting
- Better ventilation
- Better ergonomic designs
- Supportive workplaces and improved layout that will help reduce errors, improve sleep, reduce pain and drugs
- Reduce levels of risk and stress

Results:

Reduce Staff Stress and Fatigue and Increase Effectiveness in Delivering Care:

- Improve staff health and safety through environmental measures
- Increase staff effectiveness, reduce errors, and increase staff satisfaction by designing better workplaces

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Improve Patient Safety:

- Reduce hospital-acquired infections by airborne pathogens and hand washing
- Reduce medical errors by adequate lighting, interruptions/distractions, reduced patient transfers
- Reduce patient falls by proximity to bathrooms, improved lighting, securing carpeting
- Improve patient confidentiality and privacy

Reduce Stress and Improve Outcomes:

- Reduce noise from muting paging systems, sound absorbing materials, single rooms
- Improve sleep
- Reduce spatial disorientation with way finding, clear entrance/parking, logical room numbering, "integrated" routes, "logical" building layouts
- Reduce Depression:
 - Increase lighting and maximize use of day lighting and full spectrum lighting
 - Provide nature and positive distraction, gardens and art in healthcare environments
- Provide Social Support:
 - Provide lounges with moveable furniture in small flexible groupings
 - Maximize opportunity for social interaction that include family space
 - Presence of roommates usually is a source of stress rather than social supports

Improve Overall Healthcare Quality:

- Provide single-bed patient rooms
- Climate and sunlight and sleep-wake patterns reduce length of stay
- Increase patient satisfaction with quality of care by providing better environment

Conclusions: Evidence Based Design, with the goal of improving outcomes and of continuing to monitor the success of designs for subsequent decision-making, helps patients recover and be safer and help staff do their jobs better with the following recommended actions for new facilities:

- Provide single-bed rooms and use of adaptable-acuity planning
- Quieter hospitals reduce stress and improve sleep
- Provide patient stress reducing views of nature and other positive distractions
- Develop way finding systems that heighten efficiency and reduce stress
- Improve ventilation through use of improved filters and appropriate pressurization.
- Improve lighting and use of natural and full spectrum lighting
- Design nursing unit layout and nurse stations to reduce staff walking and increase patient care time

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Review: The focus of article is on new acute care hospital design and not on skilled care and assisted living care living units which would be more appropriate for our use. Concepts may be more useful for patient/custody medical and healthcare units when stated ideas are more abstracted and seen with a custody overlay.

Source: Ulrich, Roger and Zimring, Craig. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity, September 2004. *(Review provided by Terry Hill, M.D., Chief Medical Officer of the California Prison Receivership.)*

6. Programs to Provide for Various Populations & Optimal Locations

Summary: There are multitudes of programs that are recommended for the mentally ill, mostly centered on functioning and recovery within more structured and normative living environments. There is an enormous amount of documentation that harsh, punitive settings such as prisons actually exacerbate mental illness. It appears that there are fewer programs specifically for the physically ill, primarily because of infection spread, inability to participate (bed bound), shorter length of stays, and so forth.

Sheltered Living Units appear applicable for medical and mental health patients. These include accessible secure housing in close proximity to medical care for monitoring of medical needs for the elderly, chronically ill, and/or for inmates recovering from acute illnesses.

Most successful habilitation programs for those with mental disabilities focus on developing coping skills for transition back into the general population or transition skills pending release to the community; i.e., medication management and stress management. Compared with general population inmates, the main difference of treatment appears to be a more supportive and protected environment than that for the general population – an environment supportive of learning new skills. A critical need for gender-specific, culturally sensitive, and trauma-informed programs has also been identified.

- While not a specific “program,” findings from a comparative study of three facilities shows that a full range of television programming (as opposed to serious restrictions on TV), can be an effective “tool” for managing inmate behavior. Same study also showed that inmate requests for additional programs beyond TV increased when restrictions on TV were lifted.

Source: Farbstein, J., Liebert, D., Sigurdson, H. Audits of Podular Direct-Supervision Jails. National Institute of Corrections, U.S. Dept. of Justice. Feb. 1996.

- Anger Management Classes to inmates who have demonstrated problems with anger control either through violent criminal behavior, domestic violence, and/or aggression in the institutional setting. This psycho-educational program by Mental Health staff attempts to assist inmates in: Identifying, understanding, and controlling/managing anger; approx. 15 inmates per class; 1,500 inmates annually.

Source: Arkansas Dept. of Corrections (website).

- Volunteers provide services ranging from transportation of inmates' families, activities for medically unassigned inmates, child care for visitors, hospice services, yoga, relaxation therapy, pet therapy, resource manuals for families of inmates, games and toys for children at visitation, a park for families waiting for visitation. Volunteer Services also impact others through blood drives in which staff participate, aid to ADC families in need, assistance with community events, such as Red Ribbon Week and Arkansas Special Olympics. Events put on by volunteers

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tend to attract high inmate participation and interest. Subprograms: Alcoholic Anonymous, Cocaine Anonymous, Narcotics Anonymous.

Volunteers provide a communication channel with the community, and help develop a support network for release. Operates at a minimal cost to the state and the facility and brings in positive and salient role models. Also provides for linkages to the community valuable to inmates upon release. Generally takes place after hours and does not disrupt facility operations.

Source: Arkansas Dept. of Corrections (website).

- Habilitation Program provides housing, work supervision, and treatment for the cognitively impaired/challenged inmates. Basic living quarters include a protected and structured environment for inmates with developmental disabilities. Coping skills are taught for transition back into the general population, while referrals to appropriate community resources are made upon release. Approx. 36 inmates annually with diagnosis of mental retardation and/or borderline intellectual functioning in conjunction with ADC adaptive qualities and/or impairments. Mental Health Staff. Program components include:
 - Screening and assessment including intellectual functioning, adaptive qualities, and skills assessment.
 - Counseling/training in daily living skills
 - Work programs (on unit)
 - Tutorial programs for literacy Aftercare monitoring

Source: Arkansas Dept. of Corrections (website).

- Mental Health Staff provides services to mentally ill and/or mentally disabled inmates to include: crisis prevention/intervention, residential programs, outpatient services, medication management, individual and group therapy services. Group services include:
 - Positive Mental Attitude
 - Anger Management
 - Stress Management
 - Interpersonal Relationships
 - Parenting Classes
 - Communication Skills
 - Thinking Errors
 - Crisis Prevention/Intervention
 - Management of Suicidal Self-Injurious Behavior
 - Pre-Release Programming

Source: Arkansas Dept. of Corrections (website).

- For medical patients – Sheltered Living Units that include accessible secure housing in close proximity to medical care for monitoring of medical needs for the elderly, chronically ill, and/or for inmates recovering from acute illnesses. Assignments are made by Medical staff and Staff includes Medical, Mental Health,

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and Security personnel. Residents must abide by unit rules. Sub-programs within the Units include:

- Medical/Medication Management
- Individual Counseling
- Placement Referrals as necessary

Source: Arkansas Dept. of Corrections (website).

- **Special Programs Unit** – A residential treatment facility for acute/chronic mentally ill inmates referred by Mental Health Services, Administration, or Security. This program is utilized to evaluate, stabilize and return inmates to general population. The design of the program offers diagnostic evaluations, mental health treatment, specialized housing, and work supervision for inmates with mental health problems/illnesses. Subprograms include:

- Mental Health Assessment Evaluations
- Medication Management/Training
- Individual and Group Counseling
- Psycho-Educational Groups
- Treatment Planning
- Tutorial Programs for Literacy
- Transition and/or Release Planning and Referral

Source: Arkansas Dept. of Corrections (website).

- **Generic Outpatient Levels Format (GOLF)**: The GOLF Program encourages inmates to identify and change basic components of their anti-social thinking and behavior. Initially, inmates are asked to identify their anti-social thinking patterns, and then advance to using corrective strategies on these patterns as they progress through the four levels. Self-monitoring skills and intervention strategies are considered to be basic and "generic" to treatment of the various behavioral disorders. Groups in Levels I, II, and III, each have 12 two-hour sessions. Level IV Groups are ongoing and intended for inmates who continue to demonstrate a desire to learn and implement concepts of the program.

Source: Nebraska Dept. of Corrections (website).

- **Bedford Hills Correctional Facility (New York's only maximum security facility for Women)** identifies their Intermediate Care Program (ICP) one of the Department's most effective programs for dealing with mentally ill women in prison. The units provide enhanced mental health services for residents and help increase facility safety by placing inmates with difficulty functioning in the general population in a more supportive and protected environment. Units of 16 cells. The Women in Prison Project identified a critical need for gender-specific, culturally sensitive, and trauma-informed mental health services and family violence programs for mentally ill female residents.

Source: Report on Mental Health Programs and Services at Bedford Hills Correctional Facility. Women in Prison Project. Correctional Association of New York. September 2007.

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7. Accommodations for Group Therapy of Violent, Acting Out Patients

According to psychiatrist Cassandra Newkirk, inmates having freedom of movement is extremely important to them. Shackling legs to benches is perceived as more restrictive than being in enclosed spaces.

Using therapeutic modules may be needed for a limited population but can easily be overused. Newkirk believes that using the principles of behavioral management the goal should be to continually assess those in group therapy and move individuals into more normalized group settings as soon as they are ready.

The principles of group therapy communications and confidentiality should be met. Therapeutic modules should be designed so that patients can all see and hear each other and, of course, the therapist. Security and custody staff should be able to observe but not hear.

Overall, Dr. Newkirk believes that therapeutic modules when designed well can be both "safe and humane."

Cassandra Newkirk, Psychiatrist, Vice President and Chief Medical Officer for GeoCare, Boca Raton, Florida; former director of correctional health care for several states, consultant

The Correctional Service of Canada does not provide group therapy for inmates who are violent, assaultive, acting out or otherwise very disruptive. Instead these inmates have individual therapy.

The Correctional Service uses shackles and restraints within prisons extremely rarely.

Ms. Oades attributes these measures to be consistent with Canada following the United Nations Standard Minimum Rules on the Treatment of Inmates, and the principle of treating inmates "humanely."

Jennifer Oades, Director General, Strategic Policy & Intergovernmental Relations, Correctional Service of Canada; past president of International Corrections and Prisons Association

According to an official of the National Commission on Correctional Health Care, group therapy is not appropriate for all. Start with assessment. Determine each individual's "capability" to respond to group and individual therapy, their intelligence, and their needs.

Understand that different programs work best for different people.

To Judy Stanley, inmates/patients' interest in programs can be "perked" (encouraged by staff.)

Therapeutic modules may be necessary for some. But don't overuse it, and encourage patients to improve their behaviors and move on to more normalized programs.

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Judy Stanley, National Commission on Correctional Health Care (NCCHC), formerly with the NY State Department of Corrections

Initially Patricia Ottolini, Director of Health & Addiction Services in Connecticut, was opposed to "therapeutic modules." She interviewed inmates who told her that cages helped them feel protected from other violent inmates.

CT's therapeutic modules each have stools and desks.

NY also has therapeutic modules.

Goal for each inmate in therapeutic modules should be to behave better and progress out of these into more normative treatment settings. States should not overuse these.

Patricia Ottolini, Director of Health & Addiction Services, Connecticut Department of Corrections. Additionally, she is an ACA auditor and consultant to other states

Professor and NCCHC board member Tom Fagan initially was initially opposed to therapeutic modules, and still has significant concerns about their use, but sees a small place for them. He believes that they can easily be overused. He believes that they should be part of a spectrum of treatment environments, and that they should only be used when patients are likely to be violent during therapy and, at the same time, are ready for and needy of group therapy.

Like Patricia Ottolini, Fagan interviewed inmates who participated in group therapy while in therapeutic modules. Similarly, inmates told Fagan that they felt protected from other inmates.

Fagan recommends that every mentally ill patient be assessed and have an individualized behavior management plan. The goal should be helping the patient get better. Treatment staff and custody/security staff should work together to implement these behavior management plans.

The spectrum of treatment environments for therapy may be as follows, with decreasing institutionalization based on the patient's behavior:

- One-on-one therapy in secure non-contact booth.
- One-on-one therapy in observable room with cuffs and/or shackles.
- One-on-one therapy in observable room.
- If judged ready to benefit from group therapy, group therapy in therapeutic modules that are humane-sensitive (e.g., not claustrophobic) but highly secure.
- Possibly group therapy around a table, with shackles.
- Group therapy in the housing unit or housing building.
- Group therapy in a more normalized setting, such as a programs building.

Tom Fagan, Psychologist, Professor, Bureau of Prisons retiree, NCCHC Board Member