Mental Health Design 101
AIA Academy of Architecture for Health
September 17, 2013
St. Joseph’s Healthcare, London
St. Josephs Healthcare, St. Thomas, Ontario
How many Mental Health projects have you already worked on?
1
2
3
4-6
6 or more.
The largest project on which I've worked is:
- 16 beds
- 24 beds
- 50 beds
- 150 beds
- 300 beds or more
Innovations in Mental Health: Treatment and Research

Social Sciences and Epidemiology
Psycho-pharmacology
Psych-social Rehabilitation
Recovery
Evidence-based Practice
ECT (again)
Implants (e.g. Vagal Nerve Stimulation)
Imaging
Transcranial Magnetic Stimulation
Genetics and Genomics
Neurology and Neurosciences

We are witnessing the beginning of a movement from palliative care to active medical/biological/neurological treatment and intervention.
The Neuro-Psychiatric Convergence: *Implications*

- Co-located Emergency Departments
- Increased Emphasis on Early Diagnosis and Treatment
- Shorter ALOS
- Acknowledged and Treated Co-morbidities
- Robust Community Supports and ICM
- Continuity of Care
- On-Site Ambulatory and Outpatient Services
- On-Site Access to Primary Care Services
- Increased Interventional Procedure Spaces
- Access to imaging Facilities (fMRI, CT, PET)
- Co-located Research and Medical Education
- Integration with Major Medical Centers
- Flexibility

*Whatever happened to TB asylums?*
Innovations in Mental Health: Flexibility

Embedded Reuse Options

Flex Beds

Flexible Floor Plate

Anticipate Growth

Template Units
Decreasing Length of Stay: Implications

Greater Instability

Larger Need to Manage the Milieu

Increased Need to Provide Supports for Patient and Staff Safety and Security

Increased Value of Sub-Units & Direct Observation

Thresholds for Patient Mobility Are More Critical

Less Opportunity to Be Off-Unit = Less Space Off-Unit

Increased Fragility/Brittleness = Greater Value for Secure Mobility

Less Time Requires Greater Opportunity for Clinical Interventions and More Staff

Flexibility to Accommodate Longer LOS Now and Shorter Later
The Patient as Human
Implications for Medicine and Design
Solve the Fundamental Human Problem…
Then Focus on the Illness
Secondary Symptomology
Making Well vs. Making Sick
(the non-iatrogenic setting)
Relationship between therapeutic program & environment

Milieu Therapy
Innovations in Mental Health: Unit Size

6-8 beds lowers stress for patients
Innovations in Mental Health: **Unit Size**

6-8 beds lowers stress for patients

12-16 beds builds diverse clinical team
Innovations in Mental Health: **Unit Size**

6-8 beds
lows stress for patients

12-16 beds
builds diverse clinical team

24+ beds
affordable nighttime post-position staffing
Innovations in Mental Health: Unit Size

6-8 beds
lowers stress for patients

12-16 beds
builds diverse clinical team

24+ beds
affordable nighttime post-position staffing

Design should accommodate two and preferably three of these patterns.
Innovations in Mental Health: Unit Character/Configuration
Innovations in Mental Health: Unit Character/Configuration

6-Bed Sub-Cluster
Innovations in Mental Health: Unit Character/Configuration

8-Bed Sub-cluster

12-Bed Sub-cluster
Innovations in Mental Health: Environment of Care

House

COMFORT & EFFICIENCY
By keeping the number of beds to a maximum of 8 per wing, a comfortable and intimate dwelling experience is achieved, while economizing the staffing by pairing two 6 bed wings to comprise each 12 bed unit.
Innovations in Mental Health: Environment of Care

House

Neighborhood

THERAPY CLOSE TO HOME
All Group Therapy and Activity Rooms have the interior courtyards shared with the Houses, thus providing the patients with a real access to their familiar environment. "Houses in the Trees" was provided to give patients a chance for peace, bringing them with natural light and a space of greenery, until they are ready for their next step.
Innovations in Mental Health: Environment of Care

House

Neighborhood

Downtown

(and a discriminating approach to flexibility)
Neighborhood Activity Zone

Levels of Access

"House" access only

"Neighborhood" square access

Partial "Neighborhood" access

Full "Neighborhood" access
DEVELOPMENT OF THE OPTIMAL MODEL

SITE-LESS-NESS
A Neutral Space
First Presumed Gradient
Second Presumed Gradient
Third Presumed Gradient
Fourth Presumed Gradient
Two Hospitals

Children
Adults

01 Major Program Elements

02 Major Program Elements

Inherent Nature

Geometric Transformation
Geometric Transformation Modeled
Light, Views, & Courtyards
Boulevards, Streets, & Squares

The Hospital as Village: Streets & Squares
Downtown: Places, Landmarks & Districts
Neighborhood: Places, Landmarks & Districts
Houses: Places, Landmarks & Districts
Mental Health 101: Basic Room Options
Q&A
Mental Health 101: The Regulatory Environment

AIA Guidelines
CMS CoP
JCAHO Standards
NFPA 101
IBC (I2 Occupancy)
State Regulations
Mental Health 101: Project Types

- Outpatient Clinics
- Day Hospitals
- Partial Hospitals
- Substance Abuse Treatment Centers
- Free-standing State Hospitals
- Free-standing Private Hospitals
- Behavioral Units in General Hospitals
- Forensic Hospitals
- Intermediate Care Facilities
- Correctional Mental Health Units
- Community Residences and Residential Treatment Centers
- Geriatric Mental Health
Mental Health 101: Building Induced Staffing Variables

Plan Unit Size & Configuration to Optimize Post Positions

Achieve Support Staffing Efficiencies

Patient Access = More Efficient Use of Clinical Staff

All three reduce costs and increase patient access to clinical and direct care staff.
Mental Health 101: Building Induced Staffing Variables

Work with users to shift perspective from current, known approach to a future with more innovation

Approach to staffing new facility is integral to planning process – staffing influences the conceptual model and vice versa

Allows models to be tested for impact on operating costs

Baseline Direct Staff Positions as per Coverage Requirements: 85 (excluding 1:1 Situations)

<table>
<thead>
<tr>
<th>Model</th>
<th>Model</th>
<th>Clustering</th>
<th>Staff Posts</th>
<th>Staff Premium</th>
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<td>Model B</td>
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<td>5/6 bed</td>
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<td>Model C</td>
<td>15-bed</td>
<td>5-bed</td>
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<td>Model D</td>
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<td>Model E</td>
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<td>Model F</td>
<td>24 bed</td>
<td>12 &amp; 6 bed</td>
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<td>Model G</td>
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BENCHMARKING: SPACE STANDARDS

MINIMUMS

RECOMMENDATIONS

BENCHMARKING

PREDICTIVE MODELING

FACILITY SIZE IMPACTS

Recommendations

120 nsf for singles
200 nsf for doubles
75 nsf/bed for program minimum
105 nsf/bed for program is better
### Benchmarking: Predictive Modeling

#### 314 Bed Facility Program

- **419,000 BGSF**
- **1,334 SF per bed**

#### Support Services

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<th>Mid-point</th>
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#### Administration & Other

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<td><strong>Shared Conference, storage, breakrooms etc.</strong></td>
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<td>a+ Benchmark Modeler for Kentucky</td>
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<td>105</td>
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MH 101: Variables Impacting Facility Size

Hospital Size

Typical Unit Size

Patient Cohort
  (Forensic, Seniors, Children)

Private Bedrooms

Sub-Clustered Units

Acuity and Program Amenity

Free-Standing or Supported

Hospital vs. Residential
Treatment Facility

Research

Medical Education
With respect to NYS-OMH operated facilities, these Guidelines apply solely to new construction and major renovation projects. Existing facilities should use these Guidelines as a reference document whenever they make improvements to existing facilities.

1. Introduction
2. Nomenclature & Applicability
3. Fasteners
4. Sealants
5. Glazing & Windows
6. Anti-barricade Strategies
7. Door Hardware
8. Seclusion Rooms
9. Shower Curtain & Tracks
10. Wardrobe Hooks & Closet Bars
11. Access Panels & Medical Gas Enclosures
12. Cabinet Hardware
13. Grab Bars, Handrails & Corner Guards
14. Toilet Accessories
15. Window Treatments
16. Sprinklers & Fire Extinguishers
17. Louvers & Grilles
18. Plumbing Fixtures & Systems
   a. Faucets
   b. Shower Heads
   c. Activators
   d. Basins, Pipe Enclosures & Mirrors
   e. Toilets
   f. Drinking Fountains
   g. Systems: Lavatories
19. Electrical
   a) Outlets & Switches
   b) Fire Alarm Components
20. Lighting Fixtures
   a. Seclusion Rooms
   b. Patient Rooms
   c. Toilet Rooms
   d. Common Areas/ Corridors
21. Furniture
   a. Patient Rooms
   b. Living & Dining Areas

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Trends: Patient Safety
1998: JCAHO Sentinel Event Notification

Trends: Patient Safety

Sentinel Event ALERT

*For patients with a high suicide risk, make sure there is adequate around-the-clock observation.*

John Goldsano M.D.
Director New York State Psychiatric Institute

Inpatient Suicides: Recommendations for Prevention

Since the Joint Commission enacted its Sentinel Event Policy two years ago, the Accreditation Committee of the Joint Commission's Board of Commissioners has reviewed 65 cases related to inpatient suicides. A root cause analysis was completed for each of the events reviewed. Most of the suicides occurred in psychiatric hospitals (34), followed by general hospitals (27) and residential care facilities (4). Of those cases in general hospitals, 14 occurred in psychiatric units, 12 in medical/surgical units and 2 in the emergency room.

In 75 percent of the cases, the method of suicide was a hanging in a bathroom, bedroom or closet. Twenty percent of the suicides resulted from patients jumping from a roof or window.

Root Cause Analyses Conducted

Root causes of inpatient suicides that the organization identified include:

- The environment of care, such as the presence of non-breakaway bars, beds or safety rails, lack of testing of breakaway hardware, and inadequate security
- Patient assessment methods, such as incomplete suicide risk assessment at intake, absents
- or incomplete assessment, and incomplete evaluation of the individual (for example, failure to identify a contraband)
- Staff-related factors, such as insufficient orientation or training, incomplete competency review or re-certification, and inadequate staffing levels
### Trends: Patient Safety

#### Process: Risk Assessment

**Patient Safety Risk Assessment/Feature Assignment**

**Wake County Continuum of Care, Raleigh, NC**

<table>
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<tr>
<th>Entrance Point Feature</th>
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<th>No</th>
<th>No</th>
<th>Low</th>
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<td>Entrance Point, Lobby</td>
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<td>Entrance Point, Trauma Room</td>
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<td>Entrance Point, Public Toilet</td>
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<td>Emergency Assessment, Physical Examination</td>
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<td>Emergency Assessment, Laboratory</td>
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<td>Emergency Assessment, Clean Utility</td>
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<td>Emergency Assessment, Specialized Utility</td>
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(see table for full details)
Process: Risk Assessment

Typical High Risk Areas:

Patient is difficult to manage, or risk of solitary and/or unsupervised use:

• Patient Bedrooms
• Bathroom/Toilet Rooms
• Seclusion Rooms

*Special care should also be taken in on-unit patient spaces with ceilings with less than 9’-0” above finished floor.*

Typical Medium Risk Areas:

Patient access is controlled, or use is supervised with no solitary unsupervised use.

• Living Room
• Dining Room
• Group Room

Typical Low Risk Areas:

No patient use or constantly supervised.

• Medication Room
• Offices
• Clean and Soiled Utility Rooms
Trends: Patient Safety Standards

NAPHS


New York State Office of Mental Health Patient Safety Standards
http://www.omh.state.ny.us/omhweb/patient_safety_standards/guide.pdf
Mental Health 101: Safety and Security

- Staff Can Not Provide Effective Treatment in an Environment That is Not Safe and Secure
- Patients Can Not Heal in an Environment that is Not Safe and Secure
“The best security lies in knowing your patient.”

Dr. Marvin Chapman
Mental Health 101: Security

• Balance Seeing and Knowing

• Provide Both Passive Security and Visibility
Mental Health 101: **Safety and Security**

- **Passive Security and Visibility**

- **Perimeters and Flexing Zones**

- **Suicide Prevention**

- **Duress Alarm Systems**
Mental Health 101: On-Site Research
Theme 3, Wet Lab
Lab Module, Scheme A

03 Schematic Layout

from: research laboratories, by Daniel D. Watch
Theme 3, Wet Lab
3rd Floor Layout Diagram, Scheme A

1 Unit 9900mm

7 Units
Theme 3, Wet Lab
3rd Floor Layout Diagram, Scheme C
Theme 3, Wet Lab
Typical Joint Space
3rd Floor Layout Diagram, Scheme

Wet Labs - Third Floor
Typical Knuckle Space
1:100 June 2, 08

03 Schematic Layout
First Floor, Diagnostic Services
Diagram C
The Urban Village as Healing Environment

C3 Consoráum
Kuwabara Payne McKenna Blumberg Architects
Montgomery Sisam Architects Inc.
Kearns Mancini Architects Ltd.
Design Drivers: What is the most appropriate representation of the hospital as a whole?

A. One Complex
B. One Complex, Distinct Centers Connected
C. One Complex, Distinct Individual Parts
Design Drivers: What is the most appropriate representation of the hospital as a whole?
Design Drivers: What is the most appropriate representation of the hospital as a whole?
Design Drivers: What is the most appropriate representation of the hospital as a whole?
Design Drivers: Entry

A. Main Entry

B. Main Entry & Internal Entries

C. Main & Dedicated Entry
Design Drivers: Entry

A. Main Entry

B. Main Entry & Internal Entries

C. Main & Dedicated Entry
Design Drivers: Entry

A. Main Entry
B. Main Entry & Internal Entries
Design Drivers: Entry

C. Main & Dedicated Entry

B. Main Entry & Internal Entries
Design Drivers: Entry

C. Main & Dedicated Entry
Design Drivers: Entry

C. Main & Dedicated Entry
Design Drivers: Where should Admissions be located?

A. Adjacent to Main Entrance

B. Side Entrance

C. Adjacent to Units
Design Drivers: Where should Admissions be located?
Design Drivers: Where should Admissions be located?
Design Drivers: Where should Admissions be located?

Beyond
Design Drivers: Where should Admissions be located?

A. Adjacent to Main Entrance
Design Drivers: Where should Admissions be located?

A. Adjacent to Main Entrance
Design Drivers: Where should Admissions be located?
Design Drivers: Where should Admissions be located?
Design Drivers: Where should Admissions be located?
Design Drivers: Where should Admissions be located?

- What is security’s role during admissions?
- What Units need to be closest to admissions?
- Under what circumstances can Forensics share admissions with other units?
Design Drivers: **Locus of structured inpatient treatment programs**

A. On-Unit Therapy  
B. Off-Unit Therapy  
C. Shared between Two Units  
D. Shared between Multiple Units
Design Drivers: Locus of structured inpatient treatment programs

A. On-Unit Therapy

GENERIC PATIENT CARE UNIT & SUPPORT BUILDING
WHITBY PSYCHIATRIC HOSPITAL
Design Drivers: Locus of structured inpatient treatment programs

B. Off- Unit Therapy
Design Drivers: **Locus of structured inpatient treatment programs**

C. Shared between Two Units
Design Drivers: Locus of structured inpatient treatment programs
Design Drivers: **Locus of structured inpatient treatment programs**
Design Drivers: Locus of structured inpatient treatment programs
Design Drivers: Outpatient program identity, access and flexibility

A. Centralized

B. Decentralized

C. Decentralized, Connected
Design Drivers: **Outpatient program identity, access and flexibility**
Design Drivers: Outpatient program identity, access and flexibility
Design Drivers: Outpatient program identity, access and flexibility
Design Drivers: **Outpatient program identity, access and flexibility**
Design Drivers: Outpatient program identity, access and flexibility

C. Decentralized, Connected
Design Drivers: Outpatient program identity, access and flexibility

A. Centralized

B. Decentralized

C. Decentralized, Connected
Design Drivers: "Relationship between inpatient and outpatient programs"
Design Drivers: Relationship between inpatient and outpatient programs
Design Drivers: Relationship between inpatient and outpatient programs
Design Drivers: Relationship between inpatient and outpatient programs
Design Drivers: Relationship between inpatient and outpatient programs
Design Drivers: Relationship between inpatient and outpatient programs
Design Drivers: What is the most appropriate location for clinics, registration and finance?

A. Centralized
B. Dedicated Entry, Central Support
C. Distributed Registration
Design Drivers: Locus and nature of education and research.

A. Adjacent to Front Entrance
B. Embedded in Administration
C. Accessible to Clinical Units
Design Drivers: Locus and nature of education and research.
Design Drivers: Locus and nature of education and research.
Design Drivers: Locus and nature of education and research.
Design Drivers: Locus and nature of education and research.

- Do both have the same answer?
- Are education and research co-located?
- If patient adjacency is desired, for which patient programs and research programs will this be most important?
Design Drivers: Range and control of public access

A. Access to Main Lobby (Front End)
B. Access to Program Mall
C. Access to Neighborhood (Therapy)
D. Access to Entire Centre, Units
Design Drivers: Up or Out/ Bed Count, Height, & Program Access
Design Drivers: Up or Out/ Bed Count, Height, & Program Access
Mental Health Design 101
AIA Academy of Architecture for Health
September 17, 2013

Thank you!

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