CRITICAL CARE DESIGN

Twenty Years of Winners and Future Trends: An Investigative Study

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Senior Principal, WHR Architects
Past Chair, SCCM/AACN/AIA Design Competition

WHR ARCHITECTS
Architecture with People in Mind®
CRITICAL CARE UNIT DESIGN

SCCM: 22 Years of Winning ICU Designs

1992 ICU Design Competition Winner
The Swedish Medical Center
Englewood, Colorado, USA
Architects: WHR Architects & H+L Architects

2013 ICU Design Competition Winner
Ann & Robert H. Lurie Children’s Hospital
Chicago, Illinois, USA
Architects: ZGF

Photo: D. Kirk Hamilton
Photo: ZGF Architects (www.zgf.com)
The Society of Critical Care Medicine (SCCM)

The largest multi-professional organization dedicated to ensuring excellence and consistency in the practice of critical care.

With 16,000 members in 100 countries, SCCM represents all professional components of the critical care team.

Now in its 23rd year, the design competition is sponsored by:

- Society for Critical Care Medicine (SCCM)
- American Institute of Architects / Academy of Architecture for Health (AIA/AAH)
- American Association of Critical-Care Nurses (AACN)

http://www.sccm.org/Membership/Awards/Pages/default.aspx
http://www.sccm.org/Membership/Member_Demographics/Pages/default.aspx
ICU Space Demand

In the United States, approximately 40 - 50% of all hospital space is allocated to bed/inpatient units.  

Of all US hospital beds, **10% to 20%** are ICU beds.  

In the US, an ICU bed occupies **30% to 40%** more space than an acute bed.

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Why is this Study Important?

**ICU Associated Costs**

- ICU beds make up $\leq 20\%$ of all beds but consume $33\%$ of operating budgets.$^{1,2}$
- ICU: $52\%$ more costly to build.$^3$
- Cost/patient day $2-4$ times non-ICU patient day.$^3$

“*No other space has more impact on efficiency of care.*”

Paula Buick, RN; Joseph O’Leary; Michael Roughan, AIA

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Why is this Study Important?

ICU Future Projections

• By 2020, there will be a **22%** deficit of intensivists to demand; by 2030, this deficit will increase to **35%**.¹⁻²

• ICU patient days are projected to grow from **4% - 30%** more rapidly than non-ICU days.³

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³ Advisory Board, 2006.
<table>
<thead>
<tr>
<th>Type of Institution</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Unit</td>
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<td>Size of Typical Patient Room</td>
<td></td>
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<tr>
<td>Type of Power/Equipment (headwall/power column)</td>
<td></td>
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<tr>
<td>Renovation/New Construction</td>
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<td>SCCM ICU Design Manual Use</td>
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</tr>
<tr>
<td>Design Summary</td>
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</tbody>
</table>
## CRITICAL CARE UNIT DESIGN

### FACT SHEET

<table>
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<tr>
<th>Type of Institution</th>
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</tbody>
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### SCORING SHEET 1

**Environmental Qualities:**
- Visual (color, light)
- Simplicity (neatness)
- Organization (layout)
- Auditory (noise, avoidance, therapeutic sound)

**Psychological Amenities:**
- (TV, VCR, plants)
CRITICAL CARE UNIT DESIGN

SCCM ICU Design Competition

FACT SHEET

Type of Institution
Type of Unit
Number of Beds
Size of Typical Patient Room
Type of Power/Equipment

Renovation/New Construction
(SCCM ICU Design Manual Used)

Design Summary

SCORING SHEET 1

Environmental Qualities:
Visual (color, light)
Simplicity (neatness)
Organization (layout)
Auditory (noise, avoidance, therapeutic sound)

Psychological Amenities
(TV, VCR, plants)

SCORING SHEET 2

Features:
Size
Functionality
Safety/Security
Decor
Amenities (refreshments, toiletry, sleep, seating)
Technology
Submission Video

2011 Winner: University Medical Center, Utrecht, Netherlands
Exclusion Criteria

- Insufficient plan information for data analysis 2 Units
- Neonatal Intensive Care Units (NICU) 3 Units
- Combined Pediatric (PICU) & Neonatal (NICU) Units 1 Unit

TOTAL SAMPLE SIZE: 18 Units

Adult: 15
PICU: 3
CRITICAL CARE UNIT DESIGN

Sample Size: 18 Winning ICU Designs

- 15 Winning ICUs are in USA
- 2 Winning ICUs are in Canada
- 1 Winning ICU is in Europe (Netherlands)
Sample Size: 18 Winning ICU Designs

1992

The Swedish Medical Center
Englewood, Colorado, USA
32 Beds

Architects: WHR Architects & H+L Architects
Sample Size: 18 Winning ICU Designs

1993
East Jefferson General Hospital
Metairie, Louisiana, USA
20 Beds
Architects: Blitch Knevel Architects
Sample Size: 18 Winning ICU Designs

1996
Legacy Good Samaritan Hospital
Portland, Oregon, USA
28 Beds
Architects: Tom Sagerser Architects
Sample Size: 18 Winning ICU Designs

1997
Southeast Missouri Hospital
Cape Girardeau, Missouri, USA
12 Beds
Architects: Christner Partnership
Sample Size: 18 Winning ICU Designs

2000

Clarian Health Group
Methodist Hospital
Indianapolis, Indiana, USA

56 Beds Total; 28/Floor

Architects: BSA Lifestructures
Sample Size: 18 Winning ICU Designs

2001
St. Joseph’s Health Center
Kansas City, Missouri, USA
16 Beds
Architects: Hart Freeland Roberts, Inc.
Sample Size: 18 Winning ICU Designs

2003

Harris Methodist Fort Worth Hospital, Fort Worth, Texas, USA

20 Beds

Architects: The Stichler Group, Inc.
Sample Size: 18 Winning ICU Designs

2003
McGill University Health Center
Montreal, Quebec, Canada
26 Beds
Architects: Fichten Soiferman Architects
Sample Size: 18 Winning ICU Designs

2005

Arkansas Children’s PICU, Little Rock, Arkansas

26 Beds

Architects: Cromwell Architects Engineers
Sample Size: 18 Winning ICU Designs

2005

The Queen’s Medical Center
Honolulu, Hawaii, USA

40 Beds
Architects: Anbe, Aruga, Ishizu Architects
Sample Size: 18 Winning ICU Designs

2006
Sharp Grossmont Hospital
La Mesa, California, USA
24 Beds
Architects: The Design Partnership
Sample Size: 18 Winning ICU Designs

2007
Dayton Children’s PICU/IMCU
Dayton, Ohio
21 Beds
Architects: Pinnacle Architects
Sample Size: 18 Winning ICU Designs

2008
Emory University Hospital
Atlanta, Georgia, USA
20 Beds
Architects: HKS
Sample Size: 18 Winning ICU Designs

2009
Memorial Sloan-Kettering Cancer Center
New York City, New York, USA
20 Beds
Architects: da SILVA Architects

WHR ARCHITECTS
Sample Size: 18 Winning ICU Designs

2010
The Christ Hospital MICU
Cincinnati, Ohio

20 Beds
Architects: Champlin Architecture
Sample Size: 18 Winning ICU Designs

2011
University Medical Center
Utrecht, Netherlands
36 Beds
Architects: Valtos Architecten Adviseurs bv, Amsterdam
Sample Size: 18 Winning ICU Designs

2012

Foothills Medical Center I, Calgary, Alberta, Canada

36 Beds

Architects: Dialog Design
Sample Size: 18 Winning ICU Designs

2013
Ann & Robert H. Lurie
Children’s Hospital
Chicago, Illinois
40 Beds
Architects: ZGF
Square Footage Take-Off Methodology

**Net Square Feet (NSF):**
The clear, usable floor area, measured as the space within the walls of a room

**Departmental Gross Square Feet (DGSF):**
- Total net & gross area enclosing departmental areas
- Includes rooms, corridors, interior walls
- Excludes exterior walls, stairs, elevators

**Floor Gross Square Feet (FGSF):**
In addition to DGSF: exterior walls, stairs, elevators, mechanical rooms

Data Analysis: Case Study

Client: Emory University Hospital
Emory Healthcare
Atlanta, Georgia, USA

Medical Director: Owen Samuels, MD

Evidence-Based Design Consultant:
Craig Zimring, PhD, Georgia Tech University

Architect: HKS Architects
Atlanta, Georgia, USA

SCCM Award Date: 2008
Completion Date: 2007
Emory ICU

Atlanta, Georgia, USA

20 Beds

Architects: HKS
Exterior Perimeter Dimensions

A + B + C + D
34.4m (113ft) + 11.6m (125ft) + 21.6m (71ft) + 96.6m (317ft) = 164.2m (625 ft)
CRITICAL CARE UNIT DESIGN

Roof Gardens

A = 257.3 SM  (2770 SF)  width x height
    6.8m x 33.5m

B = 69.4 SM  (748 SF)  4.8m x 14.3m

C = 116.7 SM  (1795 SF)  8.3m x 20.7m
CRITICAL CARE UNIT DESIGN

Area Summary (20 Beds)

Floor Departmental Gross = 2,384 SM (25,658 SF) = 115.4 SM/Bed (1,242 SF/Bed)
Departmental Gross = 2,053 SM (22,097 SF) = 102.6 SM/Bed (1,104 SF/Bed)
Departmental Net = 1,325 SM (14,269 SF) = 66.2 SM/Bed (713 SF/Bed)
CRITICAL CARE UNIT DESIGN

Room Groupings

Patient Room Groupings:
- **A** = 14 Patient Rooms 671 SM (7,222 SF) 33% of DGSM
- **B** = 6 Patient Rooms 418 SM (4,499 SF) 20% of DGSM

Common Support:
- **C** = Admin, Family, Diag. 964 SM (10,376 SF) 47% of DGSM

**TOTAL** = 20.53 DG SM (22,097 DG SF)
Patient Rooms

DGSM%

Patient Room- Patient 452 SM (4,868 SF) 22%
Critical Care Unit Design

Patient Rooms - Family Zone

- Patient Room: 452 SM (4,868 SF) 22%
- Family Room: 237 SM (2,550 SF) 12%

DGSM%
CRITICAL CARE UNIT DESIGN

Public, Family, & Visitor Spaces

- **Patient Room - Patient**: 452 SM (4,868 SF) - 22%
- **Patient Room - Family**: 237 SM (2,550 SF) - 12%
- **Public/Family/Visitor**: 126 SM (1,354 SF) - 6%
CRITICAL CARE UNIT DESIGN

Patient Care Support

<table>
<thead>
<tr>
<th>Area Type</th>
<th>Square Footage</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Room - Patient</td>
<td>452 SM (4,868 SF)</td>
<td>22%</td>
</tr>
<tr>
<td>Patient Room - Family</td>
<td>237 SM (2,550 SF)</td>
<td>12%</td>
</tr>
<tr>
<td>Public/Family/Visitor</td>
<td>126 SM (1,354 SF)</td>
<td>6%</td>
</tr>
<tr>
<td>Patient Care Support</td>
<td>286 SM (3,081 SF)</td>
<td>14%</td>
</tr>
</tbody>
</table>
CRITICAL CARE UNIT DESIGN

Administrative Support

- Patient Room- Patient: 452 SM (4,868 SF) - 22%
- Patient Room- Family: 237 SM (2,550 SF) - 12%
- Public/Family/Visitor: 126 SM (1,354 SF) - 6%
- Patient Care Support: 286 SM (3,081 SF) - 14%
- Admin. Support: 187 SM (2,017 SF) - 9%
CRITICAL CARE UNIT DESIGN

Diagnostic Imaging Spaces

- Patient Room - Patient: 452 SM (4,868 SF), 22%
- Patient Room - Family: 237 SM (2,550 SF), 12%
- Public/Family/Visitor: 126 SM (1,354 SF), 6%
- Patient Care Support: 286 SM (3,081 SF), 14%
- Admin. Support: 187 SM (2,017 SF), 9%
- Diagnostic/Imaging: 73 SM (783 SF), 4%
CIRCULAR CIRCULATION PATHS

- **Patient**
- **Family/Visitor**
- **Patient/Service**
- **Administrative**
Patient Rooms

Emory University Hospital
Neurosciences ICU
CRITICAL CARE UNIT DESIGN

Patient Rooms

Patient Room
21.8 SM (235 SF)

Family Space
10.7 SM (115 SF)

TOTAL
32.5 SM (350 SF)
CRITICAL CARE UNIT DESIGN

Winning ICU Designs 1992-2013

ADULT    PEDS


2006  2007  2008  2009  2010  2011  2012  2013
Unit Configurations

Linear Configuration

Racetrack Configuration

Pod Configuration

Patient space  Staff space

Layout Typologies of Hospital Units
Unit Configurations

Linear

Pod

Racetrack

Mixed
CRITICAL CARE UNIT DESIGN

Unit Configurations

- **Mixed**: 5 units (3 PICUs) - 28%
- **Pods**: 7 units - 39%
- **Linear**: 2 units - 11%
- **Racetrack**: 4 units - 22%

Categorization of ICUs on the basis of unit configuration
Area Take-Off Analysis of Winning Units

Comparison of departmental gross area per patient bed (DGSF/Bed) and departmental net area per patient bed (DNSF/Bed)

Sample Size: 18 Units

Average: 943 SF

Average: 589 SF

Departmental Gross Area / Bed

Departmental Net Area / Bed

Winning Year


ADULT PEDIATRIC

Square Feet

0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300

Square Meters

0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130
Area Take-Off Analysis of Winning Units

Comparison of Patient Room Net Area by Bed Count
Does not include observation or intermediate beds
## Area Take-Off Analysis of Winning Units

<table>
<thead>
<tr>
<th>Construction Type</th>
<th>Average Dept Area/Bed</th>
<th>Avg Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DGSF/Bed</td>
<td>DGSM/Bed</td>
</tr>
<tr>
<td>New Construction</td>
<td>990</td>
<td>92</td>
</tr>
<tr>
<td>New &amp; Renovation Construction (Mixed)</td>
<td>1027</td>
<td>95</td>
</tr>
<tr>
<td>Renovation Construction</td>
<td>814</td>
<td>76</td>
</tr>
</tbody>
</table>

Average unit departmental area per patient bed & average net to departmental area grossing factors by construction type

**Sample Size: 18 Units**
- 12 New Construction
- 1 Mixed (New & Reno.)
- 5 Renovation
## CRITICAL CARE UNIT DESIGN

### Area Take-Off Analysis of Winning Units

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<th>Construction Type</th>
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<td>92</td>
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<td>95</td>
<td>1.66</td>
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<td>1.69</td>
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Average unit departmental area per patient bed & average net to departmental area grossing factors by construction type

**Sample Size: 18 Units**
- 12 New Construction
- 1 Mixed (New & Reno.)
- 5 Renovation
## Critical Care Unit Design

### Area Take-Off Analysis of Winning Units

<table>
<thead>
<tr>
<th>ICU Program Components &amp; Percentage of Departmental Area</th>
<th>Percentage Values</th>
<th>Range</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Patient Care</strong></td>
<td>20.2% - 43.0%</td>
<td>22.8%</td>
<td>29.1%</td>
</tr>
<tr>
<td>Includes the patient room and patient toilet room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 Staff &amp; Material Support</strong></td>
<td>9.9% - 20.7%</td>
<td>10.7%</td>
<td>14.6%</td>
</tr>
<tr>
<td>Includes centralized &amp; decent charting, clean &amp; soiled, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3 Staff Facilities</strong></td>
<td>1.8% - 6.3%</td>
<td>4.5%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Includes staff lounge, lockers, toilets, on-call rooms, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4 Diagnostic &amp; Treatment</strong></td>
<td>0.0% - 4.9%</td>
<td>4.9%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Includes imaging suites, dialysis, pharmacy, lab, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5 Administration &amp; Education</strong></td>
<td>1.9% - 14.1%</td>
<td>12.2%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Includes classrooms, conference spaces, offices, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6 Public &amp; Family</strong></td>
<td>3.0% - 18.5%</td>
<td>15.5%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Includes waiting areas, family sleep rooms, amenities, etc.</td>
<td></td>
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Program categories used during area take-off analysis of best-practice ICU designs & percentages of total department area.
CRITICAL CARE UNIT DESIGN

ICU Design Competition winning entries included in sample size

<table>
<thead>
<tr>
<th>Winning Year</th>
<th>SCCM ICU Competition Winners &amp; Project Location</th>
<th>Institution Type &amp; ICU Type</th>
<th>Construction Type &amp; Architects</th>
<th>Hospital Beds</th>
<th>ICU Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>The Swedish Medical Center, Englewood, Colorado</td>
<td>Community Hospital CCU/Multidisciplinary</td>
<td>New Construction WHR &amp; H+L Architects</td>
<td>310</td>
<td>32</td>
</tr>
<tr>
<td>1993</td>
<td>East Jefferson General Hospital, Metairie, Louisiana</td>
<td>Community Hospital Medical/Surgical</td>
<td>New Construction Bilitch Knevel Architects</td>
<td>473</td>
<td>20</td>
</tr>
<tr>
<td>1996</td>
<td>Legacy Good Samaritan Hospital, Portland, Oregon</td>
<td>Tertiary Care Center Multidisciplinary</td>
<td>Mixed (New &amp; Renovation) Tom Sagerser Architect</td>
<td>550</td>
<td>28</td>
</tr>
<tr>
<td>1997</td>
<td>Southeast Missouri Hospital, Cape Girardeau, Missouri</td>
<td>Community Hospital Cardiothoracic Surgery</td>
<td>New Construction Christner Partnership</td>
<td>281</td>
<td>12</td>
</tr>
<tr>
<td>2000</td>
<td>Clarian Health Group Methodist Hospital, Indianapolis, Indiana</td>
<td>Academic Medical Center CCU/Cardio Medical</td>
<td>New Construction BSA LifeStructures</td>
<td>834</td>
<td>56</td>
</tr>
<tr>
<td>2001</td>
<td>St. Joseph’s Health Center, Kansas City, Missouri</td>
<td>Community Hospital Med/Surg/Cardiovascular</td>
<td>New Construction Hart Freeland Roberts, Inc.</td>
<td>300</td>
<td>16</td>
</tr>
<tr>
<td>2003</td>
<td>Harris Methodist Fort Worth Hospital, Fort Worth, Texas</td>
<td>Community Hospital Adolescent/Adult</td>
<td>New Construction The Stichler Group, Inc.</td>
<td>601</td>
<td>20</td>
</tr>
<tr>
<td>2003</td>
<td>McGill University Health Center, Montreal, Quebec, Canada</td>
<td>Tertiary Care &amp; Teaching Surg/Med/Cardio/Trauma</td>
<td>Renovation Construction Fichten Soiferman Architects</td>
<td>550</td>
<td>26</td>
</tr>
<tr>
<td>2005</td>
<td>The Queen’s Medical Center, Honolulu, Hawaii</td>
<td>Tertiary, Level II Trauma Cardiac &amp; Thoracic</td>
<td>New Construction Anbe, Aruga, Ishizu Architects</td>
<td>505</td>
<td>40</td>
</tr>
<tr>
<td>2006</td>
<td>Sharp Grossmont Hospital, La Mesa, California</td>
<td>Acute Care Hospital Adult Medical/Surgical</td>
<td>Renovation Construction The Design Partnership</td>
<td>450</td>
<td>24</td>
</tr>
<tr>
<td>2008</td>
<td>Emory University Hospital, Atlanta, Georgia</td>
<td>Academic Medical Center Neurology &amp; Neurosurgical</td>
<td>Mixed (New &amp; Renovation) HKS Architects</td>
<td>597</td>
<td>20</td>
</tr>
<tr>
<td>2009</td>
<td>Memorial Sloan-Kettering Cancer Center, New York City, New York</td>
<td>Tertiary Center &amp; Teaching Adult Medical/Surgical</td>
<td>Renovation Construction daSILVA Architects</td>
<td>435</td>
<td>20</td>
</tr>
</tbody>
</table>
ICU space by category - Community vs. Teaching/Tertiary Hospitals

UNIT: NSF/BED

<table>
<thead>
<tr>
<th>Category</th>
<th>Community Hospitals Average (7 Samples)</th>
<th>Teaching/Tertiary Care Hospitals Average (11 Samples)</th>
<th>Overall Average (18 Samples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public &amp; Family</td>
<td>88</td>
<td>54</td>
<td>67</td>
</tr>
<tr>
<td>Administration &amp; Education</td>
<td>39</td>
<td>75</td>
<td>61</td>
</tr>
<tr>
<td>Diagnostic &amp; Treatment</td>
<td>29</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td>Staff Support</td>
<td>139</td>
<td>43</td>
<td>38</td>
</tr>
<tr>
<td>Care Support</td>
<td>272</td>
<td>269</td>
<td>269</td>
</tr>
<tr>
<td>Patient Care</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

WHR ARCHITECTS
10 Best-Practice Critical Care Design Trends

1. Larger, Consolidated Units
2. Stabilized Patient Room Size
3. Defined In-Room Family Space
4. Remote Technology & Support Systems
5. Continued Design for Interdisciplinary Teams
6. Integration of Diag. & Treatment Facilities
7. Integration of Admin. & Support Spaces
8. Variable Unit Geometry
9. Segregated Circulation
(1) Larger Units

More units and larger units will likely be needed in the future as demand grows. Area for support spaces will likely increase.

Year | Design | DG SF/ bed
--- | --- | ---
1970 | | 450
1980 | | 550
1990 | | 650
2000 | | 750
2013 | | 950
(2) The Patient Room

All-private rooms in critical care will become the design standard with a stable room size of about 250 SF (23 SM);

family space will likely be in addition to this.
CRITICAL CARE UNIT DESIGN

The Patient Room

Ceiling-Mounted Pendent System

Column System

Wall-Mounted Pendent System

Headwall System

Drawing Key
1 Patient Zone: 15.4' x 15.5' (WxD)
2 Bariatric Patient Zone: 15.5' x 17' (WxD)
3 Family Zone
4 Hygiene Zone
5 Clinical Zone
6 Nurse Charting Station
7 Ceiling Height: 9' to 11'
8 Clearance: 8' to 10'
9 Clearance: 7' to 9'

WHR ARCHITECTS
The Patient Room

Private toilet facility within acuity adaptable room and flat headwall

Clarian Health Group Methodist Hospital
Indianapolis, Indiana
2000 Winner Architects: BSA LifeStructures

Photo: BSA LifeStructures
(3) The Family Zone

Recent units, where possible, incorporate designated family and visitor space and amenities into the unit or within the patient room itself.
The Family Zone

115 NSF

Emory University Hospital ICU
Atlanta, Georgia
2008 winner Architects: HKS

1,300 DG SF

- Shower
- Nourishment
- Toilets
- Laundry
- Waiting
- Consult/Quiet room
- Kid zone
10 Best-Practice Critical Care Design Trends

(4) Technology & Life Support Systems

The majority of units, notably recent ones, employed ceiling mounted booms rather than the traditional headwall unit within the patient room design.

- E-Glass
- Dedicated Lab Label Printers
- Ceiling Booms
- Wireless IR Transmitter
- Web cam
- Remote monitoring
1 Nurse server
2 E-glass slide, break away doors
3 Inside opening of nurse server
4 Wireless clock
5 Storage cabinets
6 Computer & double monitor
7 Lab label printer
8 Twin BOOMS
9 Wireless IR transmitter
10 Web cam
11 Patient closet & DVD player
12 Flat screen TV
13 Toilet
14 Nursing work area
(5) Design for Interdisciplinary Teams

All units showed some combination of centralized & decentralized layouts for staff work stations, while only one design was fully decentralized.
CRITICAL CARE UNIT DESIGN

Design for Interdisciplinary Teams

St. Joseph’s Health Center
Kansas City, Missouri
2001 winner
Architects: Hart Freeland Roberts, Inc

Emory University Hospital
Atlanta, Georgia, USA
2008 winner
Architects: HKS
(6) Proximity to Diagnostic & Treatment

Recent units appear to be incorporating diagnostic and treatment modalities into their designs, often as shared services with the entire hospital.
Proximity to Diagnostic & Treatment

Proximity of ICU to cardiac catheterization suite

Swedish Medical Center ICU
Englewood, Colorado, 1992 winner
Architects: WHR Architects & H+L Architects
10 Best-Practice Critical Care Design Trends

(7) Administrative & Support Space

An increase in administrative and education space within the unit has been noted over the last several years, particularly within teaching hospitals.
Memorial Sloan-Kettering Cancer Center
New York City, New York, 2009 winner
Architects: daSILVA Architects
10 Best-Practice Critical Care Design Trends

(8) Variable Unit Geometry

No single ICU geometry has been noted as superior to another; the pod concept is seen in recent years, along with a combination of different configurations.
(9) Segregated Circulation

Distinction of circulation regarding on-stage and off-stage separations are becoming more common and will likely continue to be seen in future designs.
Unique geometry allowing increased unit perimeter and plaza access; on-stage/off-stage circulation

Ann & Robert H. Lurie Children’s Hospital PICU, Chicago, Illinois, 2013 winner
Architects: ZGF

CRITICAL CARE UNIT DESIGN
Unit Geometry & Circulation

Patient
Public
Service
10 Best-Practice Critical Care Design Trends

(10) Visual and Physical Access to Nature

The importance of nature for patients, families and staff is increasingly recognized and incorporated into critical care units where possible.

“Nature serves as a positive distraction that reduces stress and diverts patients from focusing on their pain or distress.”

- Ulrich, 2008

CRITICAL CARE UNIT DESIGN

Access to Nature

Legacy Good Samaritan
Multidisciplinary ICU
Portland, Oregon, USA
1996 winner
Architects: Tom Sagerser Architects

Photo: Kirk Hamilton, FAIA, FACHA
10 Best-Practice Critical Care Design Trends

1. Larger, Consolidated Units
2. Stabilized Patient Room Size
3. Defined In-Room Family Space
4. Remote Technology & Support Systems
5. Continued Design for Interdisciplinary Teams
6. Integration of Diag. & Treatment Facilities
7. Integration of Admin. & Support Spaces
8. Variable Unit Geometry
9. Segregated Circulation
THANK YOU!

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