

New Codes and Standards 2023
39th FPC Annual Seminar + Expo
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Unveiling Guidelines for Children's Hospital Design to Build Brighter Futures

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Credit Designation:

AIA CES Provider Number: E240



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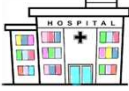




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1 OBJECTIVE	Describe key changes to FGI minimum requirements for pediatric environments
2 OBJECTIVE	Explain how the FGI Guidelines support the well-being of children and families
3 OBJECTIVE	Contrast pediatric and adult hospital planning, design and construction
4 OBJECTIVE	Discuss examples of children's hospital facilities that reflect current and evolving trends driving design guidelines

Fast Facts about Children's Hospitals

 <p>What year? 1st FGI Guidelines Children's Hospital Chapter</p>	 <p>Florida's Children's Hospitals 13 hospitals in the Florida Association of Children's Hospitals 76% of PICU beds (ped intensive care unit)</p>	 <p>1,069 NICU Beds FL Level III NICU beds (2022)</p>
 <p>250+ Number of children's hospitals in the US</p>	 <p>Paris - world's first children's hospital L'Hôpital Des Enfants-Malades (1802) 1st US - Children's Hospital of Philadelphia (1855)</p>	 <p>66% Occupancy Florida pediatric bed occupancy as of Nov 2022</p>

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The Basics: 2.3 Specific Requirements for Children's Hospitals

Application

- What is a "children's hospital"?
- Do guidelines apply to independent pediatric specialty hospitals with clinical specialization such as burn, psychiatric and rehabilitation?
- Not to be confused with how Florida recognizes four "Specialty-Licensed Hospitals" for children
(i.e., Johns Hopkins All Children's, Nemours, Nicklaus and Wolfson Children's Hospitals)



UF Health Shands Children's Hospital
Creator: David Johnston; Copyright: Johnston Photography 2015

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Key Changes PICU Room Space Requirements

FGI 2018

Pediatric **Critical Care** Unit

- Meet adult critical care space (200 nsf) and clearances
- + Bedside space for families and visitors in addition to staff
- + Space for moveable furniture shall not limit or encroach on the minimum clearance
- + Recumbent sleep space for parent/visitor

FGI 2022

Pediatric **Intensive Care** Unit

- Meet adult critical care space and clearances
- Same family/visitor space (2018)
- + PICU rooms for specialized bedside procedures that require more space shall have a minimum floor area of 300 square feet (e.g., ECMO, selected procedures on high risk cardiac patients)

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PICU: What's Wrong in this Picture?

Existing PICU room ~260 square feet with >200 square feet clear

- Mocked up for special procedures

Assessment:

- Best infection prevention practices and patient safety require:
 - 3-5 feet longer from the current foot of the bed to fit equipment and staff (in corridor)
 - Width around the bed was most important and needs to be increased
 - Can't access sink/hand hygiene area
 - Family space is missing from the room entirely



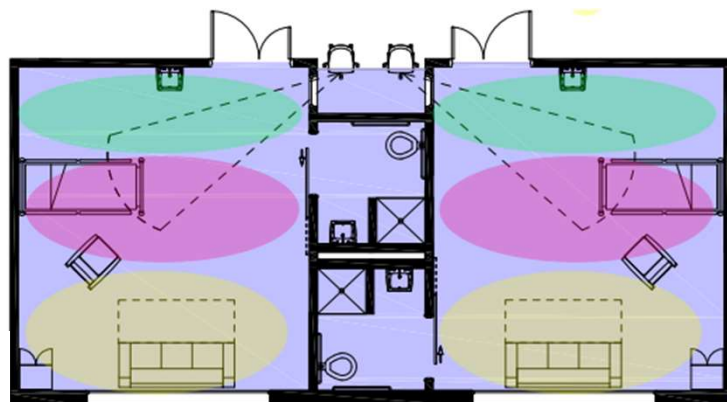
PICU Mock-Up with ECMO equipment

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Example of Larger PICU Room

360 square feet PICU room

- Two rooms mirrored
- Nested bathrooms
- Headwall vs boom
- Two person charting alcoves with windows
- Could include larger break-away doors



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Minor Clarifications Med/Surg Patient Room Requirements

FGI 2018

Pediatric Patient Room

- Family zone that includes the following shall be provided at each bedside without limiting or encroaching on the minimum clearance required for staff and medical equipment around the patient's bed:
 - Space to sit
 - Facilities for family and visitor hygiene
 - Storage for family and visitor personal belongings

FGI 2022

Pediatric Patient Room

- Family zone **shall be provided in addition to the minimum clear floor area per bed to accommodate:**
 - Space to sit
 - Facilities for family and visitor hygiene
 - Storage for family and visitor personal belongings

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Key Changes Patient Room Space Requirements

FGI 2022 Added 2.3-2.14 Pediatric Bariatric Patient Care Unit:

- Same requirements as adults for care of individuals of size, when provided

Pediatric patients come in all shapes and sizes: from premature babies weighing less than 1 lb to teens over 6 ft tall

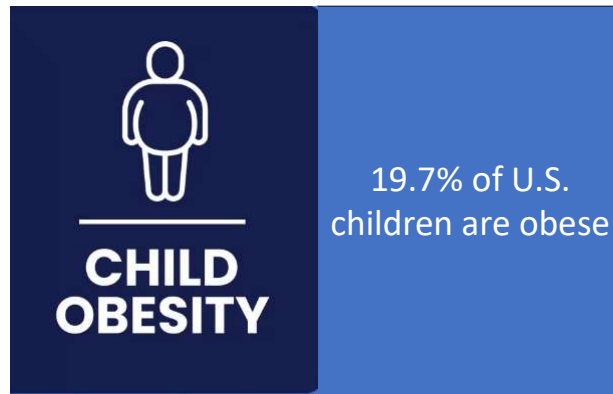
"...teen that is 7' 4" and growing, with his four-year-old niece..."

Source of Image: SWNS.com



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Obesity: Driving Changes in Children's Hospitals



Source: Centers for Disease Control High Obesity Program (HOP) 2023

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Minor Clarifications Pediatric Behavioral and Mental Health

Pediatric Psychiatric Patient Care Unit becomes Pediatric Behavioral and Mental Health Patient Care Unit

Same minimums as adults 2.1-2.4.3 (Seclusion Room)

- 60 SF clear floor area
- 80 SF, if used with restraints
- Anteroom or vestibule
- Line of site for observation

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Key Changes Pediatric Emergency Room Services in General Hospitals

- Removed pediatric emergency guidelines from the General Hospital Emergency Services in 2022 (no reference to children's hospital chapter)
- Children's hospital chapter includes emergency guidelines that expand upon general ED requirements:
 - Play area
 - Family waiting with pediatric treatment rooms

Compelling need to better address pediatric emergency needs, especially for children whose conditions include behavioral issues:

- **Announcement:** \$2 million grant from the Agency for Healthcare Research and Quality (AHRQ) will allow Clemson University, Prisma Health and the University of South Carolina (UofSC) to study systems-based solutions to improve the safety and well-being of children with mental and behavioral health conditions that arrive in emergency departments

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Key Changes Family Support Space Requirements

Added Family Support space for meditation, bereavement and/or prayer:

- Space shall be provided in the same building as the unit
- Can't have a children's hospital or pediatric unit in one building and this space in a remote building



St. Jude Children's Research Hospital: "sacred space offers a quiet place for reflection, prayer and meditation"

Source: St. Jude Children's Research Hospital
https://www.stjude.org/content/dam/en_US/shared/www/st-jude-campus/indoor/family-commons/123901-016.jpg

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Key NICU Changes: Infant Space Sizes

Multiple-infants in rooms

- Minimum clear floor area increased from 120 to 150 SF

Single-infant rooms

- Minimum clear floor area increased from 165 to 180 SF

Clarified that windows not required if daylight can be viewed from adjacent space.



Kentucky Children's Hospital ©2020 Halkin Mason Photography LLC used with permission for Smith Hager Bajo, Inc.

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Key NICU Changes: Neonatal Couplet Care

Hospitalized Postpartum Mom & NICU patient

- 150 SF clear for adult bed
- 150 SF clear for infant station
- 435 SF clear when combined with LDRP

Neonatal Couplet Care Room

- Minimum clear floor area 300 SF



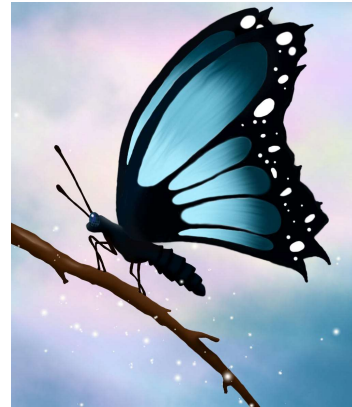
Yale New Haven Children's Hospital/Couplet Care
Source: Poltronieri Tang & Associates, CBRE/Heery

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Minor Clarification Hospice and Palliative Care Room

Where provided, went from simple requirement for single patient room to alignment with other adult guideline 2.2-2.16.2 except simplified the square feet for children (FGI 2022):

- Children: 250 clear floor area with minimum 15' dimension
- Adult: 153 NSF + 33 NSF for family + sleep space, when provided



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What Is Often Not Noticed

- No pediatric intermediate care unit standard for children's hospitals
- Children's behavioral health have a maximum capacity of four in a patient room (only two person maximum for adults units)
- When obstetrical units are in children's hospital they shall meet the requirements of 2.2-2.10 Obstetrical Unit
- No fetal care/special delivery unit specific guidelines
- Lactation rooms are required for staff/volunteers separate from public lactation rooms
- Infant feeding/milk lab designs are more complex than they used to be (and safety focused)

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How Guidelines Support the Well-being of Children and Their Families

- Reflect the value of play and distraction for well-being during hospitalization
- Extensive research and experience: play builds the brain and body, helps children cope and supports safe, nurturing relationships



Ryan Seacrest Studio at Children's Hospital Colorado
Source: Creator: Scott Dressel-Martin, Copyright: Scott Dressel-Martin

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How Guidelines Support the Well-being of Children and Their Families

Play Reference Examples:

- Koukourikos, Tzaha, et al *The Importance of Play during Hospitalization of Children*, Mater Sociomed, 2015
- AAP, *Power of Play in Early Childhood*, American Academy of Pediatrics, aap.org, 2023
- Perasso et al, *Five Reasons Why Pediatric Settings Should Integrate the Play Specialist and Five Issues in Practice*, Front. Psychology, 2021



Perth Children's Hospital - shaded play area
Source: LSAA.org

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Guidelines Leverage the Benefits of Evidence-Based Design and Innovations

Research supports better space to encourage family engagement and address parent needs

- An 11-country study shows more positive outcomes when parents are 'care-partners', integrated into hospital care and provided with parent facilities in patient rooms.
- This study further builds the case for giving parents comfortable space in children's hospitals.
- Lower adjusted mean length of stay, reduced parent stress, lower odds for sepsis and lower bronchopulmonary dysplasia (requires oxygen therapy)



Source: Lehtonen, Lee, Sotoshi et al *Family Rooms in NICU and Neonatal Outcome: An International Survey and Linked Cohort Study*, The Journal of Pediatrics Nov 2020

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Distinctions from Adult Hospitals

- More space for families
- More storage space than adult hospitals for beds and supplies
- More space for play and education
- Must accommodate a wide array of specialists for pediatric therapies – child life, feeding, speech and hearing, physical/occupational, pet therapy and others
- Adult unit conversion to a pediatric unit must consider the minimum family space requirements that do not exist for adult patient rooms



Source: Galisano Children's Hospital of Southwest Florida

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Evolving Trends

- Mary Elisabeth's Hospital – Kingdom for children, young people and pregnant women
- A world class children's hospital under construction in Copenhagen (opening in 2027)

- Excerpt from video

<https://www.olekirksfond.dk/vores-projekter/socialt/mary-elizabeths-hospital/>



Source: Arkitema: Being developed by Arkitema, Region Hovedstaden, 3XN/GXN, NIRAS, and Kristine Jensen Landskab & Arkitektur

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Thank you for your attention!

