

COMPETITIVE COMMENTS ON
2023 WAKE COUNTY ACUTE CARE BED NEED DETERMINATION
SUBMITTED BY DUKE UNIVERSITY HEALTH SYSTEM, INC.

SEPTEMBER 27, 2023

Four applicants submitted CON applications in response to the need identified in the 2022 SMFP for 44 additional acute care beds in Wake County: CON Project ID J-012412-23 Duke Raleigh Hospital, Rex Hospital, CON Project ID J-012418-23 WakeMed Cary Hospital, CON Project ID J-012417-23 UNC Health Rex Hospital, and CON Project ID J-012419-23 WakeMed North Hospital.

These comments are submitted by DUHS in accordance with N.C. Gen. Stat. § 131E-185(a1)(1) to address the representations in the applications, including a comparative analysis and a discussion of some of the most significant issues identified regarding the applicants' conformity with the statutory and regulatory review criteria ("the Criteria") in N.C. Gen. Stat. §131E-183(a) and (b). Other non-conformities in the competing applications may exist and DUHS reserves the right to develop additional opinions, as appropriate upon further review and analysis.

COMPARATIVE ANALYSIS

The following factors are suggested for all reviews regardless of type of services or equipment proposed:

- Conformity with Statutory and Regulatory Review Criteria
- Scope of Services
- Historical Utilization
- Geographic Accessibility (Location within the Service Area)
- Access by Service Area Residents
- Access by Underserved Groups: Charity Care
- Access by Underserved Groups: Medicaid
- Access by Underserved Groups: Medicare
- Competition (Access to a New or Alternate Provider)
- Projected Average Net Revenue per Patient
- Projected Average Total Operating Cost per Patient

Other comparative factors may be utilized based on the facts of the competitive review. The following summarizes the competing applications relative to the potential comparative factors.

Conformity to CON Review Criteria

Four CON applications have been submitted seeking to develop acute care beds in Wake County. The applicants collectively propose to develop 129 acute care beds. Based on the 2023 SMFP's need determination, only 44 acute care beds can be approved. Only applicants demonstrating conformity with

all applicable Criteria can be approved, and only the application submitted by DUHS demonstrate conformity to all Criteria:

Conformity of Applicants

Applicant	Project I.D.	Conforming/ Non-Conforming
Duke Raleigh Hospital	J-012412-23	Yes
UNC Health Rex Hospital	J-012417-23	No
WakeMed Cary Hospital	J-012418-23	No
WakeMed North Hospital	J-012419 -23	No

The DRAH application is based on reasonable and supported volume projections and adequate projections of cost and revenues. As discussed below, the competing applications contain errors and flaws which result in one or more non-conformities with statutory and regulatory review Criteria. Therefore, the DRAH application is the most effective alternative regarding conformity with applicable review Criteria.

Scope of Services

Generally, the application proposing to provide the greatest scope of services is the more effective alternative with regard to this comparative factor. However, all four applications involve existing acute care hospitals which provide numerous types of medical and surgical services. Therefore, the competing applications are equally effective alternatives regarding this factor.

Geographic Accessibility

Duke Raleigh Hospital (41 acute care beds), UNC Health Rex Hospital (44 acute care beds), and WakeMed North Hospital (35 acute care beds) each propose to develop acute care beds in Raleigh at their respective existing facilities. WakeMed Cary Hospital proposes to develop 9 new acute care beds in Cary at its existing hospital. None of the applicants propose to develop new acute care beds in a geographic location where there are currently no existing acute care beds. There is no basis for finding any of the competing applications more effective regarding this factor.

DRAH’s proposed additional acute care bed would become operational by July 1, 2025. The 2023 SMFP acute care bed methodology forecasts bed need during 2025; therefore, DRAH’s project timetable is consistent with the SMFP planning horizon for the need determined acute care beds.

WakeMed North’s project will not operationalize the proposed beds until October 1, 2028, more than three years later compared to DRAH. As described later in this document, WakeMed North also fails to demonstrate conformity with all applicable review criteria. Therefore, WakeMed North cannot be an effective alternative. DUHS would note the 2024 SMFP includes a need determination for additional acute care beds in Wake County. Therefore, WakeMed’s proposal may be more suitable for a later SMFP planning horizon.

Historical Utilization

Generally, the applicant with the higher historical utilization is the more effective alternative with regard to this comparative analysis factor. Four applicants submitted four CON applications in this competitive review, DUHS, UNC Health Rex, WakeMed Cary Hospital, and WakeMed North Hospital. All four applicants operate licensed acute care hospitals in the acute care service area, i.e., Wake County.

The need for additional acute care beds in the 2023 SMFP is triggered by the utilization of the total number of existing and approved acute care beds within a given service area. To project inpatient days of care in 2025, the total annual percentage of change over each of the last five fiscal years are divided by four to determine the historical percentage change for the county. For positive annual percentages of change, as is the case for Wake County, add one to determine the county growth rate multiplier. For counties with positive county growth rate multiplier, 2025 projected days of care are calculated by compounding the growth rate multiplier over the next four years. Wake County’s growth rate multiplier is 1.0306, which is applied to project days of care during 2024. The projected average daily census (ADC) is then calculated by dividing the projected number of inpatient acute care days of care in 2024 by 365 days.

Facility Name	Licensed Acute Care Beds	Adjustments for CONs	FY2020 IP DOC	County Growth Rate Multiplier	Projected Days of Care	2024 Projected ADC
Duke Green Level Hospital	0	40				-40.0
Duke Raleigh Hospital	186	-40	50,580	1.0019	53,035	145
<i>DUHS Total</i>	186	-40	50,580	1.0019	53,035	145
Rex Hospital	418	50	126,105	1.0019	132,645	363
WakeMed	574	36	177,096	1.0019	185,691	508
WakeMed Cary Hospital	200	0	53,859	1.0019	56,473	155
<i>WakeMed Total</i>	774	36	230,955	1.0019	242,164	663

Source: 2023 SMFP, Table 5A: Acute Care Bed Need Projections

The ADC is then multiplied by the appropriate target occupancy factor, listed in the table below, to determine the number of beds needed to meet the projected demand.

ADC	Occupancy Factor
ADC <100	1.5
ADC 100-200	1.4
ADC >200 and ≤400	1.33
ADC >400	1.28

The following table summarizes the projected bed deficit/(surplus) for each applicant in Wake County based on the acute care bed methodology.

Facility Name	2023 Acute Care Beds	2025 Projected ADC	2025 Beds Adjusted for Target Occupancy	Projected 2025 Deficit or (Surplus)	Bed Need as a % of Total Acute Care Beds
Duke Green Level Hospital	40	0	0	-40	
Duke Raleigh Hospital	146	145	203	57	
DUHS Total	186	145	217	17	9.1%
UNC Health Rex*	418	363	483	15	3.6%
WakeMed	574	508	651	41	
WakeMed Cary Hospital	200	155	216	16	
WakeMed Total	774	663	867	57	7.4%
Wake County Service Area Bed Deficit				44	

*Includes UNC Health Rex Holly Springs
Source: Table 5A, 2023 SMFP

Of the existing hospital systems in Wake County, DRAH has the smallest number of licensed beds and the largest projected acute care bed deficit during 2025 based on a comparison of projected bed need as a percentage of total acute care beds. Therefore, DRAH is the most effective alternative regarding historical utilization.

Competition (Patient Access to a New or Alternative Provider)

The following table illustrates the existing and approved providers located in the Wake County acute care bed service area. Generally, where all of the applicants are proposing the same scope of services, the introduction of a new provider in the service area would be the most effective alternative based on the assumption that increased patient choice would encourage all providers in the service area to improve quality or lower costs in order to compete for patients. Similarly, the expansion of an existing provider that currently controls fewer acute care beds than other providers would also increase patient choice and competition.

As of the beginning date for this review period, there are 1,553 existing and approved acute care beds, allocated between six existing and approved hospitals owned by three providers (DUHS, UNC, and WakeMed) in the Wake County Service Area, as illustrated in the following table.

Facility Name	2023 Acute Care Beds (Existing & Approved)
Duke Green Level Hospital	40
Duke Raleigh Hospital	186 – 40 + 18 = 164
DUHS Total	204
UNC Health Rex Hospital*	468 + 18 = 486
WakeMed	574 + 14 = 588
WakeMed Cary Hospital	200
WakeMed Total	688
Wake County Total	1,553

*Includes UNC Health Rex Holly Springs
 Source: Table 5A, Proposed 2024 SMFP

WakeMed currently controls 688 of the 1,553 acute care beds in Wake County, or 44.3 percent. UNC Health Rex currently controls 486 of the 1,553 acute care beds in Wake County, or 31.3 percent. DUHS controls only 204 of the acute care beds in Wake County, or 13.1 percent.

If either WakeMed or UNC Health Rex are approved to develop additional acute care beds in Wake County, the respective systems will continue to control a higher percentage of acute care beds in Wake County than DUHS.

Therefore, with regard to patient access to a new or alternate provider, the application submitted by DRAH is the most effective alternative, and the applications submitted by UNC Health Rex, WakeMed Cary Hospital, and WakeMed North Hospital are less effective alternatives.

Access By Service Area Residents

The 2023 SMFP defines the service area for acute care beds as “the acute care bed service area in which the bed is located. The acute care bed service areas are the single and multicounty groupings shown in Figure 5.1.” Figure 5.1, on page 36, shows Wake County as a single county acute care bed service area. Facilities may also serve residents of counties not included in their service area.

The following table illustrates access by service area residents during the third full fiscal year following project completion.

Projected Service to Wake County Residents, Project Year 3

	Duke Raleigh Hospital	WakeMed Cary Hospital	UNC Health Rex Hospital	WakeMed North Hospital
# of Wake County Patients	7,705	*	19,973	*
% of Wake County Patients	62.4%	*	66.4%	*

*The WakeMed Cary and WakeMed North applications each project patient origin by zip code. Zip codes do not follow county lines; thus, it is not possible to definitively determine what number of discharges or percent of patients served will originate from the Wake County acute care service area. Therefore, the proposals by WakeMed Cary and WakeMed North cannot be effectively evaluated as part of this comparison.

The number and percentage of Wake County patients projected to be served by each facility varies based on size and scope. Additionally, the acute care bed need determination methodology is based on utilization of all patients that utilize acute care beds in Wake County and the resulting deficits at existing facilities based on those patient origin patterns, and is not only based on patients originating from Wake County. Wake County is an urban county and hosts the largest number of county residents in the state with three large health systems plus numerous smaller healthcare groups. All of the applicants attract a significant percentage of patients from outside the county.

Considering these facts and the Agency’s determination in the 2022 Wake County Acute Care Bed Review, DUHS believes that in this specific instance, attempting to compare the applicants based on the projected acute care bed access of Wake County residents would be ineffective. Therefore, the result of this analysis is inconclusive.

Access By Underserved Groups

Underserved groups are defined in G.S. 131E-183(a)(13) as follows:

“Medically underserved groups, such as medically indigent or low-income persons, Medicaid and Medicare recipients, racial and ethnic minorities, women, and handicapped persons, which have traditionally experienced difficulties in obtaining equal access to the proposed services, particularly those needs identified in the State Health Plan as deserving of priority.”

For access by underserved groups, applications are compared with respect to three underserved groups: charity care patients (i.e., medically indigent or low-income persons), Medicare patients and Medicaid patients. Access by each group is treated as a separate factor.

The Agency may use one or more of the following metrics to compare the applications:

- Total charity care, Medicare, or Medicaid patients
- Charity care, Medicare, or Medicaid admissions as a percentage of total patients

- Total charity care, Medicare, or Medicaid dollars
- Charity care, Medicare, or Medicaid dollars as a percentage of total gross or net revenues
- Charity care, Medicare, or Medicaid cases per patient

The above metrics the Agency uses are determined by whether or not the applications included in the review provide data that can be compared as presented above and whether or not such a comparison would be of value in evaluating the alternative factors. The Agency has consistently concluded in recent inpatient bed reviews that these comparisons, however, are inconclusive given the variances among applicants in patient acuity and procedure mix. DUHS presents the following data for information purposes.

Projected Charity Care

The following table compares projected charity care in the third full fiscal year following project completion for the applicants.

Projected Charity Care – 3rd Full FY

Applicant	Form F.2b	Form C.1b		Form F.2b	
	Total Charity Care	Discharges	Avg Charity Care per Discharge	Gross Revenue	% of Gross Revenue
Duke Raleigh Hospital	\$20,761,825	12,345	\$1,682	\$644,121,407	3.2%
WakeMed Cary Hospital	\$42,669,872	12,036	\$3,545	\$915,707,255	4.7%
UNC Health Rex Hospital	\$6,951,150	30,072	\$231	\$342,062,305	2.0%
WakeMed North Hospital	\$25,240,979	8,965	\$2,816	\$437,870,487	5.8%

Based on differences in the acuity level of patients at each facility, the level of care at each facility, and the number and types of acute care bed services proposed by each of the facilities may impact the figures shown in the table above. Thus, the result of this analysis is inconclusive.

Projected Medicare

The following table compares projected access by Medicare patients in the third full fiscal year following project completion for all the applicants in the review.

Projected Medicare Revenue – 3rd Full FY

Applicant	Form F.2b	Form F.2b	Medicare % of Gross Revenue
	Total Medicare Revenue	Gross Revenue	
Duke Raleigh Hospital	\$411,803,304	\$644,121,407	63.9%
WakeMed Cary Hospital	\$503,064,542	\$915,707,255	54.9%
UNC Health Rex Hospital	\$200,370,741	\$342,062,305	58.6%
WakeMed North Hospital	\$220,558,554	\$437,870,487	50.4%

As shown in the previous table, the proposal by Duke Raleigh Hospital has the Medicare gross revenue as a percentage of total gross revenue.

Projected Medicaid

The following table compares projected access by Medicaid patients in the third full fiscal year following project completion for all the applicants in the review.

Projected Medicaid Revenue – 3rd Full FY

Applicant	Form F.2b	Form F.2b	% of Gross Revenue
	Total Medicaid Revenue	Gross Revenue	
Duke Raleigh Hospital	\$51,269,575	\$644,121,407	8.0%
WakeMed Cary Hospital	\$52,355,913	\$915,707,255	5.7%
UNC Health Rex Hospital	\$33,847,608	\$342,062,305	9.9%
WakeMed North Hospital	\$27,210,333	\$437,870,487	6.2%

The proposal by DRAH projects the second highest access by Medicaid patients. The application submitted by UNC Health Rex does not conform to all statutory review criteria. Thus, UNC Health Rex cannot be an effective alternative for this comparative.

Projected Average Net Revenue per Patient

The following table shows the projected average net revenue per patient in the third year of operation for each of the applicants, based on the information provided in the applicants’ pro forma financial statements (Section Q). Generally, the application proposing the lowest average net revenue is the more effective alternative regarding this comparative factor since a lower average may indicate a lower cost to the patient or third-party payor.

Projected Average Net Revenue per Patient – 3rd Full FY

Applicant	Form C.1b	Form F.2b	Average Net Revenue per Discharge
	Discharge	Net Revenue	
Duke Raleigh Hospital	12,345	\$211,583,381	\$17,139
WakeMed Cary Hospital	12,036	\$229,832,082	\$19,095
UNC Health Rex Hospital	30,072	\$122,870,185	\$4,086
WakeMed North Hospital	8,965	\$144,370,729	\$16,104

However, average net revenues for inpatient hospital stays based solely on total discharges do not provide a useful basis for direct comparison, due to differences in the acuity level of patients, length of stay, service required and the level of care at each facility, and the Agency has consistently found this factor inconclusive in recent reviews as a result. For example, DUHS included the entire inpatient stay in Form F.2 and F.3, which includes surgical as well as medical stays. Surgical stays, which make up a high percentage of DRAH’s total, necessarily have higher costs and charges than a medical stay. DRAH has a high volume of total joint replacement cases, which have higher costs than other procedures.

Projected Average Operating Expense per Case

The following table shows the projected average operating expense per patient in the third full fiscal year following project completion for each facility.

Projected Average Operating Expense per Patient – 3rd Full FY

Applicant	Form C.1b	Form F.2b	Average Operating Expense per Discharge
	Discharge	Operating Expense	
Duke Raleigh Hospital	12,345	\$309,455,818	\$25,067
WakeMed Cary Hospital	12,036	\$211,618,368	\$17,582
UNC Health Rex Hospital	30,072	\$203,846,551	\$6,779
WakeMed North Hospital	8,965	\$81,112,875	\$9,048

As with average net revenues, average operating costs for inpatient hospital stays based solely on total discharges do not provide a useful basis for direct comparison, due to differences in the acuity level of patients, length of stay, service required and the level of care at each facility. The costs for a stay that includes surgery are typically higher than those for medical patients. DRAH’s operating costs also include an allocation of overhead expenses. Each applicant’s costs will necessarily vary based on the assumptions and methodologies for allocating overhead expenses and other internal accounting. Therefore, a comparison of projected operating expense per patient is inconclusive.

Summary

The following table lists the comparative factors and states which application is the more effective alternative.

Comparative Factor	Duke Raleigh Hospital	WakeMed Cary Hospital	UNC Health Rex Hospital	WakeMed North Hospital
Conformity with Review Criteria	Yes	No	No	No
Scope of Services	Equally Effective	Equally Effective	Equally Effective	Equally Effective
Geographic Accessibility	Equally Effective	Equally Effective	Equally Effective	Equally Effective
Historical Utilization	Most Effective	Least Effective	Least Effective	Least Effective
Enhance Competition	Most Effective	Least Effective	Least Effective	Least Effective
Access by Service Area Residents	Inconclusive	Inconclusive	Inconclusive	Inconclusive
Access by Underserved Groups				
Projected Charity Care	Inconclusive	Inconclusive	Inconclusive	Inconclusive
Projected Medicare	Most Effective	Least Effective	Least Effective	Least Effective
Projected Medicaid	More Effective	Less Effective	Most Effective	Less Effective
Projected Average Net Revenue per Case	Inconclusive	Inconclusive	Inconclusive	Inconclusive
Projected Average Operating Expense per Case	Inconclusive	Inconclusive	Inconclusive	Inconclusive

For each of the comparative factors previously discussed, DRAH’s application is determined to be the most or more effective alternative for the following factors:

- Conformity with Review Criteria
- Historical Utilization
- Enhance Competition
- Medicare Access
- Medicaid Access

With regard to acute care beds, the application submitted by Duke Raleigh Hospital (“DRAH”) is comparatively superior and should be approved as submitted.

**COMMENTS SPECIFIC TO UNC HEALTH REX HOSPITAL
PROJECT ID NO. J-012417-23**

Criterion 1 *“The proposed project shall be consistent with applicable policies and need determinations in the State Medical Facilities Plan, the need determination of which shall constitute a determinative limitation on the provision of any health services, health service facility, health service beds, dialysis stations, operating rooms, or home health offices that may be approved.”*

POLICY GEN-3: BASIC PRINCIPLES states:

“A certificate of need applicant applying to develop or offer a new institutional health service for which there is a need determination in the North Carolina State Medical Facilities Plan shall demonstrate how the project will promote safety and quality in the delivery of health care services while promoting equitable access and maximizing healthcare value for resources expended. A certificate of need applicant shall document its plans for providing access to services for patients with limited financial resources and demonstrate the availability of capacity to provide these services. A certificate of need applicant shall also document how its projected volumes incorporate these concepts in meeting the need identified in the State Medical Facilities Plan as well as addressing the needs of all residents in the proposed service area.”

UNC Health Rex fails to conform with Criterion 1 and Policy GEN-3 because the application is not conforming to all other applicable statutory and regulatory review criteria and thus, is not approvable. The applicant does not adequately demonstrate that the proposal is its least costly or most effective alternative to meet the need. See discussion regarding criteria 3, 4, 5, 6, and 18a. Therefore, the application does not conform to this criterion and cannot be approved.

Criterion 3 *“The applicant shall identify the population to be served by the proposed project and shall demonstrate the need that this population has for the services proposed, and the extent to which all residents of the area, and, in particular, low-income persons, racial and ethnic minorities, women, handicapped persons, the elderly, and other underserved groups are likely to have access to the services proposed.”*

A key part of the applicant’s projection of patients to be served at UNC Health Rex Holly Springs is the assumption that “appropriate” patients will shift from UNC Health Rex Hospital to UNC Health Rex Holly Springs. In Section Q, page 4, the applicant provides only the following information, “Acute care days that are appropriate to shift from the main campus in Raleigh to the Holly Springs campus meet acuity parameters and a DRG-based analysis of patient procedure codes.” However, UNC Health Rex failed to describe what was included in the acuity parameters and DRG-based analysis. It is not clear what UNC Health Rex considers “appropriate” or what DRGs were included in its analysis, which calls into question which cases are projected to shift to UNC Health Rex Holly Springs.

UNC Health Rex projects the number of acute care days originating from the Holly Springs service area, which equates to approximately 10 percent of UNC Health Rex Hospital’s total acute care days, will increase at an annual rate of 4.8 percent from SFY 2023 to SFY 2028. See Section Q, page 5, Table 6. In

Section C of its application, UNC Health Rex projects its days of care will increase by only 3.2 percent. The applicant failed to explain the reason for the growth rate discrepancy throughout the application.

UNC Health Rex states “the projected shift of 75 percent of the total UNC Health Rex acute care days that are appropriate for UNC Health Rex Holly Springs Hospital is based on the percentage of UNC Health Rex Hospital’s total acute care days that originated from the Holly Springs service area in SFY 2022.” See Section Q, page 5. However, only 48 percent of the total UNC Health Rex acute care days that are appropriate for UNC Health Rex Holly Springs Hospital shifted during SFY 2023 as shown in the following table.

Historical Acute Care Days Appropriate for UNC Health Rex Holly Springs Hospital		
		SFY23*
A	Holly Springs Appropriate Acute Care Days [^]	14,735
B	UNC Health Rex Holly Springs Acute Care Days	7,069
B ÷ A = C	Percent Served at UNC Health Rex Holly Springs	<u>48.0%</u>

[^]Holly Springs Appropriate Acute care days originating from 27526, 27603, 27540, 27502, 27501, 27539, 27592, and 27546.

*Annualized based on 10 months of data (July 2022 through April 2023).

Source: Section Q, page 5, Table 7

UNC Health Rex failed to explain why it is reasonable to expect 75 percent of total UNC Health Rex acute care days that are appropriate for UNC Health Rex Holly Springs Hospital will shift to UNC Health Rex Holly Springs beginning in the hospital’s second full operational year (SFY 2024) when an equivalent of only 48 percent of appropriate patients were served at UNC Health Rex Holly Springs Hospital during SFY 2023. Therefore, the applicant’s assumption that 75 percent of total UNC Health Rex acute care days that are appropriate for UNC Health Rex Holly Springs Hospital will shift to UNC Health Rex Holly Springs is not supported. Because UNC Health Rex’s projected utilization at UNC Health Rex Holly Springs is unreliable, the applicant cannot demonstrate conformity to 10A NCAC 14C .3803(5)(6).

UNC Health Rex also failed to provide any discussion regarding its assumptions for projecting average length of stay or the reasonableness of projected discharges. Form C.1 assumes the facility average length of stay will be 4.6 days through the third project year. However, Form C Assumptions and Methodology contain no information describing this assumption or providing any explanation. Application page 52 states “UNC Health Rex has the highest Medicare CMI in Wake County, which is an indication that, on average, UNC HEALTH REX Hospital is caring for more high acuity patients than any other hospital in the county.” UNC Health Rex provides data from the American Hospital Directory reporting that during CY2020, its Medicare CMI was 2.10. DUHS obtained data from the American Hospital Director summarizing UNC Health Rex’s Medicare CMI during recent years. See table below.

UNC Health Rex Medicare Case Mix Index					
	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Case Mix Index	1.9447	1.9900	2.0700	2.1039	2.0907

Source: American Hospital Directory

UNC Health Rex’s Medicare CMI has increased since FY2018. Generally speaking, increased complexity is associated with comparatively longer lengths of stay. Therefore, it is reasonable to assume that UNC Health Rex’s ALOS has increased in the recent past. In fact, upon review of licensure renewal data, UNC Health Rex’s ALOS has increased significantly during recent years. See table below.

UNC Health Rex Historical Average Length of Stay					
	FY2018	FY2019	FY2020	FY2021	CAGR
Acute Care Discharges	30,233	30,164	28,667	28,906	-1.5%
Days of Care	114,663	118,736	117,457	132,776	5.0%
ALOS	3.8	3.9	4.1	4.6	6.6%

Source: License Renewal Applications

UNC Health Rex projects that lower acuity days of care from the UNC Health Rex Holly Springs service area will shift to UNC Health Rex Holly Springs. This assumption would necessarily result in a larger percentage of higher acuity discharges remaining at UNC Health Rex, which will also result in a comparatively higher ALOS than historically experienced at UNC Health Rex. Though no assumptions are provided for projecting acute care discharges at UNC Health Rex, DUHS assumes that discharges were calculated by dividing days of care by ALOS. By understating the projected ALOS, UNC Health Rex overstates its projected acute care discharges. Because reimbursement for inpatient care is typically made on a per-encounter basis, a lower number of discharges would also materially affect the financial projections for UNC Health Rex’s project.

Therefore, absent any assumptions contained in the application as submitted regarding ALOS and methodology for projecting discharges at UNC Health Rex, the projected discharges are not supported.

Finally, on August 24, 2022, UNC Health Rex announced its intention to close its pediatric unit and its plans to convert the 10 pediatric beds to adult beds.¹ The conversion of beds was effective August 31, 2022. Therefore, UNC Health Rex was recently able to gain incremental adult acute care bed capacity without increasing the number of licensed beds and its stated need for additional acute care beds is diminished. UNC Health Rex did not appear to adjust any of its projections (whether for days of care, average length of stay, or discharges) to reflect the termination of this significant service line.

For the foregoing reasons, the UNC Health Rex application does not conform to Criterion 3.

¹ <https://www.wral.com/unc-rex-closing-pediatric-unit-at-hospital-on-lake-boone-trail-in-raleigh/20433542/>

Criterion 4 *“Where alternative methods of meeting the needs for the proposed project exist, the applicant shall demonstrate that the least costly or most effective alternative has been proposed.”*

The UNC Health Rex application is not conforming to all other applicable statutory and regulatory review criteria and thus, is not approvable. An application that cannot be approved cannot be an effective alternative.

The applicant does not adequately demonstrate that the proposal is its least costly or most effective alternative to meet the need. Therefore, the application does not conform to this criterion and cannot be approved. See discussion regarding criteria 1, 3, 5, 6, and 18a.

Criterion 5 *“Financial and operational projections for the project shall demonstrate the availability of funds for capital and operating needs as well as the immediate and long-term financial feasibility of the proposal, based upon reasonable projections of the costs of and charges for providing health services by the person proposing the service.”*

Based on the facts described in these written comments specific to Criterion 3 (incorporated herein by reference), these same facts result in the application being non-conforming to Criterion 5.

UNC Health Rex failed to account for adequate costs to renovate the spaces where it proposes to develop incremental acute care bed capacity. See discussion regarding Criterion 12.

Criterion 6 *“The applicant shall demonstrate that the proposed project will not result in unnecessary duplication of existing or approved health service capabilities or facilities.”*

UNC Health Rex did not adequately demonstrate that its proposal would not result in unnecessary duplication of acute care in Wake County. See discussion regarding projected utilization in Criterion 3. Therefore, the application is nonconforming to Review Criterion 6.

Criterion 12 *“Applications involving construction shall demonstrate that the cost, design, and means of construction proposed represent the most reasonable alternative, and that the construction project will not unduly increase the costs of providing health services by the person proposing the construction project or the costs and charges to the public of providing health services by other persons, and that applicable energy saving features have been incorporated into the construction plans.”*

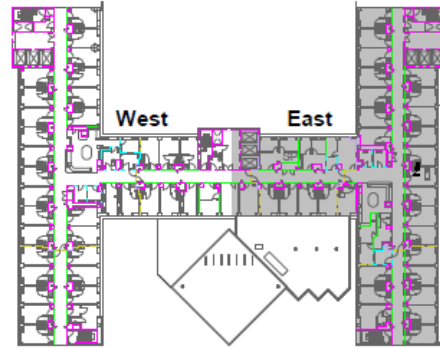
UNC Health REX proposes to renovate space to accommodate the incremental beds. It specifically identifies construction requirements and costs necessary to upgrade individual patient rooms to meet The Facilities Guidelines Institute requirements included in the 2023 edition, stating “renovation will also include all necessary electrical, HVAC, and plumbing work to meet current FGI Hospital Guidelines.” The application identifies existing rooms on 4 West and 6 East to meet those requirements.

Overall 4 West Plan



4th Floor Key Plan

Overall 3 East Plan



3rd Floor Key Plan

However, UNC Health Rex does not identify any renovation to the units themselves. FGI characterizes projects modifying “an entire area,” which would include a patient unit with multiple rooms, as “major renovation projects” that must meet the requirements for new construction to the extent possible. See FGI Section 1.1-3.1.12 (3). To the extent that the proposed renovation of 3 East and 4 West appears to encompass entire units, the entire spaces, not just the patient rooms, would be required to meet FGI 2023 2.1 Common Elements for Hospitals standards including but not limited to:

2.1-2 Patient Care Units and other Patient Care Areas

Tables 2.1-1, 2.1-2, 2.1-3, Appendix Table A2.1-a

2.1-2.8.8.2

- (1) Medication Preparation Room
- (b) (ii) Handwashing station

2.1-2.8.9.2 Nourishment Area of Room Features

- (1) Handwashing station
- (2) Work Counter
- (3) Refrigerator
- (4) Microwave
- (5) Storage Cabinets
- (6) Space for temporary storage of food service implements

2.1-2.8.13.2 Equipment and supply storage room or alcove.

A room or alcove- sized to provide a minimum of 10 sf feet (0.93 square meter) per patient bed- shall be provided on the patient care unit floor for storage of equipment and supplies necessary for patient care.

2.1-2.10.1 Family and Visitor Lounge

Each patient care unit shall provide access to a lounge for family and visitor

2.1-2.10.1.1 Size

(2) In the absence of a functional program, the lounge shall be sized to accommodate at least 1.5 persons for every adult intensive care bed and one person for every four medical/surgical beds in the unit.

2.1-2.10.1.2 This lounge shall be immediately accessible to the patient care unit served.

The FGI guidelines are attached to these comments.

UNC Health Rex did not include the costs of renovating all of these support spaces to meet these requirements. These renovations would also affect the construction timetable. These renovations could also affect the feasibility of accommodating the same number of patient rooms on the unit.

Criterion 13 *“The applicant shall demonstrate the contribution of the proposed service in meeting the health-related needs of the elderly and of members of medically underserved groups, such as medically indigent or low income persons, Medicaid and Medicare recipients, racial and ethnic minorities, women, and ... persons [with disabilities], which have traditionally experienced difficulties in obtaining equal access to the proposed services, particularly those needs identified in the State Health Plan as deserving of priority. For the purpose of determining the extent to which the proposed service will be accessible, the applicant shall show:*

- (a) *The extent to which medically underserved populations currently use the applicant's existing services in comparison to the percentage of the population in the applicant's service area which is medically underserved;*
- (b) *Its past performance in meeting its obligation, if any, under any applicable regulations requiring provision of uncompensated care, community service, or access by minorities and ... persons [with disabilities] to programs receiving federal assistance, including the existence of any civil rights access complaints against the applicant;*
- (c) *That the elderly and the medically underserved groups identified in this subdivision will be served by the applicant's proposed services and the extent to which each of these groups is expected to utilize the proposed services; and*
- (d) *That the applicant offers a range of means by which a person will have access to its services. Examples of a range of means are outpatient services, admission by house staff, and admission by personal physicians.”*

UNC Health Rex projects its Medicaid payor mix will increase from 6.8 percent during SFY 2022 to 8.9 percent during the first three project years. The applicant states the increase reflects the “estimated effect of Medicaid expansion.” On page 106, UNC Health Rex states, “Based on what is known to date, it is expected that the increase in percentage of Medicaid patients will come primarily from those that are currently classified as Self-Pay. UNC Health Rex conservatively projects a 38.0 percent shift from Self-Pay to Medicaid for UNC Health Rex Hospital and the service component.” UNC Health Rex assumes an increase of over 30 percent for projected Medicaid access from SFY 2022 to the first three project years (8.9% vs. 6.8%) and the only supporting information is “based on what is known to date,” without any supporting explanation or documentation. Please refer to the following table,

UNC Health Rex Hospital Main Campus Acute Care Beds			
	SFY 2022	SFY 2028, PY3	% Increase
Discharges	25,307	30,072	19%
Medicaid Payor Mix	6.8%	8.9%	31%
Medicaid Discharges	1,721	2,676	56%

In addition, UNC Health Rex has closed its pediatric unit, which will affect its Medicaid patient population. UNC Health Rex's inflated Medicaid payor mix results in a 56% increase of Medicaid discharges. UNC Health Rex Health also failed to explain what impact the shift of patients from UNC Health Rex Hospital to UNC Health Rex Holly Springs will have on projected payor mix at UNC Health Rex Hospital.

For these reasons, UNC Health Rex failed to adequately demonstrate that its projected payor mix is based on reasonable and adequately supported assumptions. Therefore, the application does not conform to Criterion 13.

Criterion 18a *"The applicant shall demonstrate the expected effects of the proposed services on competition in the proposed service area, including how any enhanced competition will have a positive impact upon the cost effectiveness, quality, and access to the services proposed; and in the case of applications for services where competition between providers will not have a favorable impact on cost-effectiveness, quality, and access to the services proposed, the applicant shall demonstrate that its application is for a service on which competition will not have a favorable impact."*

Based on the facts which result in UNC Health Rex being non-conforming with Criteria 1, 3, 4, 5, and 6, it should also be found non-conforming with Criterion 18a.

UNC Health Rex currently controls 486 of the 1,553 acute care beds in Wake County, or 31.3 percent. DUHS controls only 204 of the acute care beds in Wake County, or 13.1 percent. If UNC Health Rex is approved to develop additional acute care beds in Wake County, UNC Health Rex will continue to control a higher percentage of acute care beds in Wake County than DUHS. Therefore, with regard to patient access to a new or alternate provider, the application submitted by DRAH is the most effective alternative, and the applications submitted by UNC Health Rex is a less effective alternative.

10A NCAC 14C .3800

The UNC Health Rex application does not conform to 10A NCAC 14C .3803 because projected utilization is not based on reasonable and adequately supported assumptions. See discussion regarding projected utilization in Criterion 3.

**COMMENTS SPECIFIC TO WAKEMED CARY HOSPITAL
PROJECT ID NO. J-012418-23**

Criterion 1 *“The proposed project shall be consistent with applicable policies and need determinations in the State Medical Facilities Plan, the need determination of which shall constitute a determinative limitation on the provision of any health services, health service facility, health service beds, dialysis stations, operating rooms, or home health offices that may be approved.”*

POLICY GEN-3: BASIC PRINCIPLES states:

“A certificate of need applicant applying to develop or offer a new institutional health service for which there is a need determination in the North Carolina State Medical Facilities Plan shall demonstrate how the project will promote safety and quality in the delivery of health care services while promoting equitable access and maximizing healthcare value for resources expended. A certificate of need applicant shall document its plans for providing access to services for patients with limited financial resources and demonstrate the availability of capacity to provide these services. A certificate of need applicant shall also document how its projected volumes incorporate these concepts in meeting the need identified in the State Medical Facilities Plan as well as addressing the needs of all residents in the proposed service area.”

The WakeMed Cary Hospital application fails to conform with Criterion 1 and Policy GEN-3 because the application is not conforming to all other applicable statutory and regulatory review criteria and thus, is not approvable. The applicant does not adequately demonstrate that the proposal is its least costly or most effective alternative to meet the need. See discussion regarding criteria 3, 4, 5, 6, and 18a. Therefore, the application does not conform to this criterion and cannot be approved.

Criterion 3 *“The applicant shall identify the population to be served by the proposed project and shall demonstrate the need that this population has for the services proposed, and the extent to which all residents of the area, and, in particular, low-income persons, racial and ethnic minorities, women, handicapped persons, the elderly, and other underserved groups are likely to have access to the services proposed.”*

WakeMed Cary Hospital’s assumptions and methodology for projecting utilization at WakeMed Raleigh Campus and WakeMed Cary Hospital failed to account for the forecasted discharges that will shift to WakeMed Garner Hospital. In Project ID J-012264-22, WakeMed projected the following number of discharges will shift from existing WakeMed facilities to the approved WakeMed Garner Hospital.

Table Q-1e
Projected Percentage of Inpatients Shifted to WakeMed Garner Hospital from Existing WakeMed Hospitals

	Projected Admissions w/o Garner			Percent Shift Assumptions			Patient Shift		
WakeMed Raleigh Campus									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)	1,200	1,228	1,257	45.0%	50.0%	55.0%	(540)	(614)	(691)
27603 (Raleigh, NC)	853	873	893	45.0%	50.0%	55.0%	(384)	(436)	(491)
27520 (Clayton, NC)	556	571	586	45.0%	50.0%	55.0%	(250)	(285)	(322)
27592 (Willow Spring, NC)	226	232	238	45.0%	50.0%	55.0%	(102)	(116)	(131)
Primary Service Area Subtotal	2,835	2,903	2,973	45.0%	50.0%	55.0%	(1,276)	(1,452)	(1,635)
27606 (Raleigh, NC)	299	306	314	15.0%	20.0%	25.0%	(45)	(61)	(78)
27610 (Raleigh, NC)	2,347	2,393	2,440	5.0%	7.5%	10.0%	(117)	(179)	(244)
Secondary Service Area	2,645	2,699	2,753	6.1%	8.9%	11.7%	(162)	(241)	(322)
Total Service Area	5,480	5,602	5,727	26.2%	30.2%	34.2%	(1,438)	(1,692)	(1,958)
WakeMed North Hospital									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)	17	18	18	35.0%	40.0%	45.0%	(6)	(7)	(8)
27603 (Raleigh, NC)	10	10	10	35.0%	40.0%	45.0%	(3)	(4)	(5)
27520 (Clayton, NC)	16	16	17	35.0%	40.0%	45.0%	(5)	(6)	(7)
27592 (Willow Spring, NC)	-	-	-	35.0%	40.0%	45.0%	-	-	-
Primary Service Area Subtotal	43	44	45	35.0%	40.0%	45.0%	(15)	(17)	(20)
27606 (Raleigh, NC)	12	12	12	15.0%	20.0%	25.0%	(2)	(2)	(3)
27610 (Raleigh, NC)	42	42	43	15.0%	20.0%	25.0%	(6)	(8)	(11)
Secondary Service Area	53	54	55	15.0%	20.0%	25.0%	(8)	(11)	(14)
Total Service Area	96	98	100	23.9%	28.9%	33.9%	(23)	(28)	(34)
WakeMed Cary Hospital									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)	273	280	286	45.0%	50.0%	55.0%	(123)	(140)	(157)
27603 (Raleigh, NC)	390	399	408	10.0%	15.0%	17.5%	(39)	(60)	(71)
27520 (Clayton, NC)	86	88	91	45.0%	50.0%	55.0%	(39)	(44)	(50)
27592 (Willow Spring, NC)	162	166	170	45.0%	50.0%	55.0%	(73)	(83)	(93)
Primary Service Area Subtotal	911	933	955	30.0%	35.0%	39.0%	(273)	(327)	(372)
27606 (Raleigh, NC)	403	413	423	5.0%	7.5%	10.0%	(20)	(31)	(42)
27610 (Raleigh, NC)	157	160	163	15.0%	20.0%	25.0%	(24)	(32)	(41)
Secondary Service Area	560	573	587	7.8%	11.0%	14.2%	(44)	(63)	(83)
Total Service Area	1,471	1,506	1,542	21.6%	25.9%	29.5%	(317)	(390)	(455)
WakeMed Garner									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)							669	761	857
27603 (Raleigh, NC)							426	500	567
27520 (Clayton, NC)							294	336	380
27592 (Willow Spring, NC)							174	199	224
Primary Service Area Subtotal							1,564	1,796	2,028
27606 (Raleigh, NC)							67	95	124
27610 (Raleigh, NC)							147	220	296
Secondary Service Area							214	314	419
Total Service Area							1,778	2,110	2,447

Source: J-012264-22, page 188

As reflected in the previous table from the WakeMed Garner application (J-012264-22), WakeMed projects that discharges will collectively shift from WakeMed Raleigh Campus, WakeMed North Hospital, and WakeMed Cary Hospital to the approved WakeMed Garner Hospital. However, WakeMed's assumptions and methodology in the WakeMed Cary Hospital application (J-012418-23) only account for the discharges projected to shift from WakeMed Cary Hospital to WakeMed Garner. The application does not account for or include discussion of the forecasted shift of patients from WakeMed Raleigh Campus or WakeMed North Hospital to WakeMed Garner Hospital. This oversight is significant because WakeMed states on application page 166, "WakeMed Garner occupancy percentage for FY 2027 through FY 2029 data are sourced from the WakeMed Garner CON Application." Because WakeMed is adopting the projections in the approved WakeMed Garner Hospital application, it is accountable for the assumptions and methodology that contribute to the projected utilization of WakeMed Garner Hospital, i.e., the shift of discharges from WakeMed Raleigh Campus and WakeMed North Hospital. As shown in the previous

table, 1,958 discharges are projected to shift from WakeMed Raleigh Campus and 34 discharges are projected to shift from WakeMed North Hospital during FY2029.² As a result of the oversight of this critical component of the WakeMed Garner Hospital projections, the projections for WakeMed Raleigh Campus and WakeMed North Hospital are overstated and unreliable.

DUHS notes the concurrent application filed by WakeMed in this review to develop additional acute care beds at WakeMed North Hospital (Project ID J-012419-23) includes assumptions regarding the shift of patients from WakeMed North Hospital to WakeMed Garner. See J-012419-23 application page 181. However, the Agency must rely on the assumptions, methodology, and representations contained in the WakeMed Cary Hospital application to determine whether that application meets all statutory and regulatory criteria, including whether all WakeMed hospitals in the service area will be appropriately utilized. Furthermore, the WakeMed North Hospital application includes only a portion of the forecasted shift of patients from WakeMed Raleigh Campus to WakeMed North Hospital. See comments regarding J-012419-23.

For these reasons, the WakeMed Cary Hospital application does not conform to Criterion 3.

Criterion 4 *“Where alternative methods of meeting the needs for the proposed project exist, the applicant shall demonstrate that the least costly or most effective alternative has been proposed.”*

The WakeMed Cary Hospital application is not conforming to all other applicable statutory and regulatory review criteria and thus, is not approvable. An application that cannot be approved cannot be an effective alternative.

The applicant does not adequately demonstrate that the proposal is its least costly or most effective alternative to meet the need. Therefore, the application does not conform to this criterion and cannot be approved. See discussion regarding criteria 1, 3, 5, 6, and 18a.

Criterion 5 *“Financial and operational projections for the project shall demonstrate the availability of funds for capital and operating needs as well as the immediate and long-term financial feasibility of the proposal, based upon reasonable projections of the costs of and charges for providing health services by the person proposing the service.”*

Based on the facts described in these written comments specific to Criterion 3 (incorporated herein by reference), these same facts result in the WakeMed Cary Hospital application being non-conforming to Criterion 5.

Criterion 6 *“The applicant shall demonstrate that the proposed project will not result in unnecessary duplication of existing or approved health service capabilities or facilities.”*

² Application page 166 of J-012418-23 states, “For FY 2030, WakeMed Garner discharges increase at the Wake County unweighted population CAGR of 1.39 percent.”

WakeMed Cary Hospital did not adequately demonstrate that its proposal would not result in unnecessary duplication of acute care bed capacity in Wake County. See discussion regarding projected utilization in Criterion 3. Therefore, the application is nonconforming to Review Criterion 6.

Criterion 18a *“The applicant shall demonstrate the expected effects of the proposed services on competition in the proposed service area, including how any enhanced competition will have a positive impact upon the cost effectiveness, quality, and access to the services proposed; and in the case of applications for services where competition between providers will not have a favorable impact on cost-effectiveness, quality, and access to the services proposed, the applicant shall demonstrate that its application is for a service on which competition will not have a favorable impact.”*

Based on the facts which result in WakeMed Cary Hospital being non-conforming with Criteria 1, 3, 4, 5, and 6, it should also be found non-conforming with Criterion 18a.

The WakeMed health system currently controls 688 of the 1,553 acute care beds in Wake County, or 44.3 percent. DUHS controls only 204 of the acute care beds in Wake County, or 13.1 percent. If WakeMed Cary Hospital is approved to develop additional acute care beds in Wake County, the WakeMed health system will continue to control the highest percentage of acute care beds in Wake County. Therefore, with regard to patient access to a new or alternate provider, the application submitted by DRAH is the most effective alternative, and the applications submitted by WakeMed Cary Hospital is a less effective alternative.

10A NCAC 14C .3800

The WakeMed Cary Hospital application does not conform to 10A NCAC 14C .3803 because projected utilization is not based on reasonable and adequately supported assumptions. WakeMed Cary Hospital’s assumptions and methodology for projecting utilization at WakeMed Raleigh Campus and WakeMed North Hospital failed to adequately account for the forecasted discharges that will shift to WakeMed Garner Hospital. See discussion regarding projected utilization in Criterion 3.

**COMMENTS SPECIFIC TO WAKEMED NORTH HOSPITAL
PROJECT ID NO. J-012419-23**

Criterion 1 *“The proposed project shall be consistent with applicable policies and need determinations in the State Medical Facilities Plan, the need determination of which shall constitute a determinative limitation on the provision of any health services, health service facility, health service beds, dialysis stations, operating rooms, or home health offices that may be approved.”*

POLICY GEN-3: BASIC PRINCIPLES states:

“A certificate of need applicant applying to develop or offer a new institutional health service for which there is a need determination in the North Carolina State Medical Facilities Plan shall demonstrate how the project will promote safety and quality in the delivery of health care services while promoting equitable access and maximizing healthcare value for resources expended. A certificate of need applicant shall document its plans for providing access to services for patients with limited financial resources and demonstrate the availability of capacity to provide these services. A certificate of need applicant shall also document how its projected volumes incorporate these concepts in meeting the need identified in the State Medical Facilities Plan as well as addressing the needs of all residents in the proposed service area.”

WakeMed fails to conform with Criterion 1 and Policy GEN-3 because the application is not conforming to all other applicable statutory and regulatory review criteria and thus, is not approvable. The applicant does not adequately demonstrate that the proposal is its least costly or most effective alternative to meet the need. See discussion regarding criteria 3, 4, 5, 6, and 18a. Therefore, the application does not conform to this criterion and cannot be approved.

Criterion 3 *“The applicant shall identify the population to be served by the proposed project and shall demonstrate the need that this population has for the services proposed, and the extent to which all residents of the area, and, in particular, low-income persons, racial and ethnic minorities, women, handicapped persons, the elderly, and other underserved groups are likely to have access to the services proposed.”*

WakeMed North Hospital’s assumptions and methodology for projecting utilization at WakeMed Hospital and WakeMed Cary Hospital failed to adequately account for the forecasted discharges that will shift to WakeMed Garner Hospital. In Project ID J-012264-22, WakeMed projected the following number of discharges will shift from existing WakeMed facilities to the approved WakeMed Garner Hospital.

Table Q-1e
Projected Percentage of Inpatients Shifted to WakeMed Garner Hospital from Existing WakeMed Hospitals

	Projected Admissions w/o Garner			Percent Shift Assumptions			Patient Shift		
WakeMed Raleigh Campus									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)	1,200	1,228	1,257	45.0%	50.0%	55.0%	(540)	(614)	(691)
27603 (Raleigh, NC)	853	873	893	45.0%	50.0%	55.0%	(384)	(436)	(491)
27520 (Clayton, NC)	556	571	586	45.0%	50.0%	55.0%	(250)	(285)	(322)
27592 (Willow Spring, NC)	226	232	238	45.0%	50.0%	55.0%	(102)	(116)	(131)
Primary Service Area Subtotal	2,835	2,903	2,973	45.0%	50.0%	55.0%	(1,276)	(1,452)	(1,635)
27606 (Raleigh, NC)	299	306	314	15.0%	20.0%	25.0%	(45)	(61)	(78)
27610 (Raleigh, NC)	2,347	2,393	2,440	5.0%	7.5%	10.0%	(117)	(179)	(244)
Secondary Service Area	2,645	2,699	2,753	6.1%	8.9%	11.7%	(162)	(241)	(322)
Total Service Area	5,480	5,602	5,727	26.2%	30.2%	34.2%	(1,438)	(1,692)	(1,958)
WakeMed North Hospital									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)	17	18	18	35.0%	40.0%	45.0%	(6)	(7)	(8)
27603 (Raleigh, NC)	10	10	10	35.0%	40.0%	45.0%	(3)	(4)	(5)
27520 (Clayton, NC)	16	16	17	35.0%	40.0%	45.0%	(5)	(6)	(7)
27592 (Willow Spring, NC)	-	-	-	35.0%	40.0%	45.0%	-	-	-
Primary Service Area Subtotal	43	44	45	35.0%	40.0%	45.0%	(15)	(17)	(20)
27606 (Raleigh, NC)	12	12	12	15.0%	20.0%	25.0%	(2)	(2)	(3)
27610 (Raleigh, NC)	42	42	43	15.0%	20.0%	25.0%	(6)	(8)	(11)
Secondary Service Area	53	54	55	15.0%	20.0%	25.0%	(8)	(11)	(14)
Total Service Area	96	98	100	23.9%	28.9%	33.9%	(23)	(28)	(34)
WakeMed Cary Hospital									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)	273	280	286	45.0%	50.0%	55.0%	(123)	(140)	(157)
27603 (Raleigh, NC)	390	399	408	10.0%	15.0%	17.5%	(39)	(60)	(71)
27520 (Clayton, NC)	86	88	91	45.0%	50.0%	55.0%	(39)	(44)	(50)
27592 (Willow Spring, NC)	162	166	170	45.0%	50.0%	55.0%	(73)	(83)	(93)
Primary Service Area Subtotal	911	933	955	30.0%	35.0%	39.0%	(273)	(327)	(372)
27606 (Raleigh, NC)	403	413	423	5.0%	7.5%	10.0%	(20)	(31)	(42)
27610 (Raleigh, NC)	157	160	163	15.0%	20.0%	25.0%	(24)	(32)	(41)
Secondary Service Area	560	573	587	7.8%	11.0%	14.2%	(44)	(63)	(83)
Total Service Area	1,471	1,506	1,542	21.6%	25.9%	29.5%	(317)	(390)	(455)
WakeMed Garner									
Zip Code - (City, State)	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029	FY2027	FY2028	FY2029
27529 (Garner, NC)							669	761	857
27603 (Raleigh, NC)							426	500	567
27520 (Clayton, NC)							294	336	380
27592 (Willow Spring, NC)							174	199	224
Primary Service Area Subtotal							1,564	1,796	2,028
27606 (Raleigh, NC)							67	95	124
27610 (Raleigh, NC)							147	220	296
Secondary Service Area							214	314	419
Total Service Area							1,778	2,110	2,447

Source: J-012264-22, page 188

As reflected in the previous table from the WakeMed Garner application (J-012264-22), WakeMed projects that discharges will collectively shift from WakeMed Raleigh Campus, WakeMed North Hospital, and WakeMed Cary Hospital to the approved WakeMed Garner Hospital. However, WakeMed's assumptions and methodology in the WakeMed Cary Hospital application (J-012418-23) only account for the discharges projected to shift from zip code 27610 to WakeMed Garner.

Table 9: WakeMed Patients from zip code 27610 Shifted to WakeMed Garner

Note	Hospital	WakeMed Garner PY1	WakeMed Garner PY2	WakeMed Garner PY3	
			WakeMed North PY1	WakeMed North PY2	WakeMed North PY3
		FY27	FY28	FY29	FY30
<i>WakeMed North</i>					
a	Projected Patients from 27610	113	114	116	118
b	Percent Shifted to Garner per CON Application	5%	7%	9%	9%
c	Patients Shifted to Garner	6	8	11	11
d	Remaining Patients	107	106	105	107
<i>WakeMed Cary</i>					
a	Projected Patients from 27610	210	213	216	219
b	Percent Shifted to Garner per CON Application	11%	15%	19%	19%
c	Patients Shifted to Garner	24	32	41	41
d	Remaining Patients	186	181	175	178
<i>WakeMed Raleigh Campus</i>					
a	Projected Patients from 27610	3,586	3,637	3,690	3,743
b	Percent Shifted to Garner per CON Application	3%	5%	7%	7%
c	Patients Shifted to Garner	117	179	244	244
d	Remaining Patients	3,469	3,458	3,446	3,499

Notes:

- a. Projected patients (Step 7, Table 8, WakeMed North)
- b. c / a; hold FY 2030 constant at FY 2029.
- c. WakeMed Garner CON Application J-12264-22. FY 2030 equals a * b
- d. a - c

Source: J-012419-23, page 177

Step 11 accounts for the forecast of other WakeMed North discharges shifted to WakeMed Garner per the WakeMed Garner application. However, the methodology failed to account for the forecast of other WakeMed Raleigh Campus discharges shifted to WakeMed Garner per the WakeMed Garner application.

This oversight is significant because WakeMed states on application page 166, “WakeMed Garner occupancy percentage for FY 2027 through FY 2029 data are sourced from the WakeMed Garner CON Application.” Because WakeMed is adopting the projections in the approved WakeMed Garner Hospital application, it is accountable for the assumptions and methodology that contribute to the projected utilization of WakeMed Garner Hospital, i.e., the shift of discharges from WakeMed Raleigh Campus and WakeMed North Hospital. As shown in the WakeMed Garner application, 1,958 discharges are projected

to shift from WakeMed Raleigh Campus during FY2029.³ Due to the oversight of this critical component of the WakeMed Garner Hospital projections, the projections for WakeMed Raleigh Campus are overstated and unreliable.

For these reasons, the WakeMed North Hospital application does not conform to Criterion 3.

Criterion 4 *“Where alternative methods of meeting the needs for the proposed project exist, the applicant shall demonstrate that the least costly or most effective alternative has been proposed.”*

The WakeMed North Hospital application is not conforming to all other applicable statutory and regulatory review criteria and thus, is not approvable. An application that cannot be approved cannot be an effective alternative.

The applicant does not adequately demonstrate that the proposal is its least costly or most effective alternative to meet the need. Therefore, the application does not conform to this criterion and cannot be approved. See discussion regarding criteria 1, 3, 5, 6, and 18a.

Criterion 5 *“Financial and operational projections for the project shall demonstrate the availability of funds for capital and operating needs as well as the immediate and long-term financial feasibility of the proposal, based upon reasonable projections of the costs of and charges for providing health services by the person proposing the service.”*

Based on the facts described in these written comments specific to Criterion 3 (incorporated herein by reference), these same facts result in the WakeMed North Hospital application being non-conforming to Criterion 5.

Criterion 6 *“The applicant shall demonstrate that the proposed project will not result in unnecessary duplication of existing or approved health service capabilities or facilities.”*

WakeMed did not adequately demonstrate that its proposal would not result in unnecessary duplication of surgical services in Wake County. See discussion regarding projected utilization in Criterion 3. Therefore, the application is nonconforming to Review Criterion 6.

Criterion 18a *“The applicant shall demonstrate the expected effects of the proposed services on competition in the proposed service area, including how any enhanced competition will have a positive impact upon the cost effectiveness, quality, and access to the services proposed; and in the case of applications for services where competition between providers will not have a favorable impact on cost-effectiveness, quality, and access to the services proposed, the applicant shall demonstrate that its application is for a service on which competition will not have a favorable impact.”*

³ Application page 166 of J-012418-23 states, “For FY 2030, WakeMed Garner discharges increase at the Wake County unweighted population CAGR of 1.39 percent.”

Based on the facts which result in the application being non-conforming with Criteria 1, 3, 4, 5, and 6, it should also be found non-conforming with Criterion 18a.

The WakeMed health system currently controls 688 of the 1,553 acute care beds in Wake County, or 44.3 percent. DUHS controls only 204 of the acute care beds in Wake County, or 13.1 percent. If WakeMed Cary Hospital is approved to develop additional acute care beds in Wake County, the WakeMed health system will continue to control the highest percentage of acute care beds in Wake County. Therefore, with regard to patient access to a new or alternate provider, the application submitted by DRAH is the most effective alternative, and the applications submitted by WakeMed Cary Hospital is a less effective alternative.

10A NCAC 14C .3800

The WakeMed North Hospital application does not conform to 10A NCAC 14C .3803 because projected utilization is not based on reasonable and adequately supported assumptions. WakeMed North Hospital's assumptions and methodology for projecting utilization at WakeMed Hospital and WakeMed Cary Hospital failed to adequately account for the forecasted discharges that will shift to WakeMed Garner Hospital. See discussion regarding projected utilization in Criterion 3.

Guidelines

FOR DESIGN AND CONSTRUCTION OF

Hospitals

The Facility Guidelines Institute

2022 edition



Includes ANSI/ASHRAE/ASHE
Standard 170-2021:
*Ventilation of
Health Care Facilities*



FGI

1.1 INTRODUCTION

■ 1.1-3 Renovation

1.1-3.1 General

1.1-3.1.1 Compliance Requirements

1.1-3.1.1.1 Where renovation or replacement work is done in an existing facility, all new work or additions or both shall comply with applicable sections of the *Guidelines* and local, state, and federal codes.

1.1-3.1.1.2 Major renovation projects. Projects with any of the following scopes of work shall be considered a major renovation and shall comply with the requirements for new construction in the *Guidelines for Design and Construction of Hospitals* to the extent possible as determined by the authority having jurisdiction:

- (1) A series of planned changes and updates to the physical plant of an existing facility
- (2) A renovation project that includes modification of an entire building or an entire area in a building to accommodate a new use or occupancy
- (3) Change in function in an area of an existing building for which the *Guidelines* for clinical spaces, clinical support areas, or infrastructure are

different from those for the originally approved function.

1.1-3.1.1.3 Occupancy conversion If a building is converted from one occupancy to another, it shall comply with the new construction requirements.

1.1-3.1.1.4 Building system projects

- (1) Only the altered, renovated, or modernized portion of an existing building system or individual component shall be required to meet the installation and equipment requirements in the *Guidelines*.
- (2) When such construction impairs the performance of the balance of an affected building system, upgrades to that system shall be required beyond the limits of the project to the extent required to maintain existing operational performance.

*1.1-3.1.2 Exceptions

1.1-3.1.2.1 Where major structural elements make total compliance impractical or impossible, exceptions shall be considered.

*1.1-3.1.2.2 Minor renovation or replacement

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A1.1-3.1.2 Nonconforming conditions. When renovating or expanding existing facilities, it is not always practical or financially feasible to renovate or upgrade an entire existing facility to totally conform with requirements in the *Guidelines*. Therefore, authorities having jurisdiction are permitted to grant approval to renovate portions of a structure, space, or system if facility operations and patient safety in renovated and existing areas are not jeopardized by existing features of areas retained without complete corrective measures.

This recommendation does not guarantee an AHJ will grant an exception; it attempts to minimize restrictions on those improvements where total compliance would create an unreasonable hardship and would not substantially improve safety.

A1.1-3.1.2.2 Exceptions for minor renovation or replacement work. The project types described below are examples of minor renovation or replacement work that are not likely to reduce the level of health and safety in an existing building.

- a. Routine repairs and maintenance to buildings, systems, or equipment. This project type does not require improvements to building features or systems.

- b. Replacement of building furnishings and movable or fixed equipment. This project type only requires improvements to building systems that serve the equipment being replaced and only to the extent necessary to provide sufficient capacity for the replacement.
- c. Minor changes to the configuration of an existing space do not require upgrade of the entire space.
- d. Cosmetic changes or upgrades to an existing space do not require upgrade of the entire space.
- e. Improvements to a building system or a space that cannot reasonably meet the requirements of this document should be permitted, provided the improvement does not impair other systems or functions of the building.
- f. Existing systems that are not in strict compliance with the provisions of this document should be permitted to continue in use, unless the AHJ has determined that such use constitutes a distinct hazard to life.
- g. Replacement of mechanical, electrical, plumbing, and fire protection equipment and infrastructure for maintenance purposes due to the failure or degraded performance of the components being replaced should be permitted, provided the health and safety in the facility is maintained at existing levels.

2.1 COMMON ELEMENTS FOR HOSPITALS

2.1-1.3.2 Parking

Parking provided shall comply with the general requirements in Section 1.3-3.4 (Site Features—Parking) and the specific requirements in each chapter.

■ 2.1-2 Patient Care Units and Other Patient Care Areas

2.1-2.1 General

*2.1-2.1.1 Application

The patient care unit and other patient care area requirements included in this section are common to most hospitals. For requirements specific to a hospital type, see the applicable hospital facility chapter.

*2.1-2.1.2 Patient Privacy

Provisions shall be made to address patient visual and speech privacy.

*2.1-2.2 Patient Room

2.1-2.2.1 General

2.1-2.2.1.1 Capacity. See facility chapters for specific requirements.

2.1-2.2.1.2 Fall-safe provisions. Where indicated by the safety risk assessment (SRA), fall-safe provisions such as handrails and grab bars shall be included in the patient room, patient toilet room, and patient care unit corridors. See sections 2.1-7.2.2.9 (Grab bars) and 2.1-7.2.2.10 (Handrails) for information.

*2.1-2.2.2 Space Requirements

d. *Trip hazards.* Chair legs should not extend laterally or forward beyond the chair seat.

A2.1-2.2.2 Space considerations for patient mobility. Patient rooms should be sized, arranged, and furnished to maximize safe patient mobility, mobilization, weight-bearing exercise, and ambulation potential while minimizing risk to caregivers. This should apply for patients of all sizes and conditions described in the functional program.

Clearances should be provided and maintained to accommodate safe patient mobility and mobilization of patients. Designated clearances should not be obstructed by any object that does not qualify as movable according to appendix section A1.4-2 (Equipment types). Particular attention should be given to the following:

- a. *Furniture and equipment size.* Furnishings and equipment (e.g., beds, exam tables, exam chairs, gurneys) affect clearance requirements. As furnishings and equipment vary based on clinical needs, patient size, manufacturer, and model, it is important that furnishings and equipment be selected for planning purposes by the operator of the facility.
- b. *Sizing of patient rooms to accommodate clearances for patient chairs, etc.* The size of patient rooms should allow unimpeded clearance on at least one side and at the front of any patient chair, recliner, wheelchair, or other such device. The clearances may share bed clearance space.

For additional information on sizing patient rooms and selecting equipment for individuals of size, refer to the second edition of the "Patient Handling and Mobility Assessments" white paper posted on the Facility Guidelines Institute website.

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A2.1-2.1.1 Accommodations to encourage patient mobility. Patient care units should be designed to enhance opportunities for patient ambulation, including provision of ceiling track systems that support a harnessed patient walking with assistance (e.g., in patient unit corridors, a physical therapy clinic, and other patient rehabilitation service locations). See Section 1.2-4.7 (Patient Immobility Assessment) for more information about patient immobility prevention as a component of the safety risk assessment.

A2.1-2.1.2 Patient privacy

- a. *Visual privacy.* Visual privacy can be achieved using various means, including cubicle curtains, blinds, and electronically controlled vision panels. In single-patient rooms, the entry room door can be used to achieve visual privacy provided the door is solid or has non-transparent glass. Where doors with vision panels or transparent glass are used, provisions for visual privacy should be made.
- b. *Speech privacy.* Speech privacy should be addressed. Use of full-height partitions and/or sound-masking can enhance speech privacy.

A2.1-2.2 Equipment and architectural details for the patient room

- a. *Standing assists.* Aids to help patients stand from seated positions (e.g., bedrails, grab bars, and extended chair armrests) should be available.
- b. *Orientation of TV.* Space should allow for at least one television screen to be viewed from the patient chair, recliner, wheelchair, or other such device.
- c. *Access to controls and communications.* Patient control of the environment should be accessible to the patient in a bed, patient chair, recliner, wheelchair, or other such device.

2.1-2.2.2.1 Area. Minor encroachments (including columns and corridor door swing) that do not interfere with functions as determined by the AHJ shall be permitted to be included when determining minimum clear floor area requirements for a patient room.

2.1-2.2.2.2 For other space requirements, see facility chapters.

2.1-2.2.3 Windows

See Section 2.1-7.2.2.5 (Windows in patient rooms) for requirements. For behavioral and mental health hospital and patient care unit requirements, see Section 2.5-7.2.2.5 (Windows) in Chapter 2.5, Specific Requirements for Behavioral and Mental Health Hospitals.

2.1-2.2.4 Patient Privacy

For requirements, see Section 2.1-2.1.2 (Patient Privacy).

2.1-2.2.5 Handwashing Station in the Patient Room

2.1-2.2.5.1 Location. A handwashing station shall be provided in the patient room in addition to that in the toilet room.

- (1) This handwashing station shall be located at or adjacent to the entrance to the patient room with unobstructed access for use by health care personnel and others entering and leaving the room.
- (2) When multiple-patient rooms are permitted, this station shall be located outside the patients' cubicle curtains.

2.1-2.2.5.2 Design requirements. See Section 2.1-2.8.7.2 (Handwashing Station—Design requirements).

2.1-2.2.5.3 Renovation. In renovations of existing facilities, a handwashing station shall be provided in the patient room unless it is technically infeasible, or space does not permit the installation. In this situation, a handwashing station shall be provided in the toilet room and a hand sanitation dispenser shall be provided in the patient room.

2.1-2.2.6 Patient Toilet Room

***2.1-2.2.6.1 General.** Where required by other sections of the *Guidelines*, each patient shall have access to a toilet room without having to enter a corridor.

2.1-2.2.6.2 In patient care units, the patient toilet room shall serve no more than one patient room.

2.1-2.2.6.3 Room features. The patient toilet room shall be equipped with the following:

- (1) A toilet
- (2) A handwashing station. See Section 2.1-2.8.7 (Support Areas for Patient Care Units and Other Patient Care Areas—Handwashing Station) for requirements.
- (3) A human-waste disposal system. See Section 2.1-8.4.3.7 (Plumbing Systems—Human waste disposal systems) for requirements.

2.1-2.2.7 Patient Bathing Facilities

2.1-2.2.7.1 Bathing facilities shall be provided in the following locations:

- (1) The toilet room directly accessible from each patient room or
- (2) A central bathing facility

2.1-2.2.7.2 Where a central bathing facility is provided, it shall meet the following requirements:

- (1) General. Each bathtub or shower shall be in an individual room or enclosure that provides privacy for bathing, drying, and dressing.
- (2) Number. Where individual bathing facilities are not provided in toilet rooms that are directly accessible from patient rooms, at least one shower or bathtub shall be provided for each patient care unit.
- (3) The following shall be provided in or directly accessible to each central bathing facility.
 - (a) Toilet. The toilet shall be enclosed if the room is designed for more than one patient at a time.
 - (b) Handwashing sink
 - (c) Storage for soap and towels

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A2.1-2.2.6.1 Visual cueing should be provided for toilet/bathing facilities in patient rooms. Cueing tools such as lighting and line of sight may aid orientation for those with cognitive impairment.

2.1 COMMON ELEMENTS FOR HOSPITALS

2.1-2.2.7.3 Where mobile lifts, shower gurney devices, wheelchairs, and other portable wheeled equipment will be used, the following requirements shall be met:

- (1) Doorways shall be designed to allow entry of portable/mobile mechanical lifts and shower gurney devices.
- (2) Thresholds shall be designed to facilitate use and prevent tipping of wheelchairs and other portable wheeled equipment.
- (3) Patient shower rooms shall be designed to allow entry of portable/mobile mechanical lifts and shower gurney devices.
- (4) Floor drain grates shall be designed to facilitate use and prevent tipping of wheelchairs and other portable wheeled equipment.

2.1-2.2.8 Patient Storage

Each patient room shall have a separate wardrobe, locker, or closet suitable for garments and for storing personal effects.

2.1-2.2.9 Building System Components

2.1-2.2.9.1 **Electrical receptacles.** See Table 2.1-1 (Electrical Receptacles for Patient Care Areas in Hospitals) for requirements.

2.1-2.2.9.2 **Call systems.** See Table 2.1-2 (Locations for Nurse Call Devices in Hospitals) for requirements.

2.1-2.2.9.3 **Medical gas and vacuum systems.** See Table 2.1-3 (Oxygen, Vacuum, Medical Air, WAGD, and Instrument Air Systems) for requirements.

2.1-2.3 Accommodations for Care of Individuals of Size

2.1-2.3.1 General

During hospital project planning, health care organizations shall determine their need to provide spaces designed to enable safe care of individuals of

size as required in Section 1.2-6.4.1 (Projected Need for Accommodations for Care of Individuals of Size).

2.1-2.3.1.1 Application

- (1) All patient care areas designated for care of individuals of size shall meet the requirements in this section.
- (2) A patient handling and mobility assessment (Section 1.2-4.3) shall determine the need for expanded-capacity lifts and architectural details that support mobility of individuals of size in spaces where these patients may receive care. See sections 1.2-6.4.1.3 (Projected number of expanded-capacity lifts required) and 1.2-6.4.2 (Design Response for Accommodations for Individuals of Size).

2.1-2.3.1.2 **Location.** Spaces designated for care of or use by individuals of size shall be provided where they are needed to accommodate the population expected to be served by the facility.

*2.1-2.3.1.3 Patient lift system

- (1) Accommodations for patient handling and mobilization shall be provided by either an overhead lift system or a floor-based full-body sling lift and standing-assist lifts.
- (2) Lifts chosen shall be capable of accommodating the threshold weight capacity of individuals of size identified in the planning phase. See sections 1.2-4.3 (Patient Handling and Mobility Assessment) and 1.2-6.4.1.1 (Projected weight capacities for individuals of size in the population to be served).

2.1-2.3.2 Patient Room for Individuals of Size

The following shall apply to patient rooms designated for individuals of size.

2.1-2.3.2.1 General

- (1) Capacity. All rooms designated for individuals of size shall be single-patient rooms.

providers less than floor-based models. As well, staff prefer and are more compliant in using overhead lifts, reducing the risk of musculoskeletal injury to staff and improving the quality of patient care.

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A2.1-2.3.1.3 Patient lift system. Overhead lift systems have some advantages over floor-based lifts. In addition to needing smaller room dimensions than floor-based lifts, overhead systems biomechanically impact the musculoskeletal system of health care

2.1 COMMON ELEMENTS FOR HOSPITALS

***(d) Lighting.** Task-specific lighting levels for health care settings recommended in the *U.S. Pharmacopeia-National Formulary* shall be used to design lighting.

***(e) Sharps containers** shall be placed at a height that allows users to see the top of the container.

(f) Noise and sound. Medication safety zones shall meet the acoustic design criteria found in Section 1.2-6.1 (Acoustic Design).

*2.1-2.8.8.2 Work areas for preparing, dispensing, and administering medications

(1) Medication preparation room

(a) This room shall be under visual control of the nursing staff.

(b) This room shall contain the following:

(i) Work counter

(ii) Handwashing station

(iii) Lockable refrigerator

(iv) Lockable storage for controlled drugs

(v) Sharps containers, where sharps are used

(c) Where a medication preparation room is used to store one or more self-contained medication-dispensing units, the room shall be designed with space to prepare medication when the self-contained medication dispensing units are present.

(d) Where a medication preparation room is used to compound sterile preparations, it shall meet

the requirements in USP-NF General Chapter <797> "Pharmaceutical Compounding—Sterile Preparations."

(2) Medication-dispensing units, stations, and carts

(a) Use of self-contained medication-dispensing units (e.g., robotic devices used in pharmacies), automated medication-dispensing stations, mobile medication-dispensing carts, or other systems approved by the AHJ shall be permitted at the following locations provided the unit, station, or cart can be locked to secure controlled drugs:

(i) At a nurse station

(ii) In a clean workroom

(iii) In an alcove

(iv) In a patient room

(b) Where mobile medication-dispensing carts are used, space shall be provided to accommodate the cart.

(c) A handwashing station or hand sanitation dispenser shall be located next to stationary medication-dispensing units or stations.

2.1-2.8.9 Nourishment Area or Room

Each patient care unit shall have facilities for patient nourishment. Other patient care areas shall have facilities for patient nourishment as required in the facility chapters.

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A2.1-2.8.8.1 (2)(d) Detailed lighting recommendations for medication safety zone work areas can be found in USP-NF General Chapter <1066> "Physical Environments that Promote Safe Medication Use." Areas where task-specific lighting levels should be provided include:

- Designated computer entry and handwritten order-processing locations
- Pharmacy medication filling and checking
- Pharmacy patient counseling
- Sterile compounding and preparation
- Storeroom for pharmacy medication
- Medication preparation areas
- Medication administration work areas, including the patient room

A2.1-2.8.8.1 (2)(e) Height of sharps containers. The National Institute for Occupational Safety and Health (NIOSH) provides an ergonomically ideal formula for determining the height of sharps

containers by establishing the eye-level height and maximum thumb tip reach of the worker population and then adding a drop angle of 15 degrees. For a standing workstation, the sharps container height should be 52 to 56 inches (1.32 to 1.42 meters) above the standing surface of the user. For a seated workstation, the sharps container height should be 38 to 42 inches (.97 to 1.07 meters) above the floor on which the chair rests. These height installation recommendations will comfortably accommodate 95 percent of adult female workers. This information can be found in U.S. Department of Health and Human Services (NIOSH) Publication No. 97-111, "Selecting, Evaluating, and Using Sharps Disposal Containers."

A2.1-2.8.8.2 Drug and needle controls. The operational procedures associated with drug and needle controls should be described in the functional program. Such controls may require physical environment components such as electronic surveillance, password-controlled access, and view panels in doors.

2.1-2.8.9.1 Location. Patient nourishment facilities shall be permitted to be located in either an area or a room.

2.1-2.8.9.2 Features. The nourishment area or room shall have the following:

- (1) Handwashing station
- (2) Work counter
- (3) Refrigerator
- (4) Microwave
- (5) Storage cabinets
- (6) Space for temporary storage of food service implements

2.1-2.8.9.3 Unused meal trays. Provisions and space for separate temporary storage of unused meal trays shall be provided.

***2.1-2.8.9.4 Soiled meal trays.** Provisions and/or space for soiled meal trays shall be provided.

***2.1-2.8.10 Ice-Making Equipment**

2.1-2.8.10.1 In public areas, all ice-making equipment shall be of the self-dispensing type.

2.1-2.8.10.2 In areas restricted to staff only, use of storage bin-type equipment for making and dispensing ice shall be permitted.

2.1-2.8.11 Clean Workroom or Clean Supply Room

2.1-2.8.11.1 General. The clean workroom or clean supply room shall be separate from and have no direct connection with the soiled workroom or soiled holding room.

2.1-2.8.11.2 Clean workroom. Where the room is used for preparing patient care items, it shall contain the following:

- (1) Work counter
- (2) Handwashing station
- (3) Storage facilities for clean and sterile supplies

2.1-2.8.11.3 Clean supply room. A room used only for storage and holding as part of a system for distribution of clean and sterile supplies does not require a work counter or a handwashing station.

***2.1-2.8.12 Soiled Workroom or Soiled Holding Room**

2.1-2.8.12.1 General. Soiled workrooms and soiled holding rooms shall be separate from and have no direct connection with either clean workrooms or clean supply rooms.

2.1-2.8.12.2 Soiled workroom

- (1) This room shall contain the following:
 - (a) Handwashing station
 - (b) Flushing-rim clinical service sink with a bedpan-rinsing device or equivalent flushing-rim fixture
 - (c) Work counter
 - (d) Space for separate covered containers for waste and soiled linen

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A2.1-2.8.9.4 Soiled meal trays. This can be achieved in different ways (e.g., physical separation, enclosed space, and/or dedicated spaces).

A2.1-2.8.10 Ice-making equipment

- a. *Noise mitigation.* The location of and space for ice-making equipment in a patient care unit should be designed to mitigate noise. This can be achieved through various means, including considering its placement in relation to patient rooms or locating it in an enclosed space. See Table 1.2-6 (Design Criteria for Minimum Sound Isolation Performance Between Enclosed Rooms) for information about sound for patient rooms.
- b. *Biofilm growth prevention.* Consider the configuration of the supply water line and compressor exhaust to prevent the line from heating

to a temperature that would promote biofilm growth. Ventilation of the exhaust may be one strategy to prevent heating the supply line.

A2.1-2.8.12 Functions for soiled workroom and soiled holding room

- a. *Soiled workroom.* Soiled items may be handled in a soiled workroom to prepare them for subsequent cleaning, disposal, or reuse (e.g., emptying and rinsing bedpans or emesis basins, emptying or solidifying suction canisters, rinsing and gross cleaning of medical instruments). As well, this room provides temporary storage for soiled items prior to their removal from the unit.
- b. *Soiled holding room.* This location is used exclusively for temporary storage of soiled materials and/or supplies prior to their removal from the unit.

2.1 COMMON ELEMENTS FOR HOSPITALS

(2) Where a fluid waste management system is used, the following shall be provided:

- (a) Electrical and plumbing connections that meet manufacturer requirements
- (b) Space for the docking station

2.1-2.8.12.3 Soiled holding room. This room shall contain the following:

- (1) Handwashing station or hand sanitation dispenser
- (2) Space for separate covered containers for waste and soiled linen

2.1-2.8.13 Equipment and Supply Storage

2.1-2.8.13.1 Clean linen storage. This storage shall meet the following requirements:

- (1) Clean linen shall be permitted to be stored in the clean workroom or clean supply room, in a separate closet, or using a covered cart distribution system on each floor.
- (2) Where a covered cart distribution system is used, storage of clean linen carts in a corridor alcove shall be permitted.

***2.1-2.8.13.2 Equipment and supply storage room or alcove.** A room or alcove—sized to provide a minimum of 10 square feet (0.93 square meter) per patient bed—shall be provided on the patient care unit

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A2.1-2.8.13.2 A health care organization should consider providing a dedicated alcove or storage space adjacent to the outside of the patient room door for personal protective equipment (PPE) needed for transmission-based precautions per the facility's infection prevention protocols.

A2.1-2.8.13.4 Emergency equipment storage.

Emergency equipment can be positioned in an alcove located in a corridor. Types of emergency equipment stored include cardiopulmonary resuscitation (CPR) carts, pumps, ventilators, patient monitoring equipment, and portable X-ray units.

- a. Emergency power outlets for battery charging should be provided at each emergency equipment location.
- b. Needed emergency equipment storage locations and types should be identified in the functional program.

A2.1-2.8.14.1 (2) Environmental services room.

Some departments or areas may need individually assigned environmental services rooms. Examples include:

floor for storage of equipment and supplies necessary for patient care.

2.1-2.8.13.3 Storage space for gurneys, stretchers, and wheelchairs. Storage space for gurneys, stretchers, and wheelchairs shall be provided.

***2.1-2.8.13.4 Emergency equipment storage**

- (1) Each patient care unit shall have at least one emergency equipment storage location.
- (2) Emergency equipment storage shall be provided under visual observation of staff.
- (3) Emergency equipment storage locations in corridors shall not encroach on the minimum required corridor width.

2.1-2.8.14 Environmental Services Room

2.1-2.8.14.1 General

- (1) Application. One environmental services room shall be permitted to serve more than one patient care unit on a floor.
- *(2) Location.** An environmental services room shall be readily accessible to the unit or floor it serves.

***2.1-2.8.14.2 Environmental services room features.**

Each environmental services room shall be provided with the following:

- (1) Service sink or floor-mounted mop sink
 - a. Patient care units
 - b. Clinical areas (e.g., pre- and post-procedure patient care areas, exam rooms, blood draw areas, dialysis treatment areas, infusion areas, and other areas likely to come into contact with blood or body fluids)
 - c. Sterile areas (e.g., operating rooms, corridors in the semi-restricted area of the surgery suite, sterile labs, and sterile storage)
 - d. Endoscopy services rooms (e.g., endoscopy procedure room, endoscope processing room)
 - e. Public and administrative areas (waiting areas, offices, hallways)
 - f. Compounding pharmacy

A2.1-2.8.14.2 Environmental services room features

- a. Environmental services rooms should be planned to accommodate carts used in the housekeeping process.
- b. A storage or bin space should be included for recyclable materials: white paper, mixed paper, cans, bottles, and cardboard.

- (2) Provisions for storage of supplies and housekeeping equipment
- (3) Handwashing station or hand sanitation dispenser

2.1-2.9 Support Areas for Staff

2.1-2.9.1 Staff Lounge Facilities

Lounge facilities of no less than 100 square feet (9.29 square meters) shall be provided.

2.1-2.9.2 Staff Toilet Room

2.1-2.9.2.1 A staff toilet room shall be readily accessible to each patient care unit.

2.1-2.9.2.2 Each staff toilet room shall contain a toilet and a handwashing station.

2.1-2.9.2.3 Staff toilet rooms shall be permitted to be unisex.

2.1-2.9.3 Storage for Staff

2.1-2.9.3.1 Securable closets or cabinet compartments for the personal articles of staff shall be located in or near the nurse station. At minimum, they shall be large enough for purses and billfolds.

2.1-2.9.3.2 If coat storage is provided, storage of coats in closets or cabinets on each floor or in a central staff locker area shall be permitted.

2.1-2.10 Support Areas for Families, Patients, and/or Visitors

2.1-2.10.1 Family and Visitor Lounge

Each patient care unit shall provide access to a lounge for family and visitors.

2.1-2.10.1.1 Size

- (1) The size of this lounge shall be defined in the functional program, but shall accommodate, at minimum, three chairs and one wheelchair space.
- (2) In the absence of a functional program, the lounge shall be sized to accommodate at least 1.5 persons for every adult intensive care bed and one person for every four medical/surgical beds in the unit.

2.1-2.10.1.2 This lounge shall be immediately accessible to the patient care unit served.

2.1-2.10.1.3 This lounge shall be permitted to serve more than one patient care unit.

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A2.1-2.9 Support areas for staff

a. *Location.* Support areas for staff should be restricted from public access as defined *Security Design Guidelines for Healthcare Facilities*, Section 02: Buildings and the Internal Environment, published by the International Association for Healthcare Security & Safety. Wherever possible, staff lounge facilities should have access to daylight and views of the outdoors.

b. *Staff rest areas.* Staff rest areas should be provided for every unit that has overnight patient care activities. These rest areas should be readily accessible to the work unit and independent from staff on-call rooms.

As described in the Joint Commission *Sentinel Event Alert*, Issue 48, "Health Care Worker Fatigue and Patient Safety," a substantial number of studies show that worker fatigue "increases the risk of adverse events, compromises patient safety and increases risk to personal safety and well-being."

The Veterans Health Administration (VHA) has demonstrated that conveniently located "napping rooms" lead to less staff fatigue and better performance; see the profile "Conveniently Located 'Napping Rooms' Provide Opportunity for Night- and Extended-Shift Providers to Rest, Leading to Less Fatigue and Better Performance" on the Health Care Innovations Exchange page of the Agency for

Healthcare Research and Quality website.

Some suggested nap room features used by the VHA and others include:

- Carpeting for noise control
- A single residential bed
- Storage space for linens
- Window treatments to block exterior light where windows are provided
- Security with door lock for the sleeper
- Communication means to reach the sleeper
- Bright lighting with timer to facilitate wake-up
- Acoustic features, including sound-absorbing ceiling tiles and a sound-masking system to control background noise levels and cover noise. For relevant information about acoustics, see the following tables in this document:

- Table 1.2-4 (Minimum Design Room-Average Sound Absorption Coefficients)
- Table 1.2-5 (Maximum Design Criteria for Noise in Interior Spaces Caused by Building Systems)
- Table 1.2-6 (Design Criteria for Minimum Sound Isolation Performance Between Enclosed Rooms)

Table 2.1-1

Electrical Receptacles for Patient Care Areas in Hospitals

Section	Location	Minimum Number of Single Receptacles ¹	Receptacle Locations ²
PATIENT BED LOCATIONS			
2.1-2.4.2	Airborne infection isolation (All) room ³	12	Devices shall be located to support clinical functions and patient and visitor needs. ⁴
2.2-2.2.2	Medical/surgical unit patient room ³		
2.2-2.2.4.4	Protective environment room ³		
2.2-2.5.2	Intermediate care unit patient room		
2.2-2.10.2.2	Postpartum unit patient room ³		
2.2-2.12.2	Pediatric and adolescent unit patient room ³		
2.6-2.2.2	Rehabilitation unit patient room		
2.2-2.6.2	Intensive care unit (ICU) patient care station	16	Devices shall be located to support clinical functions and patient and visitor needs. ⁴
2.2-2.7.2	Pediatric intensive care unit (PICU) patient room		
2.2-2.9.2	Neonatal intensive care unit (NICU) infant care station		
2.2-2.10.3	Labor/delivery/recovery (LDR) and Labor/delivery/recovery/postpartum (LDRP) room		8 convenient to head of mother's bed 4 convenient to each bassinet with one on each wall
2.2-2.16.2	Hospice and/or palliative care room		Convenient to head of bed with one on each wall
2.2-2.11.3.1	Newborn nursery infant care station	4	Convenient to each bassinet
2.2-2.11.3.2	Continuing care nursery infant care station	5	Convenient to head of each bed, crib, or bassinet (At least 50% of these outlets shall be connected to emergency system power and be so labeled.)
2.5-2.2.2	Behavioral and mental health patient care unit patient bedroom	No minimum	

2.1 COMMON ELEMENTS FOR HOSPITALS

Table 2.1-1 (continued)

Electrical Receptacles for Patient Care Areas in Hospitals

Section	Location	Minimum Number of Single Receptacles ¹	Receptacle Locations ²
DIAGNOSTIC AND TREATMENT AREAS			
2.1-3.2	Exam room	8	4 convenient to head of gurney or bed or on each lateral side of the imaging gantry
2.2-3.5.2.1 (2)	Class 1 imaging room		
2.2-2.10.11.1	Cesarean delivery room	30 ⁵	16 convenient to table placement 2 on each wall 6 in the infant care area
2.2-3.1.2.6	Treatment room for basic emergency services	12	Convenient to head of gurney or bed
2.2-3.1.3.3 (2)	Triage room or area in the emergency department	6	Convenient to head of gurney or bed (At least 50% of these receptacles shall be connected to emergency system power and be so labeled.)
2.2-3.1.3.6 (1)	Emergency department treatment room	12	Convenient to head of gurney or bed
2.2-3.1.3.6 (2)	Trauma/resuscitation room	16	Convenient to head of gurney or bed
2.2-3.1.3.6 (6)	Low-acuity patient treatment station	4	Convenient to patient chair
2.2-3.1.3.6 (7)(a)	Interior human decontamination room	4	—
2.2-3.3.2	Observation unit patient care station	8	4 convenient to head of gurney or bed
2.2-3.4.2	Procedure room (including endoscopy)	12 ⁵	8 convenient to table placement with at least one on each wall
2.2-3.5.2.1 (2)	Class 2 imaging room		
2.2-3.4.3	Operating room	36 ⁵	16 convenient to table placement 2 on each wall
2.2-3.5.2.1 (3)	Class 3 imaging room		
2.2-3.10.2	Hemodialysis patient care stations	8	4 on each side of a patient bed or lounge chair. (Two on each side of the bed shall be connected to emergency power.)
POST-ANESTHESIA CARE LOCATIONS			
2.1-3.4.4	Phase I post-anesthetic care unit (PACU) patient care station	8	Convenient to head of gurney or bed
2.1-3.4.5	Phase II recovery patient care station	4	Convenient to gurney, lounge chair, or bed

¹ Permanently installed single, duplex, or fourplex receptacles or a combination of these shall be permitted. Receptacles in relocatable power taps or mounted on portable equipment shall not be counted as part of the total minimum requirement.

- ²"Convenient" in this table means the cords from the equipment to be used in the room can reach the receptacles without causing a trip hazard.
- ³Omission of receptacles from exterior walls in patient rooms shall be permitted where construction or room configuration makes installation impractical.
- ⁴The number of receptacles at the patient bed location for these spaces is intended to agree with the number required in the governing edition of NFPA 99: Health Care Facilities Code and NFPA 70: National Electric Code. Additional receptacles shall be provided to support clinical functions and the personal needs of the patient and visitors.
- ⁵The number of receptacles for these spaces is intended to agree with the number required in the governing edition of NFPA 99: Health Care Facilities Code.

Notes

1. In case of a single transfer switch failure, consideration shall be given to providing some receptacles on critical branch power and some on normal power or to providing two separate sources of critical branch power originating from two different transfer switches at the head of patient beds and in operating rooms, cesarean delivery rooms, and trauma/resuscitation rooms. The number of circuits provided shall comply with NFPA 70 and NFPA 99 requirements.
2. Each patient bed location or procedure room shall be supplied by at least two branch circuits, one from the critical branch system and one or more from the normal system. Critical care locations served from two separate transfer switches on the essential electrical system shall not be required to have separate circuits from the normal system.
3. Branch circuits serving only special purpose receptacles or equipment in critical care areas shall be permitted to be served by other panelboards.
4. An additional receptacle shall be provided for a television if one is furnished in the room.
5. A minimum of one dedicated circuit shall be provided to each critical care patient location.
6. Open heart post-anesthesia recovery spaces require more receptacles than those specified in this table; the number should be determined during the planning phase.
7. Receptacles shall be located so they are not in conflict with suction slides and canisters.

2.1 COMMON ELEMENTS FOR HOSPITALS

Table 2.1-2

Locations for Nurse Call Devices in Hospitals*

Section	Location	Patient Station	Bath Station	Emergency Call Station	Nurse Master Station	Notes
PATIENT CARE UNITS						
2.1-2.2.6	Patient toilet room		•			2
2.2-2.2.2	Medical/surgical unit patient bed	•		•		1, 2, 3
2.2-2.6.2	Intensive care unit (ICU) patient care station	•		•		1, 2
2.2-2.9.2	Neonatal intensive care unit (NICU) infant care station	•		•		4
2.2-2.10.3	Labor/delivery/recovery (LDR) and Labor/delivery/recovery/postpartum (LDRP) room	•		•		1, 2, 3
2.2-2.11.3.1	Newborn nursery			•		
2.2-2.11.3.2	Continuing care nursery			•		
2.2-2.16.2	Hospice and/or palliative care room	•		•		1, 2, 3
2.5-2.4.2	Alzheimer's and other dementia unit patient bedroom	•				
SUPPORT AREAS						
2.1-2.8.2	Nurse/control station				•	
DIAGNOSTIC AND TREATMENT AREAS						
2.1-2.4.3	Seclusion room anteroom			•		
2.1-3.2	Exam room			•		
2.2-3.5.2.1 (2)	Class 1 imaging room			•		
2.1-3.4.3	Pre-procedure patient care room or area	•		•		1, 2
2.1-3.4.4	Phase I post-anesthetic care unit (PACU) patient care station			•		2
2.1-3.4.5	Phase II recovery patient care station	•		•		1, 2
2.2-2.10.11.1	Cesarean delivery room			•		2
2.2-3.1.3.3 (2)	Triage room or area in the emergency department	•				1, 2

Table 2.1-2 (continued)

Locations for Nurse Call Devices in Hospitals*

Section	Location	Patient Station	Bath Station	Emergency Call Station	Nurse Master Station	Notes
2.2-3.1.3.6 (1)	Emergency department treatment room	●				1, 2
2.2-3.1.3.6 (6)	Low-acuity patient care station	●				
2.2-3.1.3.6 (7)(a)	Interior human decontamination room	●		●		1
2.2-3.3.2	Observation unit patient care station			●		
2.2-3.4.2	Procedure room (including endoscopy)			●		2
2.2-3.5.2.1 (2)	Class 2 imaging room			●		2
2.2-3.4.3	Operating room			●		2
2.2-3.5.2.1 (3)	Class 3 imaging room			●		2
2.5-3.4.2.2 (2)	Electroconvulsive therapy (ECT) treatment room			●		2
2.5-3.4.2.3 (2)	ECT pre-treatment patient care area			●		2
2.5-3.4.2.3 (3)	ECT recovery patient care station			●		2

*These devices are listed in UL 1069: *Standard for Hospital Signaling and Nurse Call Equipment*.

Notes

1. One device shall be permitted to accommodate patient station and emergency call station functions.
2. A visible signal shall be activated in the corridor at the patient's door, at the nurse/control station, and at all duty stations. In multi-corridor patient care units, additional visible signals shall be installed at corridor intersections.
3. Two-way voice communication shall be provided with the nurse/control station.
4. The patient station requirement applies only to private NICU rooms.

2.1 COMMON ELEMENTS FOR HOSPITALS

Table 2.1-3

Oxygen, Vacuum, Medical Air, WAGD, and Instrument Air Systems (Outlets/Inlets)¹

Section	Location	Oxygen	Vacuum	Medical Air	WAGD ²	Instrument Air
PATIENT CARE UNITS						
2.1-2.4.2	Airborne infection isolation (All) room	1/bed	1/bed	—	—	—
2.2-2.2.2	Medical/surgical unit patient room	1/bed	1/bed	— ³	—	—
2.2-2.2.4.4	Protective environment room	1/bed	1/bed	—	—	—
2.2-2.5.2	Intermediate care unit patient room	2/bed	2/bed	1/bed	—	—
2.2-2.6.2	Intensive care unit (ICU) patient care station					
2.2-2.6.4.2	Airborne infection isolation (intensive care)	3/bed	3/bed	1/bed	—	—
2.2-2.7.2	Pediatric intensive care unit (PICU) room					
2.2-2.9.2	Neonatal intensive care unit (NICU) infant care station	3/infant care bed	3/infant care bed	3/infant care bed	—	—
2.2-2.10.2	Antepartum and postpartum unit					
2.2-2.10.3	Labor/delivery/recovery (LDR)	1/bed	1/bed	—	—	—
2.2-2.10.3	Labor/delivery/recovery/postpartum (LDRP)					
2.2-2.10.3.9	Infant resuscitation space ⁴ (LDR/LDRP)	1/bassinet	1/bassinet	1/bassinet	—	—
2.2-2.10.11.1	Cesarean delivery room	2/room	4/room	1/room	1/room	—
2.2-2.10.11.1	Infant resuscitation space ⁴ (cesarean delivery)	3/bassinet	3/bassinet	3/bassinet	—	—
2.2-2.10.11.11	Recovery space for cesarean delivery	1/bed	3/bed	1/bed	—	—
2.2-2.11.3.1	Newborn nursery	1/bassinet ⁵	1/bassinet ⁵	1/bassinet ⁵	—	—
2.2-2.11.3.2	Continuing care nursery	1/bassinet	1/bassinet	1/bassinet	—	—
2.2-2.12.2	Pediatric and adolescent patient room	1/bed	1/bed	1/bed	—	—
2.2-2.16.2	Hospice and/or palliative care room	1/bed ⁶	1/bed ⁶	1/bed ⁶	—	—

Table 2.1-3 (continued)

Oxygen, Vacuum, Medical Air, WAGD, and Instrument Air Systems (Outlets/Inlets)¹

Section	Location	Oxygen	Vacuum	Medical Air	WAGD ²	Instrument Air
DIAGNOSTIC AND TREATMENT LOCATIONS						
2.1-3.2	Exam room	1/room	1/room	—	—	—
2.1-3.4.4	Phase I post-anesthetic care unit (PACU) patient care station	2/station	3/station	1/station	—	—
2.1-3.4.5	Phase II recovery patient care station	1/station	1/station ⁷	—	—	—
2.2-3.1.2.6	Treatment room for basic emergency services	1/gurney	1/gurney	—	—	—
2.2-3.1.3.3 (2)	Triage room or area in the emergency department	1/station	1/station	— ⁸	—	—
2.2-3.1.3.6 (1)	Emergency department treatment room or area	1/gurney	1/gurney	1/gurney	—	—
2.2-3.1.3.6 (2)	Trauma/resuscitation room	2/gurney	3/gurney	1/gurney	—	—
	Plaster and cast room	1/room	1/room	—	—	—
2.2-3.1.3.6 (6)	Low-acuity patient care station	— ⁸	— ⁸	—	—	—
2.2-3.1.3.6 (7) (a)	Interior human decontamination room	1 ⁶	— ^{1,9}	—	—	—
2.2-3.3.2	Observation unit patient care station	1/station	1/station	—	—	—
2.2-3.5.2.1 (2)	Class 1 imaging room	1/room	1/room	—	—	—
2.2-3.4.2	Procedure room					
2.2-3.5.2.1 (2)	Class 2 imaging room	2/room	2/room	1/room	—	—
2.2-3.4.3	Operating room					
2.2-3.5.2.1 (3)	Class 3 imaging room	2/room	5/room	1/room	1/room	—
2.2-3.11.2	Endoscopy procedure room	1	3	—	—	—
2.2-3.11.3	Endoscopy pre- and post-procedure patient care area	— ⁸	— ⁸	—	—	—
2.2-3.13.4	Hyperbaric suite pre-procedure patient care area	2	2	—	—	—

2.1 COMMON ELEMENTS FOR HOSPITALS

Table 2.1-3 (continued)

Oxygen, Vacuum, Medical Air, WAGD, and Instrument Air Systems¹ (Outlets/Inlets)

Section	Location	Oxygen	Vacuum	Medical Air	WAGD ²	Instrument Air
2.5-3.4.2.2 (2)	Electroconvulsive therapy (ECT) treatment room	1 ⁶	1 ⁶	—	—	—
GENERAL SUPPORT FACILITIES						
2.1-5.1.2.2 (2)	Two-room sterile processing: Decontamination room	—	—	—	—	1 ^{6,10,11}
2.1-5.1.2.2 (3)	Two-room sterile processing: Clean workroom	—	—	—	—	— ^{6,10,11}
2.1-5.1.2.3 (2)	One-room sterile processing: Decontamination area	—	—	—	—	— ^{6,10,11}
2.1-5.1.2.3 (3)	Clean work area	—	—	—	—	— ^{6,10,11}
2.1-5.7.2.2	Autopsy room	—	1 per workstation	—	—	—
2.2-3.11.4.2	Endoscope processing room decontamination area	—	—	— ¹²	—	— ^{6,11,12}
2.2-3.11.4.3	Endoscope processing room clean work area	—	—	— ¹²	—	— ^{6,11,12}

¹For any area or room not included in this table the facility clinical staff shall determine station outlet/inlet requirements after consultation with the authority having jurisdiction.

²Where inhalation anesthesia is used, a waste anesthesia gas disposal (WAGD) system shall be provided.

³Medical air outlets may be required in patient rooms.

⁴When infant resuscitation takes place in a room such as a cesarean delivery room or an LDRP room, infant resuscitation services must be provided in that room in addition to the minimum service required for the mother.

⁵Four bassinets may share one outlet that is accessible to each bassinet.

⁶Use of portable equipment in lieu of a piped gas system shall be permitted.

⁷If the Phase II recovery area is combined with the PACU, three vacuum outlets per bed or station shall be provided.

⁸A portable source shall be available for the space.

⁹Portable vacuum equipment shall be readily accessible.

¹⁰In the one-room sterile processing facility and the clean workroom of the two-room sterile processing facility, an instrument air outlet or portable compressed air shall be provided as required by the equipment used. In the decontamination room of the two-room sterile processing facility, an instrument air outlet or portable compressed air is required.

¹¹NFPA 99 permits the use of portable medical compressed air for single applications. Where cylinders are used for non-respiratory purposes, such as air for blowing down scopes and/or running decontamination equipment, NFPA 99 should be consulted for cylinder air quality, placement, and handling.

¹²Vacuum and/or instrument air shall be provided if needed for the cleaning methods used.

Table 2.1-4

Hot Water Use—General Hospital

	Clinical	Dietary	Laundry
Liters per hour per bed ¹	11.9	7.2	7.6
Gallons per hour per bed ¹	3	2	2
Temperature (°C)	41–49 ²	49 ³	71 ⁴
Temperature (°F)	105–120 ²	120 ³	160 ⁴

¹Quantities indicated for design demand of hot water are for general reference minimums and shall not substitute for accepted engineering design procedures using actual number and types of fixtures to be installed. Design will also be affected by temperatures of cold water used for mixing, length of run and insulation relative to heat loss, etc. As an example, the total quantity of hot water needed will be less when the temperature available at the outlet is very nearly that of the source tank and the cold water used for tempering is relatively warm.

²The range represents the maximum and minimum allowable temperatures.

³Provisions shall be made to provide 180°F (82°C) rinse water at warewasher (may be by separate booster) unless a chemical rinse is provided.

⁴Provisions shall be made to provide 160°F (71°C) hot water at the laundry equipment when needed. (This may be by steam jet or separate booster heater.) However, it is emphasized that this does not imply that all water used would be at this temperature. Water temperatures required for acceptable laundry results will vary according to type of cycle, time of operation, and formula of soap and bleach as well as type and degree of soil. Lower temperatures may be adequate for most procedures in many facilities, but the higher 160°F (71°C) should be available when needed for special conditions.

Appendix Table A2.1-a

Maximum Length of Hot Water System Pipe or Tube

Nominal Pipe Size (in.)	Liquid Ounces per Foot of Length	Maximum Pipe or Tube Length (ft.)		
		System without Circulation Loop or Heat Traced Line	System with Circulation Loop or Heat Traced Line	Public Handwashing Station Faucets (metering and non-metering)
—	0.33	25	16	6
5/16	0.5	25	16	4
3/8	0.75	25	16	3
1/2	1.5	25	16	2
5/8	2	25	12	1
3/4	3	21	8	0.5
7/8	4	16	6	0.5
1	5	13	5	0.5
1 1/4	8	8	3	0.5