

WAC 246-310-XXX: Hospital Acute Care Bed Need Methodology
Draft Rules

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Definitions. For the purposes of this chapter, the words and phrases below will have the following meanings unless the context clearly indicates otherwise:

- 1) "Acute care" means services over a continuous period of twenty-four hours or more, for observation, diagnosis, or care, of individuals who are suffering from illness, injury, deformity, or abnormality, or from any other condition for which obstetrical, medical, or surgical services would be appropriate for care or diagnosis.
- 2) "Age cohort group" means a grouping of people with a similar age range. For purposes of medical / surgical acute care bed need calculations, age cohort groups 0-64 years old and 65 years and older will be utilized.
- 3) "Alternative population forecasts" means population forecasts prepared by organizations other than Washington Office of Financial Management. The Department shall approve use of such population forecasts.
- 4) For purposes of medical / surgical acute care bed need calculations, "available beds" means:
 - a) beds that meet the following criteria:
 - i) are in service;
 - ii) can be put into service within 24 hours without reviewable construction (review by department of health construction review services);
 - iii) certificate of need approved beds not yet constructed;
 - iv) certificate of need approved beds constructed but not yet licensed;
 - b) The total number of available beds cannot exceed the number of licensed beds or certificate of need approved beds, whichever is greater.
- 5) "Average daily census (ADC)" means total patient days, for a given calendar year, divided by 365.
- 6) "Base year" means the most recent calendar year for which December 31 data is available as of the first day of the application submission period. Data used is from the department's CHARS reports or successor reports.
- 7) "Bed need" means projected number of beds as determined by the general medical / surgical acute care bed need methodology.

- 8) "CHARS" means Washington Department of Health (DOH) Comprehensive Hospital Abstract Reporting System or its successor data base and reporting system.
- 9) "Concurrent review" means the process by which applications competing to provide services in the same planning area are reviewed simultaneously by the department. The department compares the applications to one another and these rules.
- 10) "Critical access hospital (CAH)" means a facility that is designated as a CAH by the Center for Medicare and Medicaid Services ("CMS").
- 11) "Diagnosis related group (DRG)" means a classification system for grouping in-patients who have similar diagnoses and similar inpatient expenditures.
- 12) "Forecast" or "forecasting" for the purposes of the medical / surgical acute care bed need methodology, means the prediction of future patient days for a defined geographic area.
- 13) "Forecast period" means the time period over which forecasts are prepared.
 - a) For expanding existing medical / surgical acute care hospitals, the forecast period is 10 years from the base year.
 - b) For new medical / surgical acute care hospitals, the forecast period is 15 years from the base year.
 - c) If one or more competing applications are for a new hospital, the 15 year forecast period will be used for all applications.
- 14) "Hospital planning area (HPA or HPAs)" means an individual geographic area designated by the DOH for which hospital medical / surgical acute care bed need projections are calculated. For the purposes of this chapter, "hospital planning area," "planning area" and "service area" have the same meaning. See section 246-310-XXX to view a table of the HPAs.
- 15) "In-migration" means the inflow of patient days into a HPA from residents living outside the HPA.
- 16) "Long term acute care (LTAC)" means patients with complex medical needs requiring long-term hospitalization in an acute setting. LTACHs differ from chronic care settings in that they focus on treating critically ill or high acuity patients in an intensive way, using specialized treatment programs geared to the patient's illness and requirements. The goal is medical recovery and return to the home and family.
- 17) "Long term care (LTC)" means skilled nursing facility care or nursing facility care.
- 18) "Major diagnostic category (MDC)" means a grouping of related DRGs as used in CHARS.

- 19) "Neonate days" means patient days grouped into major diagnostic category ("MDC") 15 (CMS MS-DRG, V.25). Under current DRG grouping systems (MS-DRG V.25), neonates include DRGs 789, 790, 791, 792, 793, 794 and 795.
- 20) "Neonate intermediate care level II days" means patient days grouped into DRGs 791, 792, 793 and 794 (CMS MS-DRG, V.25).
- 21) "Neonate intensive care level III days" means patient days grouped into DRGs 789 and 790 (CMS MS-DRG, V.25)
- 22) "New hospital" means a newly licensed facility on a new campus.
- 23) "Normal newborns" means patient days grouped in to DRG 795 (CMS MS-DRG, V.25).
- 24) "Occupancy" means average daily census divided by available beds.
- 25) "Occupancy minimum target" means:
 - a) 50% for hospitals with 1-49 available beds;
 - b) 60% for hospitals with 50-99 available beds;
 - c) 65% for hospitals with 100-199 available beds;
 - d) 70% for hospitals with 200-299 available beds;
 - e) 75% for hospitals with 300 available beds or more.
- 26) "Out-migration" means the outflow of resident in-patient days from an HPA to hospital providers outside the HPA.
- 27) "Patient Days" as defined by CHARS means a unit of measure denoting lodging facilities provided and services rendered to one inpatient between the census taking hour on two successive days. Synonymous terms: inpatient day, inpatient service day, census day, bed occupancy day.
- 28) "Planning area use rate" means HPA patient days for a defined population for a given year divided by that defined group's population count for that given year, expressed on a per 1,000 population basis.
- 29) "Population series" means Washington Office of Financial Management (OFM) population forecasts.
- 30) "Psychiatric days" means patient days grouped into MDC 19 (CMS MS-DRG, V.25).
- 31) "Rehabilitation days" means patient days grouped into DRGs 945 and 946 (CMS MS-DRG, V.25).
- 32) "Statewide use rate" means state residents' patient days for a given year divided by the state population for that given year, expressed on a per 1,000 population basis.

- 33) "Use rate" means the number of patient days per 1,000 population.
- 34) "Use rate trend adjustment" means the regression coefficient of the dependent variable that is selected as the annual use rate trend adjustment.
- 35) "Washington Office of Financial Management (OFM) means the state agency responsible for estimating and forecasting state and county population.
- 36) "Weighted average occupancy standard" means the sum of all hospitals in the planning area, target occupancy beds, divided by the total number of available beds in the planning area.

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Hospital planning areas. For the purposes of hospital medical / surgical acute care bed need projections, the following table establishes hospital planning areas for Washington State:

(A table of individual HPAs will be inserted here)

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Bed counting process. The department will identify thru survey available beds for medical / surgical acute care hospitals.

- 1) Every two years the department will survey hospitals to determine the number and type of beds that meet the criterion in WAC 246-310-XXX(4)(a) above. The surveys will be verified by attestation from the hospital CEO.
 - a) This count of beds by type, by hospital, will remain constant over the 2-year survey period with the following exceptions:
 - i) closure of a hospital;
 - ii) de-licensing of beds (less than a full hospital closure);
 - iii) CoN approved bed spaces that are under construction.
 - b) At a minimum, the count will identify beds used for:
 - i) general medical/surgical;
 - ii) intermediate care nursery level II;
 - iii) neonatal intensive care level III;
 - iv) psychiatric services distinct part or PPS exempt;

- v) rehabilitation distinct part or PPS exempt;
 - vi) long term care distinct part or transitional care.
- c) Long term acute care beds and hospitals will not be counted as available for general medical / surgical acute care bed need projection purposes.

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Numeric Need forecasting method. The following is a step-by-step description of the method for forecasting the overall (aggregate) need for medical/surgical/ obstetric/ hospital beds. This methodology excludes forecasting acute care bed needs for neonates, rehabilitation inpatients, psychiatric inpatients, and dedicated children's hospitals.

Develop trend information on hospital utilization:

Step 1: Using the last available full years CHARS data, compile annual resident patient day statistics for 10 years including the base year and the 9 years immediately preceding that year. Patient day statistics include all patient days, as reported in CHARS, and are compiled for 2 population groups:

- a. all Washington State residents
- b. HPA residents only

Within each population group, compile patient days separately for the following:

- a. Age cohort group 0-64 years old
- b. Age cohort group 65 years and older

Exclude the following MDCs and DRGs from each year's historical data

- a. Neonate patient days (MDC 15)
- b. Psychiatric patient days (MDC 19)
- c. Rehabilitation patient days (DRGs 945 and 946—CMS MS-DRG v.25)

Step 2: Subtract non-psychiatric patient days in Washington State psychiatric hospitals from each historical year of patient day statistics compiled in Step 1. Psychiatric hospitals include CHARS hospital numbers 904, 915, 919, and 920. When calculating psychiatric patient days in CHARS, exclude the same MDCs and DRGs as outlined in Step 1 calculations. (Excel label – HSA total number of psychiatric patient days)

Step 3: Compile annual historical population statistics for 10 years including the base year and the 9 years immediately preceding that year. Use the most recent OFM medium series population statistics available for the state and HPA, when HPAs are defined by county. (Use department approved

population sets for the HPAs – OFM doesn't apply at all at the HPA level) When OFM data are not available, use alternative population statistics from Department-approved commercial data sources. Zip codes will be administratively updated as needed. Within each population group, compile population separately for the following:

- a. Age cohort group 0-64 years old
- b. Age cohort group 65 years and older

Step 4: For each year of the 10 historical years, compute annual use rates for the two age cohort groups for the HPA and the state.

Step 5: Using the data statistics determined in Step 4, utilize ordinary least squares to regress use rates (the dependent variable) on time (the independent variable) for each of the 4 data sets. Prepare a graph that plots each of the 4 use rate data sets as well as the linear curve fit of each regression equation. In the graph, include the regression equation with the slope intercept and the regression estimate of the dependent variable for each of the 4 fitted lines. In addition include R-squared for each linear regression. Label all graphs and plotted lines.

Looking at the graph and the 4 regression equations, evaluate the R squared estimates for the dependent variable in each equation. Compare:

- 1) the state and HPA 0-64 age cohort regression equations.
 - a. For either equation, if R squared is < 0.7 , ignore the equation. If R squared is > 0.7 , select the regression coefficient that is the lowest value between the state and HPA equations. This coefficient will be the use rate trend adjustment.
 - b. If R squared is < 0.7 for both equations, use the most recent HPA use rate and hold it constant over the forecast period. In this situation, there will be no use rate trend adjustment.
- 2) the state and HPA 65 and older age cohort regression equations.
 - a. For either equation, if R squared < 0.7 , ignore the equation. If R squared is > 0.7 , then select the regression coefficient that is the lowest value between the state and HPA equations. This coefficient will be the use rate trend adjustment.
 - b. If R squared is < 0.7 for both equations, use the most recent HPA use rate and hold it constant over the forecast period. In this situation, there will be no use rate trend adjustment.

Determine in- and out-migration statistics for the HPA and the state.

Step 6: Determine migration estimates for HPA residents and HPA hospitals using base year CHARS patient day statistics. Exclude the same MDCs and DRGs as outlined in Step 1 patient day calculations. Within each population group outlined in the sub-Steps below, compile patient days separately for the following:

- a. Age cohort group 0-64 years old
- b. Age cohort group 65 years and older

1) *Determine the total number of patient days occurring at HPA hospitals.* Group patient days into “HPA Residents,” “Non-HPA, State Residents” and “Out-of-State Residents.” Determine:

- a. The number of patient days for HPA Residents
 - i. occurring in all HPA hospitals
 - ii. occurring in all non-HPA, Washington hospitals. Subtract patient days occurring in psychiatric hospitals.
- b. The number of patient days from Non-HPA, State Residents
 - i. occurring in all HPA hospitals
 - ii. occurring in all non-HPA Washington hospitals. Subtract patient days occurring in psychiatric hospitals.
- c. The number of patient days from Out-of-State Residents
 - i. occurring in all HPA hospitals
 - ii. occurring in all non-HPA Washington hospitals. Subtract patient days occurring in psychiatric hospitals.

Prepare a table that summarizes these patient day statistics. The table should summarize the total number of patient days provided by HPA providers in the base year by summing (1) the number of HPA resident patient days that do not out-migrate from the HPA and (2) the in-migration estimate of patient days from Non-HPA, State Residents and Out-of-State Residents.

These statistics will also determine the number of Non-HPA, WA hospital patient days and the total number of patient days occurring in all Washington State hospitals.

2) Calculate Out-of-State Resident patient days as a percentage of all HPA resident patient days. This will be used in Step 11 to calculate part of the HPA in-migration figures.

3) Determine the total number of HPA Resident patient days. Using the numbers calculated in Step 6(1), (a)-(b) for the two age cohorts. Determine:

- a. The number of patient days for HPA Residents
 - i. occurring in all HPA hospitals
 - ii. occurring in all non-HPA, Washington hospitals. Subtract patient days occurring in psychiatric hospitals.

- b. The number of patient days from Non-HPA, State Residents
 - i. occurring in all HPA hospitals
 - ii. occurring in all non-HPA Washington hospitals. Subtract patient days occurring in psychiatric hospitals.

- c. If this model is also assessing HPA patient days to Out-of-State hospitals, determine the number of resident patient days that were provided by out-of-state hospitals. Determine patient days to Out-of-State hospitals for both the HPA and Non-HPA, State Residents. These estimates are prepared as follows:
 - i. Determine which state may receive a sizeable in-migration from HPA residents.
 - ii. Use inpatient discharge statistics, as available from other states for the most recent available year, and group patient days into the two age cohorts, 0-64 and 65 years of age and older.
 - iii. Estimate the number of patient days for each of the age cohort groups. Remember to exclude the same MDCs and DRGs as outlined in Step 1 patient day calculations.

Prepare a table that summarizes these patient day statistics for the 2 age cohorts. The table should summarize total patient days for HPA residents by summing (1) the number of HPA patient days that do not out-migrate from the HPA, (2) the number of HPA patient days that out-migrate from the HPA to other Washington hospitals and (3) the number of HPA patient days that out-migrate to hospitals in other states (if applicable).

These statistics will also determine the total number of Non-HPA, State Resident patient days, including those that occur (1) within the HPA, (2) within Non-HPA Washington hospitals, and (3) in hospitals in other states (if applicable).

- 4) From the table prepared in step 6(3), create another summary table that calculates in- and out-migration as a percentage of patient days, for HPA hospitals, Non-HPA WA hospitals, and Out-of-State hospitals (if applicable). These percentages will be used in Step 11 to calculate in-migration to the HPA.

Forecast Total HPA Patient Days

Step 7: Compile population forecasts for the HPA and the state for each of the two age cohort groups for the forecast period. The forecast period includes at least 10 years of population data, starting with the year immediately following the base year

- 1) For the state population, compile the most recent OFM medium series population forecasts for the each year forecast period. Interpolate population estimates from the years that are given.

- 2) For the HPA population, if defined at the county level, compile the most recent OFM county population forecasts for each year of the forecast period. In general, use OFM medium series forecasts. Interpolate population estimates from the years that are given.
 - a. There may be situations where OFM high series population forecasts are better predictors of population over the forecast period for the HPA. This must be empirically demonstrated.
- 3) If the HPA is not defined at the county level, use alternative population forecasts.

Step 8: Prepare forecast use rates for each of the two age cohort groups for the HPA and the state for each year of the forecast period. The forecast period includes at least 13 years of data, starting with the year immediately following the base year.

- 1) Begin with the base year use rate figures calculated in Step 4 for each age cohort for the HPA. Add the use rate trend adjustment, as established in Step 5, to each base year use rate for each age cohort. Continue this addition of the use rate trend adjustment to the prior year use rate for each year in the forecast period. Continue this process of calculating future use rates through 10 years of the forecast period, after which point, hold use rates constant at their then-period values. This establishes the forecast use rate for each age cohort for each year. Prepare summary tables that express these values.
- 2) Repeat (1) for the state. Prepare summary tables that express these values.

Step 9: Prepare forecasted patient days for each of the two age cohort groups for the HPA and the state for each year of the forecast period.

- 1) For both of the age cohort groups in the HPA, for each year of the forecast period, multiply the trend-adjusted use rate for that year from Step 8 by the population forecast (as expressed in thousands) for that year, from Step 7.
- 2) For each year of the forecast period, sum the projected patient days for the HPA residents. Prepare summary tables that express these values.
- 3) Repeat steps (1)-(2) for the state. Prepare summary tables that express these values.

Step 10: Allocate forecast patient days to the HPAs where inpatient care is expected to be provided.

- 1) Using forecast HPA resident patient days for each year of the forecast period from Step 9, prepare calculations that allocate HPA resident patient days to HPA hospitals by age cohort for residents 0-64 and 65 years and older. This is prepared as follows:
 - a. For each age cohort group, use the out-migration percentage from Step 6 to calculate forecast out-migration of HPA residents. This is calculated by multiplying the HPA out-

migration percentage figure by HPA forecast resident patient days for each year of the forecast period for each of the two cohort groups. This establishes the number of HPA residents for each of the two age cohort groups expected to out-migrate from the HPA for inpatient care.

- b. Subtract (1) (a) from HPA forecast patient days for each year for each of the age cohorts. The remainder is the number of forecast HPA resident patient days that remain in the HPA.
- 2) Using forecast patient days for each year of the forecast period for non-HPA state residents, prepare calculations that allocate non-HPA state resident patient days to HPA hospitals by age cohort for residents 0-64 and 65 years and older. This is prepared as follows:
 - a. For each age cohort group, use the in-migration percentage figure from Step 6 to calculate forecast in-migration by age cohort group. This is calculated by multiplying the HPA in-migration percentage figure for non-HPA state residents by forecast non-HPA state resident patient days for each year of the forecast period for each of the two cohort groups. This establishes the number of non-HPA state residents for each of the two age cohort groups expected to in-migrate to the HPA for inpatient care.
- 3) Using the in-migration percentage for non-HPA, non-state resident patient days (out-of-state resident days as a percentage of state resident patient days) as calculated in Step 6, multiply this percentage figure by total Washington State Resident patient days occurring in the HPA (sum of Step 10 (1)-(2)) for each of the age cohorts. This provides forecasted patient days for non-HPA, non-state residents expected to be provided by HPA hospitals, by year.
- 4) Sum the results of (1) (b), (2) (a) and (3) together. This equals the forecast patient days for each of the two age cohorts expected to be provided by HPA providers each year of the forecast period.

Determine bed need forecasts:

Step 11: Prepare calculations that provide medical / surgical acute care bed need projections for each year of the forecast period.

- 1) Prepare a table that includes the number of available beds by hospital by year. Exclude beds that have been identified as exclusively used by:
 - a. Neonates (intermediate care level 2 or NICU level 3)
 - b. Psychiatric patients (dedicated units or PPS exempt)
 - c. Rehabilitation patients (dedicated units or PPS exempt)
 - d. LTAC patients (dedicated units or PPS exempt)
 - e. Long term care patients (dedicated units or PPS exempt)
 - f. Critical access hospital patients (CAH qualifying for exemption)

- 2) Calculate weighted average occupancy estimates for HPA hospitals. This is calculated as follows:
 - a. Multiply each hospital's available beds by that hospital's occupancy standard for every hospital in the HPA.
 - b. Sum these figures across all hospitals in the HPA and divide that sum by the total number of available beds in the HPA. This calculation yields the HPA weighted average occupancy standard.
- 3) Prepare a table that includes the following:
 - a. Forecast use rates for HPA residents for age cohorts 0-64 and 65 years of age and older for each year of the forecast period, as calculated in Step 8.
 - b. Forecast population for HPA residents 0-64 and 65 years and older for each year of the forecast period, as calculated from Step 7.
 - c. Forecast patient days for HPA residents 0-64 and 65 years and older for each year of the forecast period, as calculated from Step 9
 - d. Forecast patient days for HPA hospitals, as calculated in Step 10.
- 4) Calculate average daily census ("ADC") by dividing forecast days for HPA hospitals by 365 for each year of the forecast period. This represents the average daily demand for beds in the HPA. (Change Excel label / header from "Hospital ADC" to "All hospitals in the HPA")
- 5) Divide ADC by the HPA weighted occupancy standard for each year of the forecast period. This yields "projected bed need" for medical / surgical acute care beds in the HPA.
- 6) Sum the number of available beds across HPA hospitals each year of the forecast period. This yields "supply" of medical / surgical acute care beds in the HPA.
- 7) Subtract the supply from projected bed need for each year of the forecast period. This yields net bed need for medical / surgical acute care beds in the HPA.