**.01**     **Methodologies for Projecting Acute Care Hospital Bed Need.**

   **A.**     **Period of Time Covered.**

         (1)   The base year from which projections are calculated is the most recent

calendar year.

         (2)   The target year to which projections are calculated is ten years after the  base

year.

   **B.**     **Services and Age Groups.**

         **(1)   <u>Exclusions.</u>**

               (a)   No projections are made for newborn services.

               (b)   Patients classified as rehabilitation in the acute care hospital discharge

abstract data base are excluded from the calculations.

(c)     Projections for acute psychiatric services are made according to the methodology in the Acute Psychiatric Services section of the Maryland State Health Plan, COMAR 10.24.07, and patients with psychiatric diagnoses are excluded from the calculations.

(d)     Projections for obstetrical services are not included in this chapter. Policies, standards and definitions for obstetrical services are found in the State Health Plan for Facilities and Services: Acute Hospital Inpatient Obstetric Services, COMAR 10.24.12. Utilization projections are made for this service separately.

**(2)     Services for Which Need is Projected.**

(a)     Projections are made for pediatric services provided to patients under 15 using patient records with principal diagnoses not categorized as newborn, acute psychiatric, or obstetrical.

(b)(a) Projections are made for medical/surgical/gynecological/addictions (MSGA) services provided to patients with principal diagnoses not categorized as newborn, acute psychiatric, or obstetrical, or pediatric, using age groups 15-44, 45-64, 65-74, and 75 and older, and using payor groups Medicare and non-Medicare.

C.     **Geographic Areas.** Need is projected by jurisdiction.

D.     **Assumptions.**

(1)     Interstate patterns of migration from the District of Columbia and states bordering Maryland (Delaware, Pennsylvania, Virginia, and West Virginia), by service and age group, will be accounted for in the baseline projection at the jurisdictional level, using the most recent jurisdictional population projections developed for official government use in the applicable state or the District of Columbia. Discharges and days originating from non-bordering

states, foreign countries, or unidentified locations will be held constant as a proportion of total discharges and days from the base year to the target year in the baseline projections.

(2)    Statewide target year expected discharge rates ~~(for~~ the target year ~~2010)~~ are as follows:

(a)    Calculate the average annual rate of change in the statewide MSGA Medicare discharge rate per 1,000 population (65+) during the ten-year period preceding the base year by summing the percentage of change for each year to the next year during the ten-year period and dividing by ten.

(b)    Calculate the average annual rate of change in the statewide MSGA Medicare discharge rate per 1,000 population (65+) during the five-year period preceding the base year by summing the percentage of change for each year to the next year during the five- year period and dividing by five.

(c)    Determine the minimum target year expected MSGA Medicare discharge rate by calculating the discharge rate for the target year if the discharge rate changed, year to year, from the base year to the target year, by the lowest average annual rate of change calculated in (a) or (b) above.

(d)    Determine the maximum target year expected MSGA Medicare discharge rate by calculating the discharge rate for the target year if the discharge rate changed, year to year, from the base year to the target year, by the highest average annual rate of change calculated in (a) or (b) above.

(e)    Calculate the average annual rate of change in the statewide MSGA non-Medicare discharge rate per 1,000 population (15-64) during the ten-year period preceding

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the base year by summing the percentage of change for each year to the next year during the ten-year period and dividing by ten.

(f)     Calculate the average annual rate of change in the statewide MSGA non-Medicare discharge rate per 1,000 population (15-64) during the five-year period preceding the base year by summing the percentage of change for each year to the next year during the five-year period and dividing by five.

(g)     Determine the minimum target year expected MSGA non-Medicare discharge rate by calculating the discharge rate for the target year if the discharge rate changed, year to year, from the base year to the target year, by the lowest average annual rate of change calculated in (e) or (f) above.

(h)     Determine the maximum target year expected MSGA non-Medicare discharge rate by calculating the discharge rate for the target year if the discharge rate changed, year to year, from the base year to the target year, by the highest average annual rate of change calculated in (e) or (f) above.

(i)     Calculate the average annual rate of change in the statewide pediatric discharge rate per 1,000 population (0-14) during the ten-year period preceding the base year by summing the percentage of change for each year to the next year during the ten-year period and dividing by ten.

(j)     Calculate the average annual rate of change in the statewide pediatric discharge rate per 1,000 population (0-14) during the five-year period preceding the base year by summing the percentage of change for each year to the next year during the five-year period and dividing by five.

**(3)   Statewide Lengths of Stay.**

(a)   Target year expected lengths of stay are calculated as follows:

(i)   Calculate the average annual rate of change in the statewide MSGA Medicare average length of stay during the ten-year period preceding the base year by summing the percentage of change for each year to the next year during the ten-year period and dividing by ten.

(ii)   Calculate the average annual rate of change in the statewide MSGA Medicare average length of stay during the five-year period preceding the base year by summing the percentage of change for each year to the next year during the five-year period and dividing by five.

(iii)   Determine the minimum target year expected MSGA Medicare average length of stay by calculating the average length of stay for the target year if the average length of stay changed, year to year, from the base year to the target year, by the lowest average annual rate of change calculated in (i) or (ii) above.

(iv)   Determine the maximum target year expected MSGA Medicare average length of stay by calculating the average length of stay for the target year if the average length of stay changed, year to year, from the base year to the target year, by the highest average annual rate of change calculated in (i) or (ii) above.

(v)   Calculate the average annual rate of change in the statewide MSGA non-Medicare average length of stay during the ten-year period preceding the base year by summing the percentage of change for each year to the next year during the ten-year period and dividing by ten.

(vi)   Calculate the average annual rate of change in the statewide MSGA non-Medicare average length of stay during the five-year period preceding the base year by summing the percentage of change for each year to the next year during the five-year period and dividing by five.

(vii)   Determine the minimum target year expected MSGA non-Medicare average length of stay by calculating the average length of stay for the target year if the average length of stay changed, year to year, from the base year to the target year, by the lowest average annual rate of change calculated in (v) or (vi) above.

(viii)   Determine the maximum target year expected MSGA non-Medicare average length of stay by calculating the average length of stay for the target year if the average length of stay changed, year to year, from the base year to the target year, by the highest average annual rate of change calculated in (v) or (vi) above.

(ix)   Calculate the average annual rate of change in the statewide pediatric average length of stay during the ten year period preceding the base year by summing

the percentage of change for each year to the next year during the ten-year period and dividing by ten.

(x)    Calculate the average annual rate of change in the statewide pediatric average length of stay during the five-year period preceding the base year by summing the percentage of change for each year to the next year during the five-year period and dividing by five.

(xi)    Determine the minimum target year expected pediatric average length of stay by calculating the average length of stay for the target year if the average length of stay changed, year to year, from the base year to the target year, by the lowest average annual rate of change calculated in (ix) or (x) above.

(xii)    Determine the maximum target year expected pediatric average length of stay by calculating the average length of stay for the target year if the average length of stay changed, year to year, from the base year to the target year, by the highest average annual rate of change calculated in (ix) or (x) above.

(b)    Minimum allowable jurisdictional average lengths of stay are calculated as follows:

(i)    The minimum allowable jurisdictional MSGA Medicare average length of stay is the first whole number of days below the minimum target year expected MSGA Medicare average length of stay determined in B(a)(iii) above.

(ii)    The minimum allowable jurisdictional MSGA non-Medicare average length of stay is the first whole number of days below the minimum target year expected MSGA non-Medicare average length of stay determined in B(a)(vii) above.

**(4)** **Jurisdictional Minimum Occupancy Standards.**

(a) For MSGA services, the jurisdictional minimum occupancy standards used in calculating gross bed need are based on the average daily census projected for the jurisdiction, applied at the hospital level, and are as follows:

| *MSGA Jurisdictional Minimum Occupancy* | |
|---|---|
| *Average Daily Census* | *Minimum Percent Occupancy* |
| 0-49 | 70 |
| 50-99 | 75 |
| 100-299 | 80 |
| 300+ | 83 |

(c)(a) For jurisdictions with more than one hospital, the minimum occupancy standard used in calculating gross bed need will be a jurisdictional standard calculated by pro-rating the occupancy standards in (a) for MSGA services and in (b) for pediatric services, at the hospital level using the assumption that target year average daily census for the jurisdiction will

be proportioned to each hospital in the jurisdiction at the same ratio which total jurisdictional average daily census was allocated among the hospitals in the base year.

      **E.**     **Data Sources.**

      **(1)**    **Bed Inventory.**

      *(a)*   Counts of licensed hospital beds in Maryland are obtained from the Commission's most recent *Acute Care Bed Inventory.*

      (b)    Counts of Certificate of Need approved and exempt beds are obtained from the Commission's Certificate of Need program records.

      **(2)**    **Population.**

      (a)    Base year and target year population, by area of residence, and age, are obtained from the most recent Maryland Department of Planning estimates.

      (b)    Projections of future population, by area of residence and age, are obtained from the following sources:

      (i)    Maryland population is obtained from the most recent Maryland Department of Planning projections; and

      (ii)   Population in other states are obtained from the most recent projections prepared by respective state agencies charged with preparing the projections, or from the U.S. Census Bureau.

      (ii)(iii)   For the District of Columbia, official population projections developed by the Virginia state agency charged with preparing population projections may be used if unavailable from the District of Columbia agency responsible for official population projections.

      (3)  **Utilization.** Base year utilization of Maryland hospital inpatient services, including age, principal diagnosis on admission, special care days, payor

source, and area of residence of each patient, are obtained from the Commission's hospital discharge abstract data obtained under COMAR 10.24.02.

F.  Adjustments to Need Projection Methodology

If due to exceptional circumstances, MHCC staff concludes that the need projection methodology should be adjusted, the rationale for deviating from the methodology and new method shall be explained in conjunction with publishing draft projections for  public comment. Staff shall consider and respond to these comments before final projections are published.

**(4)** **Migration.** Migration data are obtained from the Commission's hospital discharge abstract data obtained under COMAR 10.24.02**.**

**(5)** **Case Mix.**

(a) Maryland case mix-adjusted average length of stay data, by service and hospital, are obtained from the Commission's hospital discharge abstract data obtained under COMAR 10.24.02.

(b) Record selection criteria conforms to exclusions and requirements set forth in §§B(l) and B(2) of this regulation.

**F.** **Method of Calculation to Project Need for Medical/Surgical/Gynecological/ Addictions Beds.**

**(1)** **Baseline Projection.**

(a) Calculate the ratio of target year to base year population, by area of residence and age group, by dividing the target year projected population, by area of residence and age group, by the base year estimated population, by area of residence and age group.

(b) Calculate the target year number of patient days, by area of residence, jurisdiction of care, and age group, by multiplying the base year number of patient days, by area of residence, jurisdiction of care and age group, by the ratio of target year to base year population, by area of residence and age group.

(c) Calculate the target year number of patient days, by jurisdiction of care, by summing, over area of residence and age group, the target year number of patient days, by area of residence, jurisdiction of care, and age group.

(d) Calculate the target year number of patient days, by jurisdiction of care and payor group, by multiplying the target year number of patient days, by jurisdiction of care,

by the ratio of the base year number of patient days, by jurisdiction of care and payor group, to the

base year number of patient days, by jurisdiction of care.

(e)    Calculate the target year number of discharges, by area of residence,

jurisdiction of care, and age group, by multiplying the base year number of discharges, by area of

residence, jurisdiction of care, and age group, by the ratio of target year to base year population,

by area of residence and age group.

(f)    Calculate the target year number of discharges, by jurisdiction of care,

by summing, over area of residence and age group, the target year number of discharges, by area

of residence, jurisdiction of care, and age group.

(g)    Calculate the target year number of discharges, by jurisdiction of care

and payor group, by multiplying the target year number of discharges, by jurisdiction of care, by

the ratio of the base year number of discharges, by jurisdiction of care and payor group, to the base

year number of discharges, by jurisdiction of care.

(h)    Calculate the target year average length of stay, by jurisdiction of care

and payor group, by dividing the target year number of patient days, by jurisdiction of care and

payor group, by the target year number of discharges, by jurisdiction of care and payor group.

(i)    Calculate the target year average length of stay by dividing the target

year number of patient days, summed over all jurisdictions of care and payor groups, by the target

year number of discharges, summed over all jurisdictions of care and payor groups.

**(2)    Adjustments in Discharges.**

(a)    Using the values found in §D(2) of this regulation, calculate the target

year expected number of discharges, by payor group, by multiplying the target year expected

discharge rate, by payor group, by the target year projected population, by age group, summing over all age groups, and dividing by 1,000.

(b) Calculate the proportional statewide change in number of discharges, by payor group, by subtracting the statewide target year expected number of discharges, by payor group, from the statewide target year numbers of discharges, by payor group, and dividing the result by the statewide target year number of discharges, by payor group.

(c) Calculate the adjusted target year number of discharges, by jurisdiction of care and payor group, by multiplying the proportional statewide change in number of discharges, by payor group, by the target year number of discharges, by jurisdiction of care and payor group, and subtracting the result from the target year number of discharges, by jurisdiction of care and payor group.

(d) Calculate the adjusted statewide expected number of discharges by summing, over all jurisdictions of care and payor groups, the adjusted target year number of discharges, by jurisdiction of care and payor group.

*(e)* Jurisdictional and adjusted statewide target year number of discharges are published as a notice in the *Maryland Register.*

**(3)** **Adjustments in Average Lengths of Stay.**

(a) Calculate the base year average length of stay, by jurisdiction of care, by dividing the base year number of patient days, by jurisdiction of care and payor group, by the base year number of discharges, by jurisdiction of care and payor group, and summing over all payor groups.

(b) For each jurisdiction in which the actual overall MSGA average length of stay exceeded the case mix-adjusted average length of stay in the base year, calculate the case

mix-adjusted base year average length of stay, by payor group, by multiplying the case mix-adjusted base year average length of stay, by hospital and payor group, by the base year number of discharges, by hospital and payor group, summing over all hospitals in the jurisdiction, and dividing the result by the base year number of discharges, by payor group.

(c)     For each jurisdiction in which the actual overall MSGA average length of stay exceeded the case mix-adjusted average length of stay in the base year, calculate the case mix factor, by payor group, by subtracting the case mix-adjusted base year average length of stay, by payor group, from the base year average length of stay, by payor group, and dividing  the result by the base year average length of stay, by jurisdiction of care.

(d)     Using the values found in §D(3)(a) of this regulation, calculate the proportional statewide change in average length of stay, by payor group, by subtracting the statewide expected average length of stay, by payor group, from the statewide target year average length of stay, by payor group, and dividing the result by the statewide target year average length of stay, by payor group.

(e)     For each jurisdiction in which the actual overall MSGA average length of stay exceeded the case mix-adjusted average length of stay in the base year, calculate the adjusted target year average length of stay, by payor group, by adding the proportional statewide change in average length of stay, by payor group, to the case mix factor, by payor group, multiplying the result by the base year average length of stay, by payor group, and subtracting the result from the target year average length of stay, by payor group.

(f)     For all other jurisdictions, calculate the adjusted target year average length of stay, by payor group, by multiplying the proportional statewide change in average

length of stay by the base year average length of stay, by payor group, and subtracting the result from the target year average length of stay, by payor group.

(g)     For jurisdictions in which the adjusted target year average length of stay, by payor group, is less than the minimum allowable average length of stay, by payor group, found in §D(3)(b) of this regulation, the adjusted target year average length of stay is set equal to the minimum allowable average length of stay.

(h)     Calculate the adjusted statewide target year expected average length of stay by payor group, by multiplying the adjusted target year average length of stay, by jurisdiction of care and payor group, by the adjusted target year number of discharges, by jurisdiction of care and payor group, calculated in accordance with §F(2)(c) of this regulation, summing the product over all jurisdictions of care, and dividing the result by the adjusted statewide number of discharges, by payor group.

**(4)     Gross and Net Bed Need Projection.**

(a)     Calculate the adjusted target year patient days, by jurisdiction of care, by multiplying the adjusted target year discharges, by jurisdiction of care and payor group, by the adjusted target year average length of stay, by jurisdiction of care and payor group, and summing the result over all payor groups.

(b)     Calculate the average daily census, by jurisdiction of care, by dividing the adjusted target year patient days, by jurisdiction of care, by 365.

(c) Calculate the target year gross bed need, by jurisdiction of care, by dividing the average daily census, by jurisdiction of care, by the jurisdictional minimum occupancy standard found in §D(4) of this regulation. For jurisdictions with more than one hospital, the jurisdictional minimum occupancy standard used in calculating target year gross

bed need will be calculated by pro-rating the MSGA occupancy standards found in §D(4) of this regulation, at the hospital level, using the assumption that target year MSGA average daily census for the jurisdiction will be proportioned to each hospital in the jurisdiction at the same ratio in which total jurisdictional MSGA average daily census was allocated among the hospitals in the base year.

(d)    Calculate the target year net bed need, by jurisdiction of care, by subtracting the licensed and Certificate of Need-approved bed capacity, by jurisdiction of care, from the target year gross bed need, by jurisdiction of care.

(e)    Calculate the target year statewide net bed need by summing, over all jurisdictions of care, the target year net bed need, by jurisdiction of care.

(f)    Jurisdictional gross and net bed need for the MSGA service will be calculated annually and published as a notice in the *Maryland Register.* The jurisdictional gross and net bed need for the MSGA service will apply in the review of a Certificate of Need application acted on by the Maryland Health Care Commission after the publication of the jurisdictional gross and net bed need in the *Maryland Register.*