HEALTH PLANNING SOURCE

MEMORANDUM

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SUBJECT: HOSPICE METHODOLOGY TASK FORCE

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Since the last meeting of the Task Force, I have had the opportunity to talk with Judy and Floyd about several issues that need to be explored in order to provide further guidance to the Task Force, including:

- What is the average number of patients and deaths per licensed home care office, which potentially could be used as the new threshold for need and placeholder?
- What are the differences between the Medicare-certified home health and hospice home care methodologies regarding assumptions in growth rates/potential of existing providers?
- Should the inpatient bed methodology be changed to use deaths (or admissions) as the base, rather than days, and if so, how?
- What adjustment might be reasonable to use in the inpatient methodology to account for the increase in direct admissions to the hospice facility that may not have occurred without an inpatient unit?

The following discussion reviews each of these questions and related analyses and is divided into a section on the home care methodology and one on the inpatient methodology.

HOME CARE METHODOLOGY

What is the average number of patients and deaths per licensed home care office, which potentially could be used as the new threshold for need and placeholder?

The home care office methodology currently utilizes need thresholds of 50 and 75 deaths for counties with 50,000 or fewer people and counties with more than 50,000 people respectively. In addition, the methodology uses 110 deaths as a placeholder for new offices in counties for which a need determination has been made. Per the memorandum we distributed at the last meeting, a simple adjustment to the home care need methodology could be raising the need threshold. In that memo, we analyzed the average and median size of North Carolina hospice programs (single business entities), with an average of 327 deaths per program and a median of 185 deaths per program.

Although we believe that there are policy reasons to analyze program statistics (e.g., the ability of larger programs to offer more specialized services), we do recognize that the North Carolina CON statutes regulate hospice home care offices, not programs. As such, we conducted a review of hospice office utilization data collected by The Carolinas Center for Hospice and End of Life from the 2008 Annual Data Supplements to Licensure Application (2007 data).

Statistic	***Per Hospice Office***
Average per Office	
Annual Admissions	160
Annual Deaths	129
Annual Days	14,050
ADC	38.5
Median per Office	
Annual Admissions	83
Annual Deaths	56
Annual Days	8,187
ADC	22.4
Largest Office	
Annual Admissions	1,400
Annual Deaths	1,212
Annual Days	111,435
ADC	305.3
Smallest Office	
Annual Admissions	2
Annual Deaths	0
Annual Days	201
ADC	0.6

Conclusion: There is a considerable disparity between the average and median deaths per office, with the average nearly twice the size of the median. These data suggest that there are a greater number of smaller offices in North Carolina. However, as indicated in our last memo, a greater number of smaller offices may not result in a significant increase in hospice penetration rates in comparison to other, more utilized states such as Florida.

What are the differences between the Medicare-certified home health and hospice home care methodologies regarding assumptions in growth rates/potential of existing providers?

To highlight the differences, we have written out the two formulas based on the years in the 2009 SMFP.

Home Health Methodology Formula:

SUPPLY: 2007 Actual Home Health Patients (-2 years from SMFP year) x Average Annual Rate of Change in COG Patients Served for 3 years = 2010 Estimated Home Health Patients Served (+1 year from SMFP year)

NEED: 2007 Actual Home Health Use Rate (-2 years from SMFP year) x Average Annual Rate of Change in COG Use Rate for 3 years = 2010 Projected Use Rate (+1 year from SMFP year) x 2010 Projected County Population (+1 year from SMFP year) = 2010 Projected Home Health Patients Served (+1 year from SMFP year)

NEED in 2010 (+1 from SMFP year) – SUPPLY in 2010 (+1 from SMFP year) = UNMET NEED in 2010 (+1 from SMFP year)

Hospice Home Care Methodology Formula:

SUPPLY: 2007 Actual Hospice Deaths Served (-2 years from SMFP year)

NEED: 2007 Actual % of Hospice Deaths Statewide (-2 years from SMFP year) x 2010 Projected Deaths (+1 year from SMFP year) = 2010 Projected Hospice Deaths (~+1 year from SMFP year)

NEED in 2010 (~+1 from SMFP year) – SUPPLY in 2007 (-2 years from SMFP year) = UNMET NEED in 2010 (+1 from SMFP year)

As noted, the home health methodology adjusts the factors used in the methodology to the planning year in the SMFP, by assuming an average annual change in patients served (supply side of the equation) and in the use rate (need side of the equation). In contrast, the hospice home care methodology does not make any adjustments to the supply side of the equation and adjusts the need side of the equation only by adjusting for change in population.

Conclusion: Without an adjustment to balance the equation, counties with significantly high population growth (e.g., Union County) may show a need for another hospice office when such as need does not actually exist. A possible solution (to more closely mirror the home health methodology) would be to apply a historical growth rate to the Actual % of Hospice Deaths Statewide and to the number of Actual Hospice Deaths Served by existing providers.

INPATIENT METHODOLOGY

Should the inpatient bed methodology be changed to use deaths (or admissions) as the base, rather than days, and if so, how?

Under the current inpatient bed methodology, eight percent of total hospice days are assumed to be inpatient days. Projected inpatient days are then used to calculate bed need, based on a target occupancy rates. Because patient days are a necessary statistic to calculate bed need, any change to the methodology will still require the inclusion of projected patient days in order to derive bed need, even if the methodology starts with deaths (or admissions).

As I mentioned in the last meeting, it has been our experience that the relationship between inpatient deaths and inpatient days in the SMFP methodology is in conflict with the CON Section's review of these same statistics in inpatient hospice applications. In essence, the SMFP methodology assumes

that all counties, regardless of their average length of stay, will experience eight percent of days in an inpatient facility. Thus, the current inpatient methodology inherently assumes that a county with a high total average length of stay would have a higher inpatient length of stay as well. However, the CON Section, in reviewing inpatient applications, has not found reasonable hospice inpatient lengths of stay that are greater than the statewide average, even if that particular county's total average length of stay is greater than the average.

For example, Robeson County has the highest total hospice average length of stay in North Carolina at 393.0 days in 2007. Using the 2007 statistics from the 2009 SMFP inpatient methodology assumes that Robeson County would provide 9,683 inpatient days (9,683 inpatient days = 8 percent of 121,040 total hospice days in 2007). Any CON applicant for inpatient beds would be required in the application to calculate the number of inpatients (in addition to number of admissions and deaths) that would result from providing those 9,683 inpatient days and thus, would need to apply an average length of stay assumption. In 2007, the statewide inpatient average length of stay was 11.7 days[1]. Assuming that Robeson County inpatients will have a 11.7 day inpatient average length of stay, the resulting number of inpatient deaths served would be 828 in 2007 (9,683 patient days / 11.7 ALOS = 828). However, Robeson County had only 308 total hospice deaths in 2007, according to Table 13B of the 2009 SMFP. Thus, the projected days in the inpatient bed methodology when applied to the statewide average length of stay to determine inpatient deaths results in more inpatient deaths than total hospice deaths in Robeson County and in many counties across the state.

The dynamic demonstrated in the Robeson County example can be summarized as follows:

> *If eight percent of the total hospice average length of stay for a given county is greater than the statewide average length of stay for inpatients, then the calculations in any inpatient CON application for that county will result in more projected inpatient hospice deaths than total hospice deaths.*

In counties with high hospice average lengths of stay, providers applying for inpatient beds must use an aggressive assumption for inpatient average length of stay in order to demonstrate a reasonable relationship between total hospice deaths and inpatient deaths. In fact, 20 counties in 2007 would need to assume an inpatient average length of stay greater than the statewide average of 11.7 days in order for projected inpatient deaths to be equal to total hospice deaths, as shown in the chart below.

County	***2007 Total Hospice ALOS***	***ALOS Assumption Resulting in Inpatients Deaths equal to Total Hospice Deaths (Total Hospice ALOS x 8%)***
Robeson	393.0	31.4
Hyde	311.6	24.9
Bladen	268.4	21.5
Columbus	247.3	19.8
Hoke	245.0	19.6
Richmond	240.5	19.2
Duplin	238.6	19.1

[1] In 2007, the Four Seasons hospice facility demonstrated the highest average length of stay among all inpatient facilities in the state at 14.7 days.

Sampson	232.6	18.6
Harnett	218.2	17.5
Johnston	200.9	16.1
Lee	191.9	15.4
Mitchell	169.9	13.6
Surry	166.9	13.4
Wilson	157.0	12.6
Jones	155.7	12.5
Stokes	155.5	12.4
Warren	154.5	12.4
Beaufort	152.0	12.2
Polk	149.4	11.9
Moore	148.7	11.9

Again, applicants in these counties would have to assume an inpatient average length of stay greater than the statewide average (which the CON Section would not find reasonable) in order to project inpatient deaths equal to total hospice deaths (which the CON Section also would not find reasonable that 100 percent of hospice deaths were served by an inpatient facility).

In 2007, existing inpatient facilities in North Carolina actually served between 7 and 56 percent of total hospice deaths in their home counties. Thus, if one assumes that the highest actual percent of inpatient deaths, 56 percent, would be served by an inpatient facility (in contrast to the 100 percent inpatient deaths to total hospice deaths in the preceding paragraph), 72 of North Carolina's 100 counties would have to assume an inpatient average length of stay greater than the statewide average of 11.7 days in order to be consistent with the inpatient days projected in the SMFP methodology.

Given these considerable issues with the current inpatient methodology, we suggest that the Task Force consider a revised methodology that starts with hospice deaths and utilizes a statewide total hospice average length of stay assumption as follows:

Step 1: Estimated total hospice deaths are determined in the same manner as in the hospice home care office methodology.

Step 2: Projected total hospice days are calculated by multiplying the total hospice deaths (Step 1) by the statewide hospice average length of stay.

Step 3: Estimated total hospice inpatient days are calculated for each county by multiplying the estimated total days of care (Step 2) by eight percent.

Step 4: Projected inpatient hospice beds are calculated by dividing estimated hospice inpatient days (Step 3) by 365 and then dividing by 0.85 to adjust for a targeted 85 percent occupancy.

Conclusion: Revising the inpatient bed methodology to utilize a statewide average length of stay assumption will eliminate the conflict between the current methodology and the CON

Section's application of other assumptions to inpatient applications, such as the statewide inpatient actual average length of stay.

What adjustment might be reasonable to use in the inpatient methodology to account for the increase in direct admissions to the hospice facility that would not have occurred to home care only?

We looked at the impact of new hospice facility entrants into North Carolina counties from the period of 1998 to 2006. (There were no new entrants in 1998, 1999, 2000, 2001, and 2003. The three new facilities in 2007 were not included, as the 2008 statewide data has not been compiled.) Over this period of time, five counties experienced the addition of a hospice facility. In the year prior to the opening of the new hospice facility, these counties had a hospice penetration rate that was, on average, 115 percent of the North Carolina rate in that same year. With the opening of the new hospice facility, the average penetration rate increased by nine percentage points by the second year of operation and the overall average penetration rate in these counties during the second year of the new facility's operation increased to 128 percent of the North Carolina rate in the same year.

We also examined the direct admission utilization of the four facilities that opened from 2004 to 2006 and found that in the second year of operation, direct admissions to the facility comprised 33 percent of total admissions. In 2007, direct admissions comprised 48 percent of total North Carolina hospice facility admissions. However, among these four facilities, the relationship between direct admissions to the hospice inpatient facility and the increase in hospice deaths as a result of an increase in the hospice penetration rate varied (i.e., how much did direct admissions to the hospice facility contribute to the increase in hospice penetration?), as shown in the chart below.

County	***Inpatient Direct Admits as a Percentage of Increase in Total Hospice Penetration Rate***
Catawba	100+%
Cumberland	26%
Iredell	83%
Rutherford	76%

Conclusion: The addition of a new hospice facility has resulted in increased penetration rates in the home counties of those facilities. New hospice facilities experience significant direct admissions immediately upon opening, some of which may not have occurred to a home care only setting. This dynamic could be accounted for in a revised hospice inpatient bed methodology by assuming an increased penetration rate in the calculation of projected hospice deaths. However, in some respects this creates a circular argument by assuming a higher penetration rate in order to project need for the facility which would create the higher penetration rate; such an adjustment also may be difficult to incorporate into the methodology because of the variance in actual experience of existing hospice facilities.