ESRD Dialysis Facilities: Facility Need Methodology Modeling Tool
Prepared for ESRD Interested Parties Meeting, January 16, 2019
NC Division of Health Service Regulation, Healthcare Planning

---

Reference

Introduction

The goal of the annual ESRD reporting system is to bring consistency to the chapters in the State Medical Facilities Plan (SMFP). All other chapters report data annually, usually as of the year ending September 30. We propose to have ESRD facilities report data as of December 31; at this point, we anticipate no changes in the data to be reported. This change will require adjustments to the current methodology, however. The intent is for the adjustments to trigger at least as many facility-based needs as the SDRs would be likely to yield for a 12-month period. In other words, the goal is parity between semiannual and annual data reporting.

An annual reporting system means that facility need determinations will be published in the SMFP. As such, each facility with a need determination will have one opportunity per year to apply for a CON to add stations. However, the system does not imply that there will be only one CON due date for all such applications. For example, CON may establish multiple due dates for applications to add stations, but a single facility can apply on only one of those dates during the calendar year.

The modeling tool allows users to compare needs reported semiannually to needs calculated using data reported annually. Using the 2018 SMFP as an example, data is 13 months old on the first CON application period at the beginning of the year and 24 months old at the end of the year. In comparison, at the time of any SDR, data is nine months old at the time of the CON application due date (under the current CON application schedule).

To account for the age of the data, we created two models. The first (the "3 SDRs" model) examines facility needs across three SDRs. This approach enables us to examine data that covers the complete "age" range of the data that would be used in the SMFP (i.e., data that is 12, 18, and 24 months old). The second model ("annual" model) allows users to adjust the parameters for annual reporting so that the model (methodology) is not likely to produce fewer needs than would be generated across three SDRs combined. The "3 SDRs" model uses the January 2017, July 2017, and January 2018 SDRs, which reflect data from June 30, 2016, December 31, 2016, and June 30, 2017, respectively. The "annual" model uses data from December 31, 2016 for the 2018 SMFP. Because we need to use the same starting date for both models, these dates reflect the most current data available at the time of the analysis.

The Excel file **ESRD Modeling Tool.xlsx** contains the modeling tool and supporting data. The data used in the modeling tool is from the ESRD database maintained by Healthcare Planning and used in the SDR. The first three worksheets contain data for the January 2014 through July 2018 SDRs. Each SDR/year contains the same columns. Data from the January 2014 SDR through the January 2016 SDRs is not used in the modeling tool, but is included for reference only.

Annotated Instructions for Use of the Modeling Tool

The sheets have 1 row for each facility in the July 2018 SDR. If a facility did not have certified stations in a previous SDR, all values are zero for that SDR. The following descriptions and instructions cover each column in each worksheet.

- **"Semi" Worksheet:** facility data for each SDR. Columns
  - *A:* ID – internal system ID. Ignore.
  - *B:* Location – county in which the facility is located
  - *C:* FID – DHSR facility ID number
  - *D:* Provider Number – CMS Provider Number
  - *E:* Facility Name as of July 2018 SDR
  - *F – AI:* stations and patients at data cut-off date for each SDR
    - Total Stations (*Planning Inventory*) = certified stations and stations for which CONs have been issued but stations have not yet been certified (e.g., stations to be added or relocated).
    - Number Stations (*Inventory*) = total number of certified stations at facility.
    - InCenter Patients = number of in-center patients (i.e., the number of patients used in the methodology).
  - *AK – CL: Calculations from previous columns, used in facility need methodology (e.g., Columns AK-AP = data used to calculate facility need for the July 2014 SDR)*
    - Curr pats per stats = Current patients per dialysis station, based on number of stations in the planning inventory. "Current"=data for the "to" SDR, e.g, for the "Jan 2014 SDR *to* Jul 2014 SDR" columns; "current" = Jul 2014 SDR.
    - Growth rate = Change in number of in-center patients from previous to current SDR; can be positive or negative.
    - Proj Pats per stats = Projected patients per station for current SDR, based on growth rate.
    - Sur(-)/def(+) = Surplus or deficit of stations, based on methodology calculations. Surpluses are negative numbers; deficits are positive numbers.
    - Need = Need for additional stations, based on methodology, maximum need of 10 stations.
    - No max need = Need for additional stations, based on methodology, but does not impose maximum need of 10 stations

- **"Annual" Worksheet:**
  - *A – AI: identical to columns on Semi worksheet*
  - *AK – BX: calculations from facility methodology*
    - Curr pats per stats = Current patients per dialysis station, based on number of certified stations.
    - Growth rate = Annual change in number of in-center patients from SDR 1 year ago to current SDR (e.g., from January 2014 SDR to January 2015 SDR); can be positive or negative.

- Proj Pats per stats = Projected patients per station for current SDR, based on growth rate.
- Sur(-)/def(+) = Surplus or deficit of stations, based on methodology calculations.
- Annual need = Need for additional stations using annual growth rate, but does not impose maximum need of 10 stations.

- **"Listing" Worksheet:** Ignore; records the calculated needs from the **Semi** and **Annual** worksheets. It is used only to facilitate the calculations on the **Summary** worksheet.

- **"Summary" Worksheet:** This worksheet contains two tables.
  - *Modeling Parameters Section: Allows the user to change the methodology parameters to test the effects of different need determination criteria. Default values reflect the current methodology.*
    - Columns:
      - **B:** Value – The value of each parameter. The user can change these values to test different need determination scenarios.
      - **C:** Description – The meaning of the value in the previous column
        - Utilization criterion = Minimum utilization percentage required to be eligible to apply for additional stations; e.g., a value of 80 means 80% utilization.
        - Growth rate multiplier = Adjusts the growth rate in station utilization for the facility. The current methodology makes no adjustment to the growth rate, indicated by a multiplier of 1. A value greater than 1 is an adjustment indicating an increased growth rate; a value less than 1 is an adjustment indicating a decreased growth rate.
        - Utilization threshold to determine number of stations needed = The utilization percentage for calculating the number of stations needed, when the Utilization Criterion shows that the facility has a need determination. The current methodology assumes that an applicant can apply to add the number of stations that would allow the facility to achieve 80% utilization.
        - Maximum number of deficits – The default value is 10,000, because Excel does not allow the cell to be blank; this number is tantamount to having no limit on the number of needs allowed in a single planning cycle. We suggest that the maximum should be at least 20. The current maximum is 10. Under the current methodology, a facility can apply to add up to 10 stations twice in a 12-month period. It seems reasonable that a facility should be allowed to apply to add at least 20 stations in a single CON application if there can be only one CON application annually for a single facility.
      - **D:** Equivalent Value – The number of patients per station that results when the Value column changes (e.g., Entering 70 in the Value cell automatically changes the equivalent value to 2.8 patients per station). **Do not make changes in this column.**
      - **G:** Inventory Adjustments - User-entered value to reflect adjustments to how previous needs are incorporated into new need determinations

- **H:** Explanations of values to be entered in Column G
  - **0** = A "what if" scenario. Does not subtract any deficits from calculation of facility need for previous cycle. This option assumes that no needs were applied for in the previous cycle. There are no CON applications for a majority of facility needs.
  - **1** = Subtracts deficits of fewer than 10. For deficits of 10 or greater, it subtracts 10. This option assumes that all needs have been applied for, up to a maximum of 10.
  - **2** = A "what if" scenario. This option is similar to Option 1, but subtracts actual number of deficits, i.e., does not cap at 10. This option assumes that all needs have been applied for, with no maximum.

- **Results Section:** *Contains the results of the changes to the parameters above.*
  - **Number of Facilities (D – F)**
    - **D:** Number of facilities with needs in the "3 SDRs" model. This means that the facility generated a need in at least 1 of the three SDRs in the "3 SDRs" model. This number does not change. Use this number to compare needs based on the current semiannual reporting system to needs generated using an annual reporting system (the "annual" model).
    - **E:** Number of facilities with needs, using the "annual" model.
    - **F:** Number of facilities with a need in the "3 SDRs" model that did <u>not</u> have a need in the "annual" model.
    - **G:** Number of facilities with a need in the "annual" model that had <u>no</u> needs in the "3 SDRs" model.
      - If the annual (SMFP) need methodology produces needs in facilities that would have had them in at least 1 of the 3 SDRs during the projection period, Columns D and E will be similar, and Column F will have a low number (indicating a high degree of overlap between the needs generated in the combined SDRs versus the SMFP).
  - **Number of Stations (H – J)**
    - **H:** The total number of station need determinations generated in all 3 SDRs in the model (i.e., data collected for three 6-month periods).
    - **I:** The number of need determinations generated using annual data (i.e., data collected once a year).
    - **J:** Column I minus Column H. A negative number indicates that the 3 SDRs produce needs for more stations than the annual data. A positive number indicates that the annual methodology generates more needs than the needs generated in the 3 combined SDRs.

- **"Fac_view" Worksheet:** When the user changes the parameters on the Summary page, the data on the **Filters** worksheet automatically updates to reflect the changes.
    - *Column F:*
        - The number of stations in the planning inventory for each facility as of the January 2018 SDR.
    - *Column G:*
        - The cumulative number of additional stations needed based on 3 SDRs. These calculations <u>do not</u> impose a maximum of 10 stations per SDR.
    - *Column H:*
        - The number of additional stations needed based on Annual data. The highest number that can appear will be the Maximum Number of Stations Needed in the Modeling Parameters section of the Summary worksheet. For example, if you entered "20," in Column B of the Summary worksheet, the highest number that will appear in this column is 20, regardless of the actual facility deficit.
    - *Column I:*
        - A check mark and yellow highlighting indicates that the Facility on the specific row generated a need when using data from 3 SDRs but did not generate a need when using data for an annual period only.
        - Use the "Filter by Color" option to select the yellow check-marked rows if you want to see the information separately.
    - *Column J:*
        - A check mark and blue highlighting indicates that the Facility on the specific row did not generate a need when using data from 3 SDRs but did generate a need when using Annual data.
        - Use the "Filter by Color" option to select the blue check-marked rows if you want to see the information separately.

    - If a facility has blanks in both columns H and I, this means that the facility generated no needs using either the 3 SDRs or annual data.
    - **Note:** Due to the formulas in the cells, we don't recommend resorting this worksheet. Use the Filter option only.