

Manual M-9, Strategic Planning

(Veterans Health Administration)

Chapter 5, MEDIPP* Planning Models

(Paragraphs 5.01 through 5.08; Appendix 5A and Appendix 5E)

*MEDIPP was crossed out and replaced by Strategic Planning

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Strategic Planning

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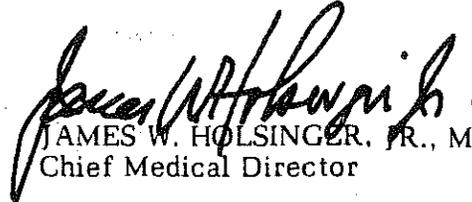
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RESCISSIONS

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Strategic Planning
CHAPTER 5. MEDIPP PLANNING MODELS

5.01 OVERVIEW

Strategic Planning
a. The various MEDIPP planning models are used to project future veteran inpatient, outpatient, nursing home, and domiciliary workload. These models constitute the tools that planners and decisionmakers use in developing long-range planning allocations for VA medical centers.

Strategic Planning
b. MEDIPP guidance will specify which of the planning models are to be applied each planning cycle.

c. The planning models have been developed for application, generally on a facility-specific basis, using the most recent historical veteran utilization data and veteran population projections. The hospital, outpatient and SCI (Spinal Cord Injury) models use a moving historical data base consisting of the 3 most recent full years of PTF data. For example, the 1988 models would be based on FY (Fiscal Year) 1985, 1986, and 1987 data. For the remainder of this manual the oldest FY of data will be referred to as year 1, the middle year will be referred to as year 2, and the most recent year will be referred to as year 3.

d. The results of application of the planning models will be subjected to intensive technical review to ensure that:

(1) The models have been properly applied, and

(2) The results of the planning models are appropriately used to set future, long-range planning targets.

Strategic Planning
e. As the medical district is the cornerstone of MEDIPP planning, determinations on the numbers and types of beds, outpatient visits, nursing home census, domiciliary census, and hospital programs to be allocated to each VA medical center in a medical district must consider:

(1) The mission of the medical district and how each VA medical center contributes to meeting that mission;

(2) The scope and types of services to be provided at each facility;

(3) The most efficient and cost-effective mix of beds, outpatient services, and hospital programs in each VA medical center;

(4) The potential need to shift bed levels, outpatient workload, and hospital programs between VA medical centers; and

(5) The potential to reduce/eliminate repetitive and redundant services.

f. The bed, census, and outpatient visit levels allocated to a VA medical center will become the basis for development of:

Strategic Planning
(1) MEDIPP recommendations focusing on meeting the allocated workload levels;

(2) Construction projects, as necessary, to accomplish the approved MEDIPP recommendations; and *Strategic Planning*

(3) Additional recommendations relating to programs and activities which support the allocated workload levels.

g. The allocated workload levels approved through MEDIPP represent the official planned levels of the VHS&RA for the purposes of program, facility development, construction and other associated planning. Except as noted in M-9, chapters 3 and 11, projected workload levels should not be provided to individuals outside the Veterans Health Services and Research Administration prior to formal approval by the Deputy Chief Medical Director.

5.02 HOSPITAL PLANNING MODEL

a. The Hospital Planning Model, originally developed in cooperation with the General Accounting Office, is to be used to develop projections of facility-specific, bed section-specific, future bed requirements.

b. Data to be used in the Hospital Planning Model include:

- (1) Age-specific veteran population projections;
- (2) Age-specific and bed section specific hospital DR (discharge rates) and LOS (length of stay);
- (3) The results of surveys on the appropriateness of hospital patient placement; and
- (4) Program Interaction Adjustments.

c. The model will project the number of acute and extended hospital beds needed for a VA medical center to serve the eligible veteran population of a PSA (Primary Service Area). Multiple point-in-time projections are generated by the model so that planners and decisionmakers can determine the most appropriate bed level for a VA medical center over an extended period of time. The model projections are the first step in determining workload allocations. The model projections are subject to further adjustment based on local knowledge and district-wide and regional-wide priorities and needs. Adjustments supporting allocations which exceed the model projections must be quantitatively justified and documented. The final allocation becomes the long-range planning target for the VA medical center. Vacated hospital bed space should be considered for possible conversion to nursing home, domiciliary, research, or administrative use. Conversely, the MEDIPP plans are expected to show requests for concomitant increases in the size of non-hospital alternative programs.

5.03 OUTPATIENT PLANNING MODEL

a. Outpatient care represents one of the most cost-effective treatment modalities to obviate or mitigate the need for inpatient institutional care. The Outpatient Planning Model is the tool to be used by planners and decisionmakers in determining the future outpatient workload levels to be served by VA medical centers and independent outpatient clinics and SOCs (Satellite Outpatient Clinics).

b. Data used in this model include:

- (1) Age-specific veteran population projections;
- (2) Age-specific historical veteran outpatient VRs (visit rates); and

(3) Data from the Hospital Planning Model on hospital patients who may be more appropriately placed or treated in an outpatient setting.

c. This model projects the potential number of outpatient visits to be served by each existing facility. Multiple point-in-time projections are generated by the model so that planners and decisionmakers can determine the most appropriate outpatient workload level to be served by each facility over an extended period of time. The model projections are the first step in determining workload allocations. The model projections are subject to further adjustment based on local knowledge and district-wide and regional-wide priorities and needs. Adjustments supporting allocations which exceed model projections must be quantitatively justified and documented. The final outpatient visit allocation becomes the outpatient long-range planning target for the facility.

d. The SOC/community-based clinic needs assessment methodology is available and should be applied when proposing such facilities.

5.04 DOMICILIARY CARE PLANNING MODEL

a. The purpose of the Domiciliary Needs Assessment Methodology is to determine future domiciliary bed requirements, given the present mission of the Domiciliary Program. The projection methodology is based on application of historic age-adjusted workloads and age-specific population estimates to derive beds. It is thus consistent with the other planning methodologies.

b. Projections for SH (State Home) domiciliary needs are calculated separately.

c. There are two basic parts to the methodology. The first is the projection of domiciliary beds based on historic utilization. Utilization rates are based on the experience of existing domiciliaries within each region and are applied to future population estimates. The second is an appropriate placement adjustment that accounts for those patients occupying beds in hospitals within each Region but who may be more appropriately placed in a domiciliary setting.

5.05 NURSING HOME CARE PLANNING MODEL

a. The Nursing Home Care Planning Model is used to determine future veteran needs for VA sponsored nursing home care in each medical district. VA sponsored nursing home care consists of a combination of VA owned and operated nursing home care beds, contracted CNH (Community Nursing Home) care beds, and SH nursing home care beds.

b. Data used in the Nursing Home Care Model include:

- (1) Age-specific veteran population projections;
- (2) Age-specific projected nursing home care utilization rates; and
- (3) Market share and program mix parameters.

c. This model will project the total demand for the nursing home care program in a medical district. The medical districts will determine the level of care that can be met within each PSA through the three individual programs by the application of a market share and then apportion that total over the three nursing home care programs, providing for maximum use of CNH beds and SH nursing home care beds.

d. The model projections are the first step in determining workload allocations. The model projections are subject to further adjustment based on local knowledge and district-wide and regional-wide priorities and needs. Adjustments supporting allocations which exceed model projections must be quantitatively documented.

e. Maximum use of available and suitable CNH and SH nursing home care capacity is expected. The VA system, to the greatest extent possible, is to provide for approximately 30 percent of VA supported nursing home care through VA beds, 40 percent through CNH care beds, and 30 percent through SH nursing home care beds. Further, excess hospital beds are to be converted for use as nursing home beds within the overall 30 percent parameter to obviate the need for construction of new VA nursing homes.

5.06 SPINAL CORD INJURY PLANNING MODEL

a. The purpose of the SCI Planning Model is to project future quadriplegic/paraplegic bed requirements for VA medical centers.

b. The model uses a moving historical data base consisting of the three most recent full years of PTF data.

c. The model is computed using a regional SCI population base.

5.07 OTHER PLANNING MODELS

a. As the need for additional workload projection models arises, such models will be developed and issued.

b. All such models will be standardized for application on a system-wide basis.

c. Development of new planning sizing models will draw on VA Central Office, field, and private sector expertise (as appropriate) and incorporate adequate field testing to ensure that the models function properly and can serve as the basis for further MEDIPP recommendations.

5.08 TECHNICAL REVIEW

a. Technical review of the results of facility-specific needs assessment methodologies is the joint responsibility of the Regional Directors and the Office of Strategic Planning in cooperation with respective medical districts. The purpose of the review is to ensure that the prescribed planning guidelines have been followed and the resulting allocations are defensible. Planners are reminded that the methodology results are the beginning step in determining workload allocations. Workload allocations may exceed methodology results when additional workload is quantitatively justified.

b. The technical review meeting should be scheduled as soon as possible after medical district plans are submitted to the Region. A series of questions have been provided for each methodology which should be answered for each facility review. Districts will be given the opportunity to revise allocations or justifications as necessary and resubmit results prior to Regional plan development.

c. The Regional Strategic Plans will identify workload levels where resolution by Region and/or VA Central Office representatives have not been reached. These areas will be resolved through the VA Central Office review process at appropriate decision responsibility levels. They are to be submitted in the "Workload Levels Requiring VA Central Office (i.e., Strategic Planning Board) Review" section of the Region Strategic Plan.

HOSPITAL PLANNING MODEL

1. THE LOGIC OF THE HOSPITAL PLANNING MODEL

a. The hospital planning model is the primary analytical approach available for determining requirements for hospital beds in the Department of Veterans Affairs. The model is essentially a linear projection of current utilization rates by future population estimates.

b. Figure 1 shows the basics of the hospital planning model. Separate projections are calculated and totalled for seven age groups to obtain the total bed requirement. This method accommodates age related health care utilization rates and the significant age distribution shift as the World War II cohort reaches retirement. Bed requirements are calculated for six hospital bed sections: internal medicine, intermediate medicine, neurology, rehabilitation medicine, surgery and psychiatry. The sum of these requirements plus the beds needed for blind rehabilitation, and spinal cord injury is the total hospital bed requirement. The model can be applied to estimate the number of beds required for any VA medical center, district, region, or for the entire VA system.

c. Requirements for acute care hospital beds in the VA are based on standards for length of stay calculated from community hospital records. For most veterans, the actual length-of-stay in VA medical center is greater than the average length-of-stay of a patient with a similar diagnosis in a community hospital. Some of the difference in length of stay represents care that could be delivered more efficiently in a non-hospital setting, but some represents a requirement for extended care hospital beds. The planning model derives the extended care hospital bed requirement by first calculating the total "non-acute" bed requirement and then retaining a percentage of those beds based on the results of a survey conducted by the VA. The survey results determine the distribution of the resources represented by non-acute beds to hospital and non-hospital programs. Figure 2 shows that the model uses the basic formula with two sets of parameters to calculate the two components of the projected bed requirement.

d. The Secretary of VA and the Comptroller General of the United States agreed to the fundamental principles of the model in 1980. Since 1980, the model has been implemented in a series of computer programs. The users of the programs are the staffs of the regional and medical district planning offices and policy makers at VA Central Office. The model is used in the MEDIPP process and is also required for all replacement and major renovation projects.

* Replace MEDIPP with Strategic Planning (Change 2, dated July 26, 1991).

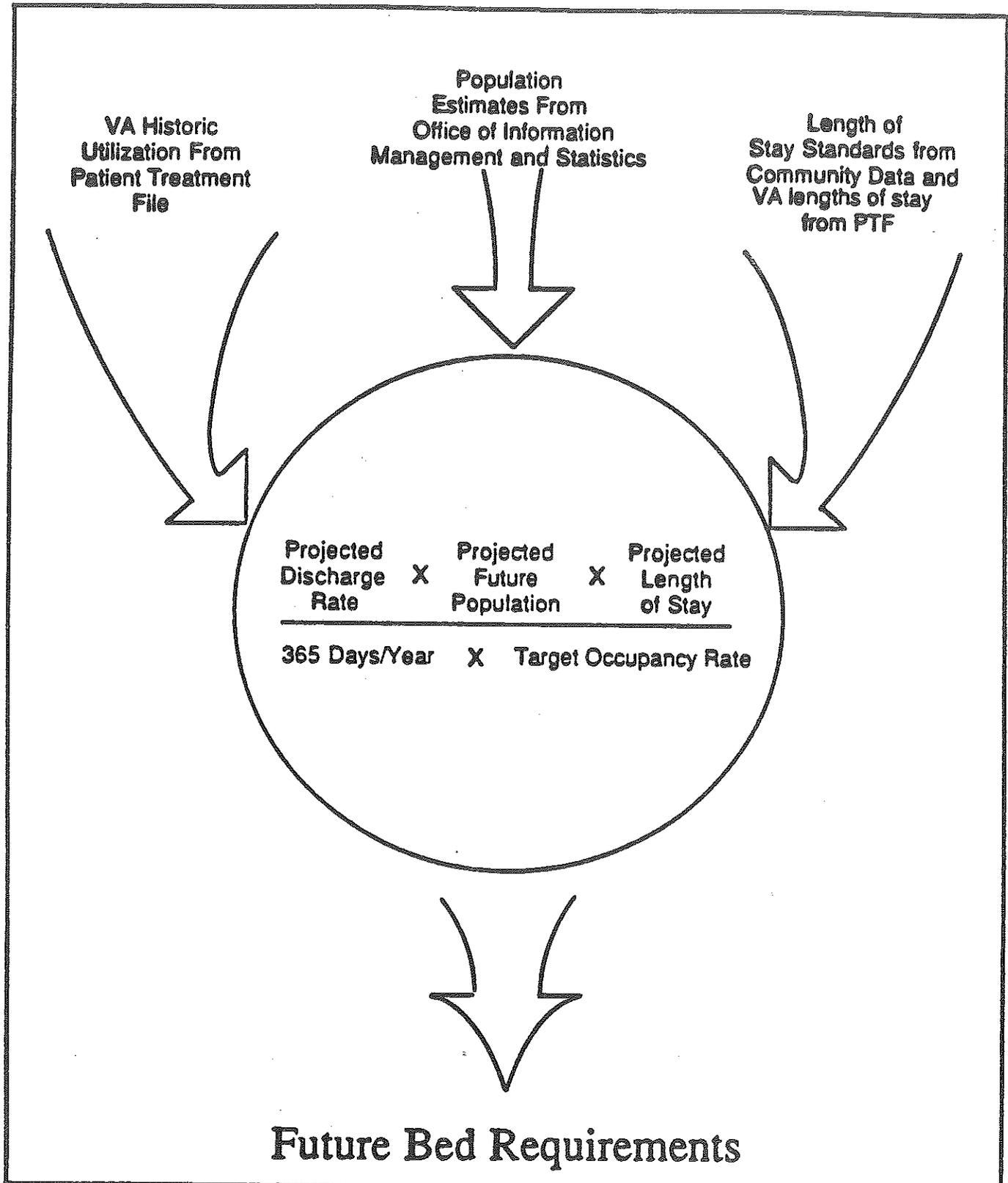


Figure 1

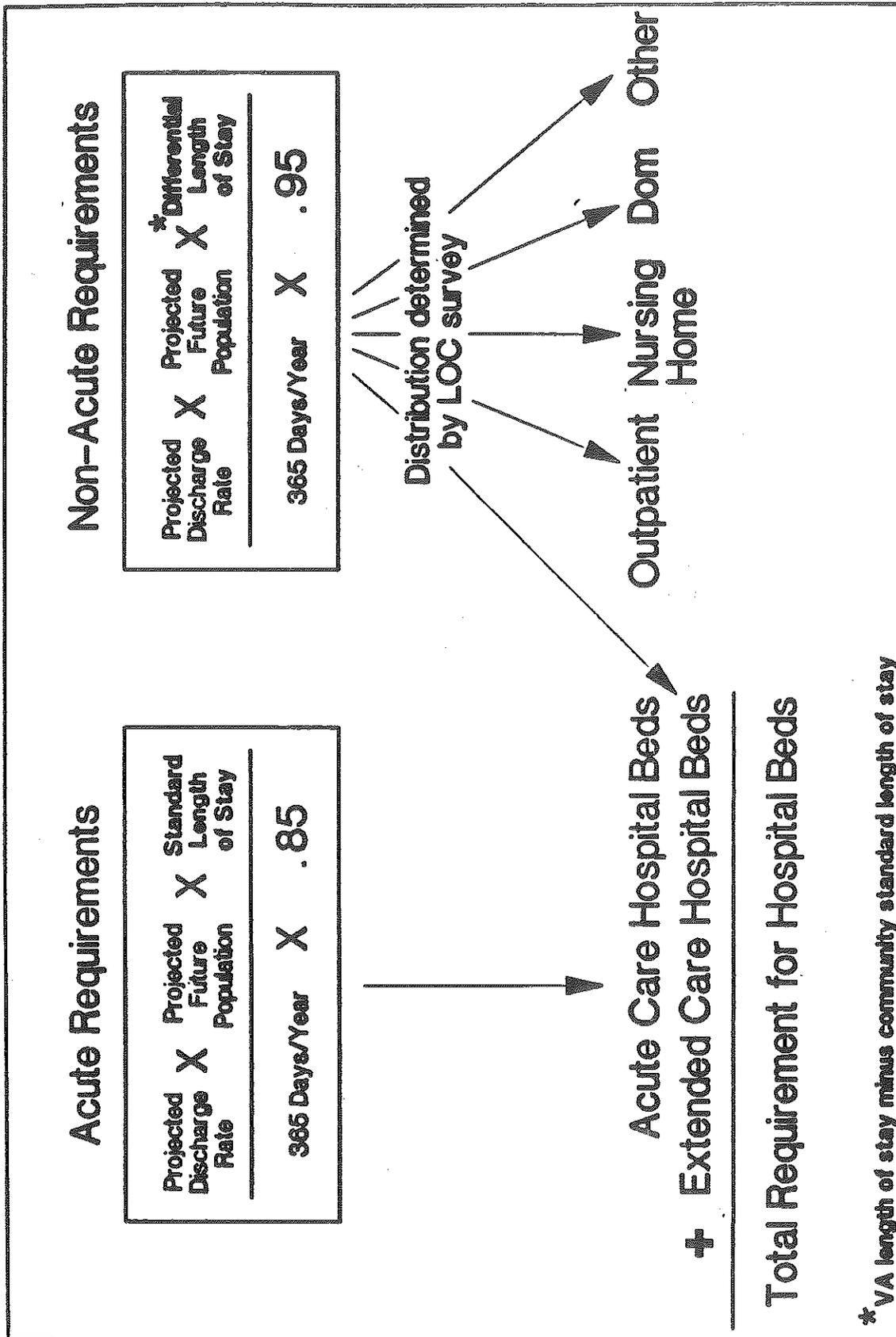


Figure 2

2. BRES ALGORITHMS

a. Figure 3 shows the components of the BRES (Bed Requirements Estimation System) software. Arrows in the diagram represent the flow of data; circles represent modules of computer programs that perform operations and calculations with the data; and boxes represent SAS (Statistical Analysis Systems) data sets. The inputs to the model are represented at the top of the diagram; data from these sources are used by modules 1, 2, 3, and 4 to calculate the values of the parameters to be used in the calculation of bed projections. Module 5 performs some pre-calculations and formats the data for efficient access by module 6, the report generator. The operations of each module are described in detail in this section. The modules that are last in the flow of data are presented first in the documentation.

b. MODULE 6 -- THE REPORT GENERATOR

(1) The report generator produces a cover page showing planner specified parameters and 14 report tables. Table 1 is the summary table; the values in Table 1 include the Program Interaction Adjustment. Tables 2, 3, 4, 5, and 6 present historic utilization data. Tables 7 and 8 show the actual parameters and calculations of the basic bed projection formula. Tables 9 and 10 summarize the results of Tables 7 and 8, and show projections in 5-year increments to the target year. Table 11 shows the distribution of non-acute beds to the hospital and other locations of care. Table 12 shows a summary of acute and extended beds that result from the basic hospital planning model without adjustments for program interaction and also the values for blind rehabilitation and spinal cord injury. Tables 13 and 14 show the calculation of the Program Interaction Adjustment.

(2) The report generator gets its input from a data set called the SRDB (Standard Report Database). This SAS data set contains a record for each facility age group combination and each aggregation age group combination. There are 159 stations (13 two division hospitals), 27 districts, 7 regions, 1 nation and 8 age groups (including total) so there are 8 times 194 or 1552 records in the SRDB data set. Each record contains all the values needed to produce the standard reports, including summaries of historic data, default discharge rates and lengths of stay, population estimates and location of care distribution percentages.

(3) The report generator also reads the job "shell" to get planner specified values of discharge rates and lengths of stay. The job "shell" is described in section 4. Where there are zeros in the shell, that is, where the planner does not specify an alternative value, the report generator will use defaults to calculate bed projections. The algorithms for calculating the default values are described in the Module 5 section of this documentation. There are no constraints on planner input, however, if the planner provides values for age group bed section combinations that are greater than the default values, the report generator causes an asterisk to be printed on the lines in Tables 4 and 6, where the values appear.

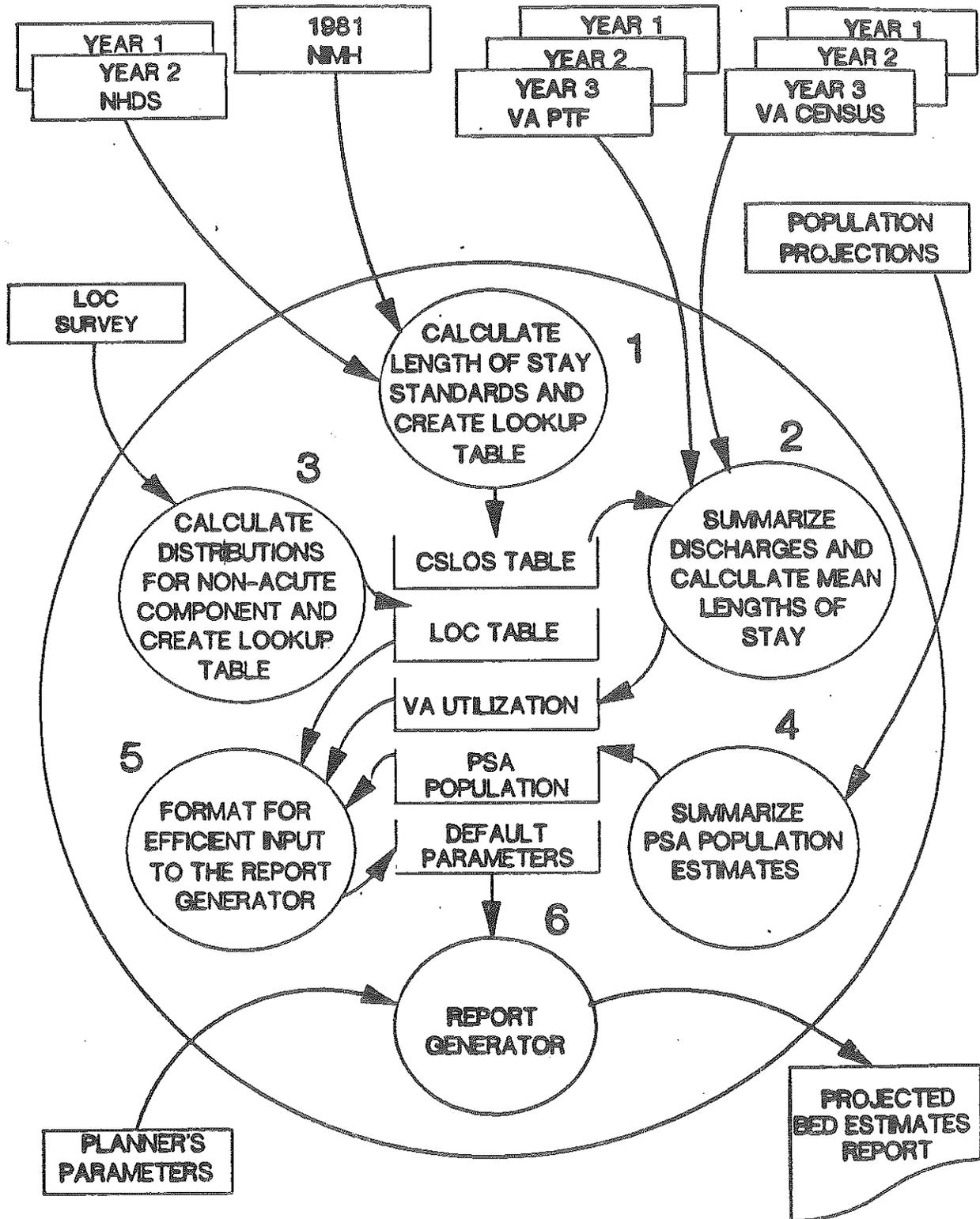


Figure 3

c. MODULE 5 -- AGGREGATION AND PRE-CALCULATION

Module 5 creates the SRDB by bringing together PTF summaries from Module 2, the population estimates from Module 4, and the LOC distributions from Module 3. Module 5 also calculates discharge rates and average lengths of stay, assigns default values based on trends evident in the PTF summaries, and calculates district, regional and national values for many variables.

d. MODULE 4 -- SUMMARIZE POPULATION ESTIMATES

The source of veteran population information for the hospital planning model is the Office of Information Management and Statistics in VA Central Office. These data are summarized to obtain total population for facilities that serve multiple PSA's and for national, regional, and district aggregations of facilities.

e. MODULE 3 -- CALCULATE NON-ACUTE BED DISTRIBUTION VALUES

The number of extended care hospital beds that should be maintained to meet future demand is calculated as a percentage of the number of 'non-acute' beds. The model uses percentages for the hospital's share of the non-acute beds that are derived from the most current location of care survey. The distributions for 159 facilities, 27 districts, 7 regions and the nation are calculated. Table 11 displays the distribution values and the resulting numbers of extended care beds to be retained in the hospital. Generally, the distributions are derived from the survey results for specific facilities and bed sections where the sample size is adequate.

f. MODULE 2 -- SUMMARIZE HISTORIC VA UTILIZATION

(1) Module 2 counts hospital discharges and bed section transfers and calculates the mean VALOS (VA length of stay) and the mean CSLOS (Community Standard Length of Stay) for each facility bed section-age group combination. Input for Module 2 is the PTF, the Patient Census File, and a lookup table of CSLOS values.

(2) A maximum of 365 days per PTF record is used in the calculation of VALOS and records of treatment on bed sections that ended by transfer prior to the beginning of the fiscal year are not counted. The only patients from the Patient Census that affect the utilization summary are those who stayed in the hospital all year and, therefore, do not appear in the PTF - they count as one 'discharge' with a 365 day LOS.

(3) The calculation of mean VALOS is straightforward but the calculation of mean CSLOS requires the assignment of an "acute" length of stay to each record in the PTF. The term acute is used here to mean "efficient standard for acute care" and has no clinical connotation in the context of the planning model. A CSLOS value from the lookup table is matched with each PTF record by diagnosis (DRG and ICD9) and by patient characteristics (race and mortality status). Community data are not available for every DRG-ICD9 combination found in the PTF. In these cases a CSLOS value is assigned on the basis of DRG only. CSLOS values for psychiatric patients are assigned on the basis of the patient's DSM-III MDCs (major diagnostic category).

(4) A veteran may be assigned to more than one bed section during a single hospital episode. Since the community data from which the standards for acute length of stay are derived do not include bed section transfer information, it is necessary to prorate the CSLOS among the bed section records that make up a VA hospital episode. Bed section transfers into and out of intermediate medicine, acute psychiatric, and long-term psychiatric bed sections indicate that for the purpose of assigning the CSLOS, the patient should be regarded as having multiple hospital episodes.

(5) The CSLOS value associated with a record of a veteran's treatment in an intermediate medicine bed section is zero. That is, all utilization of intermediate medicine beds is considered extended care.

g. MODULE 1 -- CALCULATE CSLOS

(1) CSLOS are the mean lengths of stay for combinations of DRG, ICD9, race, and mortality status values. The community lengths of stay for the DRGs in the MDCs 1 through 18 and 21 through 24 are calculated from the 2 most recent years of NHDS (National Hospital Discharge Survey) data.

(2) The other two MDCs, 19 and 20, comprise DRGs for psychiatric care. The CSLOS for psychiatric care are based on the 18 psychiatric DSM-III categories rather than the 15 psychiatric DRGs (424 - 438) and are obtained from the most recent NIMH (National Institutes of Mental Health) Surveys of psychiatric facilities.

3. THE PROGRAM INTERACTION ADJUSTMENT

a. The PIA (Program Interaction Adjustment) is a modification of the basic hospital planning model intended to account for the impact of the growth of non-hospital health care delivery programs on inpatient utilization of VA medical centers.

b. The logic of the PIA is based on the assertion that the size of associated non-inpatient programs is a better predictor of inpatient utilization by patients admitted to the hospital from non-inpatient programs than the size of the veteran population in the facility's PSA. The implementation of the PIA is essentially a partition of the hospital facility by source of admission. The future bed requirements of that part of the hospital that serves patients from sources other than outpatient and nursing home programs are projected on the basis of changes in the veteran population of the facility's PSA. The future bed requirements of that part of the hospital that serves patients admitted from outpatient and nursing home programs are projected on the basis of changes in the size of those programs. The algorithm for calculating the adjustment is essentially the same as that of the basic model with the number of Year 3 outpatient visits or the nursing home ADC (average daily census) substituted for veteran population as the denominator for the calculation of discharge rates.

c. The number of visits expected in the target year is specified by the planner via the job shell. Only current visits to the program located at the home facility are taken into account. Visits to satellite and independent clinics are not counted in the current utilization so the estimates of the number of visits in the target year should also be for visits to the home facilities only.

d. The calculation of the adjustment is summarized in Tables 13 and 14. The first expression $(BEDS * FUTURE VISITS / CURRENT VISITS)$ can be re-written as $(BEDS / CURRENT VISITS) * FUTURE VISITS$ which can be interpreted as the current number of hospital beds serving referrals from outpatient programs divided by the current number of outpatient visits. When multiplied by the projected number of outpatient visits, the result is a projection of the number of beds which will be consumed by referrals from the outpatient program, assuming that the rate of referral stays constant. This calculation is done by age for both acute and extended beds using the same length of stay standards as explained earlier in this Appendix.

e. The second expression is the current number of hospital beds consumed by inpatients from outpatient programs multiplied by the ratio of the veteran population in the target year to that of Year 3. The result is the number of outpatient generated beds accounted for by the model, since the changes in the size and age structure of the veteran population are used in this expression just as they are used and described earlier in the model.

f. The difference between the two expressions is the change in the number of hospital beds required by changes in the size of the outpatient program which are not accounted for by the model. This difference is termed the Program Interaction Adjustment. If the outpatient program is expected to grow faster than the veteran population, the adjustment will be positive. If the size of the program is expected to just keep pace with the veteran population the adjustment will be negligible. If the program is expected to grow more slowly than the veteran population, then the adjustment will be negative.

g. The logic and implementation of the PIA for nursing home program parallels that of the outpatient program, except that the units of utilization are ADC instead of visits.

4. RUNNING THE BRES REPORT GENERATOR

a. USING THE AUTOMATIC JOB SUBMISSION MACRO

(1) Modules 1 through 5 described in Section 2 are executed by the project staff preceding the release of the model for use by planners. Module 6 is executed by the planner's staff to produce printed results for the facility or aggregation of facilities of interest. Executing Module 6 involves invoking the SAS software, specifying discharge rates and lengths of stay, and running the standard report generator program. This is all accomplished in a "job shell" that is modified and submitted via the WYLBUR text editor at AUSTIN. To make it easier to work with these shells, the project staff has created a special program of WYLBUR commands called the SHELLER. To access the SHELLER, sign on at AUSTIN DPC and type "X HOSP". Some knowledge of the WYLBUR text editor is necessary, but the interactive design of the SHELLER and on-line help screens make the process of running the hospital planning model more convenient.

(2) The planner may specify discharge rates and lengths of stay to be used as parameters in the bed projection formula. However, if a planner value exceeds the default value, the report generator prints an asterisk in Table 4 or 6. Quantitative justification will be required for values which exceed the default values.

b. PRINTING AND ROUTING THE OUTPUT

There are three "black box" commands to assist planners in running and printing their jobs:

(1) BRESRUN submits the job for batch processing. The "job shell" must be in the WYLBUR active area for BRESRUN to work. Job output will be held so that it may be viewed at your terminal with the FETCH command.

(2) BRESLIST prints the reports at the user's terminal with proper page breaks and vertical spacing. Asynchronous communications (AUSTS or VADATS) is necessary for BRESLIST.

(3) BRESPRINT and BRESPRNT print the reports at either the Austin DPC or VA Central Office printing site. If the user id begins with a "R", the reports will be printed at VA Central Office; otherwise they are printed at Austin DPC. Printing a job with BRESPRINT or BRESLIST will not cause it to be purged from the output hold queue. Questions regarding the operation of the report generator should be addressed to the office of Strategic Planning.

(4) In order to route hospital planning model results, use:

(a) Run X HOSP and have output on the OUT QUEUE.

(b) Use FETCH JOBNAME MC.

(c) Type X BRESPRINT

(d) If the BRES output has been fetched, enter an asterisk. Otherwise, enter the jobname or jobname.jobnumber.

(e) To print the output at VA Central Office, enter "yes."

(f) A table of choices will appear. Enter the number of the selection. If number 1 is selected, type in the name and telephone number.

(g) Submit the job. BRESPRINT ends.

(5) To route the outpatient models, use FETCH JOBNAME MC CLR and type "X OPPRINT" and follow steps (4)(d) through (4)(g) above.

5. SPECIAL CASES AND INTERESTING DETAILS IN BRES**a. MODULE 1: COMMUNITY STANDARD LENGTHS OF STAY****(1) SOURCE DATA**

(a) The source data for the calculation of CSLOS for non-psychiatric patients are the concatenation of the 2 most recent years of NHDS data. Medical centers are categorized by bed size into 24 groups. Sample medical centers are chosen with 100 percent probability for the largest medical center and 2 1/2 percent probability for the smallest medical center. The in-hospital sampling plan selects discharges with frequency inversely proportional to that of medical center selection, meaning a larger

fraction is used from smaller medical centers and a smaller fraction from larger medical centers. This method was selected to assure equivalent overall probability of selection within a particular medical center size category. Because VA does not typically treat patients under the age of 18 (only 42 out of 1 million cases in the 1985 PTF) those NHDS records with age 17 or less are excluded.

(b) The source data for the calculation of CSLOS for psychiatric patients are the two most recent NIMH surveys of psychiatric inpatients conducted in the 50 States and District of Columbia. These surveys are:

1. Private Psychiatric Hospital Inpatient Admissions. The survey sampled inpatients admitted to and discharged from private psychiatric hospitals.

2. Discharges From Separate Psychiatric Inpatient Units of Non-Federal General Hospitals. This survey sampled inpatient discharges from separate psychiatric units of non-federal general hospitals. A target sample was drawn from the facilities identified by the American Hospital Association Annual Survey of Hospitals as having separate psychiatric inpatient units.

The records of patients less than 18 years of age, patients with unknown age, length-of-stay, and diagnosis were excluded. Lengths of stay were truncated at 365 days.

(2) VARIABLES AND VALUES

(a) DRGs were appended using a DRG grouper program obtained from the Health Care Financing Administration (001-470). The value for ICD-9 is taken as the first three digits of the code (001-999). The values for race are "white" and "non-white." The values for mortality status are "living" and "deceased."

(b) DSM-III MDC's are assigned on the basis of the patient's ICD-9 code. The values may be 1 thru 8 and 14, 17, 18. Although DSM-III defines 18 MDC's, only 11 of them are used in the model because there are insufficient observations in the source data for the other 7 categories.

(3) ALGORITHMS

The algorithm for calculating non-psychiatric and psychiatric CSLOS has the following steps:

(a) Calculate mean and 95th percentile LOS by DRG (DSM III MDC)

(b) Calculate mean and 95th percentile LOS by DRG-ICD-9

(c) Calculate mean and 95th percentile LOS by DRG-ICD-9-RACE

(d) Calculate mean and 95th percentile LOS by DRG-ICD-9-RACE-MORTALITY.

(e) Assemble a lookup table with a CSLOS and 95th percentile value for every combination of DRG-ICD9-RACE-MORTALITY (DSM III MDC) that appears in the PTF. Use the mean of the set of keys with the greatest cardinality and at least five observations in the community data. If there are less than five cases of a given DRG (DSM III MDC) in the community, data then the CSLOS value is undefined for that DRG (DSM III MDC).

b. MODULE 2: SUMMARIZE VA UTILIZATION**(1) MATCHING CSLOS WITH VETERAN'S RECORDS**

CSLOS values are matched to PTF records by the rules:

(a) If the veteran has a non-psychiatric diagnosis then the CSLOS is taken from the lookup table derived from the NHDS data.

(b) If the diagnosis is psychiatric (DRG's 424-438) the CSLOS is determined by the veteran's DSM-III MDC which is determined by the veteran's ICD-9 code.

(c) If the veteran is a non-psychiatric long-stay patient where a long-stay patient is defined as a patient with an actual VALOS greater than 100 days, then the CSLOS is the 95th percentile LOS from the NHDS data.

(d) If the CSLOS is undefined for the veteran's DRG (there are less than five cases in the community data) then the actual VALOS is used in place of a CSLOS.

(2) PRORATING CSLOS OVER MULTIPLE RECORDS

(a) If a VA patient is treated on more than one bed section, the treatment that patient receives from bed sections 1, 3, 4, 5, 6, and 7 is considered a single hospital episode for the purpose of assigning CSLOS. Where this is the case, the CSLOS value is prorated among the bed sections according to the distribution of actual days. For instance, if a patient stays in bed section 3 for 1 day, bed section 7 for 2 days and bed section 1 for 7 days for a total of 10 days and the CSLOS for someone with that patient's diagnosis and characteristics is 5 days, then the CSLOS is prorated among the three bed sections with 10 percent (0.5 days) assigned to bed section 3, 20 percent (1 day) assigned to bed section 7, and 70 percent (3.5 days) assigned to bed section 1.

(b) Patient stays on intermediate medicine bed sections, psychiatric bed sections, and long-term psychiatric bed sections all correspond to separate hospital episodes and are associated with 100 percent of the CSLOS for the patient's diagnosis and characteristics.

(3) VALOS

(a) The actual mean VALOS is calculated from the PTF PB (Patient Bed Section) data set concatenated with some records from the PC (Patient Census) file. The relevant records from the PB set are those for which the date of transfer out of the bed section is in the fiscal year for which the mean is to be calculated (BSOUTDAY \geq 1 OCTOBER, FY). The PC set contains records of patients that received treatment during the fiscal year, but were not discharged during the year so their records are not included in the PB. The relevant records from the PC set are the records of patients that stayed in the hospital all year (365 days). The PB records are limited to a maximum of 365 days and the PC records all have exactly 365 days. The mean calculated from this selection of records corresponds to the common sense understanding of mean LOS, that is, the average length of stay on a bed section for a patient who was transferred or discharged during the fiscal year.

(b) Although the PB contains records of patient treatment in prior years, these records are not taken into account in the calculation of the VALOS. For example, a patient admitted in August 1985, could receive 30 days of care in bed section 1 and then

be transferred to intermediate medicine to receive another 60 days of care, and then be discharged from the hospital in November 1985 (first quarter of FY 1986). In this case, only the record of treatment on the intermediate bed section would be taken into account in the calculation of the mean lengths of stay for 1986.

(c) The PC contains records of patients that were in VA facilities at the end of the fiscal year but were not discharged during the fiscal year. Most of these patients are discharged sometime in the next fiscal year, so the records of their treatment will become part of the PTF for the year of their discharge and will be taken into account in the calculation of VALOS for that fiscal year. The PC also contains records of patients who were admitted before the beginning of the fiscal year and were still in the hospital at the end of the year. There are about 6,500 of these "all year" patients nationwide. The care given to these patients is a significant part of the VA workload and must be taken into account in the calculation of the mean length of stay that the hospital planning model uses to project future bed requirements. The records of the all year patients count as one patient treated with a VA stay of 365 days and a CSLOS of 0. The CSLOS is logically 0 because there is no "acute" component for these long-term patients. Also, the PC does not carry sufficient diagnostic information by which an appropriate CSLOS could be matched.

(4) Eight bed sections are used in the model to group bed section codes from the PTF:

BED SECTION 1 (INTERNAL MEDICINE)

00 - unassigned	08 - Gastroenterology
01 - Allergy	09 - Hematology/Oncology
02 - Cardiology	12 - Medical ICU/CCU
03 - Pulmonary TB	13 - unassigned
04 - Pulmonary NON-TB	14 - Metabolic
05 - Gerontology	15 - General (Acute) Medicine
06 - Dermatology	16 - Cardiac Step-Down Unit
07 - Endocrinology	17 - unassigned

BED SECTION 2 (INTERMEDIATE MEDICINE)

40 -Intermediate Medicine

BED SECTION 3 (NEUROLOGY)

10 -Neurology	19 - Stroke
11 -Epilepsy Center	

BED SECTION 4 (REHABILITATION)

20 -Rehab Medicine

BED SECTION 5 (BLIND)

21 - Blind Rehab

BED SECTION 6 (SCI)

22 -Spinal Cord Injury

BED SECTION 7 (SURGERY)

- | | |
|-------------------------------|-----------------------------------------------------|
| 50 - General Surgery | 57 - Proctology |
| 51 - Gynecology | 58 - Thoracic Surgery
(includes Cardiac Surgery) |
| 52 - Neurosurgery | 59 - Urology |
| 53 - Ophthalmology | 60 - Oral Surgery/Dental |
| 54 - Orthopedic | 61 - Podiatry |
| 55 - Otorhinolaryngology(ENT) | 62 - Peripheral Vascular |
| 56 - Plastic Surgery | |

BED SECTION 8 (PSYCHIATRIC)

- | | |
|---------------------------|----------------------|
| 70 - Acute Psychiatry | 74 - Substance Abuse |
| 71 - Long-Term Psychiatry | 75 - Halfway House |
| 72 - Alcohol Treatment | 76 - unassigned |
| 73 - Drug Treatment | |

c. MODULE 3: SUMMARIZE POPULATION ESTIMATES

(1) FACILITIES THAT SERVE A SINGLE PSA

FACILITY	PSA	FACILITY	PSA
402 TOGUS	402	539 CINCINNATI	539
405 WHITE RIVER JCT	405	540 CLARKSBURG	540
436 FORT HARRISON	436	541 CLEVELAND	541
437 FARGO	437	543 COLUMBIA MO	543
438 SIOUX FALLS	438	544 COLUMBIA SC	544
442 CHEYENNE	442	546 MIAMI	546
452 WICHITA	452	549 DALLAS	549
460 WILMINGTON	460	550 DANVILLE	550
500 ALBANY	500	552 DAYTON	552
501 ALBUQUERQUE	501	553 ALLEN PARK	553
502 ALEXANDRIA	502	554 DENVER	554
503 ALTOONA	503	555 DES MOINES	555
504 AMARILLO	504	556 NORTH CHICAGO	556
505 AMERICAN LAKE	505	557 DUBLIN	557
506 ANN ARBOR	506	558 DURHAM	558
508 ATLANTA	508	561 EAST ORANGE	561
509 AUGUSTA	509	562 ERIE	562
512 BALTIMORE	512	564 FAYETTEVILLE AR	564
513 BATAVIA	513	565 FAYETTEVILLE NC	565
514 BATH	514	566 FORT HOWARD	566
516 BAY PINES	516	569 FORT WAYNE	569
517 BECKLEY	517	570 FRESNO	570
519 BIG SPRING	519	573 GAINESVILLE	573
520 BILOXI	520	574 GRAND ISLAND	574
521 BIRMINGHAM	521	575 GRAND JUNCTION	575
537 CHICAGO (West Side)	537	578 HINES	578

FACILITY	PSA	FACILITY	PSA
522 BONHAM	522	647 POPLAR BLUFF	647
523 BOSTON	523	648 PORTLAND	648
526 BRONX	526	579 HOT SPRINGS	579
527 BROOKLYN	527	580 HOUSTON	580
528 BUFFALO	528	581 HUNTINGTON	581
529 BUTLER	529	583 INDIANAPOLIS	583
531 BOISE	531	584 IOWA CITY	584
533 CASTLE POINT	533	585 IRON MOUNTAIN	585
534 CHARLESTON	534	586 JACKSON	586
535 CHICAGO (Lakeside)	535	589 KANSAS CITY	589
594 LAKE CITY	594	590 HAMPTON	590
595 LEBANON	595	591 KERRVILLE	591
596 LEXINGTON	596	649 PRESCOTT	649
597 LINCOLN	597	650 PROVIDENCE	650
598 LITTLE ROCK	598	652 RICHMOND	652
599 LIVERMORE	599	652 ROSEBURG	653
600 LONG BEACH	600	654 RENO	654
603 LOUISVILLE	603	655 SAGINAW	655
604 LYONS	604	657 ST LOUIS	657
605 LOMA LINDA	605	658 SALEM	658
607 MADISON	607	659 SALISBURY	659
608 MANCHESTER	608	660 SALT LAKE CITY	660
609 MARION IL	609	662 SAN FRANCISCO	662
611 MARLIN	611	663 SEATTLE	663
612 MARTINEZ	612	664 SAN DIEGO	664
613 MARTINSBURG	613	665 SEPULVEDA	665
614 MEMPHIS	614	667 SHREVEPORT	667
617 MILES CITY	617	668 SPOKANE	668
618 MINNEAPOLIS	618	670 SYRACUSE	670
619 MONTGOMERY	619	671 SAN ANTONIO	671
621 MOUNTAIN HOME	621	672 SAN JUAN	672
623 MUSKOGEE	623	673 TAMPA	673
626 NASHVILLE	626	674 TEMPLE	674
627 NEWINGTON	627	677 TOPEKA	677
629 NEW ORLEANS	629	678 TUCSON	678
630 NEW YORK	630	680 TUSKEGEE	680
632 NORTHPORT	632	686 LEAVENWORTH	686
635 OKLAHOMA CITY	635	687 WALLA WALLA	687
636 OMAHA	636	688 WASHINGTON	688
637 ASHEVILLE(OTEEEN)	637	689 WEST HAVEN	689
640 PALO ALTO	640	691 LOS ANGELES	691
642 PHILADELPHIA	642	693 WILKES-BARRE	693
644 PHOENIX	644	695 MILWAUKEE(Wood)	695
646 PITTSBURGH(UD,asp)	646		

(2) FACILITIES THAT SERVE MULTIPLE PSA's

FACILITY	PRIMARY SERVICE AREAS
515 BATTLE CREEK	506 + 553 + 569 + 655
518 BEDFORD	405 + 523 + 608 + 627
525 WEST ROXBURY	523 + 650
532 CANANDAIGUA	513 + 514 + 528 + 670
538 CHILlicoTHE	539 + 541 + 552 + 581
542 COATESVILLE	460 + 595 + 642 + 693
567 FORT LYON	501 + 504 + 554 + 575
568 FORT MEADE	438 + 574 + 579 + 617
592 KNOXVILLE IA	438 + 555 + 584 + 636
610 MARION IN	550 + 552 + 569 + 583
620 MONTROSE	500 + 533 + 630 + 689
622 MURFREESBORO	508 + 614 + 621 + 626
631 NORTHAMPTON	500 + 523 + 627 + 689
641 PERRY POINT	460 + 512 + 613 + 688
645 PITTSBURGH (HD)	305 + 529 + 540 + 562 + 646
656 ST CLOUD	437 + 438 + 607 + 618
666 SHERIDAN	436 + 442 + 554 + 617
676 TOMAH	578 + 585 + 607 + 695
679 TUSCALOOSA	508 + 521 + 619 + 680
685 WACO	519 + 549 + 580 + 674

(3) SHARED PSA's (70)

PSA NAME	IS SERVED BY FACILITIES:
405 WHITE RIVER JCT	405 & 518
436 FORT HARRISON	436 & 666
437 FARGO	437 & 656
438 SIOUX FALLS	438 & 568 & 592 & 656
442 CHEYENNE	442 & 666
460 WILMINGTON	460 & 542 & 641
500 ALBANY	500 & 620 & 631
501 ALBUQUERQUE	501 & 567
503 ALTOONA	503 & 645
504 AMARILLO	504 & 567
506 ANN ARBOR	506 & 515
508 ATLANTA	508 & 622 & 679
512 BALTIMORE	512 & 566 & 641
513 BATAVIA	513 & 532
514 BATH	514 & 532
516 BAY PINES	516 & 673
519 BIG SPRING	519 & 685
521 BIRMINGHAM	521 & 679
523 BOSTON	523 & 518 & 525 & 631
528 BUFFALO	528 & 532
529 BUTLER	529 & 645
533 CASTLE POINT	533 & 620
539 CINCINNATI	539 & 538
540 CLARKSBURG	540 & 645

PSA NAME	IS SERVED BY FACILITIES:
541 CLEVELAND	541 & 538
549 DALLAS	549 & 685
550 DANVILLE	550 & 610
552 DAYTON	552 & 538 & 610
553 ALLEN PARK	553 & 515
554 DENVER	554 & 567 & 666
555 DES MOINES	555 & 592
561 EAST ORANGE	561 & 604
562 ERIE	562 & 645
569 FORT WAYNE	569 & 515 & 610
574 GRAND ISLAND	574 & 568
575 GRAND JUNCTION	575 & 567
578 HINES	578 & 535 & 537 & 556 & 676
579 HOT SPRINGS	579 & 568
580 HOUSTON	580 & 685
581 HUNTINGTON	581 & 538
583 INDIANAPOLIS	583 & 610
584 IOWA CITY	584 & 592
585 IRON MOUNTAIN	585 & 676
595 LEBANON	595 & 542
607 MADISON	607 & 656 & 676
608 MANCHESTER	608 & 518
613 MARTINSBURG	613 & 641
614 MEMPHIS	614 & 622
617 MILES CITY	617 & 568 & 666
618 MINNEAPOLIS	618 & 656
619 MONTGOMERY	619 & 679
621 MOUNTAIN HOME	621 & 622
626 NASHVILLE	626 & 622
627 NEWINGTON	627 & 518 & 631
630 NEW YORK	630 & 526 & 527 & 620 & 632
636 OMAHA	636 & 592
642 PHILADELPHIA	642 & 542
646 PITTSBURGH	646 & 645
650 PROVIDENCE	650 & 525
655 SAGINAW	555 & 515
662 SAN FRANCISCO	662 & 599 & 612 & 640
663 SEATTLE	663 & 505
670 SYRACUSE	670 & 532
674 TEMPLE	674 & 611 & 685
680 TUSKEGEE	680 & 679
688 WASHINGTON	641 & 688
689 WEST HAVEN	620 & 631 & 689
691 LOS ANGELES	691 & 600 & 605 & 665
693 WILKES BARRE	693 & 542
695 WOOD	695 & 676

6. ACCOUNTING FOR SATELLITE OPC'S IN THE PROGRAM INTERACTION ADJUSTMENT

a. This section describes how to incorporate the impact of SOCs into the PIA to the hospital planning model.

b. The current version of the hospital planning model excludes SOC visits from the computation of PIA in order to make the model simpler to apply, and thus less error prone. The modification was not expected to appreciably affect the resulting PIA generated beds because excluding SOC visits from the computation yields the same result as including them if the growth rates of the SOC and the parent hospital's clinic are equal. Given the fact that both facilities are generally drawing from the same veteran population base, (as far as the outpatient model is concerned, at least) equality of growth is a very reasonable assumption.

c. The SOC adjustment will yield no additional beds unless the SOC workload increases faster than the HOC (hospital outpatient clinic) workload. For a quick determination to see if the procedure will be worthwhile, determine whether:

$$\frac{\text{SOC visits target year (all ages)}}{\text{SOC visits Year 3 (all ages)}}$$

exceeds

$$\frac{\text{HOC visits target year (all ages)}}{\text{HOC visits Year 3 (all ages)}}$$

If not, the procedure will probably yield no additional beds. (The qualifier "probably" is used because the determination is based on all ages combined, whereas an exact determination would have to consider each age group separately.)

d. A generalized equation for approximating the impact is given below, but a brief discussion of the four possible cases is required before using the equation:

- I. existing SOC "near" the parent VA medical center
- II. existing but "distant" SOC
- III. new SOCs
- IV. combinations of the above.

(1) In general, one might hypothesize that referrals from the OP program to inpatient hospitalization are a function of distance, i.e., the farther a SOC is from its parent medical center, the lower the referral rate and hence, the lower the PIA influence. The following equation incorporates these differential referral rates, but requires that SOC's be categorized as either "distant" or "nearby." As a general rule, anything over 25 miles away should probably be considered distant, unless there are indications to the contrary.

Additional

$$\text{Acute} = \text{acute OP beds X Beds} \quad \frac{\text{HTYR} + (\text{STYR} / \text{R}) - \text{HTYR}}{\text{HYR3} + (\text{SYR3} / \text{R}) \text{ HYR3}}$$

where:

Acute OP beds is derived from the bed model printout Table 13, Column 1, over all age groups.

HTYR = OP visits to hospital in target year from Table 13, Column 2, summed over all ages.

HYR3 = OP visits to hospital in Year 3, from Table 13, Column 3, summed over all ages.

STYR = OP visits to SOC in target year from outpatient model, Table 3, Column 3.
 (A different source must be used for proposed SOC's.)

SYR3 = OP visits to SOC in Year 3 from outpatient model, Table 1, Column 4. (SYR3 = 0 for a proposed SOC.)

R = 1, if the SOC is "near" its parent medical center
 = 5, if the SOC is "distant" from its parent medical center

(2) The same procedure would be followed to determine the impact on Extended OP beds, using data from the bottom half of Table 13, Column 1.

Example: Assume the following data:

Table 13 from the hospital planning model

<u>Age</u>	<u>Acute Beds</u>	<u>Projected Util (2000)</u>	<u>Current Util (1986)</u>
0-24	.2	2,000	1,700
25-34	4.3	21,800	23,500
35-44	6.8	41,200	57,800
45-54	15.5	29,600	31,700
55-64	34.9	50,100	60,700
65-74	26.8	81,200	35,200
75 +	4.7	62,100	6,900
Total	93.2	288,000	217,500

Tables from OP model for SOC

<u>Age</u>	<u>Table 3</u> <u>Visits in Year 2000</u>	<u>Table 1</u> <u>Visits in Year 1986</u>
0-24	400	400
25-34	3,700	4,500
35-44	8,800	12,500
45-54	6,600	9,000
55-64	10,200	15,500
65-74	15,400	9,900
75 +	11,400	2,300
Total	56,500	54,100

Further assume the SOC is distant, thus R = 5.

Then:

Additional

$$\begin{array}{l} \text{Acute} = 93.2 \times \\ \text{Beds} \end{array} \quad \frac{288,000 + (56,500 / 5) - 288,000}{217,500 + (54,100 / 5)} = \frac{288,000}{217,500}$$

$$= 93.2 \times \frac{288,000 + 11,300 - 288,000}{217,500 + 10,820} \div 217,500$$

$$= -1.24$$

One acute bed would be lost. The loss of beds could have been foretold using the key indicator described in paragraph c., the SOC is growing more slowly than the hospital clinic.

The procedure should be repeated to determine the impact on extended beds.

- e. Determining the exact impact: Paragraph d. gave a procedure to determine the approximate impact. The procedure for determining the exact impact is identical, except that the analysis should be done for each age group separately, then summed.
- f. Case IV (i.e., multiple SOC's) impacts may be determined separately for each SOC.
- g. Application of this procedure is considered adequate for quantitative deviation from the hospital planning model.

TECHNICAL REVIEW OF
HOSPITAL PLANNING MODEL

VA Medical Center _____

QUESTION: Are outpatient projections used in PIA consistent with results of the outpatient model for the parent VA medical center only?

RATIONALE:

Because of the interaction between hospital and outpatient care, increases and/or decreases in allocated outpatient visits will impact the number of hospital beds required. Inaccurate input to the hospital planning model will result in an over/understatement of beds required.

SOURCE DOCUMENT(S):

- (1) "Planner Input Table", Planning Model Printout.
- (2) Table 3, Outpatient Model printout.
- (3) Section 6, this Appendix "Accounting for Satellite OPC's in the Program Interaction Adjustment."

REVIEW PROCEDURES:

Review the program interaction values with the outpatient model results to determine if the number of visits included are correct. In no case should the PIA exceed the sum of outpatient visits projected for the parent VA medical center.

NOTE: Aggregated visits for two division VA medical centers are acceptable; however, visits for independent and satellite outpatient clinics should NOT be included in the PIA although they may be accounted for in a separate manual adjustment.

ASSESSMENT:

**TECHNICAL REVIEW OF
HOSPITAL PLANNING MODEL**

VA Medical Center _____

QUESTION: Has the PIA for nursing home care been accurately included for the VA medical center?

RATIONALE:

Because of the interaction between hospital and nursing home care, increases and/or decreases in planned nursing home census levels will impact on the number of hospital beds required. Inaccurate input of nursing home data into the hospital planning model can result in an over/understatement of beds required.

SOURCE DOCUMENT(S):

- (1) "Planner Input Table", Planning Model Printout.
- (2) Planner Worksheets used in Nursing Home Needs Assessment

REVIEW PROCEDURES:

Review Planner worksheets to determine if adjustment has been accurately calculated. Compare results with adjustment recorded in "Planner Input Table"; adjustment should include the sum total census for VA, SH, and CNH.

ASSESSMENT:

**TECHNICAL REVIEW OF
HOSPITAL PLANNING MODEL**

VA Medical Center _____

QUESTION: Are the trends used by Planners for DR (discharge rates) in each age group and bed section appropriate?

RATIONALE:

Since the basic equation used in the model multiplies the DR used by the planners by the veteran population, an inappropriate rate can have a major effect on the total beds generated. Inappropriate DR can cause either an inflation or deflation in the appropriate bed levels projected for a VA medical center.

SOURCE DOCUMENT(S):

Table 4, Planning Model Printout.

REVIEW PROCEDURES:

Any DR projections which exceed allowable levels will be asterisked in Table 4. Quantitative justification must exist for all asterisked rates.

ASSESSMENT:

**TECHNICAL REVIEW OF
HOSPITAL PLANNING MODEL**

VA Medical Center _____

QUESTION: Are the estimates used by planners for LOS in each age group and bed section appropriate?

RATIONALE:

Since the LOS value used by the planner is a major variable in the basic equation used in the model to generate projected beds, inappropriate LOS values can cause either an inflation or deflation in the bed levels projected for a VA medical center.

SOURCE DOCUMENT(S):

Table 6, Planning Model Printout.

REVIEW PROCEDURES:

- (1) Determine if the 3-year mean LOS was used; if so, the selected rate is acceptable.
- (2) If there are insufficient or no historical LOS values in the 3-year period (fewer than 10), determine if the mean national LOS for that bed section was used; if so the LOS value is acceptable.
- (3) If the conditions shown in (1) and (2) above do not exist, then quantitative justification must exist for values used. A manual adjustment of workload projections using partial data from current year would be an example of appropriate justification.

ASSESSMENT:

**TECHNICAL REVIEW OF
HOSPITAL PLANNING MODEL**

VA Medical Center _____

QUESTION: Are beds allocated for the target year for each bed section acceptable?

RATIONALE:

The results of the model must be analyzed to ensure that sufficient beds of the appropriate kinds are allocated for the future. Where justified, the model results should be changed to reflect actual future needs. However, any changes should be defensible and justified.

SOURCE DOCUMENT(S):

Table 1, Planning Model Printout (Target Year).

REVIEW PROCEDURES:

(1) Determine if the sum of allocated bed level of target year (acute plus extended) is equal to model results for the target year; if so consider acceptable. Extended beds may exceed the results of the model by the number of acute beds below the model results, i.e., acute beds may be allocated as extended beds; however, under no circumstances may extended beds be allocated as acute beds.

(2) Determine if sum of acute beds allocated is equal to model results; if so consider acceptable.

(3) If conditions in (1) and (2) above do not exist, then quantitative justification must exist for differences. Note: allocations below model results are considered acceptable.

(4) Allocated bed levels for Blind Rehabilitation and SCI bed sections must be consistent with previously approved levels.

ASSESSMENT:

**TECHNICAL REVIEW OF
HOSPITAL PLANNING MODEL**

VA Medical Center _____

QUESTION: Has adequate quantitative justification been provided in support of allocations exceeding the result of the model for the target year?

RATIONALE:

The hospital planning model is used by the VA as the primary analytical approach to determining the future requirements for hospital beds in the system, and as necessary, the model results are used as the basis for developing construction plans for VA medical centers. It is imperative that all bed allocations are quantitatively justified and defensible.

SOURCE DOCUMENT(S):

- (1) Bed Allocations by Bed Section For Each VA medical center (Data Table).
- (2) Quantitative documentation in support of additional beds over model results is necessary. Documentation should identify separately all adjustments. All new programs for which workload is not currently accounted for must be separately identified along with calculations used in determining the bed requirement. Beds shifted between VA medical centers must be separately identified as the "gaining" and "losing" VA medical center. While the justification will be evaluated for defensibility, final approval of adjustments will be subject to consideration through the usual MEDIPP review process.

REVIEW PROCEDURES:

- (1) Determine if justification exists for all adjustments over the model results.
- (2) If quantitative justification has not been provided, all adjustments over the model will be considered as non-defensible and must be highlighted for VA Central Office review.

ASSESSMENT:

* Replace MEDIPP with Strategic Planning (Change 2, dated July 26, 1991).

BED ALLOCATIONS - JUSTIFICATION FOR DEVIATION

The results of the hospital planning methodology is the beginning step in determining workload allocations. Workload allocations may exceed the results of the methodology; however, quantitative justification must be provided in support of allocations over the model results. Some examples of instances which may result in additional beds exceeding the model results:

(1) Beds allocated for Blind Rehabilitation and SCI; however, the numbers of beds must be equal to the previously approved MEDIPP levels.

(2) Beds may be added to counterbalance decreases in Contract Hospital Program usage; however, the justification must include an analysis of days of care generated through this program; a cost analysis to show that cost of providing care through VA is more cost effective than continuing the use of contract hospital. The cost analysis should include costs of any necessary construction. The maximum number of beds added should not exceed the bed equivalents actually used under the contract program.

(3) Beds may be shifted between VA medical centers when there is a clear historical referral pattern network between the "gaining" and "losing" medical centers, or there is clear evidence that such a referral network is being established. Such an adjustment must be supported by analyses which indicate that the shift of beds will improve the efficiency and cost effectiveness of care delivery while not degrading quality of or access to care; the shift of beds is consistent with the mission of the medical district; and the shift of beds is consistent with proposed programmatic changes both in the "gaining" and "losing" VA medical centers, and that both VA medical centers are in reasonable geographic proximity.

Other potential justifications will be evaluated as they are made available but in all cases must be supported quantitatively. While the justification will be evaluated for acceptance, final approval of all adjustments will be subject to consideration through the usual MEDIPP review process.

* Replace MEDIPP with Strategic Planning (Change 2, dated July 26, 1991).

OUTPATIENT PLANNING MODEL

1. GENERAL OVERVIEW

a. The primary assumption inherent in the OP (outpatient) projection model is that the best available indicator of future utilization of a VA OPC (outpatient clinic) is based on historical utilization experience in terms of visit rates and veteran population estimates and projections.

b. The basic formula upon which the OP model is based follows from the primary assumption:

$$\text{Future OP Visits} = \text{Future Visit Rate} \times \text{Future Veteran Population}$$

The OP model is actually somewhat more complicated in order to account for the impact of the aging veteran population and to distribute the total visits into the POV (Purpose of Visit) categories.

The complete formula consists of two phases. In the first phase, the total number of OP visits are projected by multiplying age-specific visit rates by age-specific veteran population projections and summing over all age groups. In the second phase, the total visits are distributed among the several POV categories. The determination of the values of the variables is detailed below.

c. The primary variables underlying the OP projection model include veteran population statistics, visit rates, and POV distribution factors.

(1) The veteran population statistics relate to the PSA for the OP clinic. There are three possible cases regarding the PSA used for an OPC:

(a) If the OPC is a satellite to a general medical and surgical VA medical center, then the OPC PSA is assumed to be the same as the PSA of the parent VA medical center.

(b) If the OPC is a satellite to a psychiatric medical center, then the OPC PSA is assumed to be the same as the PSA of the general medical and surgical VA medical center in which the OPC is located.

(c) If the OPC is an independent OPC, then its PSA is determined as in case (b).

The age-specific veteran population statistics used for the PSA were developed by the Office of Reports & Statistics based on the results of the 1980 Decennial Census, with updates based on more recent Current Population Survey data.

(2) Visit Rates

(a) Historical VR (visit rates) for the historical fiscal years are calculated by the OP computer program. For a given OP clinic, fiscal year and age group

$$\text{Visit Rate} = \frac{\text{Visits}}{\text{Veteran Population (in 1000s) of Primary Service Area}}$$

The age groups used are:

0 - 24
25 - 34
35 - 44
45 - 54
55 - 64
65 - 74
75+

(b) Based on the visit rates observed over the historical years the model automatically determines default visit rates, which the analyst may adjust, if desired.

1. *MEDIPP allocations, based on deviations from the defaults must be accompanied by quantitative justification for the deviations.

2. The product of the projected VR times the future veteran population summed over all age groups represents the projection of total visits for the selected future fiscal years (e.g., 1990, 1995 and 2000). To account for the interaction between OP and hospital programs, the total visit projection is increased by the OP visits generated by hospital inpatients more appropriately treated on an OP basis. This adjustment is based on the most current appropriate Location of Care Survey. The new total visit projection thus obtained is then distributed into the various POV categories.

(3) In order to account for differences in space and staffing requirements associated with different types of visits, the OP model projects visits by the following POVs:

C&P (Compensation and Pension) Exams	Mental Hygiene
Applications for Care (10-10)	Drug Dependence
All Other	Alcohol Treatment
Day Hospital	Day Treatment

(a) Historical distribution factors reflect the fraction of all visits for which each POV accounted over the historical fiscal years.

(b) Based on the POV distribution factors observed over the historical fiscal years, the computer program projects the future values of the variables in the target year. The analyst may elect to modify the projected visit rates.

d. The projected POV distribution factors are then multiplied by the total visit projection to distribute visits into the various POV categories.

e. The analyst may vary either the age-specific VR or the POV distribution factor projections to observe how sensitive the OP visit projection is to changes in these variables. In effect, the analyst can pose a series of "what if . . ." questions to investigate alternative scenarios. *MEDIPP plans must adhere to the constraints described herein.

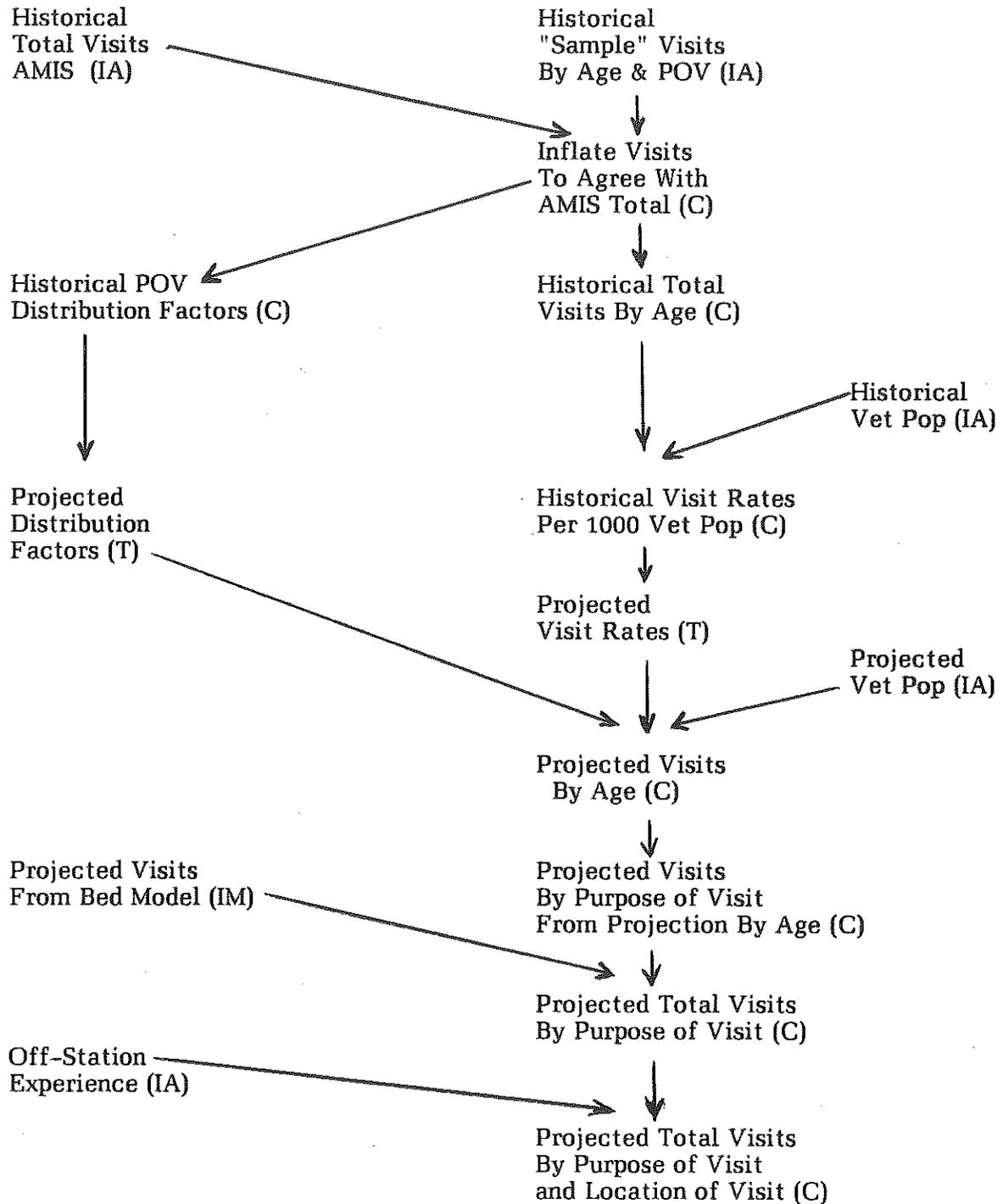
f. In simplified form, the steps in the OP methodology are:

(1) Calculate historical age-specific VR.

- (2) Project future age-specific VRs.
- (3) Calculate future total visits by multiplying projected VRs (2) by future veteran population projections.
- (4) Add OP visits for hospital inpatients who would have more appropriately been placed as outpatients.
- (5) Calculate historical POV distribution factors.
- (6) Project future POV distribution factors.
- (7) Calculate future visits by purpose by multiplying projected POV distribution factors (6) by the total visit projection [(3)+(4)].

2. USER GUIDE FOR OUTPATIENT PLANNING MODEL

a. Outpatient Visit Projection Methodology



LEGEND:
 (IA) = Input Data, Automatic (C) = Calculation
 (IM) = Input Data, Manual (T) = Trended

b. Outpatient Visit Projection Model

$$\sum_{i=1} \text{Visits}_{ij} = (\text{Vet Pop}_{ij}) \times (\text{Visit Rate}_{ij})$$

where

Visits_{ij} = expected number of outpatient visits in year j

Vet Pop_{ij} = veteran population of age group i in year j

Visit Rate_{ij} = visit rate per 1000 veterans in age group i and year j

and

$$\text{Visits}_{ijk} = F_{jk} \times \text{Visits}_{ij}$$

where

Visits_{ijk} = number of visits for purpose k in year j

F_{jk} = fraction of visits for purpose k in year j

c. How to Run the Outpatient Model

(1) Run Procedure

(a) Fill in the information required on the Input Data Sheet according to the instructions for the Input Data Sheet given in paragraph d.

(b) Log onto the Austin DPC Computer and command: X OP.

(c) Follow the instructions which appear on the terminal screen.

(2) Technical Assistance

If difficulty is experienced preparing the input data file, or a persistent problem is encountered with the computer program procedure, contact the Office of Strategic Planning (10A41B) in VA Central Office.

d. Instructions for the Input Data Sheet

(1) Field 1 - Facility Name. The Facility Name will appear on title pages and on each table. Be specific. Examples:

VAMC ALBANY

VAMC PITTSBURGH UNIVERSITY DRIVE CONSOLIDATED

VAMC FAYETTEVILLE, NC

OPC WINSTON-SALEM

(2) Field 2 - Run Number. The run identification information is very important. It will appear on title pages only. Each time a change is made in the input data, change this entry so that input and output are both properly labeled.

(3) Field 3 - Facility Number. Enter an alpha-numeric identifier to describe the unit of analysis:

- (a) Facility or Satellite = 4 digits (STA4A format), e.g., 673, 673Q, 596, or 596A.
- (b) Facility and Satellite combined = 3 digits with a '-' (dash) suffix, e.g., 659- or 673-.
- (c) District = 2 digits (01 through 27)
- (d) Region = 1 digit (1 through 7)
- (e) Nation-wide = 1 digit (numeric 0)

(4) Field 4 - Previous Projection Reference Year, Date Created (e.g., 2000 August 20, 1988). When no previous projection is available, use an entry such as "0000 xxx."

(5) Field 5 - Visits by POV from Previous Projections. Insert appropriate previous projection by POV. If previous projection is not available, enter zeros. Do not enter numbers for "Subtotal."

(6) Field 6 - Projected Visit Rates by Age Group. Enter appropriate projected VRs by age group. Enter zeros for the first run. Trended values may be chosen for subsequent runs, based on inspection of the results (Table 2) of the computer output.

(7) Field 7 -- Projected POV Distribution Values. Enter appropriate projected POV distribution values, using not more than three digits to the right of the decimal point. Enter zeros for the first run. Trended values may be chosen for subsequent runs, based on inspection of the results (Table 4) of the computer output. Do not enter numbers for "Subtotal."

NOTE: Enter either all zeros or values whose sum is 1.000. Use zeros for first run. Trended values may be chosen from the projected POV factors in Column 6 of Table 4, but their sum must equal 1.000 (100 percent). This will automatically occur when the three-year means are used (input Line 7 contains all zeros). If trended factors are chosen for one or more POV's, they should be chosen for all POV's (to add up to 1.000), since the sum of a mix of mean values and trended values will usually be either more or less than 1.000.

(8) Field 8 - OP Beds from Planning Model. Data for the number of "outpatient beds" for the 5-year increments to the target year are generated by the planning model, Table 11. The data to be entered are the number of Psychiatry outpatient beds for the three projection years, and the number of total outpatient beds from the column labeled "All B/S." The program will subtract Psych beds from the total number of beds to find M&S (Medicine & Surgery) beds used by the model. All numeric fields must have an entry, if projected values are not available, enter zero values.

(9) The printed output may be routed to VA Central Office by giving the command "FETCH jobname MC" (MC retains the carriage control characters) and then "X OPPRINT," and responding to the questions which will be asked via the terminal screen.

TECHNICAL REVIEW OF OUTPATIENT MODEL

VA Medical Center _____

QUESTION: Are projections for visit rates for each age group acceptable?

RATIONALE:

The basic equation used in the outpatient model multiplies age-specific visit rates by the veteran population to project outpatient visits for the future; inappropriate visit rates can result in either an inflation or deflation in the outpatient visit level for a given facility, i.e., VA medical center, SOC or OPC.

SOURCE DOCUMENT(S):

Table 2, Outpatient Model printout

REVIEW PROCEDURES:

- (1) Determine if the Planner used the default visit rate; if so, consider acceptable.
- (2) If the default was not used, determine if the visit rate rose between Year 1 and Year 3; If yes, a rate within the range of 90 percent of the minimum value and 120 percent of the maximum value is considered acceptable.
- (3) If conditions shown in (1) and (2) above do not exist, then quantitative justification must exist for values used. A manual adjustment of workload projections using partial data from the current FY would be an example of appropriate justification.

ASSESSMENT:

TECHNICAL REVIEW OF OUTPATIENT MODEL

VA Medical Center _____

QUESTION: Are projections for POV (Purpose of Visit) factors acceptable?

RATIONALE:

The outpatient projection derived by age-specific visit rates are allocated by purpose of visit based on historical purpose of visit factors. The sum of POV factors must be equal to 1.000.

SOURCE DOCUMENT(S):

Table 4, Outpatient Model printout

REVIEW PROCEDURES:

(1) Determine if the average POV factor for Year 1 through Year 3 was used; if so, consider acceptable.

(2) If the average was not used, determine if the total POV projection is equal to 1.000; if so, consider acceptable. A manual adjustment of workload projections using partial data from current FY would be an example of appropriate justification.

ASSESSMENT:

TECHNICAL REVIEW OF OUTPATIENT MODEL

VA Medical Center _____

QUESTION: Have non-acute beds allocated to Outpatient by the hospital planning model by year and bed section (Psychiatry and all other M&S) been accurately recorded?

RATIONALE:

Non-acute inpatient beds are allocated to outpatient care based on the Appropriate Location of Care Survey. Inaccurate input to the outpatient model will result in an over/understated outpatient visit projection.

SOURCE DOCUMENT(S):

- (1) Table 5C, Outpatient Model printout
- (2) Table 11, Hospital Planning Model printout

REVIEW PROCEDURES:

(1) Compare the bed equivalent values reported in Table 5C, Column 1 of the Outpatient Model printout with the outpatient bed equivalents reported for the target year in Table 11, Hospital Planning Model printout. Non-acute beds may be distributed between two division hospitals and/or outpatient satellite clinics; however, the distribution may not exceed the total reported in Table 11 of the Hospital Planning Model printout.

(2) Determine if non-acute bed equivalents for M&S bed sections have been appropriately allocated to the medical/surgical category of visit, and the non-acute bed equivalents for psychiatry has been allocated to the psychiatric purpose of visit. Medical/Surgical bed equivalents should equal the sum reported for all bed sections except Psychiatry. Psychiatric bed equivalents should equal the value reported for the Psychiatry bed section only.

ASSESSMENT:

TECHNICAL REVIEW OF OUTPATIENT MODEL

VA Medical Center _____

QUESTION: Are projections allocated by purpose of visit acceptable?

RATIONALE:

The results of the model must be analyzed to ensure that outpatient visits allocated for the future are appropriate in number and purpose of visit. Where appropriate, the model results may be changed to reflect actual future needs; however, all changes must be defensible and justified.

SOURCE DOCUMENT(S):

- (1) Table 10, Outpatient Model printout
- (2) Data Tables for Outpatient Program.

REVIEW PROCEDURES:

- (1) Compare Table 10, Column 4, to the allocated visit level shown in the Data Tables. If the allocated visits are less than or equal to Table 10, Column 4, consider the allocation acceptable.
- (2) If the allocated visits exceed Table 10, Column 4, any deviations must be supported by quantitative justification. Examples of such deviations are
 - (a) New satellite outpatient clinics.
 - (b) New outpatient programs, e.g., mental health programs; HBHC; ADHC.

ASSESSMENT:

DOMICILIARY PLANNING MODEL

1. GENERAL FORMULA

The basic formula underlying the domiciliary model is similar to the one used for the hospital planning model, i.e.,

$$\text{Beds} = \frac{\text{Discharge Rate} * \text{Hospital Vetpop} * \text{Length of Stay}}{365 * \text{Occupancy Rate}} + \text{Beds Used by Dom Pats}$$

The model is actually somewhat more complicated in order to account for the impact of the aging veteran population and the two different types of care offered in VA domiciliaries, short-term and long-term. The distinction between types of care based on LOS (length of stay) is an attempt to distinguish between rehabilitative care and long-term care. By definition, LOSs of 180 or fewer days are considered for modeling purposes to be for rehabilitation and LOSs of more than 180 days are considered to be for long-term care. Empirically, approximately 70 percent of the discharges systemwide in FY 1987 occurred in 180 days or fewer.

2. VARIABLES

a. There are five major input variables to the model:

- (1) Actual discharges from the domiciliary by age group and LOS category
- (2) Veteran population estimates and projections by age and year
- (3) Length of stay by age within each LOS category
- (4) The occupancy rate target for each LOS category

(5) The number of hospital beds consumed by patients who could be more appropriately treated in a domiciliary, based on the results of the most recent Appropriate Location of Care Survey

b. Discharges (and discharge rates)

The PTF (Patient Treatment File) is the primary source of discharge data by age group and LOS category. However, the Patient Census file is the data source for patients who have been in the domiciliary for the entire year without being discharged. For these patients a pseudo-discharge is created with an associated LOS of 365 days. In this manner the entire workload delivered by the VA domiciliary is credited to it. Bed projections are based on all of the workload (regular discharges or pseudo-discharges) generated by a particular VA domiciliary. (Henceforth no distinction will be made between regular discharges and pseudo-discharges.)

Historical DR (discharge rates) for the last 3 (2 for the 1989 MEDIPP cycle) fiscal years are calculated by the model. For a given domiciliary, fiscal year, age group and LOS category:

* Replace MEDIPP with Strategic Planning (Change 2, dated July 26, 1991).

$$\text{Historical DR} = \frac{\text{Discharges}}{\text{Veteran Population (in 100,000s) of the Region}}$$

The age groups used are

- 0-44
- 45-54
- 55-64
- 65-74
- 75+

Based on the age- and LOS-specific DR observed over the historical years, the model automatically projects default DR for the planning horizon. There are two cases:

(1) For those age group and LOS category combinations for which the DR for the last FY is greater than the DR for the first FY, an upward trend is assumed and the value assigned as the default projected DR is either $(1.1 * \text{last FY DR})$ or $[(\text{last FY DR}/\text{first FY DR}) * \text{last FY DR}]$, whichever is less.

(2) Otherwise, the default projected DR is the mean DR observed over the historical years.

c. The veteran population associated with a VA domiciliary corresponds to that of the Region in which the domiciliary is located. Veteran population data by age and year are produced by the Office of Information Management and Statistics in VA Central Office.

d. Length of Stay

As for the historical discharges, the PTF and Patient Census files serve as the sources for the LOS. The model displays the LOS observed by age and LOS category for the historical years and calculates their mean values, which are used as the default LOS projection for the planning horizon.

e. Occupancy Rates

The standard occupancy rates used in the model are 85 percent for the short-term LOS category and 95 percent for the long-term LOS category patients.

f. Beds from Appropriate Location of Care Survey

The last term in the equation consists of the number of beds required to care for those hospital patients who were considered, on the basis of the most recent Appropriate Location of Care Survey, to be more appropriately treated in a domiciliary.

3. THE MODEL

The domiciliary model is released on a computer diskette with accompanying instructions for its use.

4. OUTPUT

The primary output of the model is the number of domiciliary beds required by LOS category for each of the projection years.

5. SENSITIVITY ANALYSES

In principle, any of the input variables may be varied to observe how sensitive the bed projections are to changes in these variables. In effect, the analyst can pose a series of "what if...?" questions to investigate alternative scenarios. However, the analyst must provide separate quantitative justification whenever any of the default discharge rates or LOSs are exceeded.

6. FURTHER ADJUSTMENTS TO OUTPUT

a. In accordance with the emphasis being placed on decentralization of domiciliary beds, beds projected for one domiciliary may be shifted to another location if a logical justification for doing so is presented. In addition, hospital beds may be converted to domiciliary beds where appropriate. Conversion is preferable to new construction. Finally, because there are so few existing domiciliaries and they serve such large catchment areas, it is particularly important to engage in inter-district planning.

b. Although the domiciliary model explicitly accounts for many characteristics of health care delivery, it cannot account for all factors that influence the amount of health care service that should be available. Domiciliary model results represent the first step in the decisionmaking process. These results may be adjusted with quantitative justification based on local knowledge to provide a sound basis for planning.

TECHNICAL REVIEW OF
DOMICILIARY PLANNING MODEL

VA Domiciliary_____

QUESTION: Are the trends used by Planners for DR (discharge rates) in each age group and LOS category (over/under 180 days) appropriate?

RATIONALE:

Since the basic equation used in the model multiplies the DR used by the planners by the veteran population, an inappropriate rate can have a major effect on the total beds generated. Inappropriate DR can cause either an inflation or deflation in the appropriate bed levels projected for a VA domiciliary.

SOURCE DOCUMENT(S):

Table 4, Domiciliary Model Printout, Columns entitled "2000."

REVIEW PROCEDURES:

Any DR projections which exceed allowable levels will be asterisked in Table 4. Quantitative justification must exist for all asterisked rates.

ASSESSMENT:

**TECHNICAL REVIEW OF
DOMICILIARY PLANNING MODEL**

VA Domiciliary _____

QUESTION: Are the estimates used by planners for LOS in each age group and LOS category appropriate?

RATIONALE:

Since the LOS value used by the planner is a major variable in the basic equation used in the model to generate projected beds, inappropriate LOS values can cause either an inflation or deflation in the bed levels projected for a VA domiciliary.

SOURCE DOCUMENT(S):

Table 5, Domiciliary Model Printout, columns entitled "2000."

REVIEW PROCEDURES:

- (1) Determine if the 2-year mean LOS was used; if so, the selected rate is acceptable.
- (2) If there are insufficient or no historical LOS values in the 2-year period (fewer than 8), determine if the mean national LOS for that bed section was used; if so the LOS value is acceptable.
- (3) If the conditions shown in (1) and (2) do not exist, then quantitative justification must exist for values used. A manual adjustment of workload projections using partial data from current year would be an example of appropriate justification.

ASSESSMENT:

**TECHNICAL REVIEW OF
DOMICILIARY PLANNING MODEL**

VA Domiciliary _____

QUESTION: Are beds allocated for the target year for each LOS category acceptable?

RATIONALE:

The results of the model must be analyzed to ensure that sufficient beds of the appropriate kinds are allocated for the future. Where justified, the model results should be changed to reflect actual future needs. It is imperative, however, that any changes be defensible and justified.

SOURCE DOCUMENT(S):

Table 1, Domiciliary Model Printout (Target Year).

REVIEW PROCEDURES:

(1) Determine if the sum of allocated bed levels (short- plus long-stay) for target year is equal to model results for the target year; if so consider acceptable. Long-stay beds may exceed the results of the model by the number of short-stay beds below the model results, i.e., short-stay beds may be allocated as long-stay beds; however, under no circumstances may long-stay beds be allocated as short-stay beds.

(2) Determine if sum of short-term beds allocated is equal to model results; if so consider acceptable.

(3) If conditions in (1) and (2) do not exist, then quantitative justification must exist for differences. *Note: Allocations below model results are considered acceptable.*

ASSESSMENT:

**TECHNICAL REVIEW OF
DOMICILIARY PLANNING MODEL**

VA Domiciliary_____

QUESTION: Has adequate quantitative justification been provided in support of allocations exceeding the result of the model for the target year?

RATIONALE:

The domiciliary planning model is used by the VA as the primary analytical approach to determining the future requirements for domiciliary beds in the system, and as necessary, the model results are used as the basis for developing construction plans for VA medical centers. It is imperative that all bed allocations are quantitatively justified and defensible.

SOURCE DOCUMENT(S):

Quantitative documentation in support of additional beds over model results is necessary. Documentation should identify separately all adjustments. All new programs for which workload is not currently accounted for must be separately identified along with calculations used in determining the bed requirement. Beds shifted between VA medical centers must be separately identified as the "gaining" and "losing" VA medical center. In addition, the rationale for shifting beds between VA medical centers or for establishing new domiciliaries at specific sites must be included. While the justification will be evaluated for defensibility, final approval of adjustments will be subject to consideration through the usual MEDIPP review process.

REVIEW PROCEDURES:

- (1) Determine if justification exists for all adjustments over the model results.
- (2) If quantitative justification has not been provided, all adjustments over the model will be considered as non-defensible and must be highlighted for VA Central Office review.

ASSESSMENT:

**TECHNICAL REVIEW OF
DOMICILIARY PLANNING MODEL**

VA Domiciliary _____

QUESTION: Have all actions identifying conversion of hospital beds to domiciliary beds been appropriately linked with "Other Related Actions"?

SOURCE: ADS (Action Detail Sheets)

REVIEW PROCEDURES:

(1) Has the segment "Related Actions" on the ADS been completed for all concerning the actions of conversion of hospital beds to domiciliary beds?

(2) Has the respective bed section(s) to be converted been identified? Does it include an analysis supporting the bed section(s) to be converted?

(3) If the field has not been completed, has the required information been provided in some other format?

(4) Has the segment "Construction Project Number" on the ADS been completed for all actions concerning the conversion of hospital beds to domiciliary beds involving renovation? If not, does documentation support that no construction is needed?

ASSESSMENT:

NURSING HOME CARE PLANNING MODEL

1. BASIC METHODOLOGY

Projection of demand for nursing home care is based on the assumption that veterans require nursing home care at the same rate as do male civilians. Thus

$$\text{Veteran Utilization} = \frac{\text{Male Civilians in nursing homes}}{\text{Male Civilians in population}}$$

The source for the numerator is the 1985 National Nursing Home Survey and for the denominator is the Bureau of the Census. The underlying equation is both age and Census Region-specific.

The Census Region rates are refined into medical district-specific rates by weighing the proportion of a district's population that overlaps into more than Census Region. All districts which fall into one Census Region have the same utilization rates.

The projected veteran demand for a future year for a district is:

$$\text{Veteran Demand} = \text{Veteran Utilization Rate} \times \text{Veteran Population}$$

The number of veterans treated under VA auspices is:

$$\text{VA sponsored demand} = \text{Veteran Demand} \times \text{Market Share}$$

where the market share is defined as the percentage of the veteran demand to be treated under VA auspices (16) in VA, community or state nursing home beds.

The percentages of veterans to be treated under VA auspices in VA beds, community beds, and state beds, respectively, are 30 percent, 40 percent and 30 percent. Thus the projected future size of each program is:

$$\begin{array}{ll} \text{VA census} & 30 \text{ percent} \\ \text{Comm census} & = \text{VA sponsored demand} \times 40 \text{ percent} \\ \text{State census} & 30 \text{ percent} \end{array}$$

A microcomputer disk which automatically produces nursing home projections for each facility is furnished to each medical district.

2. MATHEMATICAL STATEMENT OF MODEL

The nursing home model projects NH requirements in the target year as follows:

$$\text{NH ADC}_{ik} = \text{NH UR}_{ij} \times \text{Vetpop}_{ij} \times \text{VA Market Share}_i \times \text{Program Mix}_k$$

where

NH ADC_{ik} = Projected NH ADC (Average Daily Census) in MD (Medical District) i ($i = 1, 2, \dots, 27$) in location k ($k = \text{VA, community, state}$)

NH UR_{ij} = NH utilization rate in target year of veterans in age group j ($j = 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85+$) in MD i .

Vetpop_{ij} = Veteran population of age group j in MD i in year 2000

VA Market Share_i = the percent of the total NH requirements for veterans in MD i which will be met under VA auspices.

Program Mix_k = the percent of the total NH program which will be met in location k . Current guidelines are 30 percent VA, 40 percent community, 30 percent state, with new VA construction only as a last resort.

3. Specific Guidelines:

Departures from the guidelines require quantitative justification.

**TECHNICAL REVIEW OF
NURSING HOME NEEDS ASSESSMENT**

Medical District # _____

QUESTION: Is the planned program mix within the 30 percent-40 percent-30 percent guideline?

SOURCE: Planner Worksheets

REVIEW PROCEDURES:

- (1) Review the percentage mix for each program component.

	ACTUAL PERCENTAGE	GUIDELINE
VA		30%
CNH		40%
SH		30%
TOTAL	100.0%	100.0%

- (2) If the program mix has not been met, is there adequate quantitative justification available to support the planned program mix?

ASSESSMENT:

**TECHNICAL REVIEW OF
NURSING HOME NEEDS ASSESSMENT**

Medical District # _____

QUESTION: Has a survey of CNH (community nursing home) beds been completed?

SOURCE DOCUMENTS:

- (1) Survey analyses
- (2) Tables 1 and 2, Procedures for Validating Planned Increases in VA NHCU Beds.

REVIEW PROCEDURES:

- (1) Have total CNH beds in PSA been identified nursing home by nursing home?
- (2) What documents were used to obtain the information?
- (3) Was a 95 percent occupancy rate used to compute number of empty (available) beds?
- (4) Were only state licensed CNH beds included?
- (5) Was a complete analysis done to determine suitability of available CNH beds?
- (6) Were changes to suitable CNH beds well documented and defensible?
- (7) Has a narrative been included in the analysis which describes the impact of the community supply on specific proposed/planned VA NHCU bed increases?

ASSESSMENT:

**TECHNICAL REVIEW OF
NURSING HOME NEEDS ASSESSMENT**

Medical District # _____

QUESTION: Is the market share in the 12 to 16 percent range?

SOURCE DOCUMENTS:

- (1) Planner Worksheets

REVIEW PROCEDURES:

- (1) Determine if market share is within guideline range.

$$\text{Market Share Percentage} = \frac{\text{Medical District Total Projected Census}}{\text{Total Demand}} \times 100$$

(2) If the market share is not within guideline range, is there adequate quantitative justification available to support the proposed market share?

ASSESSMENT:

**TECHNICAL REVIEW OF
NURSING HOME NEEDS ASSESSMENT**

Medical District # _____

QUESTION: Has a survey of SH nursing home beds been completed?

SOURCE DOCUMENTS:

- (1) Survey Analyses/ Worksheets
- (2) Tables 1 and 2, Procedures for Validating Planned Increases in NHCU Beds.

REVIEW PROCEDURES:

- (1) Have total State Home Nursing Home beds in the PSA been identified Nursing Home by Nursing Home?
- (2) What was the source of information used to identify the total number of nursing home beds?
- (3) Was 75 percent or the actual percent of veterans in existing SH NHC beds used, whichever is larger?
- (4) Have the details of inter-district planning efforts been provided?
- (5) Has a narrative been included in the analysis which describes the impact of the state supply on specific proposed/planned VA NHCU bed increases?

ASSESSMENT:

**TECHNICAL REVIEW OF
NURSING HOME NEEDS ASSESSMENT**

Medical District # _____

QUESTION: Have all actions identifying conversion of hospital beds to nursing home beds been appropriately linked with "Other Related Actions"?

SOURCE: ADS (Action Detail Sheets)

REVIEW PROCEDURES:

(1) Has the segment "Related Actions" on the ADS been completed for all concerning the actions of conversion of hospital beds to nursing home beds?

(2) Has the respective bed section(s) to be converted been identified? Does it include an analysis supporting the bed section(s) to be converted?

(3) If the field has not been completed, has the required information been provided in some other format?

(4) Has the segment "Construction Project Number" on the ADS been completed for all actions concerning the conversion of hospital beds to nursing home beds involving renovation? If not, does documentation support that no construction is needed?

ASSESSMENT:

SPINAL CORD INJURY PLANNING MODEL

1. GENERAL FORMULA

The basic formula underlying the SCI (Spinal Cord Injury) model is similar to the one used for the hospital and domiciliary planning models, i.e.,

$$\text{Beds} = \frac{\text{Discharge Rate} * \text{SCI Vetpop} * \text{Length of Stay}}{365 * \text{Occupancy Rate}}$$

The model, however, is actually more complicated in order to account for the impact of the aging SCI veteran population, and the different types of care delivered, i.e., short-term and long-term care.

2. VARIABLES

There are four major input variables to the model:

Actual discharges from the SCI unit by age group and type of care: short-term (LOS less than 365 days) and long-term (LOS of 365 days or more)

SCI veteran population data by age and year

Length of stay for short- and long-term care

The occupancy rate target for each type of care

Discharges (and discharge rates)

The PTF is the primary source of discharge data by age group, type of care, and type of injury. However, the Patient Census file is the data source for patients who have been in VA medical centers for the entire year without being discharged. For these patients a pseudo-discharge is created with an associated LOS of 365 days. In this manner the entire workload delivered by the VA medical center is credited to it. Bed projections are based on all of the workload (regular discharges or pseudo-discharges) generated by a particular VA medical center. (Henceforth no distinction will be made between regular discharges and pseudo-discharges.)

Historical DR (discharge rates) for the last three fiscal years are calculated by the model. For a given VA medical center, fiscal year and type of care:

$$\text{Historical DR} = \frac{\text{Discharges}}{\text{SCI Veteran Population of the Region}}$$

The age groups used are:

0-24
25-34
35-44
45-54
55-64
65-74
75+

Based on the DR observed over the historical years, the model automatically projects default DR for the planning horizon. There are two cases:

(1) For those age group, type of care and level of injury combinations for which the DR for Year 3 is greater than the DR for Year 1, an upward trend is assumed and the value assigned as the default projected DR is either $(1.1 * \text{last FY DR})$ or $(\text{last FY DR} / \text{first FY DR} * \text{last FY DR})$, whichever is less.

(2) Otherwise, the default projected DR is the mean DR observed over the historical years.

b. SCI veteran population. The SCI veteran population associated with VA medical center corresponds to the SCI veteran population of the Region in which VA medical center is located. The Regional SCI veteran population is projected by the Strategic Planning Office based on SCI incidence and prevalence rates.

c. Length-of-Stay. As for historical discharges, the PTF and Patient Census files serve as the sources for the LOS. The model displays the LOS observed by age and type of care for the historical years and calculates their mean values. The default LOS values used for the target year will be the mean of the historical years.

d. Occupancy Rates. The standard occupancy rates used in the model are 85 percent for short-term care and 95 percent for long-term care.

3. THE MODEL

The SCI model is released on a computer diskette with accompanying instructions for its use.

4. OUTPUT

The primary output of the model is the number of SCI beds required by type of care for each of the projection years.

5. SENSITIVITY ANALYSES

In principle, any of the input variables may be varied to observe how sensitive the bed projections are to changes in these variables. In effect, the analyst can pose a series of "what if...?" questions to investigate alternative scenarios. However, the analyst must provide separate quantitative justification whenever any of the default discharge rates or LOSs are exceeded.

6. FURTHER ADJUSTMENTS TO OUTPUT

Although the SCI model explicitly accounts for many characteristics of health care delivery, it cannot account for all factors that influence the amount of health care service that should be available. SCI model results represent the first step in the decisionmaking process. These results may be adjusted with quantitative justification based on local knowledge to provide a sound basis for planning.

In addition, the analyst is granted the flexibility to distribute the short term beds projected into acute, initial rehabilitation and sustaining hospital care on the basis of the local need for each of these care types, as specified in the SCI Standards and Criteria.

VA MEDICAL CENTERS WITH EXISTING SCI UNITS

Augusta	Memphis
Brockton/West Roxbury	Milwaukee
Bronx	Miami
Castle Point	Palo Alto
Cleveland	Richmond
East Orange	San Juan
Hampton	Seattle
Hines	St. Louis
Houston	Tampa
Long Beach	

TECHNICAL REVIEW OF SPINAL CORD INJURY PLANNING MODEL

QUESTION: Are projected discharge rates in each age group, type of care and level of injury consistent with established parameters?

SOURCE DOCUMENT(S):

Planner Input Table, SCI Planning Model.

REVIEW PROCEDURES:

Review source documents to determine if discharge rate trends are consistent with the following parameters:

(1) For each age group, type of care and level of injury where an upward trend is assumed, i.e., the DR for the last FY is greater than the DR for the first FY, the default projected DR is the lesser of either 110 percent of the last FY or actual percentage increase between the last and first FY.

(2) When an upward trend is not assumed, the default projected DR is the mean DR observed over the historical years.

Quantitative justification must be evident for all other exceptions.

ASSESSMENT:

October 2, 1989

M-9
Chapter 5
APPENDIX E

TECHNICAL REVIEW OF SPINAL CORD INJURY PLANNING MODEL

QUESTION: Has appropriate length of stay been used?

SOURCE DOCUMENT(S):

Planner Input Table, SCI Planning Model

REVIEW PROCEDURES:

Review source document to determine if projected length of stay for each age group, type of care and level of injury is consistent with the calculated mean of the historical years.

Quantitative justification must be evident for length of stay projections exceeding the mean.

ASSESSMENT:

TECHNICAL REVIEW OF SPINAL CORD INJURY PLANNING MODEL

QUESTION: Is bed allocation for each level of care consistent with projections derived through application of the model?

SOURCE DOCUMENT(S):

Table 1, SCI Planning Model

Inpatient Data Table

REVIEW PROCEDURES:

Compare bed allocations from inpatient data table with projected bed levels from Table 1, SCI Planning Model to determine if bed allocation is consistent with model projections.

Quantitative justification must be evident for all bed allocations exceeding the results of the SCI Planning Model.

ASSESSMENT:

July 26, 1991

1. Transmitted is a change to Department of Veterans Affairs, Veterans Health Administration Manual M-9, "MEDIPP," which is changed to M-9, "Strategic Planning."

2. Principal reason for this manual change is to delete the term "MEDIPP":

a. In chapters 1 through 11, delete the term "MEDIPP" and replace it with "Strategic Planning."

b. Changes to all M-9 chapters are in process to update to current procedures.

3. Filing Instructions:

Remove pages

Insert pages

Cover page through iv

Cover page through iv


JAMES W. HOLSINGER, JR., M.D.
Chief Medical Director

Distribution: RPC: 1318
FD

Printing Date: 7/91

PUBLICATIONS AND
DIRECTIVES MANAGEMENT
STAFF (161E)

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DEC 20 1989

October 2, 1989

1. Transmitted is a new Veterans Health Services and Research Administration Manual M-9, "MEDIPP," chapter 1 through chapter 11. Changes will be made to incorporate the recent reorganization in the near future.

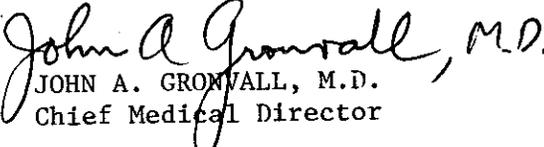
2. Principal reason for this manual is to provide a description of and issue guidance concerning VHS&RA planning process.

3. Filing Instructions:

Insert pages

Cover page through v
1-1 through 11-3

4. RESCISSIONS: Circular 10-87-113, dated October 10, 1987 and Supplement No. 1 dated April 4, 1988; Circular 10-87-147, dated December 30, 1987; Circular 10-88-3, dated January 13, 1988; Circular 10-88-150, dated December 9, 1988; and Circular 10-89-31, dated March 23, 1989.


JOHN A. GRONVALL, M.D.
Chief Medical Director

Distribution: RPC: 1318 is assigned
FD

Printing Date: 10/89



Veterans Administration

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REMARKS

SUBJ: Departmental Manual M-9

1. In DM&S Supplement MP-1, Part II, Changes 35 dated November 13, 1984, the title of M-9 is "Medical District Initiated Program Planning."

2. This is to request that the title of this manual be changed to:

"Planning and Evaluation and Systems Development"

We expect to be submitting a number of items to be included in this manual during the coming year.

3. Thank you for your assistance.

Approved Disapproved

John W. Ditzler
JOHN W. DITZLER, M.D.
Chief Medical Director

2-3-86
Date

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JAN 27 1986

FROM

Marjorie R. Quandt
MARJORIE R. QUANDT

ACMD for Planning Coordination (17A)

Regulations and Publications

Management Staff (10A1B)

TEL. EXT.
3331

VA FORM 3230
MAY 1980

EXISTING STOCKS OF VA FORM 3230, ★ U.S. G.P.O. 1984-709-228
AUG 1976, WILL BE USED.



Veterans
Administration

Memorandum

APR 03 1984

From: Director, Program Analysis and
Development (10C2B)

To: Chief Medical Director (10)
Publications Control Officer (101B2)

Subj: Establishment of M9-MEDIPP

1. Request permission to establish a new manual (M9-MEDIPP) to formalize MEDIPP (Medical District Initiated Program Planning) as a permanent DM&S Policy.
2. MEDIPP has in its two year cycle become an effective mechanism for DM&S planning purposes. MEDIPP has become the management tool providing comprehensive information directly from the medical districts. This allows prudent decision making in order to meet the health care veterans needs of the 1990's and beyond.
3. The '84 MEDIPP Planning Guidance has been reviewed and concurred in by appropriate program offices, therefore, in order to expedite the process, I would recommend that Volume I: Medipp Purpose, Structure, and Process and Volume II: Plan Development, of the '84 MEDIPP Planning Guidance be accepted as the M9-MEDIPP Manual without further circulation. (Appropriate formatting would be instituted.) I anticipate no changes to these two volumes in the near future.

Volume III: Needs Assessment Methodology and Volume IV: MEDIPP Reference Documents will by necessity be revised annually and will therefore have to be issued annually as a CMD Circular.

4. It is timely that M9-MEDIPP be developed in order to firmly establish its important place in DM&S as a consistent, and permanent policy.

Murray G. Mitts M.D.
MURRAY G. MITTS, M.D.

Donald L. Custis
DONALD L. CUSTIS, M.D.
Chief Medical Director (10)

Approve
~~Disapprove~~

4/17/84
Date