COMPARATIVE ASSESSMENT OF SIX CASE-MIX CLASSIFICATION SYSTEMS WHEN APPLIED TO SIMULATED DoD POPULATIONS

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13. ABSTRACT (Maximum 200 words)

This report presents the results of a comparative analysis of six case-mix classification systems when applied to a simulation of DoD patient populations. This represents the culmination of a series of reports that assessed each of the case-mix classification schemes. Case-mix classification schemes tested were Ambulatory Work Units (AWUs); Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) visit charges; Ambulatory Visit Groups (AVGs) based on CHAMPUS charges; AVGs based on the Resource-Based Relative Value Scale (RBRVS); Ambulatory Patient Groups (APGs) based on CHAMPUS charges; and APGs based on RBRVS. Simulations were used to facilitate a comparison of these competing classification schemes.

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The following report presents the results of a comparative analysis of six case-mix classification systems when applied to a simulation of DoD patient populations. This represents the culmination of a series of reports that assessed each of the case-mix classification schemes.

This executive summary, which parallels the structure of the main report, includes the following sections:

- Introduction
- Methodology
- Results
- Conclusions and Recommendations

1. INTRODUCTION

The purpose of this effort was to assess which of six case-mix classification methodologies was most effective as a tool for allocating ambulatory care resources within the DoD. The following case-mix classification schemes were tested using simulated Medical Treatment Facility (MTF)-level data:

- Ambulatory Work Units (AWUs)
- Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) visit charges
- Ambulatory Visit Groups (AVGs) based on CHAMPUS charges
- AVGs based on the Resource-Based Relative Value Scale (RBRVS)
- Ambulatory Patient Groups (APGs) based on CHAMPUS charges
- APGs based on the RBRVS

In order to facilitate a comparative assessment of these competing classification schemes, we created 12 "simulations." Of these 12 simulations, six represent the ambulatory patient case-mix of MTFs derived from the demographic profiles of actual facilities and morbidity data from three study databases. An additional six simulations were created to test the sensitivity of the various case-mix classification schemes to patient population extremes.

The objectives of this present effort were to (1) simulate the health care utilization of actual as well as demographically unique MHSS service populations, (2) conduct a comparative assessment of alternative case-mix classification methodologies in describing ambulatory care resource use within simulated service populations, and (3) use the RBRVS as a substitute for CHAMPUS dollars in computing resource use.

2. METHODOLOGY

In order to facilitate the comparison of the case-mix classification schemes, we created 12 simulation databases containing 2,000 patients and a year's worth of their encounter data. The first six simulations were based on actual MTF demographics, while the second six represented special scenarios.

2.1 Creation Of Simulation Patient Records

In an effort to provide diversity, the decision as to which MTF facilities to simulate was made based on the following:

- MTF demographics taken from Deers/RAPS
- The need for a mix of Army, Navy, and Air Force facilities
- The need for a mix of Medical Centers and Community Hospitals

In order to highlight the reactions of the classification schemes to specific populations, the following six special scenario simulations were developed:

- Children (Age<15)
- Adults (Age 45-64)
- Active Duty
- Complex Case-Mix Visits
- Women of Childbearing Age (Age 18-44)
- Over 65 Years of Age

To create the simulation databases, we took the following steps:

- We created a patient selection list based upon the unduplicated patients found in our three study databases (1) the Uniformed Services Treatment Facilities (USTF) database, (2) the CHAMPUS database, and (3) the Ambulatory Care Database (ACDB).

- We randomly selected 2,000 patients from the simulation patient selection list for each of the scenarios to be simulated based upon stratum (age and sex) and beneficiary status (active duty or other), except for the complex case-mix simulation, which was based on visits with high relative values.

- For the selected patients, we retrieved all of their encounters from their respective databases.

- Based upon each record's source, we attached a weighting variable to create an approximation of one year of data.

- We then used an algorithm to add procedures to visits that did not have them.

There was one deficiency that could not be effectively addressed in this five-step process. The databases (i.e., ACDB, CHAMPUS, and USTF) failed to adequately reflect pregnancy visits because these visits were often bundled with data for the actual delivery. Therefore, we took the following extra steps in creating the simulation for women of childbearing age:

- Patient data were randomly adjusted to reflect age-specific fertility rates provided by the National Center for Health Statistics.

- Standard initial and follow-up prenatal care visits were constructed based upon guidelines of the American College of Obstetrics/Gynecology, the American Public Health Association, and the opinion of a medical records expert. (See Appendix B for the specifics on these visits.)

- The number of visits assigned to each "pregnant" woman was then decided probabilistically for a one-year study period. In other words, each pregnancy could have occurred fully or partially during the one year of inquiry and, thus, the number of prenatal care visits was varied to reflect the interval within the study period.

2.2 Development And Attachment Of Resource Measures

After the patient encounter information had been compiled for each simulation, steps had to be taken to attach the different case-mix classification weights to each visit, so that an analysis of the effects of the various simulations could be performed. These steps were:

- Develop AVG and APG relative values based on Hsiao's RBRVS

- Group all visits and attach each of the resource measures--mean CHAMPUS billed charge, CHAMPUS dollar-based AVG and APG relative values, RBRVS-based AVG and APG relative values, and AWU weights

2.3 Analytical Approach

There were two steps taken in analyzing the simulation data. First, for each simulation, the top 10 diagnoses, procedures, AVGs, APGs, and Uniform Chart of Account (UCA) codes were compiled along with a graphical representation of the demographics. (This information is provided in Appendix D.) These characteristics were then analyzed to assess the face validity of each simulation. Second, standardized weights for each case-mix classification scheme were calculated for each simulation, so that the results could be compared across simulations as well as allocation schemes.

2.4 Limitations Of The Simulation

The limitations of this simulation, for the most part, stem back to the three source databases (ACDB, CHAMPUS, and USTF) and have been documented in past reports. Since we were able to overcome almost all of the data limitations that we encountered, the results of the simulation showed excellent face validity and should prove to be useful to the DoD in choosing a case-mix classification system.

3. RESULTS

3.1 Characteristics Of Each Simulation

Before we could undertake any analyses regarding the case-mix classification schemes, a thorough assessment of the validity of each simulation was performed in terms of selected population characteristics.

3.1.1 Facility-Specific Simulations

All of the facility-specific simulations are numbered in order to ease the presentation of results, as follows:

- **Simulation 1**--Community Hospital
- **Simulation 2**--Medical Center
- **Simulation 3**--Medical Center
- **Simulation 4**--Community Hospital
- **Simulation 5**--Community Hospital
- **Simulation 6**--Community Hospital

The demographics of these simulations were tailored to reflect the service populations of actual MTFs and, therefore, show good face validity. Also, since the populations are not radically different, it would be expected that the top 10 diagnoses for each of the facility-specific simulations should be very similar. This was indeed the case.

3.1.2 Special Scenario Simulations

The simulation numbers and the special scenario that they represent are as follows:

- **Simulation 7**--Children
- **Simulation 8**--Active Duty
- **Simulation 9**--Women of Childbearing Age
- **Simulation 10**--Adults
- **Simulation 11**--Over 65 Years of Age
- **Simulation 12**--Complex Case-Mix

These simulations yielded case-mix patterns that were commensurate with their age distributions.

3.2 Results Of Analyses Of The Case-Mix Classification Schemes

Analyses of the results of applying the six case-mix classification schemes to each of the simulations provided some insights into the characteristics of each allocation strategy.

3.2.1 Facility-Specific Simulations

The results of our analysis of the case-mix classification schemes as applied to the facility-specific simulations are shown in Exhibits III-1, III-2, and III-3. The most prominent results of this analysis were the following:

- There was a relatively high degree of homogeneity between allocation methodologies in terms of resource intensity. However, the effect of choosing one alternative over another could change the level of a resource budget by plus or minus 8 percent.
- AWUs were the least sensitive to facility-specific differences in case-mix.
- Measures based on CHAMPUS-billed charges are most sensitive to facility-specific differences in case-mix, as one should expect, because of the overall greater dispersion of raw CHAMPUS dollars.
- RBRVS-based measures show a constrained variation more comparable to AWUs, because the raw RBRVS weights do not vary as much as raw CHAMPUS dollars.

3.2.2 Special Scenario Simulations

The results of applying the case-mix classification schemes to the special scenario simulations are shown in Exhibits III-4, III-5, III-6, and III-7. The most prominent results of this analysis were the following:

- As with the facility-specific simulations, the following results were once again evident.
  - -- AWUs were the least sensitive to facility-specific differences in case-mix.
  - -- Measures based on CHAMPUS-billed charges are most sensitive to differences in case-mix, as one should expect.
  - -- RBRVS-based measures show a constrained variation more comparable to AWUs.
- There was high face validity in terms of expected behavior of the case-mix methods.
- Excluding the complex case-mix simulation, the Over 65 Years of Age simulation is highest in resource intensity regardless of the case-mix system employed.
- Alternatively, the simulation of Children had the lowest indices of resource intensity.

- Neither APGs nor AVGs offered any resourcing advantages regarding Active Duty Personnel. This may be because AWU weights are based upon all population segments in each clinic. Since active duty personnel generally represent the healthier segment of a population, their visits usually require fewer resources than average in each clinic.

- Only RBRVS-based APGs were not advantageous to Women of Childbearing Age.

- AWUs were by far the least sensitive to the complex case-mix simulation.

- The simulation of complex case-mix visits yielded the highest resource values of all the simulations, regardless of the case-mix system.

4. CONCLUSIONS AND RECOMMENDATIONS

The results of our analysis do not conclusively point to any of the case-mix classification methodologies as being clearly superior. Each of the systems has its merits and its drawbacks, although none of the systems has a weakness that is serious enough to completely exclude it from consideration.

For measuring resources, we feel that the RBRVS is better than CHAMPUS dollars because it:

- Represents a more comprehensive approach to costing, that considers three dimensions of physicians' charges: (1) physician time, (2) technical overhead (office staff, rent, and supplies), and (3) malpractice insurance.

- Eliminates distortions in current RVs.

- Mitigates differences by Specialty.

- Encourages "cognitive" medicine.

Given that none of the specific systems has deficiencies that would make them unusable, the selection of one method should reflect the DoD's desired incentives. Based on our analysis, we feel that APGs is the best case-mix classification system for use by the DoD. We based this decision on the following factors:

- Since HCFA will be adopting APGs, we feel that the DoD should also adopt them in an effort to maintain consistency. CHAMPUS providers will be using APGs with their Medicare patients as a result of the HCFA move and will not want to have to use two different systems. Also, if the DoD wants to be able to compare their data with the rest of the country in future studies, APGs will allow for this comparability.

- Based on the full list of criteria in the matrix (Exhibit IV-1), APGs come out on top of both AWUs and AVGs.

- APGs are the next generation of AVGs and are more flexible due to procedure bundling.

- AVGs are no longer under development, whereas APGs continue to be studied and refined.

CHAPTER I

INTRODUCTION

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INTRODUCTION

The purpose of this effort was to assess which of six case-mix classification methodologies was most effective as a tool for allocating ambulatory care resources within the DoD. The following case-mix classification schemes were tested using simulated MTF-level data:

- Ambulatory Work Units (AWUs)
- CHAMPUS visit charges
- Ambulatory Visit Groups (AVGs) based on CHAMPUS charges
- AVGs based on the Resource-Based Relative Value Scale (RBRVS)
- Ambulatory Patient Groups (APGs) based on CHAMPUS charges
- APGs based on the RBRVS

In order to facilitate a comparative assessment of these competing classification schemes, we created 12 case-mix "simulations." Of these 12 simulations, six represent the ambulatory patient case-mix of Medical Treatment Facilities derived from the demographic profiles of actual facilities and morbidity data from three study databases. An additional six simulations were created to test the sensitivity of the various case-mix classification schemes to patient population extremes. These simulations were as follows:

- Children (age < 15 years)
- Adults (age 45-64)
- Active duty
- Complex case-mix visits
- Women of childbearing age (age 18-44 years)
- Over 65 years of age

The sensitivity of each of the alternative case-mix classification schemes to each of the 12 simulations was determined.

In much of our previous work,[1] we have focused individually on many of the prevailing case-mix classification schemes. The alternatives that we assessed were APGs, AVGs, and Episodes of Illness. In assessing Episodes of Illness, we decided that the inability to capture all ambulatory visits for any given illness episode made it impossible to develop any useful resource allocation scheme at this time. Therefore, Episodes of Illness were not included in our current effort. However, as part of the APG and AVG assessments, we were able to value resources in terms of relative values for our three DoD databases[2] using CHAMPUS dollars.

[1]See Appendix A, a listing of our prior relevant work.

[2]These databases were (1) the Uniformed Services Treatment Facilities (USTF) database, (2) the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) database, and (3) the Ambulatory Care Database (ACDB).

Since each of our prior reports dealt with only one classification scheme at a time, we decided that a side-by-side comparison of these methodologies versus the current DoD case-mix classification system, AWUs, would provide valuable information. We also chose to use both CHAMPUS dollars and the recently promulgated RBRVS values as the resource outputs for each visit.

In summation, the present effort has the following three objectives:

- Simulate the health care utilization of actual as well as demographically unique MHSS service populations.
- Conduct a comparative assessment of alternative case-mix classification methodologies in describing ambulatory care resource use within simulated service populations.
- Use the RBRVS as a substitute for CHAMPUS dollars in computing resource use.

This report presents the methodology used to perform these comparisons along with the associated results.

CHAPTER II

METHODOLOGY

CHAPTER II

METHODOLOGY

In this chapter, we present the steps taken in formulating the 12 simulations used in our analysis of the competing case-mix classification schemes. This chapter is segmented into the following sections:

- Creation of the simulations
- Development and attachment of resource measures
- Analytical approach
- Limitations of the simulation

1. CREATION OF THE SIMULATIONS

A total of 12 ambulatory care case-mix simulations, each representing the morbidity experience of 2,000 patients over a one-year period, were created. Of the 12 simulations, six were modeled on the demographic characteristics of actual Medical Treatment Facilities. The age and sex distribution of these MTF populations were applied to an unduplicated file of patients derived from each of the three study databases. Simulation patients were randomly selected and their health care encounters over a one-year period were used to actually simulate case-mix. In an effort to provide diversity among these six MTF simulations, we decided which facilities to simulate based upon the following:

- MTF demographics taken from Deers/RAPS
- The need for a representation of Army, Navy, and Air Force facilities
- The need for a mix of Medical Centers and Community Hospitals

In order to highlight the reactions of the classification schemes to specific populations, the following six special simulations were also developed:

- Children (aged < 15 years)
- Adults (aged 45-64 years)
- Active duty (These patients were selected from the ACDB and USTF only, since CHAMPUS does not treat active-duty personnel.)
- Complex case-mix visits (This simulation contains all visits from the 51 AVGs with the highest relative values developed in the CHAMPUS database using dollars as the resource measure.)
- Women of childbearing age (aged 18-44 years)
- Adults over 65 years of age

The following narrative describes the discrete steps that were required to prepare the 12 simulations.

- **Step 1**--We created a patient list based upon the unduplicated patients found in the USTF, CHAMPUS, and ACDB databases. A new data file was created for these patients that included, in addition to pertinent demographic and health status characteristics drawn from the parent files, variables that:

  -- Designated a patient age and sex stratum to be used for subsequent random selection to reflect desired simulation demographic characteristics

  -- Classified patients as active duty or other

- **Step 2**--We randomly selected 2,000 patients from the simulation patient selection list for each of the scenarios to be simulated based upon their age and sex stratum and beneficiary status (active duty or other). The one exception to this was the complex case-mix simulation, which was based on visits with high relative values rather than demographics.

- **Step 3**--We retrieved all of the ambulatory care encounters for the selected patients from their source databases.

- **Step 4**--Since only one of our databases provided encounter data for exactly one year, we employed a weighting variable to create an approximation of one year of data. The weight to be attached to visits in each database was as follows:

  -- USTF x 1.00

  -- CHAMPUS x 4.00

  -- ACDB x 2 x 0.75 = ACDB x 1.50 (since it is a 50 percent sample of 16 months of data)

- **Step 5**--Many visits in the USTF and ACDB databases contained no procedure information whatsoever. In these cases, we attempted to attach procedures based upon clinical norms that were reflected in the pooled encounter data for all 12 simulations. In establishing norms, we looked at sets or "packages" of procedures that occurred commonly. A procedure "package" was chosen at random from the top six "packages" for that age-sex stratum and diagnosis. Random selection was in proportion to the frequency that the "package" was observed to occur. Only 12 percent of the visits actually needed to have procedures added using this algorithm. By using the algorithm, 87 percent of these visits were assigned procedures. The other 13 percent still do not contain any procedural data because they either had no recorded diagnosis or they had a unique diagnosis.

There was one deficiency that could not be effectively addressed in this five-step process. The databases (i.e., ACDB, CHAMPUS, and USTF) failed to adequately reflect pregnancy visits because these visits were often bundled with data for the actual delivery. Therefore, a methodology was created for adapting the simulation for women of childbearing age that would reflect these visits. After randomly selecting the 2,000 patients and retrieving all of their encounter records, the following extra steps were undertaken:

- **Step 1**--Patient data were randomly adjusted to reflect age-specific fertility rates provided by the National Center for Health Statistics.

- **Step 2**--Standard initial and follow-up prenatal care visits were constructed based upon guidelines of the American College of Obstetrics/Gynecology and the American Public Health Association. (See Appendix B for the specifics on these visits.)

- **Step 3**--Pregnancies by months to full-term delivery were uniformly distributed across all 12 months and encounters assigned based upon the **expected** visits for each trimester.

2. DEVELOPMENT AND ATTACHMENT OF RESOURCE MEASURES

After the patient encounter information had been compiled for each simulation, we developed and attached a resource weight for each case-mix classification approach to all visits by executing the following steps:

- **Step 1**--We developed relative values based on Hsiao's RBRVS by performing the following substeps:

  -- We attached Hsiao's RBRVS to each procedure in the CHAMPUS database. The RBRVS weight was mapped for a particular CPT-4 procedure code to the same CPT-4 code in the CHAMPUS database.

  -- Using the RBRVS as the resource measure, we developed AVG and APG weights. The method employed was very similar to that used in the creation of weights based on CHAMPUS dollars.[1] The one difference was that no trimming of the data was needed, because the RBRVS do not contain any outliers.

- **Step 2**--We then grouped all of the visits and attached each of the resource measures to be studied by performing the following substeps:

  -- We ran the data through the ambulatory care case-mix method grouping software, so that APGs and AVGs could be assigned to all of the visits in the simulations.

[1]See the B&D reports entitled *Assessment of the Utility of Ambulatory Visit Groups (AVGs) as a Tool for Ambulatory Resource Allocation Within the United States Military Health Care System* and *Assessment of the Utility of Ambulatory Patient Groups (APGs) as a Tool for Ambulatory Resource Allocation Within the United States Military Health Care System.*

-- We attached the pertinent mean CHAMPUS billed charge to each procedure code in the USTF and ACDB.

-- We attached CHAMPUS dollar-based AVG and APG relative values to each visit. We used the weights that we had developed previously using the CHAMPUS database.

-- We attached RBRVS-based AVG and APG relative values to each visit. We used the weights that were developed in Step 1.

-- We calculated the total APG relative weight for each visit based upon the discounting methods that were employed by the Health Care Financing Administration.[2] (See Appendix C for the details of our implementation of these methods.)

-- We attached AWU weights that corresponded to the Uniform Chart of Accounts (UCA) clinic code of each visit in the ACDB.

-- Since the USTF and CHAMPUS did not contain UCA codes, we performed the following four-step process to attach these codes along with their corresponding AWU weights:

- **Substep 1**--From the ACDB, we established the six most frequently occurring UCA codes for each AVG and each associated age-sex stratum. For those visits in which UCA codes were missing but an AVG and age-sex stratum were available, we randomly assigned a UCA from among the top six in proportion to its frequency of occurrence. It was not possible to assign a UCA approximately 2 percent of the time because some of the AVG and age-sex stratum combinations that appeared in the USTF and CHAMPUS did not occur in the ACDB.

- **Substep 2**--If any visit with CHAMPUS as its source still needed a UCA code, we searched all CHAMPUS visits that already had UCA codes for the six that appeared the most frequently with the given provider specialty and stratum combination. Then, we randomly selected one of these six UCA codes and attached it to the visit. However, this step was also unable to assign UCA codes to all of the visits from CHAMPUS, because some of the provider specialty and stratum combinations that appeared in the visits that still needed UCA codes did not occur in the visits that already had UCA codes.

- **Substep 3**--For any visits that continued to need UCA codes, the search scope was expanded to include all visits in all databases with UCA codes. While this approach resulted in the identification of

[2]*Design and Evaluation of a Prospective Payment System for Ambulatory Care*, Averill, Richard F., et al., December 31, 1990, pp. 55-57.

several new AVG/age-sex stratum combinations, there was still a residual number of visits that could not be assigned UCA codes due to their unique AVG/stratum category.

- **Substep 4**--We repeated Substep 3, except we broadened the search to be based solely on AVG and not on AVG and stratum. By doing this, we were able to assign a UCA code to any visit that still needed one, unless it had an AVG that never occurred in any of the visits with UCA codes. However, this was very rare.

- **Step 3**--Some of the UCA codes never had AWU weights developed for them. To rectify this problem, we developed proxy AWU weights for these unweighted UCA codes wherever possible by executing the following steps:

  -- We performed a correlation analysis of AWUs with other resource measures to find the measure with the best correlation with AWUs for existing weighted UCA codes. The result of this analysis showed that CHAMPUS dollars correlated with AWUs better than any of the other resource measures.

  -- Where a sufficient number of observations existed, a simple linear regression was used to estimate an AWU that most closely corresponded to the total mean CHAMPUS dollar value for those UCA codes that were without AWU weights.

- **Step 4**--We attached proxy resource measures for each case-mix system where none were previously attached. For each simulation, we developed these proxy measures based on the mean value of each case-mix system as calculated when the encounters with missing values were excluded; e.g., if simulation X had 5,000 visits, and 100 of those visits had no AVG weights attached, we first computed the mean AVG weight for the 4,900 visits that had values and then applied the mean AVG weight to the 100 visits that needed a relative value. This was done to minimize the effects of having visits within each simulation that were effectively shown to require no resources.

3. ANALYTICAL APPROACH

Analysis of the simulation data involved two steps. First, for each simulation, the top 10 diagnoses, procedures, AVGs, APGs, and UCAs were identified and a demographic profile prepared (see Appendix D). The internal consistency of these data was considered, e.g., that older individuals would show more chronic conditions in the top diagnoses. Second, standardized weights for each case-mix classification scheme were calculated for each simulation so that comparisons between these approaches could be made.

These weights were calculated in the following way:

- **Step 1**--We calculated the total resource level in each simulation for each of the case-mix classification systems (e.g., the AWU weights for all of the visits in simulation 1 were summed together to get the total AWU resource level in simulation 1).

- **Step 2**--We divided the total resource levels for each of the six case-mix classification systems by the total number of visits in each simulation to get the mean resource level per visit for each of the 12 simulations. The resource level per visit represents the total system weight (e.g., if the total resource level for AWUs in simulation X was 100 and the number of visits in simulation X was 5,000, then the resource level per visit for AWUs equals 0.02, or in other words, the total system weight for AWUs equals 0.02).

- **Step 3**--For each case-mix classification system, we calculated the sum of the total system weights for the six facility-specific simulations. Then we divided this figure by six to get the mean total system weight for each of the case-mix systems. For example, if the following were true,

Simulation	Total System Weight for AWUs
A	0.025
B	0.023
C	0.027
D	0.029
E	0.021
F	0.025

  then the mean total system weight for AWUs would be 0.15 divided by 6; this equals 0.025.

- **Step 4**--For each of the six facility-specific simulations, we computed the standardized weight for each of the case-mix classification systems by dividing the total system weight for the given simulation by the mean total system weight for the six facility-specific simulations (as calculated above in Step 3). This standardized weight was computed so that the mean value for the facilities would be 1, with a value greater than 1 indicating higher than average resource usage and a value lower than 1 indicating lower than average resource usage (e.g., if we continue with the example presented above in Step 3, the standardized weight case-mix index for the AWU classification system for simulation B would be equal to 0.023 divided by 0.025; this equals 0.92).

- **Step 5**--For each of the special scenario simulations, we repeated Step 4. The reason that we used the same denominator for both the facility-specific and special scenario simulations was so that the standardized weights for all 12 simulations would be on a comparable scale (e.g., continuing our example, if we had a special scenario simulation G with a mean total system weight of 0.100, then the standardized weight would be 0.100 divided by 0.025; this equals 4.0).

4. LIMITATIONS OF THE SIMULATION

The limitations of this simulation, for the most part, stem back to the three source databases (i.e., ACDB, CHAMPUS, and USTF) and have been documented in past reports. Many of these limitations have been addressed and corrected by the methodology presented in sections one and two of this chapter. The identified limitations include the following:

- **No Charge Information In The ACDB And USTF**--The CHAMPUS database contains the charge for each procedure performed. By calculating the mean cost for each CPT-4 code in CHAMPUS, we were able to "cost" the ACDB and USTF by mapping the charges based on CPT-4 codes.

- **Lack Of Pregnancy Visits In The Databases**--We addressed this issue by performing the three-step process described above in Section 1 to create the Women of Childbearing Age simulation. However, the rest of the simulations do not adequately reflect pregnancies due to their small presence in the three source databases.

- **No UCAs In CHAMPUS And The USTF**--Of our three databases, only the ACDB had UCA codes recorded for each visit. To correct for this limitation, the methodology described above in Step 2 of Section 2 was performed.

- **Not All UCA Codes Had AWUs Developed For Them**--The UCAs for ancillary procedures and flight medicine never had AWUs developed for them. We developed them by performing Step 3 of Section 2 as described above.

- **RBRVS Does Not Cover All Of The CPT-4 Codes Yet And Does Not Cover Special CHAMPUS, ACDB, And USTF Codes**--The developers of the RBRVS have weighted the majority of CPT-4 codes but have not yet completed all of them. Also, our three databases each contain their own unique codes that have not been weighted for the RBRVS. Any procedure codes that did not have an RBRVS weight were simply left unweighted for lack of a better solution at this time.

- **Not All Visits Had All Resource Measures From All Of The Case-Mix Systems Attached**--Several visits were without resource measures for all six of the case-mix classification schemes for various reasons. This was corrected by performing Step 4 of Section 2.

As suggested in our discussion, we were able to overcome almost all of the data limitations that we encountered. The results of the simulation also showed excellent face validity and should prove to be useful to the DoD in choosing a case-mix classification system. Although the data currently available proved to be adequate for performing this simulation, the availability of more complete and current data could only strengthen the total effort.

CHAPTER III

RESULTS

CHAPTER III

RESULTS

The 12 simulations can be divided into two categories: (1) facility-specific simulations and (2) special scenario simulations. Each of these categories will be covered separately. The results of the simulation will be presented in terms of the properties of each simulation and the effects of applying the different case-mix classification schemes to the simulations

1. CHARACTERISTICS OF EACH SIMULATION

Before we could undertake any analyses regarding the case-mix classification schemes, a thorough assessment of the validity of each simulation was performed in terms of selected population characteristics. Simulated population characteristics can be found in Appendix D. Highlights of this assessment are presented below.

1.1 Facility-Specific Simulations

All of the facility simulations are numbered to facilitate the presentation of results, as follows:

- **Simulation 1**--Community Hospital
- **Simulation 2**--Medical Center
- **Simulation 3**--Medical Center
- **Simulation 4**--Community Hospital
- **Simulation 5**--Community Hospital
- **Simulation 6**--Community Hospital

The demographics of these simulations were tailored to reflect the service populations of actual MTFs and, therefore, show good face validity. Also, since the populations are not radically different, it would be expected that the top 10 diagnoses for each of the facility-specific simulations should be very similar. This is indeed the case. For example, all of these simulations contain neurotic depression; adjustment reaction, culture shock; unspecified otitis media; allergic rhinitis, cause unspecified; and routine infant or child health check in their top 10 diagnoses. In addition, all but one contain allergic rhinitis and essential hypertension in their top 10 diagnoses. Also, the proportional distribution of these diagnoses contribute to the face validity of these simulations. For example, the two facility-specific simulations with more than 500 children, simulations 1 and 5, show routine infant or child health check as accounting for more than 3 percent of their diagnoses. The other four facility-specific simulations show this same diagnosis as accounting for no more than 2.5 percent of their diagnoses. Similarly, the two simulations with over 500 children each show more than 16.5 percent of their visits as being to pediatric clinics. On the other hand, the other four simulations show no more than 14.6 percent of their visits to pediatric clinics.

1.2 Special Scenario Simulations

The simulation numbers and the special scenarios that they represent are as follows:

- **Simulation 7**--Children

- **Simulation 8**--Active Duty
- **Simulation 9**--Women of Childbearing Age
- **Simulation 10**--Adults
- **Simulation 11**--Over 65 Years of Age
- **Simulation 12**--Complex Case-Mix

These simulations yielded case-mix patterns that were commensurate with their age distributions. Examples of this include the following:

- The simulation of children under the age of 15 years contained routine infant or child health checks and emotional disturbances of childhood in the top 10 diagnoses.

- The simulation of active duty had, as expected, sprains and strains and routine medical examination in the top 10 diagnoses.

- The simulation of women of childbearing age had supervision of normal first pregnancy as the most frequently occurring diagnosis. In addition, almost 20 percent of the visits in this simulation were to obstetrics and gynecological care clinics.

- The simulations of adults and of people over 65 years of age showed higher representation by chronic health conditions. For example, hypertension and diabetes mellitus were two of the most frequently seen diagnoses in these simulations.

- The two clinics most frequently visited in the complex case-mix simulation were medical and surgical clinics. This is as expected, because of the nature of the most frequently occurring procedures in this simulation. For example, extracapsular cataract removal with lens insertion and surgical laparoscopy were the most frequently performed procedures.

2. RESULTS OF ANALYSES OF THE CASE-MIX CLASSIFICATION SCHEMES

Analyses of the results of applying the six case-mix classification schemes to each of the simulations provided some insights into the characteristics of each allocation strategy.

2.1 Facility-Specific Simulations

The results of our analysis of the case-mix classification schemes as applied to the facility-specific simulations are shown in Exhibits III-1, III-2, and III-3.

Exhibit III-1 shows the resource intensity associated with each allocation methodology when applied to the facility-specific simulations. This exhibit suggests the following:

- There was a relatively high degree of homogeneity between allocation methodologies in terms of resource intensity. However, the effect of choosing one alternative over another could change the level of a resource budget by plus or minus 8 percent.

EXHIBIT III-1

RESOURCE INTENSITY BY METHOD
FACILITY SIMULATIONS

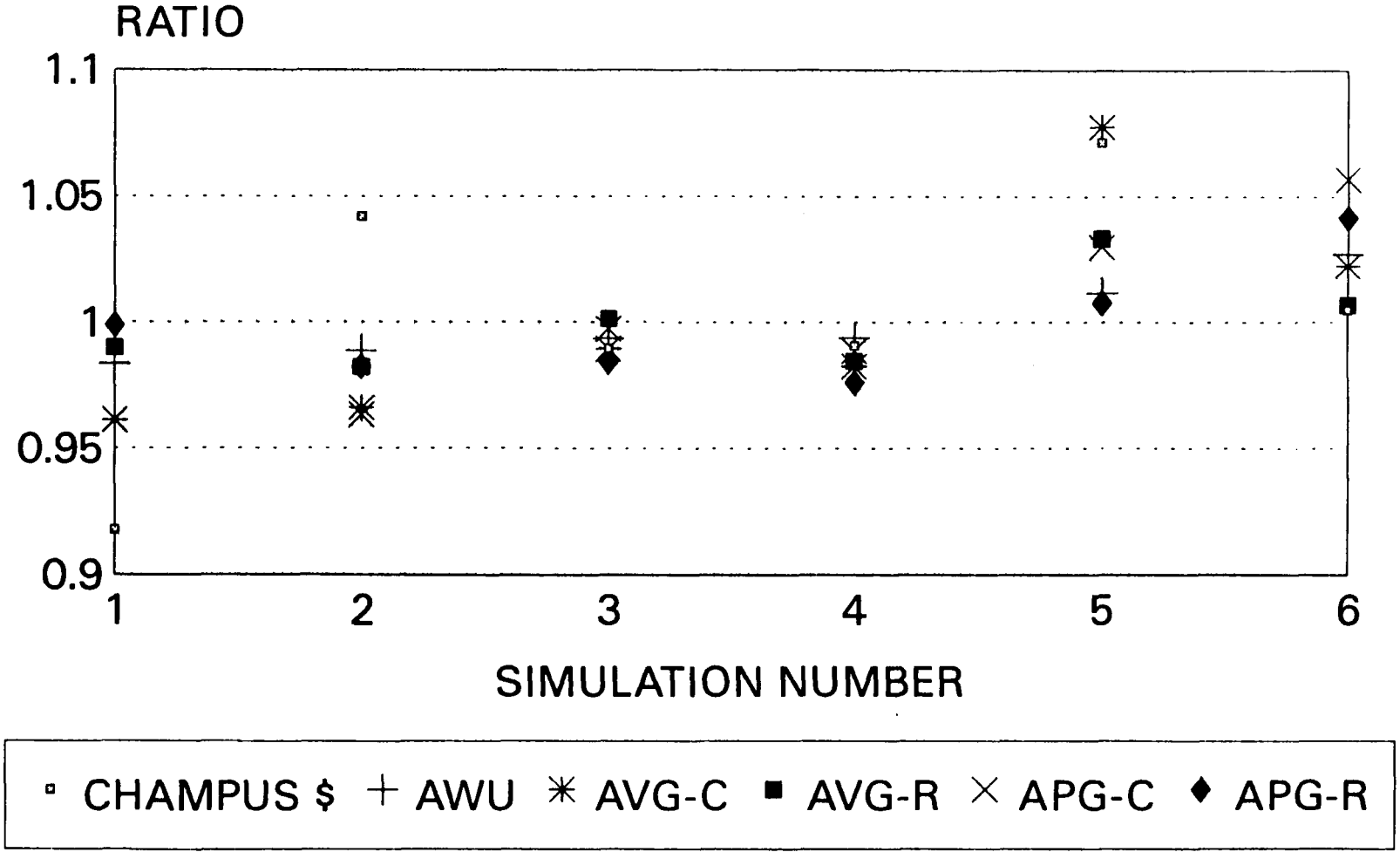


EXHIBIT III-2

DIFFERENCE BETWEEN AWUs AND CHAMPUS DOLLAR-BASED GROUPERS
FACILTY SIMULATIONS-- GROUPER VALUE MINUS AWU

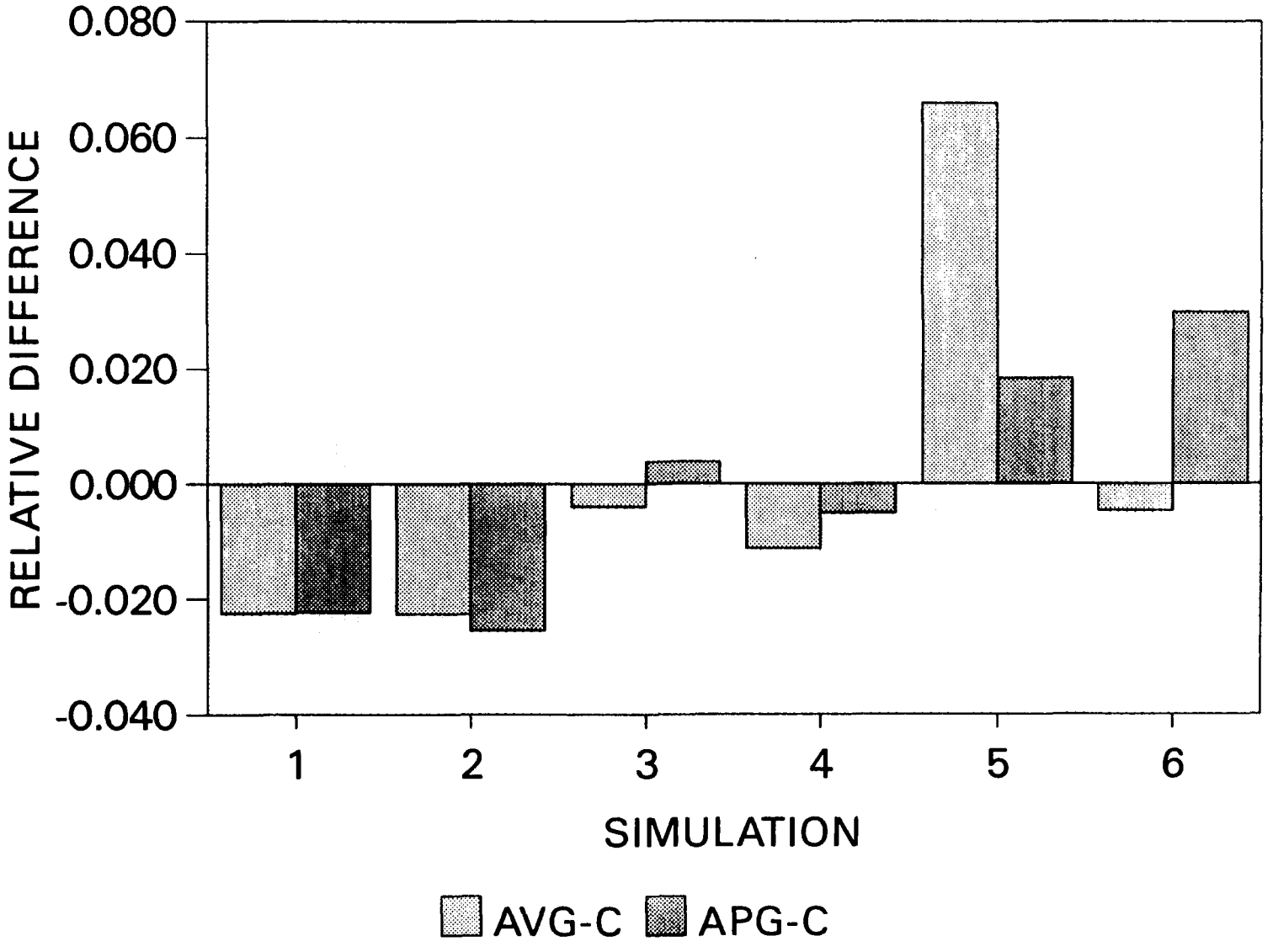
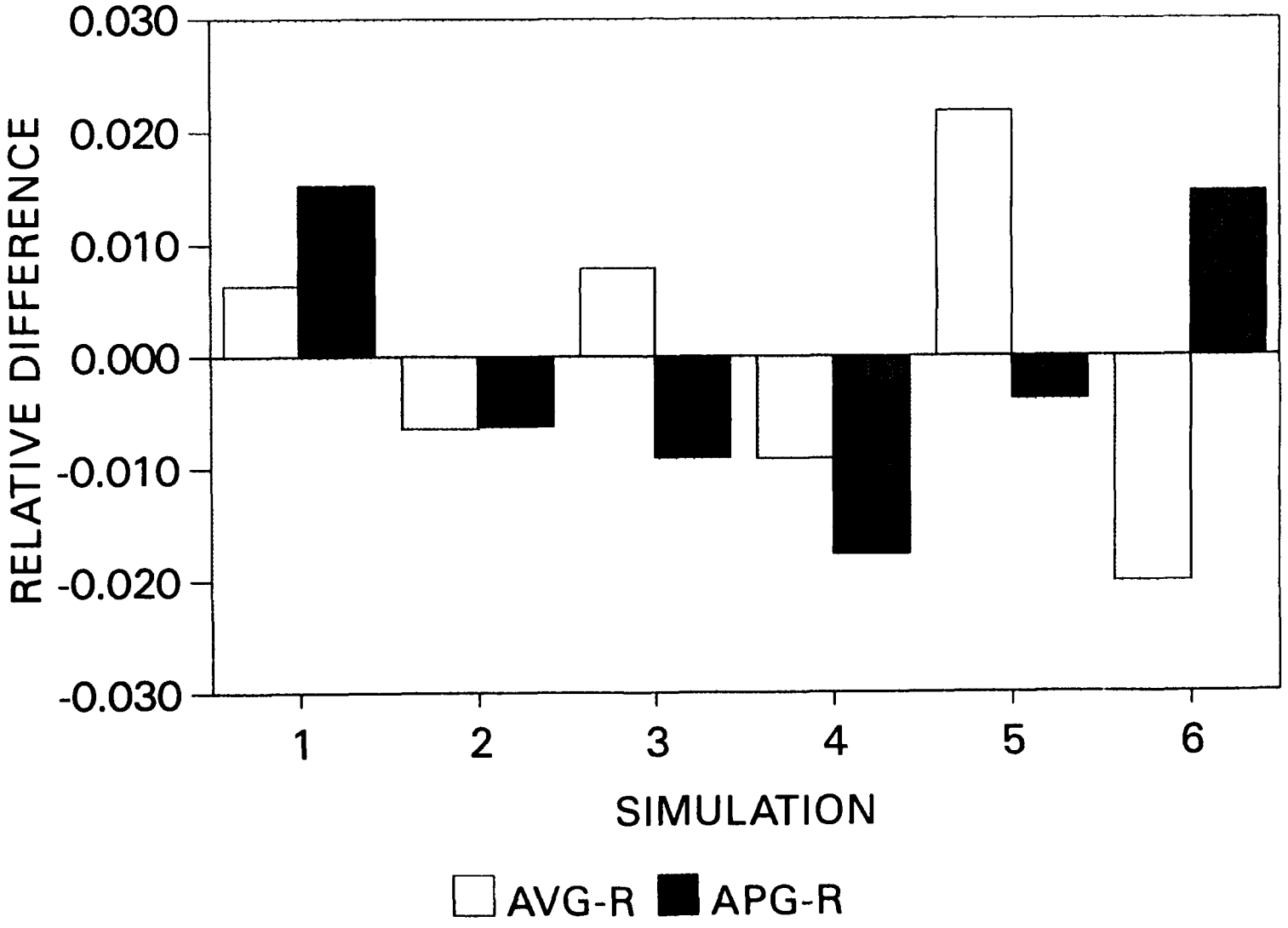


EXHIBIT III-3

DIFFERENCE BETWEEN AWUs AND RBRVS-BASED GROUPERS
FACILITY SIMULATIONS--GROUPER VALUE MINUS AWU



- AWUs were the least sensitive to facility-specific differences in case-mix.

- Measures based on CHAMPUS billed charges are most sensitive to facility-specific differences in case-mix, as one should expect, because of the overall greater dispersion of raw CHAMPUS dollars.

- RBRVS-based measures show a constrained variation more comparable to AWUs, because the raw RBRVS weights do not vary as much as raw CHAMPUS dollars.

Exhibits III-2 and III-3 show the variation of AVGs and APGs when compared to AWUs, the case-mix classification methodology currently used by the DoD. Exhibit III-2 shows AVGs and APGs based on CHAMPUS dollars and Exhibit III-3 shows AVGs and APGs based on the RBRVS. Results that were drawn from Exhibits III-2 and III-3 when examined individually include the following:

- RBRVS-based APGs and AVGs vary by plus or minus 2 percent (see Exhibit III-3).

- CHAMPUS-based APGs and AVGs are somewhat more variable than RBRVS-based weights, ranging from 6 percent to minus 2 percent.

- For three simulations, the two groupers reacted in opposite directions from the AWU baseline; in three other cases, they moved in similar directions. No consistent pattern, or underlying causes, were identified (see Exhibit III-3).

- Simulation 5 exhibited a large difference between AVGs and APGs, possibly due to a high number of psychotherapy visits (see Exhibit III-3).

Simultaneous consideration of the data presented in Exhibits III-2 and III-3 suggests the following:

- For simulation 1, CHAMPUS-based case-mix methods showed lower resource requirements than RBRVS-based methods. This may be due to the higher representation of children and the associated lower chronic morbidity of this population.

- For simulation 5, AVGs were much more generous than APG-based case-mix methods.

2.2 Special Scenario Simulations

The results of applying the case-mix classification schemes to the special scenario simulations are shown in Exhibits III-4, III-5, III-6, and III-7.

Exhibit III-4 shows the resource intensity for each allocation methodology when applied to the special scenario simulations. We derived the following insights from this exhibit:

- As with the facility simulations, the following results were once again evident.

  -- AWUs were the least sensitive to facility-specific differences in case-mix.

EXHIBIT III-4

RESOURCE INTENSITY BY METHOD
SPECIAL SCENARIO SIMULATIONS

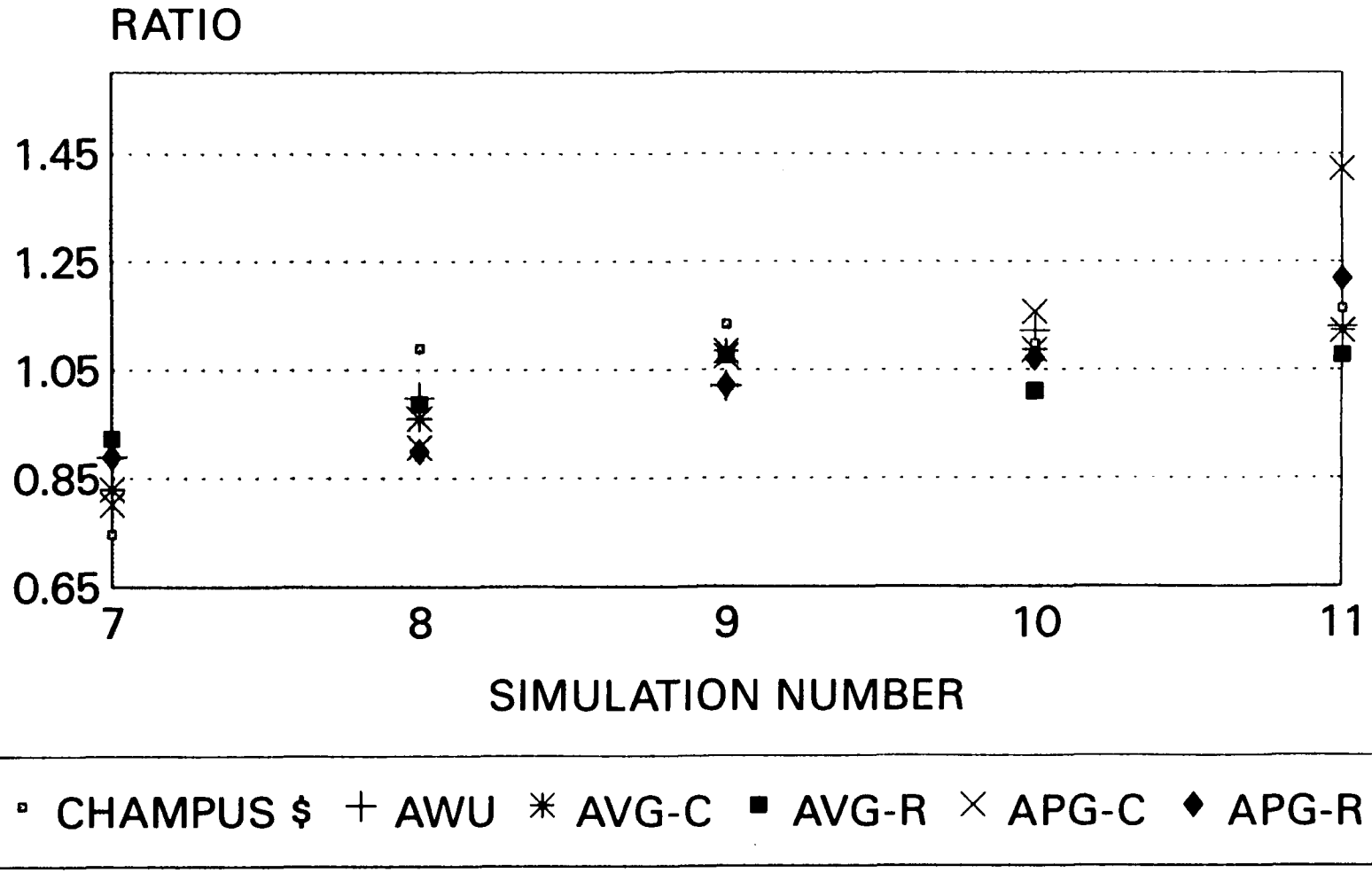


EXHIBIT III-5

DIFFERENCE BETWEEN AWUs AND CHAMPUS DOLLAR-BASED GROUPERS
SPECIAL SCENARIO SIMULATIONS--GROUPER VALUE MINUS AWU

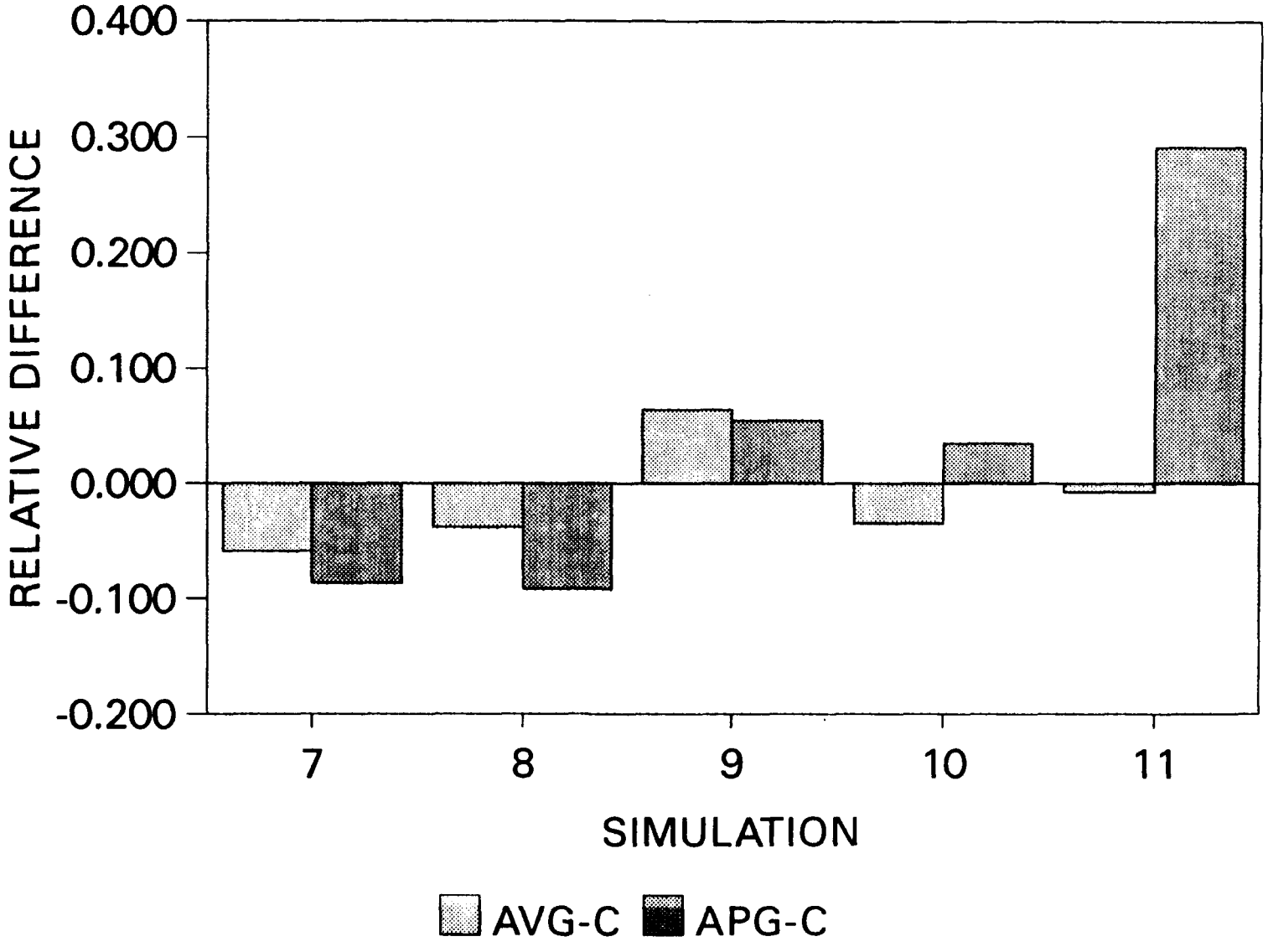


EXHIBIT III-6

DIFFERENCE BETWEEN AWUs AND RBRVS-BASED GROUPERS
SPECIAL SCENARIO SIMULATIONS--GROUPER VALUE MINUS AWU

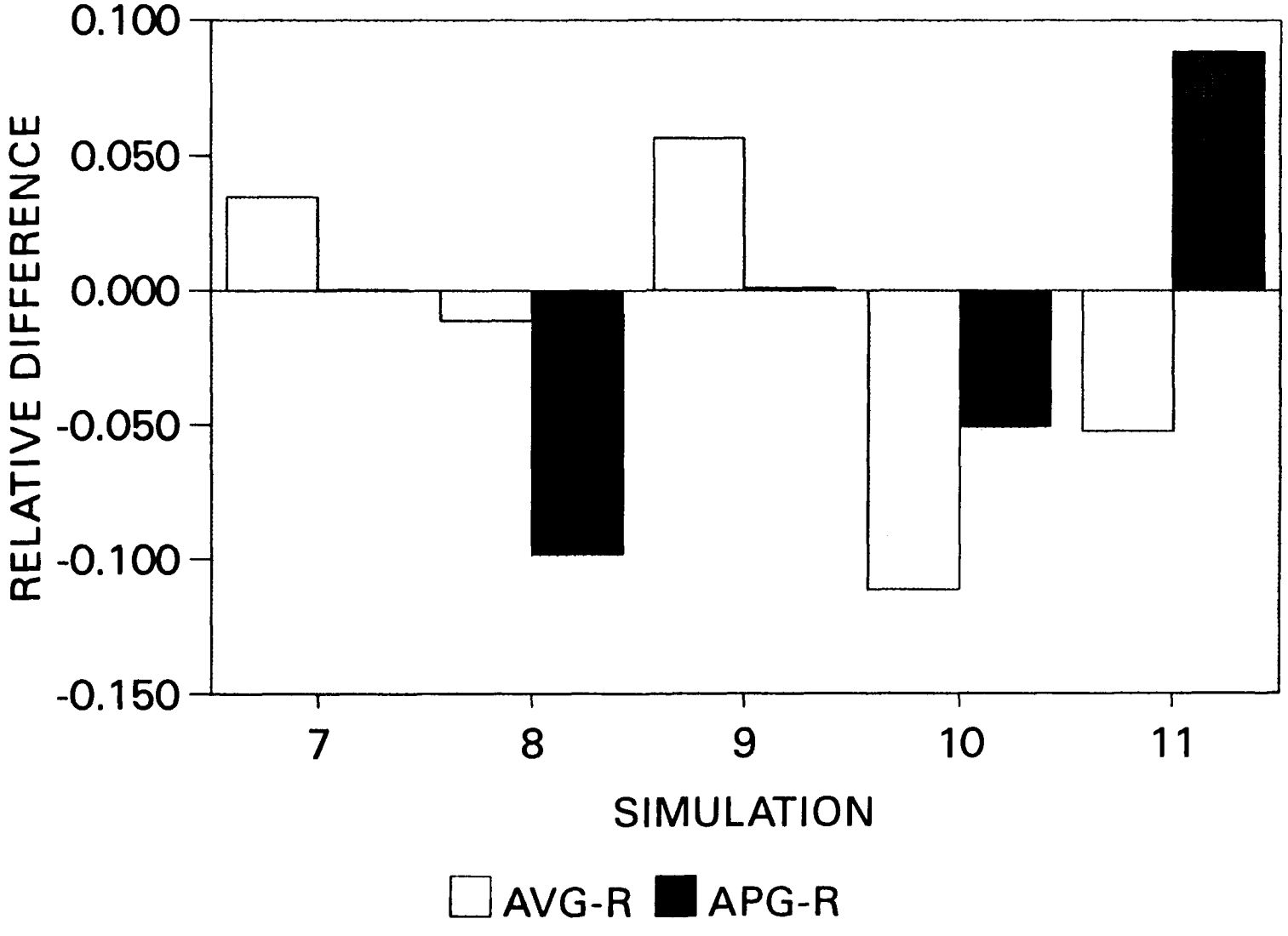
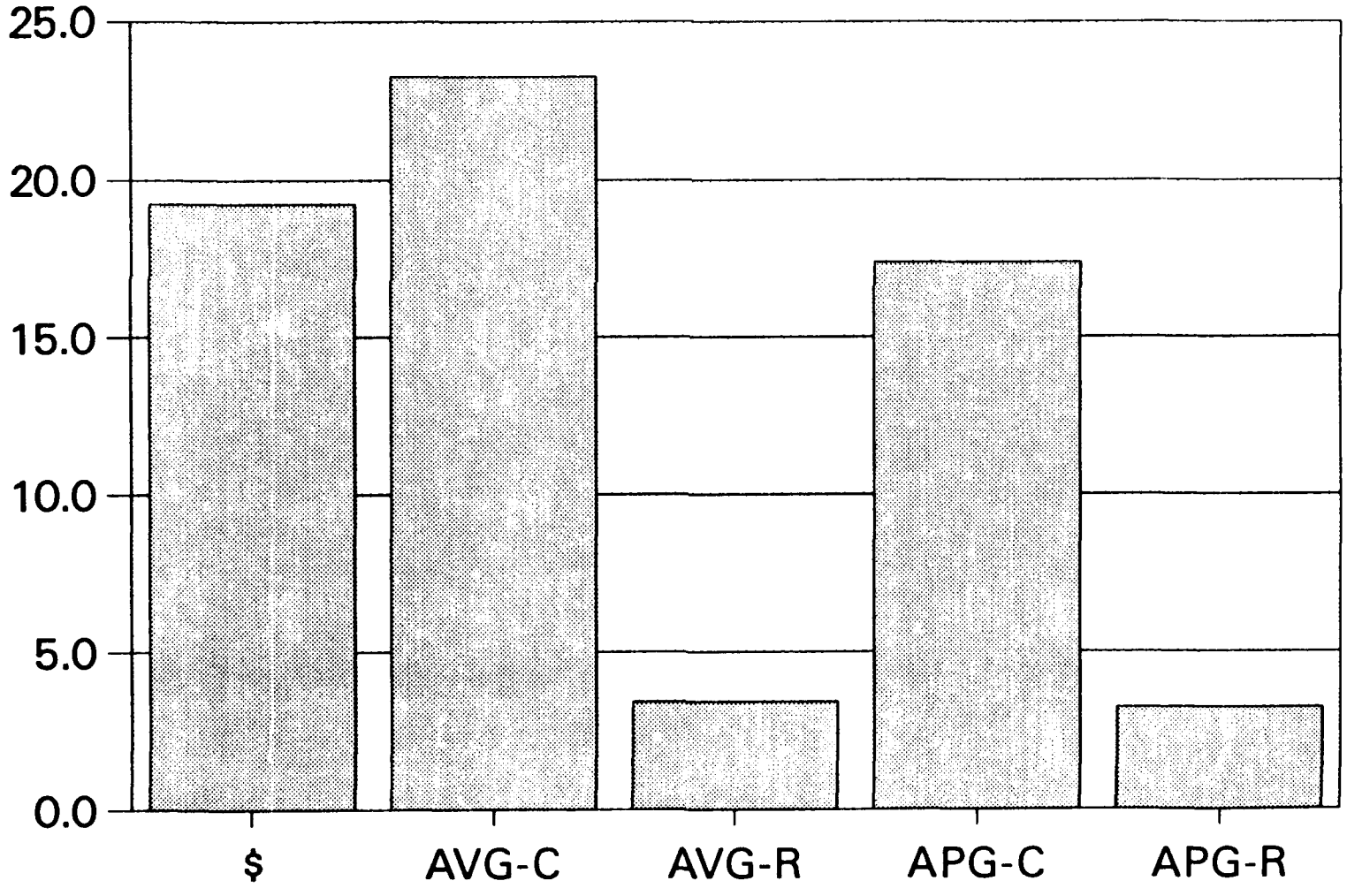


EXHIBIT III-7

DIFFERENCE BETWEEN AWUs AND GROUPERS
SIMULATION 12 (COMPLEX CASE-MIX VISITS)



- -- Measures based on CHAMPUS billed charges are most sensitive to differences in case-mix.

- -- RBRVS-based measures show a constrained variation more comparable to AWUs.

- There was high face validity in terms of expected behavior of the case-mix methods.

- The Over 65 Years of Age simulation is the highest in terms of resource intensity regardless of the case-mix system employed.

- Alternatively, the simulation of children had the lowest indices of resource intensity.

Exhibits III-5 and III-6 show the variation of AVGs and APGs when compared to AWUs. Exhibit III-5 shows AVGs and APGs based on CHAMPUS dollars, and Exhibit III-6 shows AVGs and APGs based on the RBRVS. Results drawn from examining these exhibits include the following:

- The difference between AWUs and the groupers was sizable, ranging from plus 9 percent to minus 11 percent based upon RBRVS and up to plus 30 percent based upon CHAMPUS dollars.

- RBRVS-based AVGs appear to be somewhat more favorable to children than other methods.

- Neither APGs nor AVGs offered any resourcing advantages to active-duty personnel. This may be because AWU weights are based upon all population segments in each clinic. Since active-duty personnel generally represent the healthier segment of a population, their visits usually require less resources than the clinic average.

- Only RBRVS-based APGs were not advantageous to women of childbearing age.

- For the simulation of adults, RBRVS-based groupers indicated lower resource requirements than either AWUs or CHAMPUS-based groupers.

- For the Over 65 Years of Age simulation, APGs reward better than AWUs or AVGs. For this older population, APGs reflect the higher level of procedure-oriented visits.

Exhibit III-7 shows the resource intensity for each allocation methodology when applied to the complex case-mix simulation. Results that were drawn from this exhibit include the following:

- AWUs were the least sensitive to this simulation.

- RBRVS-based methods were less sensitive to the complex case-mix visits than the CHAMPUS billed charge-based methods, once again due to the more constrained variation of the raw RBRVS weights. However, both RBRVS and CHAMPUS-based methods showed much higher resource levels in comparison to AWUs.

- The simulation of complex case-mix visits yielded the highest resource values of all the simulations, regardless of the case-mix system.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

The results of our analysis do not conclusively point to any of the case-mix classification methodologies as being clearly superior. Each of the systems has its merits and its drawbacks, although none of the systems has a weakness that is serious enough to completely exclude it from consideration. In Exhibit IV-1, we have listed our suggested criteria for evaluating the case-mix systems along with a brief evaluation.

For each of the criteria listed in the table, we present a brief description of our rationale in giving the alternative case-mix classification systems the ratings shown in the table.

- **Coherent Categories For Clinician Use**--AVGs and APGs were designed by physicians for physicians with the intent of grouping visits on a clinical basis. AWUs, on the other hand, were based on MEPRS data relevant to clinics. Each clinic type aggregates a wide variety of visits and not a coherent set of visits.

- **Homogeneity Of Categories**--AVGs are based mainly on the ICD-9 diagnosis code while APGs rely very heavily on CPT-4 procedure codes. Each AVG and APG shows a great deal of homogeneity based on these codes. AWUs, on the other hand, are grouped by the type of clinic facility, which means that a variety of visits could fall into the same group. For example, a broken leg and a pregnancy visit could occur in the same group. This will not happen with AVGs or APGs.

- **Components Of Unit Weights Are Known**--An APG visit weight is formed by combining the weights assigned to each procedure within a visit. AVG and AWU visits are simply assigned to a group and given that group's weight. Nothing is known about the components of the visit using these two systems.

- **HCFA Will Probably Choose This Method**--HCFA is currently planning to implement APGs for Medicare patients.

- **Widely Used**--Since APGs are going to be used by HCFA, they will most likely be adopted industrywide. AWUs are used only by the DoD, and AVGs are not currently in use.

- **Easy To Use**--AWUs are the easiest of the three systems to use, because they are driven solely by the number of patients seen in a clinic. AVGs are also easy because a visit diagnosis is almost all that is needed for this grouper to work. APGs, on the other hand, are the hardest to use, because a more extensive set of input data is needed. However, if the data are effectively captured, all of these systems will be fairly simple to implement.

- **Encourage Primary Care/Prevention**--AWUs tend to reward all clinics similarly; therefore, they encourage low-intensity visits because they will be given credit for more resources than they actually need.

EXHIBIT IV-1

SUGGESTED CRITERIA FOR EVALUATING CASE-MIX CLASSIFICATION METHODS

SELECTION CRITERIA	CASE-MIX CLASSIFICATION METHOD		
	AWU	AVG	APG
GENERAL			
Coherent Categories For Clinician Use		X	X
Homogeneity Of Categories		X	XX
Components Of Visit Weights Are Known			X
HCFA Will Probably Choose This Method			X
Widely Used	DoD Only	None	HCFA And Probably Industry-wide
Easy To Use	XX	X	
Encourage Primary Care/Prevention	X		
Reflects Case-Mix		X	X
MANAGED CARE			
Facilitates Make-Or-Buy Decisions			X
Statistical Process Control		XX	XX
Utilization Management		X	XX

- **Reflects Case-Mix**--APGs and AVGs naturally reflect case-mix based on their comprehensive set of groupings. AWUs do not reflect case-mix because of the wide variety of visits that can occur in a given clinic.

- **Facilitates Make-or-Buy Decisions**--Of the three systems, APGs represent the only one that facilitates these decisions because each visit gets weighted at the procedure level. This will allow for make-or-buy comparisons for each component of a visit. AVGs and AWUs place a weight on the total visit and do not break the visits down into pieces.

- **Statistical Process Control**--AVGs were originally designed to be used for statistical process control, not for cost accounting. AVGs offer statistical process control because each visit will have a total resource consumption level that can be compared with the weight for the group under which the visit falls. APGs also offer statistical process control--but at the procedure level as opposed to the total visit level. With AWUs the groups are not clinically meaningful, which means that any comparisons between visits in a group are practically meaningless.

- **Utilization Management**--Since APGs weight each procedure that is performed, utilization management is facilitated. AVGs also facilitate it, but to a lesser extent, because each visit is weighted, not each procedure.

For measuring resources using AVGs or APGs, we feel that the RBRVS is better than CHAMPUS dollars because it:

- Represents a more comprehensive approach to costing, considering three dimensions of physicians' charges: (1) physician time, (2) technical (office staff, rent, and supplies), and (3) malpractice insurance.

- Eliminate distortions in current RVs.

- Mitigate differences by specialty.

- Encourage "cognitive" medicine.

Given that none of the specific systems has deficiencies that would make them unusable, the selection of one method should reflect the DoD's desired incentives. Although we have created the table (Exhibit IV-1) of our suggested criteria for evaluating the case-mix systems, we have not determined the relative importance of each item. The significance of each criterion depends on the DoD's desired incentives. For example, if the items under the managed care heading in Exhibit IV-1 are deemed to be the most important, then APGs would clearly be a better choice than AWUs or AVGs. However, if ease of use is deemed to carry the most weight, then AWUs would be the obvious choice.

Based on our analysis, we feel that APGs are the best case-mix classification system for use by the DoD. We based this decision on the following factors:

- Since HCFA will be adopting APGs, we feel that the DoD should also adopt them in an effort to maintain consistency. CHAMPUS providers will be using APGs with their Medicare patients as a result of the HCFA move and will not want to

have to use two different systems. Also, if the DoD wants to be able to compare their data with the rest of the country in future studies, APGs will allow for this comparability.

- Based on the full list of criteria in the matrix, APGs come out on top of both AWUs and AVGs.

- APGs are essentially the next generation of AVGs, with more flexibility due to service bundling.

- AVGs are now static, whereas APGs continue to be studied and refined.

APPENDIX A

LISTING OF PRIOR RELEVANT WORK

APPENDIX A

LISTING OF PRIOR RELEVANT WORK

Mermelstein, P., Bodycombe, D., Armstrong, S., Love, J., Vertrees, J., Mahoney, D., and Mitchell, K.C. *Linking Inpatient and Outpatient Relative Weights*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, September 10, 1991.

Mermelstein, P., Bodycombe, D., Armstrong, S., Love, J., Vertrees, J., Mahoney, D., Mitchell, K.C., and Nikirk, J. *Assessment of the Utility of Ambulatory Patient Groups (APGs) as a Tool for Ambulatory Resource Allocation Within the United States Military Health Care System*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, September 3, 1991.

Mermelstein, P., Bodycombe, D., Armstrong, S., Love, J., Vertrees, J., Mahoney, D., Mitchell, K.C., and Nikirk, J. *Assessment of the Utility of Episodes of Illness as a Tool for Ambulatory Resource Allocation Within the United States Military Health Care System*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, August 9, 1991.

Mermelstein, P., Bodycombe, D., Armstrong, S., Love, J., Vertrees, J., Mahoney, D., Mitchell, K.C., and Nikirk, J. *Assessment of the Utility of Ambulatory Visit Groups (AVGs) as a Tool for Ambulatory Resource Allocation Within the United States Military Health Care System*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, August 6, 1991.

Mermelstein, P., Bodycombe, D., Armstrong, S., and Love, J. *Comparative Analyses of Ambulatory Morbidity in Four Patient Populations*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, July 1, 1991.

Mermelstein, P., Bodycombe, D., Armstrong, S., and Love, J. *Enhanced AVG Costing Methodology*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, May 29, 1991.

Fravel, G., et al. *Report on Ambulatory Care Case Mix Reporting and Data Elements for the Ambulatory Resource Analysis Project*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, May 1, 1991.

Mermelstein, P., Bodycombe, D., Armstrong, S., and Love, J. *The Cost of Primary Care in CHAMPUS*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, April 26, 1991.

Mermelstein, P., Bodycombe, D., Jones, B., Kosok, K., Armstrong, S., and Lee, L. *Report on the Feasibility of Three Data Bases as Sources for the Ambulatory Resource Analysis Project*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, January 8, 1991.

Bodycombe, D. *Measures of Resource Use That Can Be Applied to the Assessment of Ambulatory Case Mix Grouping Strategies (Dependent Variable)*, prepared for Office of the Assistant Secretary of Defense-Health Affairs, Department of Defense, under Contract Number MDA903-88-C-0071, January 4, 1991.

APPENDIX B

PROCEDURES AND DIAGNOSIS USED FOR PREGNANCY VISITS

APPENDIX B

PROCEDURES AND DIAGNOSIS USED FOR PREGNANCY VISITS

Initial Visit

Diagnosis: V22.0: Supervision of normal pregnancy

Procedures:
- 90020: Office and other outpatient medical service; comprehensive service
- 84702: Gonadotropin, chorionic; quantitative
- 85021: Blood count; hemogram, automated (RBC, WBC, Hgb, Hct, and indices only)
- 86592: Syphilis test; qualitative (e.g., VDRL, RPR, ART)
- 88150: Cytopathology, smears, cervical or vaginal (e.g., Papanicolaou), up to three smears; screening by technician under physician supervision
- 87110: Culture, chlamydia
- 86083: Blood typing; ABO, Rh(D), and RBC antibody screening
- 81000: Urinalysis (pH, specific gravity, protein, tests for reducing substances such as glucose); with microscopy
- 87205: Smear, primary source, with interpretation; routine stain for bacteria, fungi, or cell types

Follow-up Visit

Diagnosis: V22.0: Supervision of normal pregnancy

Procedure: 59420: Antepartum care

APPENDIX C

METHODOLOGY FOR COMPUTING THE TOTAL APG WEIGHT PER VISIT

APPENDIX C

METHODOLOGY FOR COMPUTING THE TOTAL APG WEIGHT PER VISIT

The following methodology is based on the 3M/HCFA APG report. The weights that were attached to each APG were developed using the full CHAMPUS encounter database.

Test for the type of visit:

- Significant Procedure Visit (PATTYPE = 1)
- Ancillary Visit (PATTYPE = 2)
- Medical Visit (PATTYPE = 3)

If it is a Significant Procedure Visit, then do the following:

- Search for all significant procedure APGs (PAPGTYPE = 1) that are not consolidated (CONS = 0) and have a relative weight attached.

- Once all of these APGs have been located, order them from highest relative weight to the lowest.

- Total significant procedure APG weight = (significant procedure with the highest relative weight) + (0.4 x the significant procedure with the second-highest relative weight) + (0.2 x the sum of the relative weights of all remaining significant procedure APGs).

- Search for all ancillary procedure APGs (PAPGTYPE = 2) that are not packaged (ANCPK = 0) and have a relative weight attached.

- Determine if these APGs are lab test APGs or nonlab test APGs. A lab test is defined as APGs 417 to 440 and a nonlab test is defined as APGs 341 to 392 or APGs 443 to 461.

- Total ancillary procedure APG weight = the sum of all ancillary procedure APG weights, with the conditions that if any lab test occurs more than once, the subsequent occurrences are multiplied by 0.8 and if any nonlab test occurs more than once, the second occurrence is multiplied by 0.4 and any occurrence thereafter is multiplied by 0.2.

- Total APG visit weight = total significant procedure APG weight + total ancillary procedure APG weight.

If it is an Ancillary Visit, then do the following:

- Search for all ancillary procedure APGs (PAPGTYPE = 2) that are not packaged (ANCPK = 0) and have a relative weight attached.

- Determine if these APGs are lab test APGs or nonlab test APGs. A lab test is defined as APGs 417 to 440 and a nonlab test is defined as APGs 341 to 392 or APGs 443 to 461.

- Total ancillary procedure APG weight = the sum of all ancillary procedure APG weights, with the conditions that if any lab test occurs more than once the subsequent occurrences are multiplied by 0.8 and if any nonlab test occurs more than once, the second occurrence is multiplied by 0.4 and any occurrence thereafter is multiplied by 0.2.

- Total APG visit weight = total ancillary procedure APG weight.

If it is a Medical Visit, then do the following:

- If the assigned medical APG has a relative weight, then store it as the total medical APG weight.

- Search for all ancillary procedure APGs (PAPGTYPE = 2) that are not packaged (ANCPK = 0) and have a relative weight attached.

- Determine if these APGs are lab test APGs or nonlab test APGs. A lab test is defined as APGs 417 to 440 and a nonlab test is defined as APGs 341 to 392 or APGs 443 to 461.

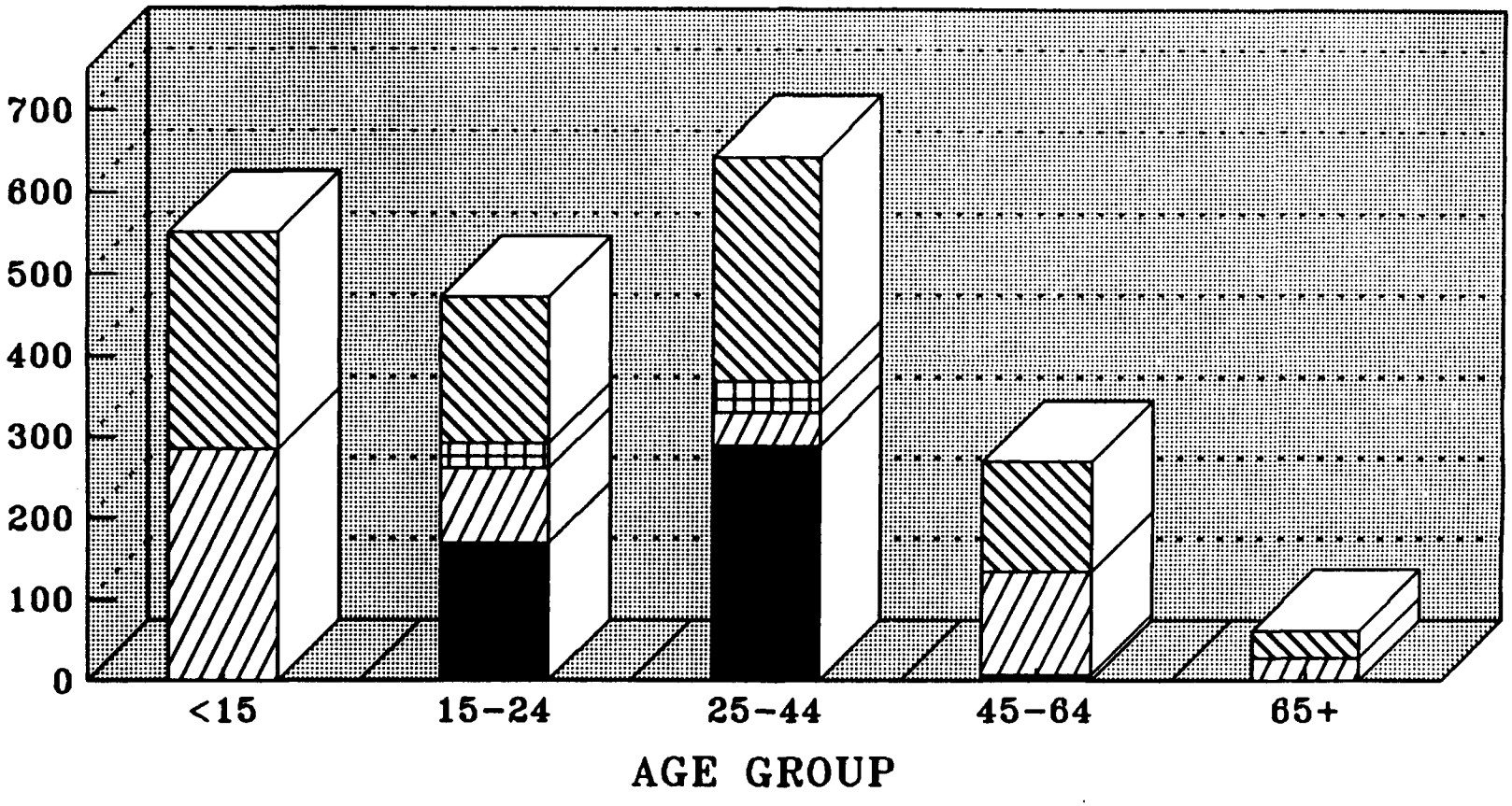
- Total ancillary procedure APG weight = the sum of all ancillary procedure APG weights, with the conditions that if any lab test occurs more than once the subsequent occurrences are multiplied by 0.8 and if any nonlab test occurs more than once, the second occurrence is multiplied by 0.4 and any occurrence thereafter is multiplied by 0.2.

- Total APG visit weight = total medical APG weight + total ancillary procedure APG weight.

APPENDIX D

FACILITY CHARACTERISTICS

COMMUNITY HOSPITAL
Simulation 1



COMMUNITY HOSPITAL

Simulation 1

DIAGNOSIS	PERCENTAGE
Routine Infant or Child Health Check	3.8%
Unspecified Otitis Media	3.5%
Throat Pain	2.7%
Neurotic Depression	2.7%
Acute Upper Respiratory Infections, Unspec. Site	1.9%
Essential Hypertension	1.8%
Adjustment Reaction, Culture Shock	1.8%
Headache	1.7%
Adjustment Reaction, Brief Depressive Reaction	1.6%
Allergic Rhinitis, Cause Unspecified	1.6%

COMMUNITY HOSPITAL

Simulation 1

PROCEDURE	PERCENTAGE
Individual Medical Psychotherapy, 45–50 Minutes	11.0%
Office Visit, Established Patient; Limited Svc	8.4%
Office Visit, Established Visit; Intermediate Svc	6.4%
Office Visit, Established Visit; Brief Svc	3.1%
Emergency Room Charge	2.7%
Therapeutic or Diagnostic Injection	2.3%
Office Visit, New Patient; Intermediate Svc	2.1%
Supplies & Materials (Excluding Spectacles)	2.0%
Other Room, Ancillary & Drug Charge	1.7%
Urinalysis	1.6%

COMMUNITY HOSPITAL

Simulation 1

AVG	PERCENTAGE
Individual Therapy – Extensive	15.0%
Other URI	5.7%
Well Child Care	3.9%
Simple, Acute Otitis Media	3.7%
Ungroupable Ambulatory Visit Records	3.4%
Medical Back Problems	3.3%
Other Ent and Respiratory Disorders	3.3%
Other Mental Disturbances	2.8%
Pharyngitis	2.6%
Tendonitis, Myositis, and Bursitis	2.5%

COMMUNITY HOSPITAL

Simulation 1

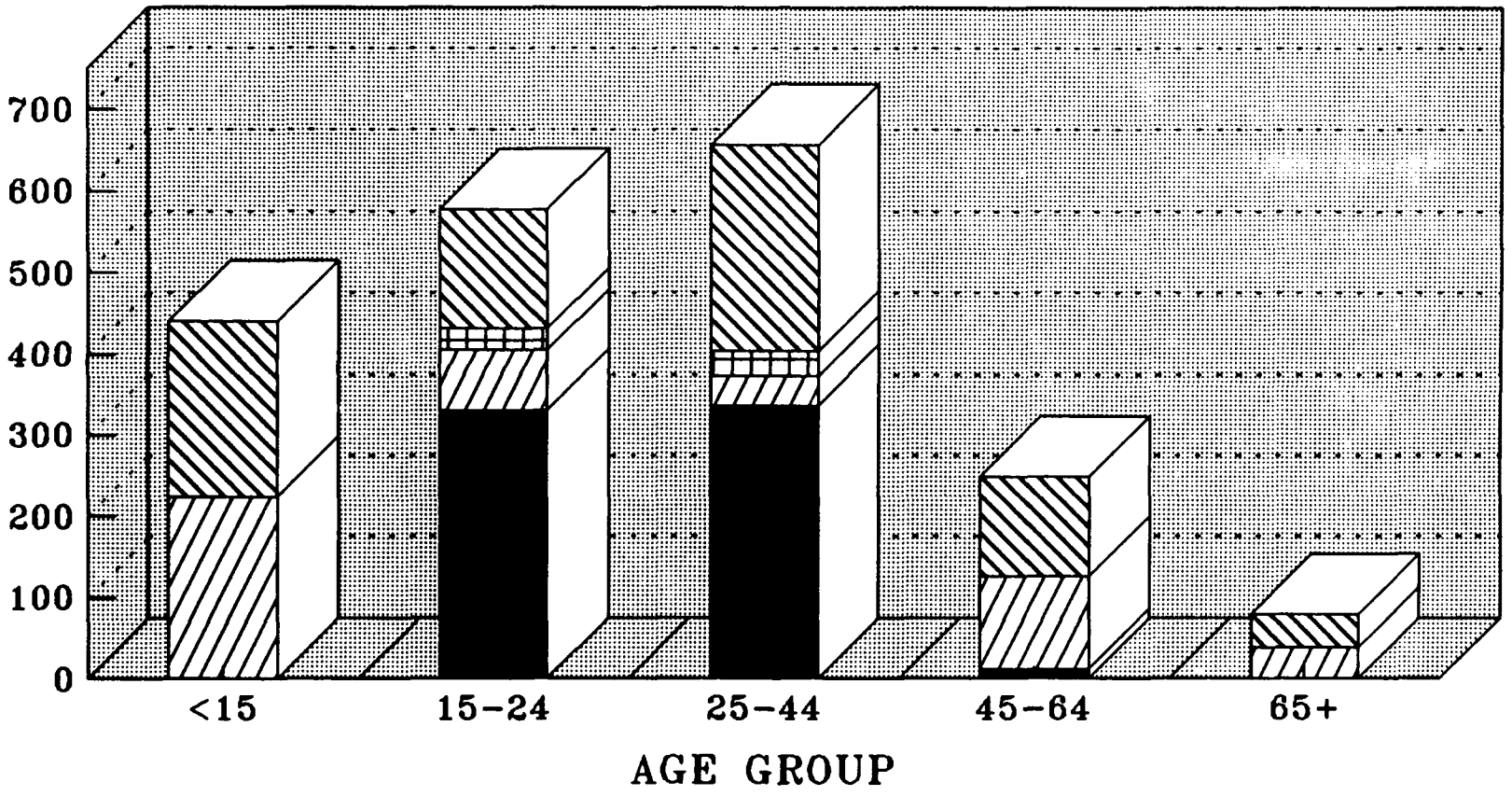
APG	PERCENTAGE
Ungroupable	16.4%
Comprehensive Psychiatric Evaluation, Age>17	7.2%
Acute Infectious ENT Diseases, Age 0-17	6.1%
Physical Therapy	5.6%
Comprehensive Psychiatric Evaluation, Age 0-17	5.1%
Other Skin and Soft Tissue Diseases	3.5%
Introduction of Needles and Catheters	3.3%
Other Musculoskeletal Diseases	2.4%
Psychotropic Medication Mgmt. or Brief Psychothpy.	2.2%
Simple Immunization	1.9%

COMMUNITY HOSPITAL

Simulation 1

UCA	PERCENTAGE
Pediatric Care	17.1%
Psychiatric Care/Mental Health	14.5%
Medical	11.2%
Family Practice	7.2%
Surgical Care	7.0%
Orthopedic Care	5.8%
Emergency Medicine Care	5.3%
Obstetrics and Gynecological Care	3.2%
Ancillary Services - Therapy	2.5%
Battalion Aid Station	2.0%

MEDICAL CENTER
Simulation 2



MEDICAL CENTER

Simulation 2

DIAGNOSIS	PERCENTAGE
Neurotic Depression	4.3%
Asthma, Unspecified	2.7%
Allergic Rhinitis, Cause Unspecified	2.5%
Unspecified Otitis Media	2.4%
Routine Infant or Child Health Check	2.2%
Adjustment Reaction, Culture Shock	2.2%
Person with Feared Complaint in Whom No Diagnosis	2.2%
Essential Hypertension	2.0%
Acute Pharyngitis	1.9%
Adjustment Reaction, Brief Depressive Reaction	1.3%

MEDICAL CENTER

Simulation 2

PROCEDURE	PERCENTAGE
Office Visit, Established Patient; Limited Svc	7.7%
Office Visit, Established patient; Intermed. Svc	6.7%
Intervidual Medical Psycotherapy, 45-50 minutes	6.1%
Emergency Room Charge	3.4%
Office Visit, New Patient; Intermediate Svc	2.7%
Office Visit, Established Patient; Brief Svc	2.5%
Other Room, Ancillary & Drug Charge	2.5%
Physician Charge	1.7%
Office Visit, New Patient; Limited Svc	1.6%
Unlisted Diagnostic Radiologic Procedure	1.6%

MEDICAL CENTER

Simulation 2

AVG	PERCENTAGE
Individual Therapy – Extensive	9.2%
Other URI	5.5%
Ungroupable Ambulatory Visit Records	4.4%
Medical Back Problems	3.1%
Tendonitis, Myositis, and Buritis	2.9%
Pharyngitis	2.9%
Other Mental Disturbances	2.8%
Minor Wounds and Injuries to the Skin	2.8%
Asthma	2.7%
Simple, Acute Otitis Media	2.6%

MEDICAL CENTER

Simulation 2

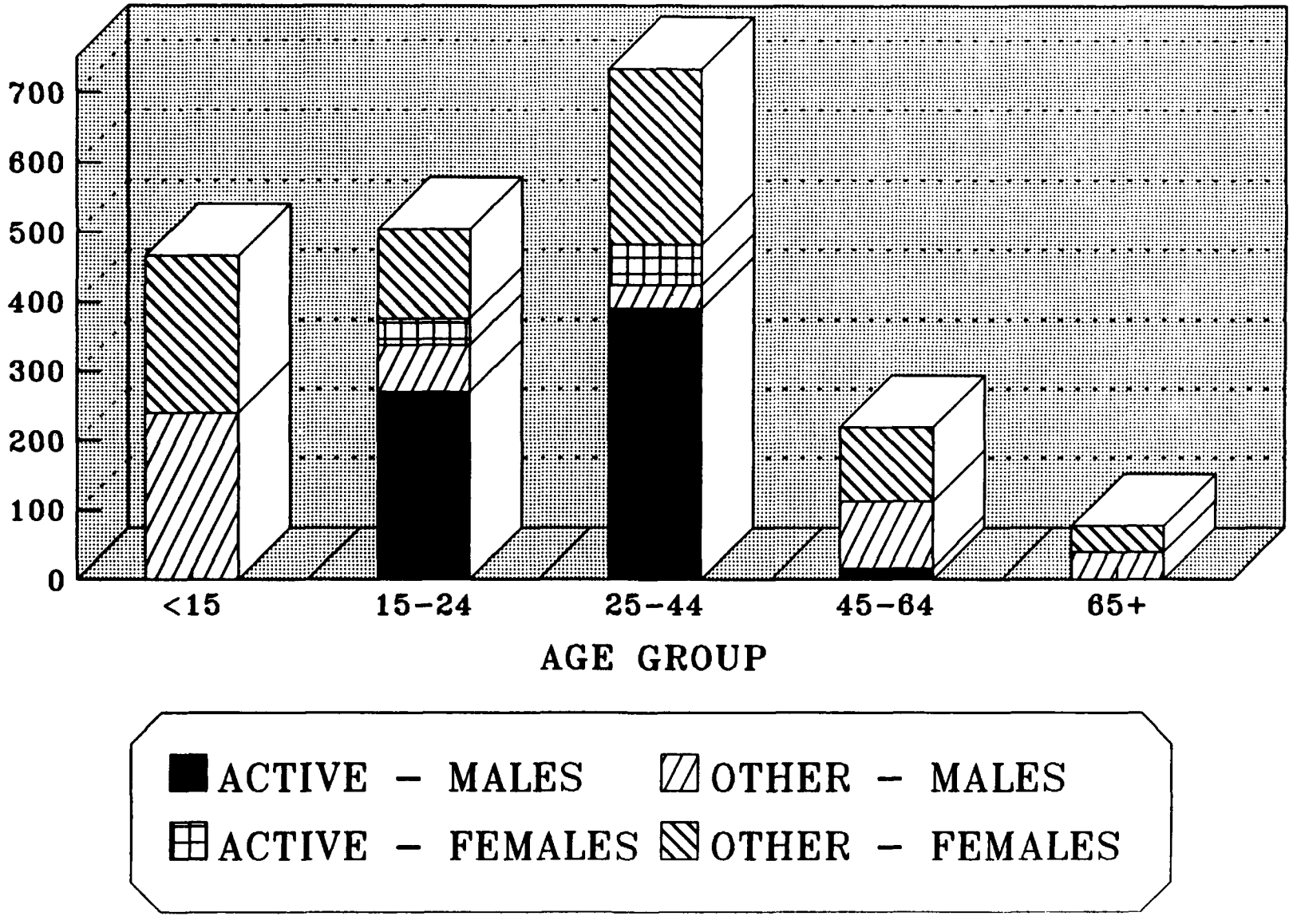
APG	PERCENTAGE
Ungroupable	21.9%
Comprehensive Psychiatric Evaluation, Age>17	5.1%
Acute Infectious ENT Diseases Age 0-17	4.2%
Other Skin and Soft Tissue Diseases	3.8%
Other Musculoskeletal Diseases	3.8%
Physical Therapy	2.9%
Fractures, Dislocations and Sprains	2.7%
Comprehensive Psychiatric Evaluation, Age 0-17	2.4%
Introduction of Needles and Catheters	2.3%
Acute Infectious ENT Diseases Age>17	2.2%

MEDICAL CENTER

Simulation 2

UCA	PERCENTAGE
Primary Care	25.2%
Pediatric Care	14.4%
Psychiatric Care/Mental Health	10.6%
Medical	10.2%
Family Practice	8.9%
Surgical Care	6.8%
Orthopedic Care	6.5%
Emergency Medicine Care	5.9%
Ancillary Services – Therapy	3.7%
Battalion Aid Station	2.7%

MEDICAL CENTER
Simulation 3



MEDICAL CENTER

Simulation 3

DIAGNOSIS	PERCENTAGE
Neurotic Depression	6.3%
Adjustment Reaction, Culture Shock	2.6%
Allergic Rhinitis, Cause Unspecified	2.5%
Unspecified Otitis Media	2.1%
Major Depressive Disorder, Recurrent Episode	2.0%
Routine Infant or Child Health Check	2.0%
Acute Upper Respiratory infections, Unspec. Site	1.8%
Backache, Unspecified	1.8%
Acute Pharyngitis	1.8%
Person with Feared Complaint in Whom No Diagnosis	1.7%

MEDICAL CENTER

Simulation 3

PROCEDURE	PERCENTAGE
Individual Medical Psychotherapy, 45 to 50 minutes	11.6%
Office Visit, Established Patient; Intermed. Svc	7.6%
Office Visit, Established Patient; Lmtd Svc	7.6%
Emergency Room Charge	3.2%
Office Visit, New Patient, Intermediate Svc	2.8%
Emergency Dept Service, New Patient; Minimal Svc	2.2%
Office Visit, Established Patient, Brief Svc	2.0%
Other Room, Ancillary & Drug Charge	1.8%
Physician Charge	1.6%
Physical Medi Treatment to One Area, Init 30 Min.	1.5%

MEDICAL CENTER

Simulation 3

AVG	PERCENTAGE
Individual Therapy – Extensive	17.3%
Other URI	6.1%
Ungroupable Ambulatory Visit Records	3.9%
Medical Back Problems	3.9%
Minor Wounds and Injuries to the Skin	3.7%
Tendonitis, Myositis, and Bursitis	3.4%
Other Mental Disturbances	3.1%
Pharyngitis	3.0%
Simple, Acute Otitis Media	2.6%
Screening, Surveillance, and Symptoms	2.2%

MEDICAL CENTER

Simulation 3

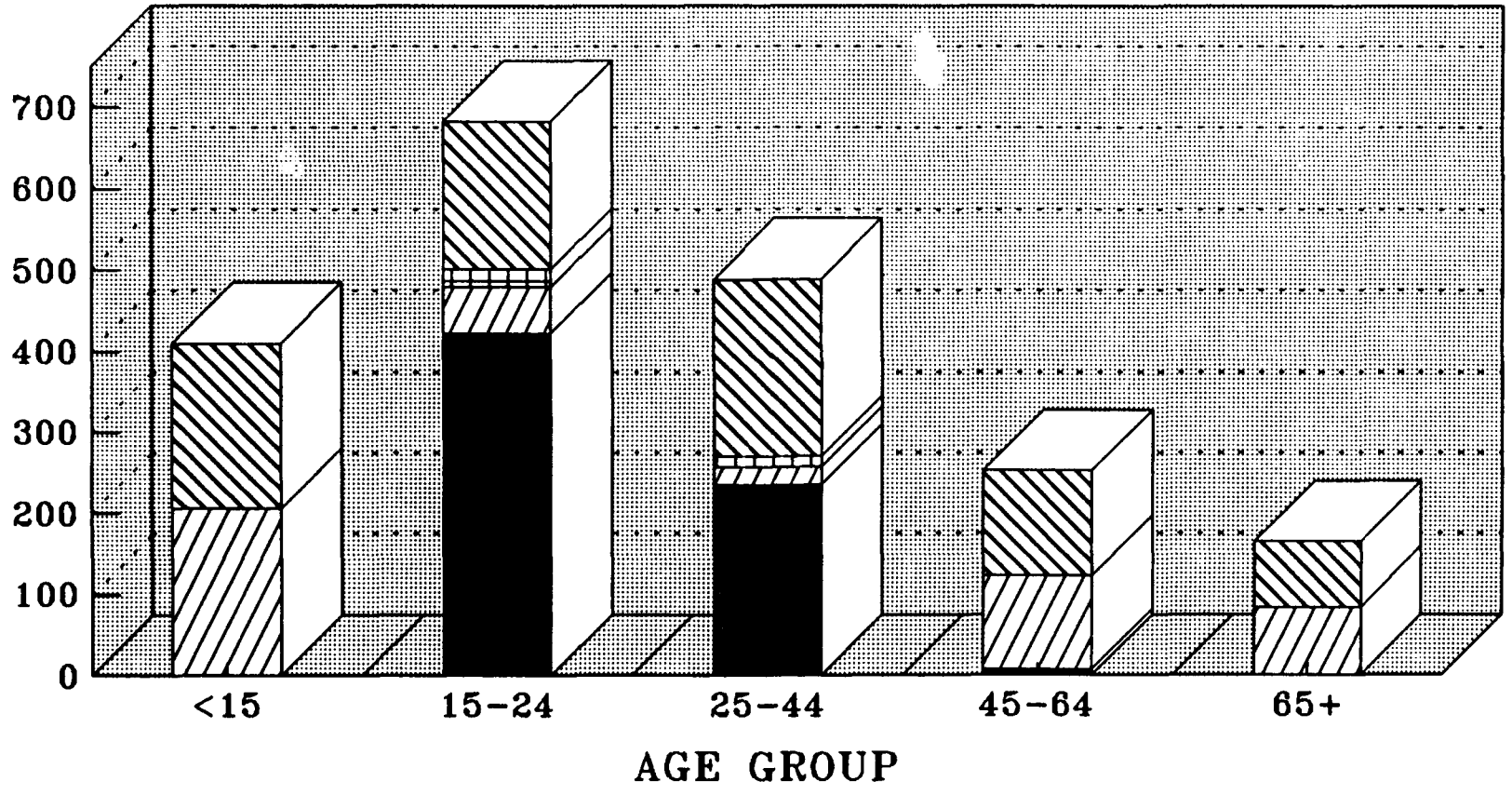
APG	PERCENTAGE
Ungroupable	20.3%
Comprehensive Psychiatric Evaluation, Age>17	9.5%
Comprehensive Psychiatric Evaluation, Age 0-17	4.6%
Acute Infectious ENT Diseases Age 0-17	4.1%
Physical Therapy	3.7%
Other Skin and Soft Tissue Diseases	3.1%
Other Musculoskeletal Diseases	3.0%
Acute Infectious ENT Diseases Age>17	2.7%
Fractures, Dislocations and Sprains	2.1%
Introduction of Needles and Catheters	2.1%

MEDICAL CENTER

Simulation 3

UCA	PERCENTAGE
Primary Care	23.1%
Pediatric Care	14.5%
Psychiatric/Mental Health	13.8%
Medical	11.5%
Family Practice	7.6%
Surgical Care	7.5%
Emergency Medicine Care	5.7%
Orthopedic Care	5.3%
Ancillary Services – Therapy	3.7%
Battalion Aid Station	2.5%

COMMUNITY HOSPITAL
Simulation 4



COMMUNITY HOSPITAL

Simulation 4

DIAGNOSIS	PERCENTAGE
Neurotic Depression	4.4%
Adjustment Reaction, Culture Shock	2.9%
Essential Hypertension	2.6%
Unspecified Otitis Media	2.3%
Cause Allergic Rhinitis, Cause Unspecified	2.2%
Acute Pharyngitis	2.1%
Lumbar	2.1%
Routine Infant or Child Health Check	2.0%
Major Depressive Disorder, Single Episode	1.9%
Person with Feared Complaint in Whom No Diagnosis	1.7%

COMMUNITY HOSPITAL

Simulation 4

PROCEDURE	PERCENTAGE
Office Visit, Established Patient; Limited Svc	7.7%
Office Visit, Established Patient; Intermed. Svc	6.9%
Individual Medical Psychotherapy, 45–50 Minutes	6.5%
Emergency Room Charge	3.1%
Office Visit, New Patient; Intermediate Svc	2.9%
Office Visit, Established Patient; Brief Svc	2.5%
Other Room, Ancillary & Drug Charge	2.2%
Emergency Dept Service, New Patient, Minimal Svc	2.0%
Physician Charge	2.0%
Supplies & Materials (Excluding Spectacles)	1.9%

COMMUNITY HOSPITAL

Simulation 4

AVG	PERCENTAGE
Individual Therapy – Extensive	10.2%
Other URI	5.8%
Ungroupable Ambulatory Visit Records	5.5%
Medical Back Problems	4.4%
Other Mental Disturbances	3.9%
Pharyngitis	3.2%
Hypertension	2.7%
Tendonitis, Myositis, and Bursitis	2.7%
Simple, Acute Otitis Media	2.5%
Screening, Surveillance, and Symptoms	2.3%

COMMUNITY HOSPITAL

Simulation 4

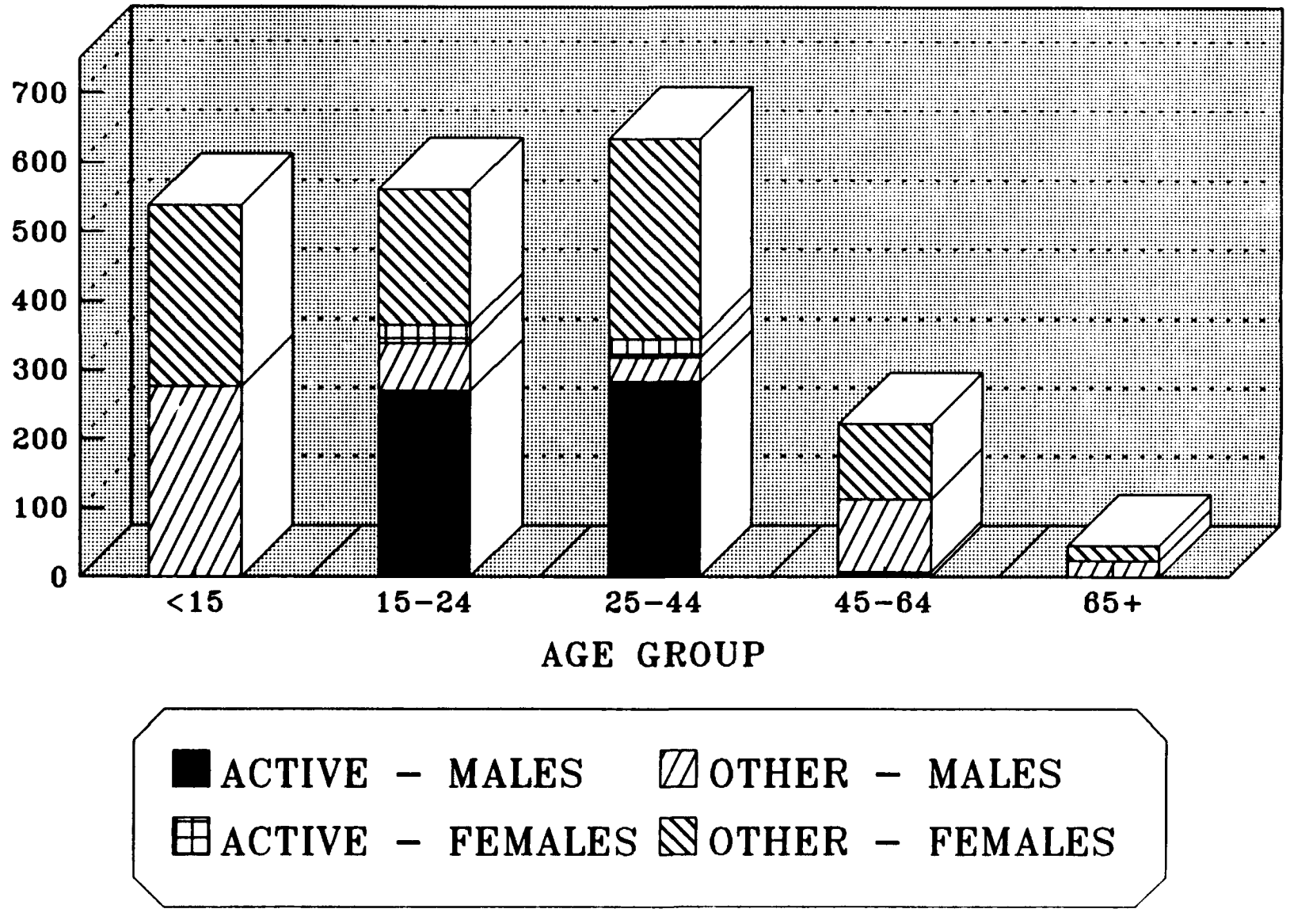
APG	PERCENTAGE
Ungroupable	22.9%
Comprehensive Psychiatric Evaluation, Age>17	5.2%
Acute Infectious ENT Diseases, Age 0-17	4.9%
Other Skin and Soft Tissue Diseases	3.6%
Physical Therapy	3.6%
Comprehensive Psychiatric Evaluation, Age 0-17	3.2%
Other Musculoskeletal Diseases	2.8%
Introduction of Needles and Catheters	2.1%
Fractures, Dislocations and Sprains	2.0%
Psychotropic Medication Mgmt. or Brief Psychothpy.	2.0%

COMMUNITY HOSPITAL

Simulation 4

UCA	PERCENTAGE
Primary Care	23.8%
Pediatric Care	14.6%
Medical	12.5%
Psychiatric/Mental Health	12.2%
Surgical Care	9.0%
Family Practice	7.1%
Orthopedic Care	5.7%
Emergency Medicine Care	4.7%
Ancillary Services – Therapy	4.0%
Obstetrics and Gynecological Care	2.7%

COMMUNITY HOSPITAL
Simulation 5



COMMUNITY HOSPITAL

Simulation 5

DIAGNOSIS	PERCENTAGE
Adjustment Reaction, Culture Shock	4.6%
Neurotic Depression	3.8%
Routine Infant or Child Health Check	3.2%
Unspecified Otitis Media	3.2%
Major Depressive Disorder, Single Episode	2.9%
Allergic Rhinitis, Cause Unspecified	2.9%
Major Depressive Disorder, Recurent Episode	2.5%
Acute Pharyngitis	2.3%
Anxiety State, Unspecified	2.2%
Acute Upper Respiratory Infections, Unspec. Site	1.6%

COMMUNITY HOSPITAL

Simulation 5

PROCEDURE	PERCENTAGE
Individual Medical Psychotherapy, 45–50 minutes	11.1%
Office Visit, Established Patient; Limited Svc	7.9%
Office Visit, Established Patient, Intermed. Svc	7.5%
Emergency Room Charge	3.7%
Office Visit, Established Patient; Brief Svc	2.6%
Office Visit, New Patient; Intermediate Svc	2.4%
Other Room, Ancillary & Drug Charge	2.3%
Physician Charge	2.2%
Urinalysis, Routine	1.7%
Office Visit, New Patient; Limited Svc	1.7%

COMMUNITY HOSPITAL

Simulation 5

AVG	PERCENTAGE
Individual Therapy – Extensive	15.9%
Other URI	6.6%
Other Mental Disturbances	4.7%
Ungroupable Ambulatory Visit Records	3.5%
Pharyngitis	3.4%
Simple, Acute Otitis Media	3.4%
Well Child Care	3.3%
Minor Wounds and Injuries to the Skin	2.8%
Comprehensive Evaluation	2.5%
Medical Back Problems	2.1%

COMMUNITY HOSPITAL

Simulation 5

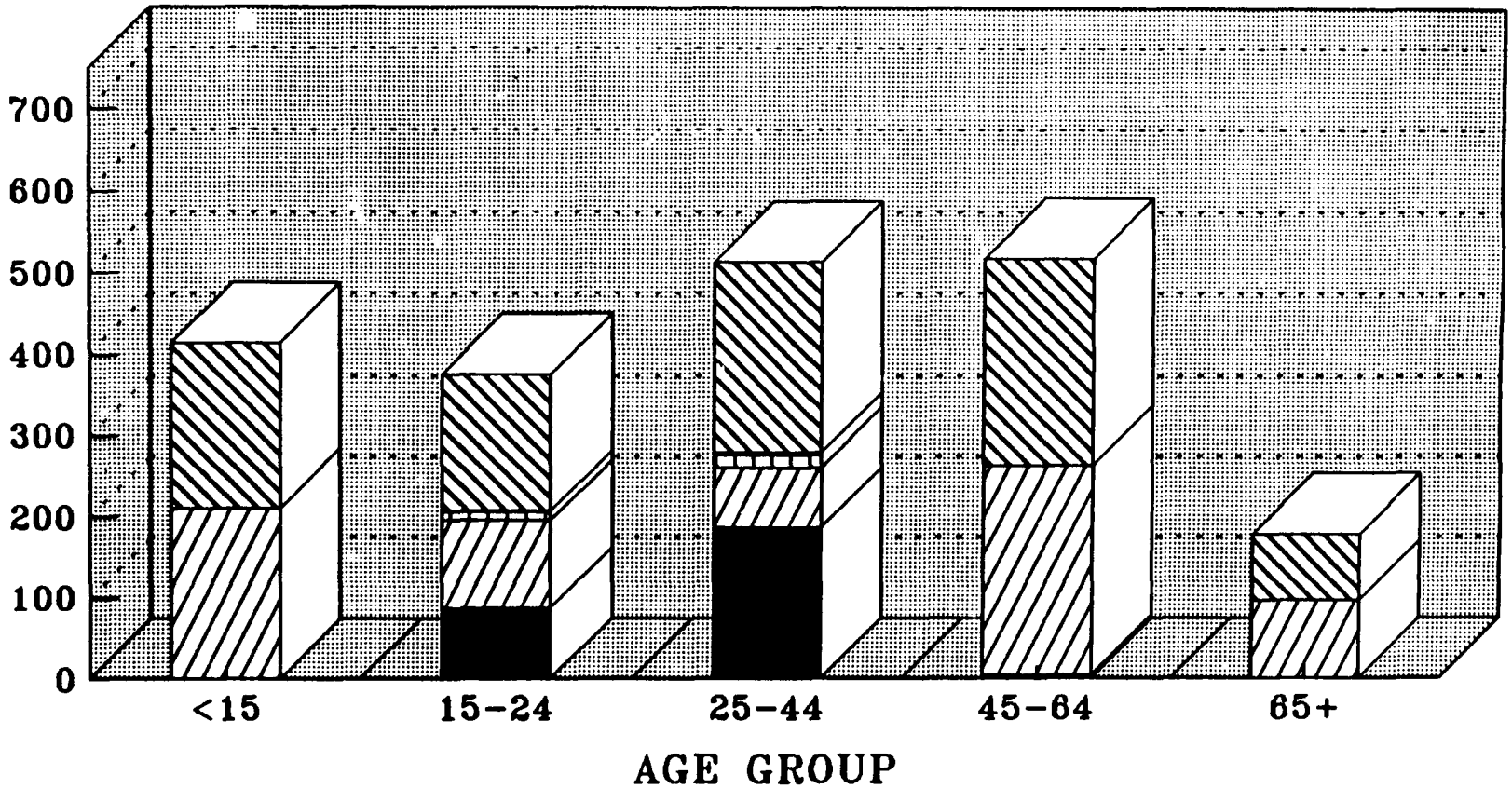
APG	PERCENTAGE
Ungroupable	18.4%
Comprehensive Psychiatric Evaluation, Age>17	8.3%
Acute Infectious ENT Diseases, Age 0-17	6.9%
Comprehensive Psychiatric Evaluation, Age 0-17	5.8%
Psychotropic Medication Mgmt. or Brief Psychothpy.	4.3%
Other Skin and Soft Tissue Diseases	3.2%
Other Musculoskeletal Diseases	3.0%
Fractures, Dislocations and Sprains	2.0%
Acute Non Infectious ENT Diseases	2.0%
Non-Specific Signs and Symptoms	1.8%

COMMUNITY HOSPITAL

Simulation 5

UCA	PERCENTAGE
Primary Care	22.4%
Pediatric Care	16.6%
Psychiatric Care/Mental Health	16.1%
Medical	8.5%
Family Practice	7.6%
Surgical Care	6.3%
Ancillary Services – Therapy	5.7%
Orthopedic Care	4.8%
Emergency Medicine Care	4.8%
Obstetrics and Gynecological Care	4.1%

COMMUNITY HOSPITAL
Simulation 6



COMMUNITY HOSPITAL

Simulation 6

DIAGNOSIS	PERCENTAGE
Adjustment Reaction, Culture Shock	4.0%
Neurotic Depression	4.0%
Essential Hypertension	3.1%
Unspecified Otitis Media	2.5%
Routine Infant or Child Health Check	2.5%
Allergic Rhinitis, Cause Unspecified	2.4%
Acute Upper Respiratory Infections, Unspec. Site	1.4%
Chest Pain	1.4%
Acute Pharyngitis	1.3%
Major Depressive, Disorder, Single Episode	1.2%

COMMUNITY HOSPITAL

Simulation 6

PROCEDURE	PERCENTAGE
Individual Medical Psychotherapy, 45-50 Minutes	8.6%
Office Visit, Established Patient; Limited Svc	8.6%
Office Visit, Established Patient; Intermed. Svc	6.7%
Emergency Room Charge	3.4%
Therapeutic or Diagnostic Injection	2.7%
Other Room, Ancillary & Drug Charge	2.3%
Office Visit, Established Patient; Brief Svc	2.3%
Urinalysis, Routine	2.1%
Office Visit, New Patient; INtermediate Svc	2.0%
Emergency Dept Service, New Patient, Minimal Svc	1.9%

COMMUNITY HOSPITAL

Simulation 6

AVG	PERCENTAGE
Individual Therapy – Extensive	13.2%
Other URI	4.9%
Ungroupable Ambulatory Visit Records	4.5%
Other Mental Disturbances	3.4%
Hypertension	3.2%
Medical Back Problems	3.0%
Ischemic Heart Disease	2.9%
Simple, Acute Otitis Media	2.8%
Tendonitis, Myositis, and Bursitis	2.8%
Minor Wounds and Injuries to the Skin	2.5%

COMMUNITY HOSPITAL

Simulation 6

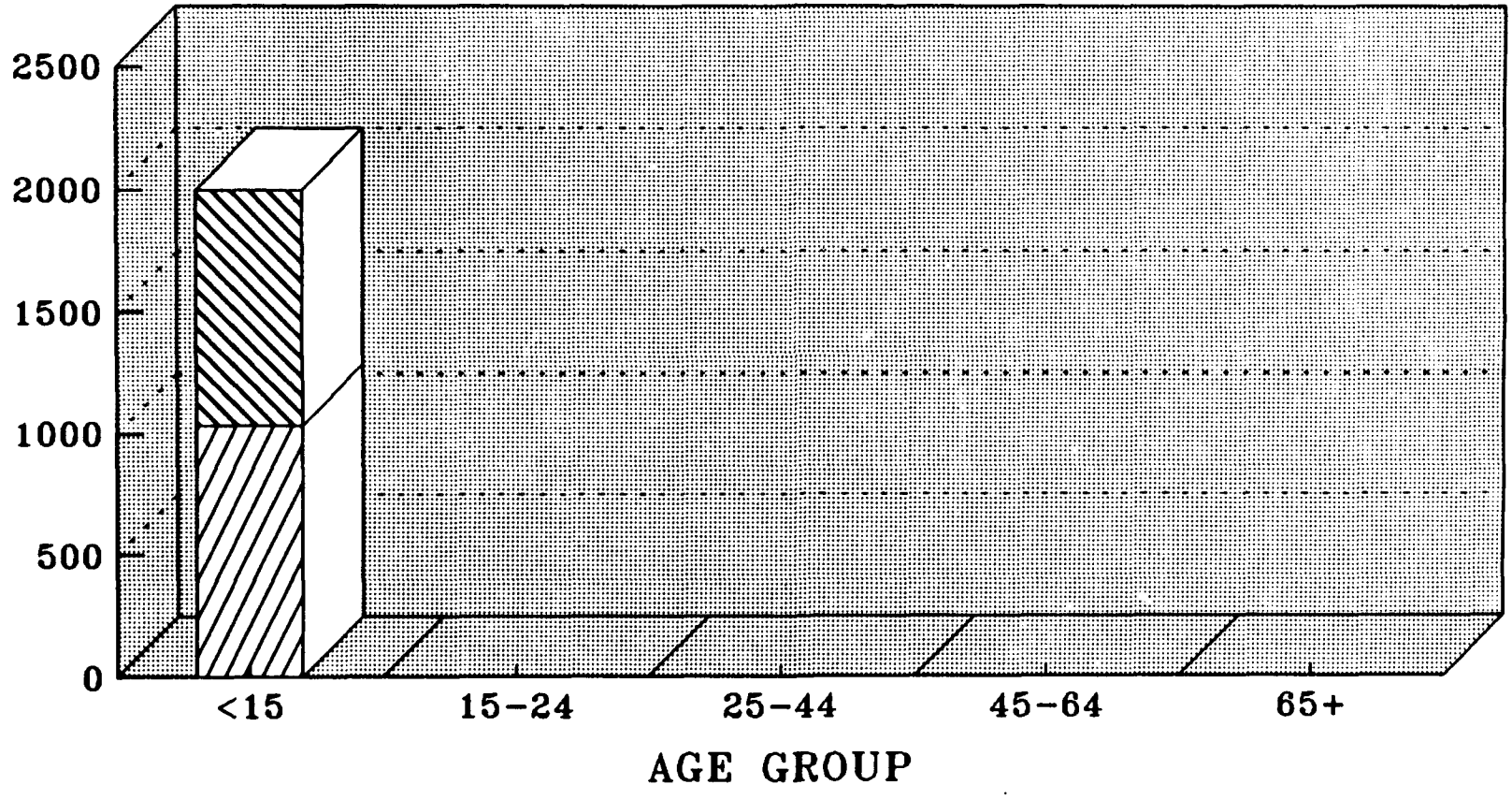
APG	PERCENTAGE
Ungroupable	18.9%
Comprehensive Psychiatric Evaluation, Age>17	7.8%
Acute Infectious ENT Diseases, Age 0–17	3.9%
Introduction of Needles and Catheters	3.7%
Physical Therapy	3.6%
Other Musculoskeletal Diseases	3.4%
Comprehensive Psychiatric Evaluation, Age 0–17	2.6%
Hypertension	2.2%
Psychotropic Medication Mgmt. or Brief Psychothpy.	2.2%
Other Skin and Soft Tissue Diseases	2.2%

COMMUNITY HOSPITAL

Simulation 6

UCA	PERCENTAGE
Primary Care	20.4%
Medical	15.3%
Psychiatric/Mental Health	13.8%
Pediatric Care	11.6%
Surgical Care	8.7%
Family Practice	7.6%
Orthopedic Care	6.2%
Emergency Medicine Care	5.8%
Obstetrics and Gynecological Care	3.7%
Ancillary Services - Therapy	3.6%

CHILDREN
Simulation 7



CHILDREN

Simulation 7

DIAGNOSIS	PERCENTAGE
Unspecified Otitis Media	9.1%
Routine Infant or Child Health Check	7.6%
Acute Upper Respiratory Infections, Unspec. Site	4.1%
Allergic Rhinitis, Cause Unspecified	3.8%
Acute Pharyngitis	3.5%
Socialized Conduct Disorder	3.4%
Asthma, Unspecified	2.1%
Overanxious Disorder	1.6%
Adjustment Reaction, Culture Shock	1.5%
Other or Mixed Emotional Disturbances of Childhood	1.5%

CHILDREN

Simulation 7

PROCEDURE	PERCENTAGE
Office Visit, Established Patient; Limited Svc	11.6%
Office Visit, Established Patient; Intermed. Svc	9.2%
Individual Medical Psychotherapy, 45-50 Minutes	7.5%
Emergency Room Charge	5.4%
Office Visit, Established Patient; Brief Svc	4.0%
Other Room, Ancillary & Drug Charge	3.6%
Physician Charge	3.0%
Physical Exam, Established Patient; Infant	2.7%
Office Visit, New Patient; Limited Svc	2.2%
Office Visit; New Patient; Intermediate Svc	1.9%

CHILDREN

Simulation 7

AVG	PERCENTAGE
Other URI	11.3%
Simple, Acute Otitis Media	10.2%
Individual Therapy – Extensive	10.0%
Well Child Care	7.7%
Pharyngitis	5.9%
Minor Wounds and Injuries to the Skin	3.3%
Bronchitis	2.8%
Ungroupable Ambulatory Visit Records	2.6%
Other Mental Disturbances	2.5%
Viral Diseases	2.1%

CHILDREN

Simulation 7

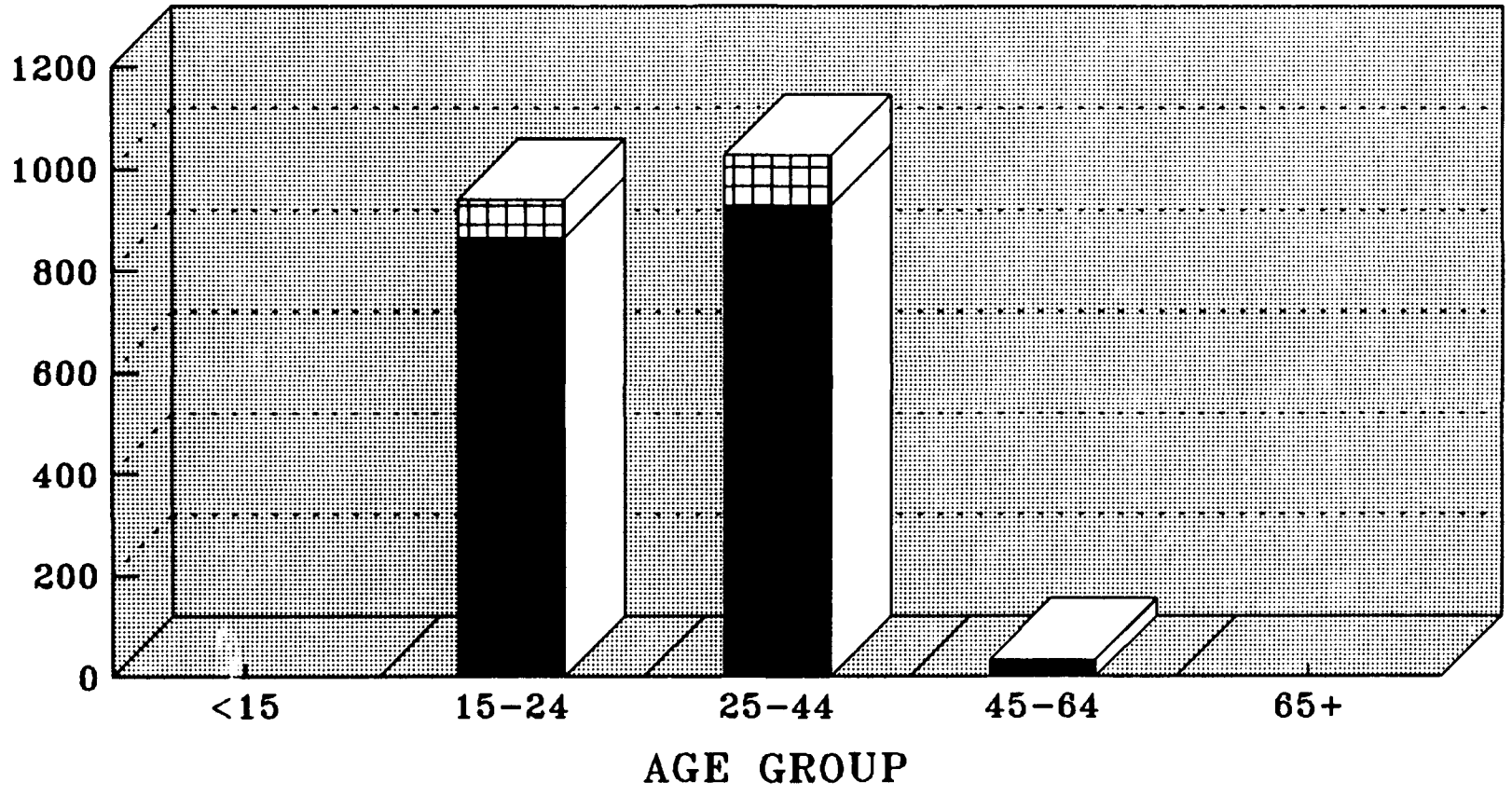
APG	PERCENTAGE
Ungroupable	19.5%
Acute Infectious ENT Diseases, Age 0–17	18.4%
Comprehensive Psychiatric Evaluation, Age 0–17	9.1%
Simple Immunization	4.0%
Other Skin and Soft Tissue Diseases	3.9%
Well Child Care	3.8%
Emphysema, Chronic Bronchitis and Asthma, Age 0–17	3.3%
Acute Non Infectious ENT Diseases	3.1%
Burns and Skin, Soft Tissue Injuries	2.3%
Psychotropic Medication Mgmt. or Brief Psychothpy.	2.2%

CHILDREN

Simulation 7

UCA	PERCENTAGE
Pediatric Care	42.8%
Psychiatric/Mental Health	12.2%
Family Practice	10.1%
Primary Care	8.2%
Medical	6.8%
Surgical Care	5.4%
Emergency Medicine Care	4.0%
Orthopedic Care	3.7%
Ancillary Services – Therapy	3.7%
Flight Medicine Care	2.3%

ACTIVE DUTY
Simulation 8



ACTIVE DUTY

Simulation 8

DIAGNOSIS	PERCENTAGE
Person with Feared Complaint in Whom No Diagnosis	9.9%
Acute Nasopharyngitis [Common Cold]	4.3%
Pain in Limb	3.4%
Distrubance of Skin Sensation	2.3%
Sprains and Strains of Ankle and Foot	2.2%
Routine General Medical Examination at a Health	2.2%
Other Musculoskeletal Symptoms Referable to Limbs	2.1%
Knee, Leg, Ankle, and Foot	2.1%
Backache, Unspecified	1.7%
Unspecified Site of Sprain and Strain	1.4%

ACTIVE DUTY

Simulation 8

PROCEDURE	PERCENTAGE
Office Visit, New Patient; Limited Svc	7.0%
Medi Conference By Physician, With Patient, 30 Min	3.7%
Muscle Testing, Manual; With Report	3.1%
Range of Motion Measurements & Report	3.0%
Physical Medi. Treatment To One Area, Init. 30 Min	2.1%
Office Visit, Established Patient; Intermed. Svc	2.0%
Patient Education	2.0%
Ophthalmological Svcs, New Patient; Comprehensive	1.9%
Medi Conference By Physician, 60 Min	1.6%
Urinalysis; With Microscopy	1.6%

ACTIVE DUTY

Simulation 8

AVG	PERCENTAGE
Ungroupable Ambulatory Visit Records	9.7%
Tendonitis, Myositis, and Bursitis	7.6%
Medical Back Problems	4.2%
Minor Wounds and Injuries to the Skin	4.1%
Wound, Fracture, Etc. of Arm, Lower Leg, Shoulder	4.0%
Dermatitis, Diseases of Hair and Eczema	3.3%
Sprain of Arm, Lower Leg, and Shoulder	3.3%
General Medical Examination	2.6%
Cranial and Peripheral Nerve Disorders	2.5%
Other Mental Disorders	2.0%

ACTIVE DUTY

Simulation 8

APG	PERCENTAGE
Ungroupable	35.5%
Other Musculoskeletal Diseases	7.9%
Counselling	5.7%
Fractures, Dislocations and Sprains	5.5%
Other Skin and Soft Tissue Diseases	4.5%
Non-Specific Signs and Symptoms	4.2%
Acute Infectious ENT Diseases Age>17	2.4%
Burns and Skin, Soft Tissue Injuries	2.1%
Physical Therapy	2.0%
Back Disorders	1.9%

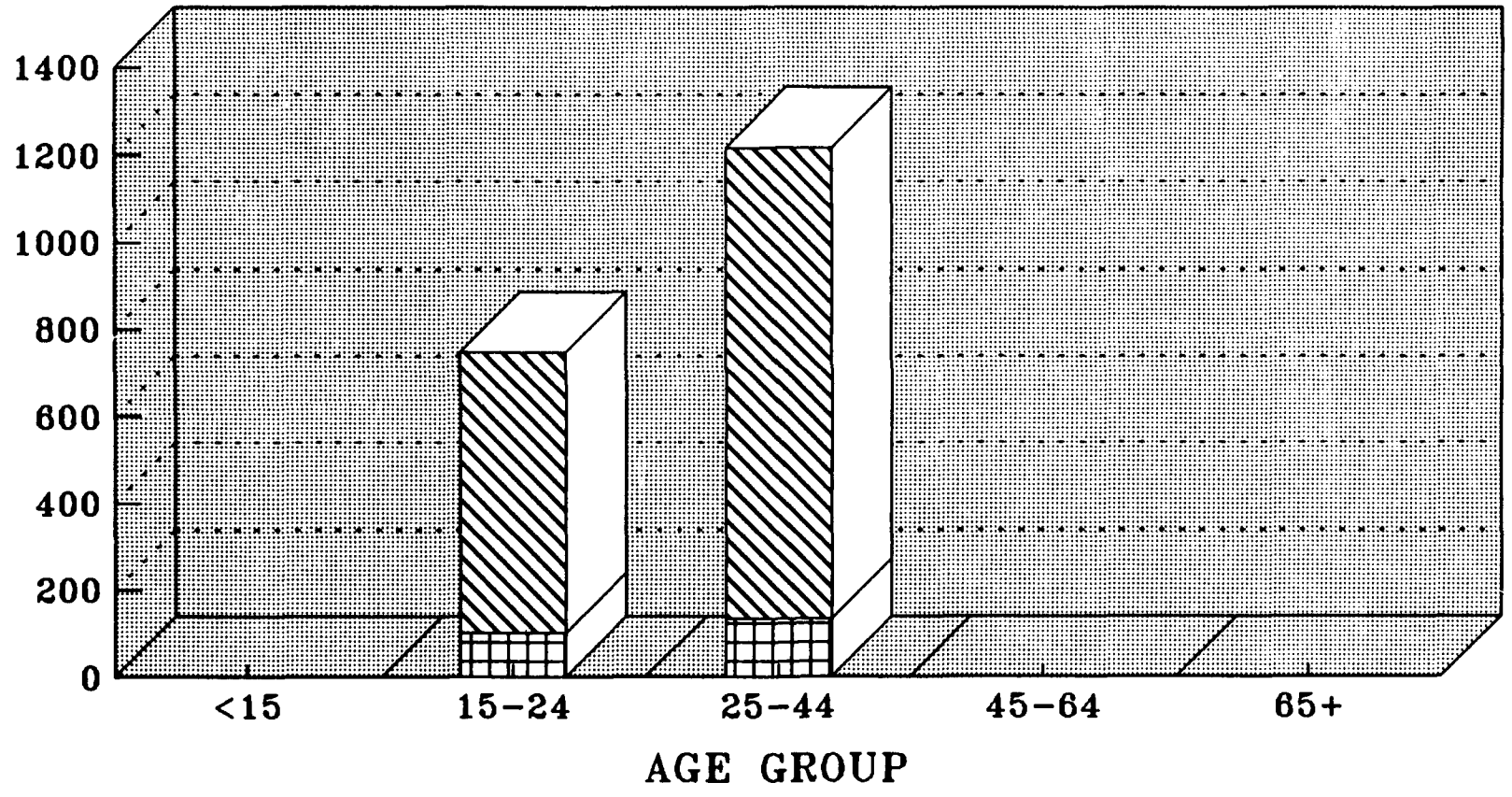
ACTIVE DUTY

Simulation 8

UCA	PERCENTAGE
Primary Care	48.4%
Orthopedic Care	11.5%
Ancillary Services – Therapy	8.9%
Medical	7.0%
Surgical Care	5.2%
Psychiatric/Mental Health	4.5%
Battalion Aid Station	3.8%
Emergency Medicine Care	3.6%
Family Practice	2.9%
Flight Medicine Care	2.3%

WOMEN OF CHILDBEARING AGE

Simulation 9



WOMEN OF CHILDBEARING AGE

Simulation 9

DIAGNOSIS	PERCENTAGE
Supervision of Normal First Pregnancy	15.2%
Adjustment Reaction	5.1%
Neurotic Depression	4.9%
Anxiety States	3.9%
Allergic Rhinitis, Cause Unspecified	2.1%
Brief Depressive Reaction	1.9%
Other Symptoms Involving Abdomen and Pelvis	1.8%
Vaginitis and Vulvovaginitis	1.5%
Major Depressive Disorder, Single Episode	1.3%
Acute Pharyngitis	1.1%

WOMEN OF CHILDBEARING AGE

Simulation 9

PROCEDURE	PERCENTAGE
Individual med. psycotherapy, approx. 20 to 30 min	12.2%
Antepartum care only	9.7%
Office and other outpatient medical service	6.8%
Office and other outpatient medical service, int.	5.2%
Emergency Room Charge	3.7%
Other Room, Ancillary & Drug Charge	2.7%
Urinalysis with microscopy	2.2%
Office and other outpatient medical service, comp.	2.2%
Office and other outpatient medical service, brief	2.0%
Unlisted chemistry or toxicology procedure	1.6%

WOMEN OF CHILDBEARING AGE

Simulation 9

APG	PERCENTAGE
Ungroupable	15.7%
Comprehensive Psychiatric Evaluation Age>17	14.0%
Routine Prenatal Care	12.4%
Female Gynecologic Diseases	3.5%
Acute Infectious ENT Diseases Age>17	2.9%
Psychotropic Medication Mgmt. or Brief Psychothpy.	2.5%
Other Skin and Soft Tissue Diseases	2.4%
Physical Therapy	2.2%
Sexually Transmitted Diseases in Females	2.0%
Introduction of Needles and Catheters	1.9%

WOMEN OF CHILDBEARING AGE

Simulation 9

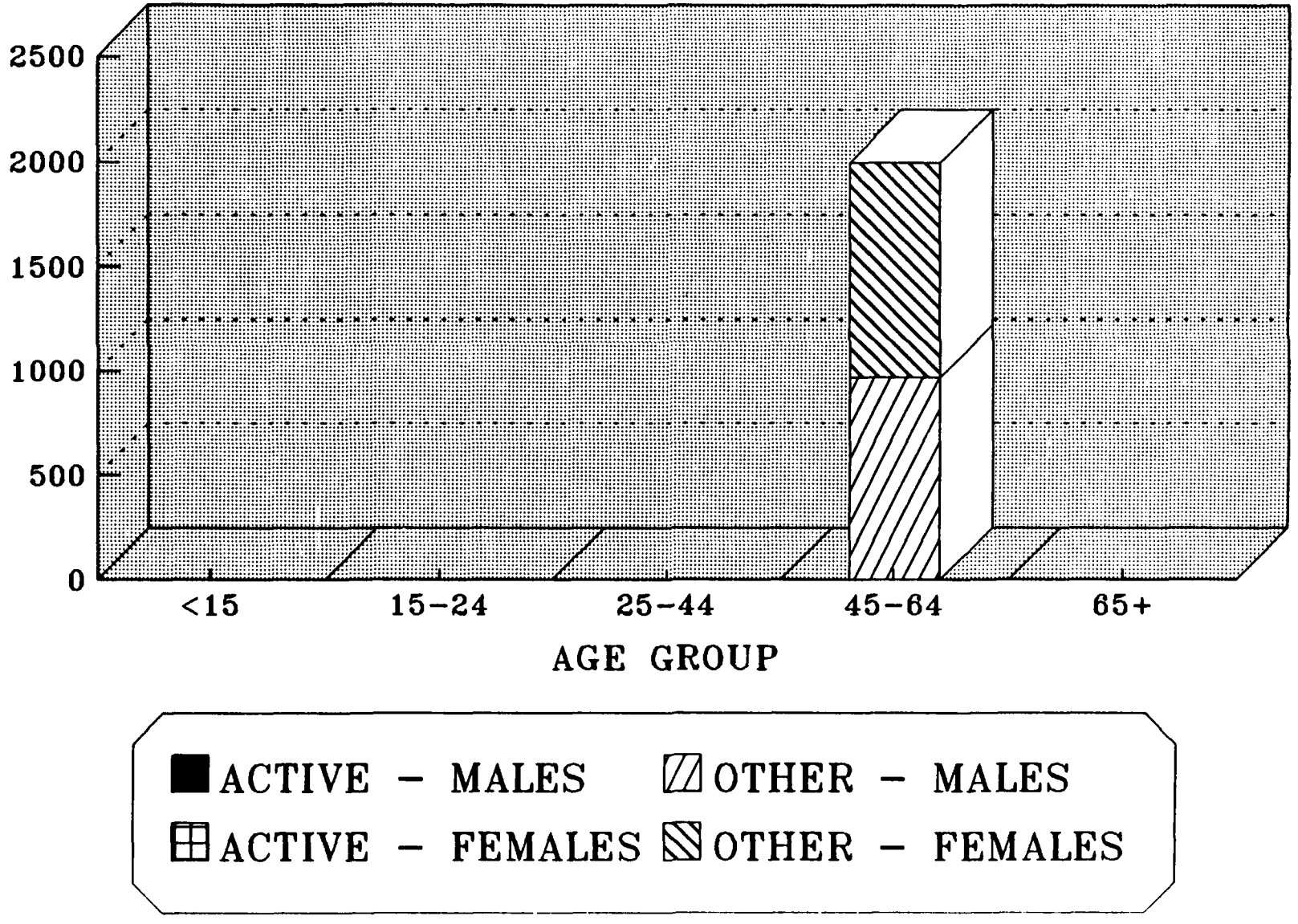
UCA	PERCENTAGE
Psychiatric/Mental Health	20.0%
Obstetrics and Gynecological Care	19.6%
Primary Care	18.4%
Medical	7.7%
Family Practice	7.3%
Surgical Care	6.4%
Pediatric Care	6.3%
Orthopedic Care	5.3%
Emergency Medicine Care	5.1%
Ancillary Services – Therapy	1.6%

WOMEN OF CHILDBEARING AGE

Simulation 9

AVG	PERCENTAGE
Individual Therapy - Extensive	18.2%
Normal Pregnancy, Antepartum	15.2%
Other Mental Disturbances	3.8%
Other URI	3.6%
Medical Back Problems	3.4%
Infections and Inflamm. of Female Reprod. System	2.8%
Hormonal and Menstrual Diseases	2.7%
Ungroupable Ambulatory Visit Records	2.2%
Irritable Bowel Syndrome and Other Colonic Disords	2.1%
Headache	1.9%

ADULTS
Simulation 10



ADULTS

Simulation 10

DIAGNOSIS	PERCENTAGE
Essential Hypertension	6.5%
Neurotic Depression	2.8%
Chest Pain	2.3%
Adjustment Reaction, Culture Shock	2.1%
Diabetes Mellitus without Mention of Complication	2.1%
Osteoarthrosis Unspecified Whether Generalized	1.7%
Allergic Rhinitis, Cause Unspecified	1.7%
Anxiety State Unspecified	1.5%
Breast (Female), Unspecified	1.4%
Adjustment Reaction, Brief Depressive Disorder	1.3%

ADULTS

Simulation 10

PROCEDURE	PERCENTAGE
Office Visit, Established Patient; Limited Svc	10.1%
Office Visit, Established Patient; Intermed. Svc	9.0%
Individual Medical Psychotherapy, 45–50 Minutes	5.3%
Office Visit, Established Patient; Brief Svc	2.9%
Urinalysis; With Microscopy	2.9%
Therapeutic or Diagnostic Injection	2.5%
Invalid Code (00000)	2.0%
Supplies & Materials (Excluding Spectacles)	1.8%
Routine ECG; With Interpretation & Report	1.8%
Other Room, Ancillary & Drug Charge	1.7%

ADULTS

Simulation 10

AVG	PERCENTAGE
Individual Therapy - Extensive	6.5%
Hypertension	7.4%
Medical Back Problems	5.4%
Ischemic Heart Disease	4.4%
Degenerative and Infective Joint Disease	4.1%
Malignancy	4.0%
Tendonitis, Myositis, and Bursitis	3.5%
Ungroupable Ambulatory Visit Records	3.3%
Other URI	3.1%
Diabetes, Non-Insulin Dependent	3.0%

ADULTS

Simulation 10

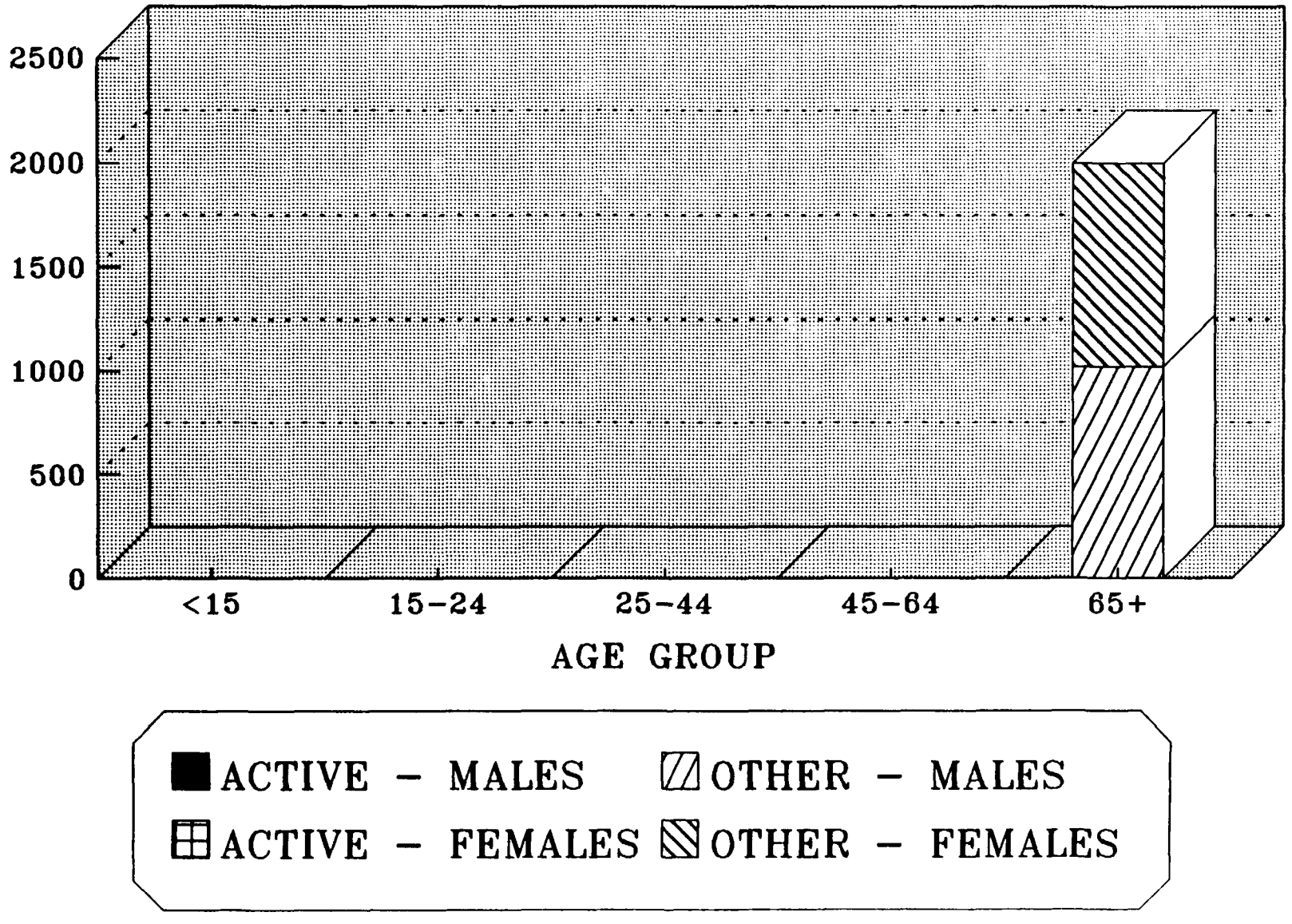
APG	PERCENTAGE
Ungroupable	14.8%
Comprehensive Psychiatric Evaluation, Age>17	6.7%
Physical Therapy	6.4%
Hypertension	5.1%
Other Musculoskeletal Diseases	4.6%
Introduction of Needles and Catheters	3.8%
Other Malignancies	2.4%
Other Skin and Soft Tissue Diseases	2.3%
Cardiogram	2.3%
Acute Infectious ENT Diseases Age>17	2.2%

ADULTS

Simulation 10

UCA	PERCENTAGE
Medical	31.0%
Surgical Care	12.3%
Primary Care	11.8%
Orthopedic Care	11.4%
Family Practice	9.4%
Psychiatric/Mental Health	8.7%
Ancillary Services – Therapy	5.8%
Obstetrics and Gynecological Care	4.2%
Emergency Medicine Care	4.0%
Ancillary Services	1.1%

OVER 65
Simulation 11



OVER 65

Simulation 11

DIAGNOSIS	PERCENTAGE
Other Counseling, Not Elsewhere Classified	10.2%
Essential Hypertension	7.7%
Laboratory Examination	5.0%
Diabeties Mellitus without Mention of Complication	2.2%
Other Dermatoses	1.5%
Routine General Medical Examination at a Health	1.3%
Radiological Examination, Not Elsewhere Classified	1.2%
Chronic Airway Obstruction, Not Elsewhere Class.	1.1%
Malignant Neoplasm of Kidney and Other and Organs	1.1%
Fracture of Humerus, Shaft or Unspecified Part	1.1%

OVER 65

Simulation 11

PROCEDURE	PERCENTAGE
Supplies & Materials (Excluding Spectacles)	10.1%
Office Visit, Established Patient; Intermed. Svc	8.7%
Emergency Dept Service, New Patient, Minimal Svc	8.1%
Invalid Code (00000)	6.1%
Office Visit, Established Patient; Limited Svc	6.0%
Office Visit, Established Patient; Extended Svc	2.3%
Routine Venipuncture For Collection Of Specimen(s)	2.2%
Office Visit, Established Patient; Brief Svc	1.9%
Blood; Occult, Feces, Screening	1.5%
Urinalysis; With Microscopy	1.4%

OVER 65

Simulation 11

AVG	PERCENTAGE
Ungroupable Ambulatory Visit Records	13.1%
Medical Counseling	10.1%
Hypertension	8.0%
Ischemic Heart Disease	4.1%
Malignancy	3.0%
Wound, Fracture, Etc. of Arm, Lower Leg, Shoulder	2.8%
Degenerative and Infective Joint Disease	2.6%
Cataract, Aphakia, and Pseudophakia	2.4%
Diabetes, Non-Insulin Dependent	2.3%
Other URI	1.9%

OVER 65

Simulation 11

APG	PERCENTAGE
Ungroupable	26.8%
Counselling	6.3%
Hypertension	4.4%
Introduction of Needles and Catheters	2.9%
Simple Chemistry	2.8%
Other Musculoskeletal Diseases	2.5%
Urinalysis	2.3%
Simple Hematology Tests	2.3%
Other Diseases of the Eye	2.1%
Multichannel Chemistry	1.9%

OVER 65

Simulation 11

UCA	PERCENTAGE
Medical	35.9%
Surgical Care	16.7%
Primary Care	13.8%
Family Practice	12.4%
Psychiatric/Mental Health	6.1%
Ancillary Services - Therapy	5.7%
Orthopedic Care	4.0%
Emergency Medicine Care	2.9%
Obstetrics and Gynecological Care	1.4%
Ancillary Services - Radiology	0.6%

COMPLEX CASE-MIX

Simulation 12

DIAGNOSIS	PERCENTAGE
Unspecified Cataract	10.5%
Senile Cataract	5.7%
Carpal Tunnel Syndrome	5.2%
Unspecified Symptom Associated with Female Genital	4.4%
Hallux Valgus (Acquired)	3.1%
Infertility, Female, of Unspecified Origin	2.9%
Deviated Nasal Septum	2.4%
Bunion	2.3%
Chronic Ischemic Heart Disease, Unspecified	1.9%
Coronary Atherosclerosis	1.9%

COMPLEX CASE-MIX

Simulation 12

PROCEDURE	PERCENTAGE
Extracapular Cataract Removal With Lens Insertion	4.7%
Laparoscopy, Surgical	3.2%
Office Visit, Established Patient; Limited Svc	2.9%
Office Visit, Established Patient; Intermed. Svc	2.7%
Office Visit, Established Patient; Extended Svc	2.2%
Office Visit, New Patient; Comprehensive Svc	2.1%
Neuroplasty &/or Transposition; Median Nerve at CT	1.8%
Dilation & Curettage, Diagnostic &/or Therapeutic	1.7%
Office Visit, New Patient; Intermediate Svc	1.6%
Combined Catheterizations & Angiographies	1.6%

COMPLEX CASE-MIX

Simulation 12

AVG	PERCENTAGE
Laparoscopy	18.8%
Anterior Segment - Cataract	18.2%
Catheterization - Left Heart or Full	10.2%
Foot and Ankle, Class 4	6.8%
Nerve Decompression, Class 2	5.9%
Radiation Therapy - Setup	5.3%
Nose and Sinus, Class 4	4.9%
Foot and Ankle, Class 3	3.7%
Ear and Mastoid, Class 5	3.3%
Other Plastic Procedures, Class 6	2.3%

COMPLEX CASE-MIX

Simulation 12

APG	PERCENTAGE
Female Genital Endoscopy	12.1%
Cataract Procedures	12.0%
Ungroupable	10.5%
Diagnostic Cardiac Catheterization	6.2%
Bunion Procedures	4.8%
Other Ultrasound	4.4%
D & C	3.9%
Complex Maxillofacial Procedures	3.9%
Carpal Tunnel Release	3.3%
Opthalmological Tests and Minor Procedures	2.2%

COMPLEX CASE_MIX

Simulation 12

UCA	PERCENTAGE
Medical	27.2%
Surgical Care	17.6%
Primary Care	15.9%
Family Practice	13.2%
Orthopedic Care	8.0%
Ancillary Services - Therapy	6.2%
Ancillary Services - Radiology	5.5%
Psychiatric/Mental Health	1.8%
Emergency Medicine Care	1.7%
Pediatric Care	1.7%