

*Andrzej Czerwinski*

**ANALYSIS AND RECOMMENDATIONS  
FOR  
REDUCING AND CONTAINING THE COSTS  
OF THE  
ASG OFF-ISLAND PATIENT REFERRAL PROGRAM**

**FINAL REPORT**

Submitted to:

Charles R. McCuddin  
Director, ASHPDA  
Pago Pago, American Samoa  
October, 1981

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October 8, 1981

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Dear Mr. McCuddin:

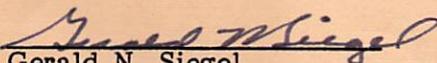
The attached final report contains our findings and recommendations for improving the cost performance of the ASG Off-Island Patient Referral Program.

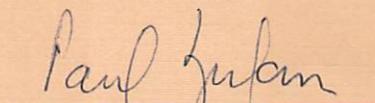
To very briefly summarize: We found that the ASG referral program is fundamentally necessary, but it has dramatically increased in scope and cost, possibly more than most had suspected. The program and the problem are complex because they involve multiple institutions, management organizations and individuals on and off-island, as well as the expectations of Samoans for better health care. There are, however, realistic and achievable improvements that we recommend be made in on-island and off-island resources, capabilities and management that we conservatively estimate can result in net savings of \$350,000 a year, in FY 1980 dollars. This can be done without reducing the quality, availability or accessibility of services; in fact, we believe they will be improved.

This report contains: (1) An executive summary; (2) Background on the referral problem and this project; (3) Key findings from our financial analysis and medical care review; (4) Recommendations; (5) Our suggestions for implementing the recommendations; and (6) Appendices for technical review and reference.

The final report reflects your review comments as well as those resulting from discussions with your staff, the Council, and ASG officials.

Soifua,

  
Gerald N. Siegel

  
Paul Zukin, M.D.

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**CHAPTER I**  
**EXECUTIVE SUMMARY**

## **L. EXECUTIVE SUMMARY**

The American Samoa Health Planning and Development Agency (ASHPDA), with the assistance of Siegel & Associates, has undertaken this special project to determine if the costs of the ASG off-island patient referral program can be reduced or at least contained by decreasing the rate of increase. The reason for this special analysis can best be understood by summarizing several key facts and events that have taken place over recent years.

### **A. THE PROBLEM**

In small, remote communities with limited economic resources, such as the Pacific islands, rural United States and elsewhere in the world, there will always be the need to send some patients to centers where they can receive more sophisticated diagnostic and treatment services. Thus, the issue for caring people and the Samoans is not the basic need for the referral program but, rather, its costs.

The following facts give dramatic evidence of the cost increases in the ASG patient referral program:

- . From 1974 to 1980, the costs increased approximately 700 percent, from \$125,000 to \$916,000. Moreover, expenditures for the first ten months of Fiscal Year (FY) 1981 are at \$913,000, which indicates that the annual costs are continuing to increase.
- . Off-island referral costs will consume 17 percent of the Department of Health's (DOH) budget in FY 1981 and will probably surpass Medical Services (physicians) as the second largest budget item in the Department. If referral costs are not reduced or contained in the near future, they are likely to become the largest budget item and move ahead of Nursing Services.
- . These cost increases come at a time when the DOH budget is increasing almost twice as fast as the overall ASG budget. They also come at a time of financial stress in ASG because the total costs of government are increasing while Federal support is decreasing, thus putting pressure on increasing local taxes or cutting program costs.

Over recent years a number of reasons have been offered to explain the cost increases in off-island referrals. These include:

- Price increases, as evidenced by the daily inpatient rate increases at Tripler Army Medical Center (where virtually all ASG referrals receive their off-island care) whose rate went from \$66 a day in 1974 to \$253 a day in FY 1980 for room, ancillary and physician services. Thus, the unit cost of care accounts for some significant part of the increased costs.
- Patient volume, as evidenced by the number of patients referred in 1974, 34, as compared to the 134 that the LBJ records indicate were referred in FY 1980. The reasons for the increased patient volume are numerous and complex to evaluate. For example:
  - In 1974, the referral program was for patients with life or organ threatening problems. Today, these cases are referred as well as those with acute and chronic health care problems for which there are not adequate health care resources available at the LBJ Tropical Medical Center. Thus, the scope of the services and possibly the intensity of the services have broadened.
  - Some believe the increased volume is because patients lack confidence in LBJ and put pressure on ASG officials for referral approval.
  - Others believe the lack of financial disincentive on the part of patients -- it's free -- has increased the volume and costs.
  - While others believe the lack of budgetary control and the ease of budget augmentations are contributing factors.
  - Some also believe that contract physicians refer more because of their mainland training in the use of sophisticated services that are not at LBJ and their concerns over malpractice which they bring from the U.S.

**B. SCOPE OF THIS PROJECT**

Certainly, there are merits to some or all of the above explanations. But without a factual information base and an objective analysis of the problems, practical and defensible solutions cannot be developed. Accordingly, the project was designed for that overall purpose. More specifically, the objectives of the project were to:

- . Find ways to reduce costs by improving on-island capabilities to treat patients who would otherwise be referred.
- . Find ways to reduce costs through better off-island arrangements.
- . If absolute cost savings in the two areas above can't be achieved, then to find ways to contain and minimize referral costs and the rate of increase.

The project work was begun in July and completed in October 1981, and was conducted by Gerald Siegel and Paul Zukin, M.D., who have the skills required for this work: financial analysis and medical care evaluation, respectively. Significant assistance was received from management and staff at ASHPDA, DOH and others in ASG and in Honolulu.

The project work concentrated on an extensive description and analysis of the FY 1980 off-island patient referrals from financial, utilization and medical care perspectives. The data developed in this study were extracted from LBJ and ASG records and from discussions with knowledgeable individuals. Higher totals than that found in the budget data for the period under study were found. This variance was due to: (1) An accrual approach to costs was used in this analysis rather than the budgetary cash approach which accounts for what was spent during the year rather than what were the cost of services received during the year regardless of when paid; and, (2) Off-island care costs normally charged to other budget accounts were included in this analysis to better reflect the total program costs.

**C. KEY FINANCING AND UTILIZATION FINDINGS**

The key findings resulting from our analysis of the financial and utilization data on the FY 1980 referrals are as follows:

- . 156 patients were referred off-island in FY 1981 — 120 or 77 percent received inpatient care and, some outpatient care, while 36 or 23 percent only received outpatient services.

- 3,786 days were spent in the hospital by the 120 ASG patients. Tripler provided 93 percent of these days while the remaining 7 percent were distributed between the Hawaii State Hospital, the Rehabilitation Hospital of the Pacific, St. Francis, Kapiolani-Childrens, and Queens. The off-island patient days are approximately 14 percent of those at LBJ.
- On the average, each referred patient spent 32 days in the hospital. Since some patients had more than one admission to the hospital during the year, the average length of stay (ALOS) per admission was 23 days. This is significantly longer than the usual ALOS in typical acute care hospitals. For example:

<u>Provider</u>	<u>ALOS/Admission</u>
Tripler (all patients)	8 to 9
Metro Honolulu (all patients)	6.8
LBJ (all patients)	6
West Coast U.S. (all patients)	5.6

- ASG referrals had 427 outpatient visits at physicians' offices and Tripler's clinics. An additional 275 outpatient visits were made by individuals with chronic renal failures.
- The overall cost for these services in FY 1980 was approximately \$1.1 million. While this is higher than the final budget figures found in the "Off-Island Referrals" budget account, number 095000, for that year for the reasons discussed in Section B of this chapter, they understate the total cost of off-island care in American Samoa. This is because of two basic considerations: (1) The \$1.1 million of ASG costs does not include free care for veterans and their dependents, Medicare reimbursement for most of the renal dialysis costs, free care at Shriner's Hospital, or patients who paid for their own transportation even though ASG paid for their medical care; and, (2) The \$1.1 million are costs to ASG and, therefore, do not include the cost of services and transportation that residents incurred on their own outside of the ASG referral program. Thus, even though the \$1.1 million is high, it is less than what was the actual total cost of off-island referrals in FY 1980 in American Samoa.
- Patient care accounted for 91 percent of the \$1.1 million, while transportation and per diem for patients and escorts accounted for the remaining 9 percent.

- . Inpatient care was 95 percent of the total patient care cost, and outpatient services made up the other 5 percent.
- . ASG spent 91 percent of its patient care monies with Tripler.
- . The following summarizes the costs from several other perspectives:

<u>Cost Per:</u>	<u>Estimated Cost For:</u>		<u>Total</u>
	<u>Patient Care</u>	<u>Travel</u>	
. Patient (120)	\$7,979	\$627	\$8,606
. Patient Day (3,786)	\$ 253	\$ 20	\$ 273
. Admission (165)	\$5,803	\$456	\$6,259

- . Underlying these simple averages are significant factors:
  - The cost of the stay for one ASG patient who was referred to Tripler was over \$65,000 for 220 inpatient days.
  - The average cost per day at Tripler for ASG referrals was \$254, but \$441 at other acute care providers in Honolulu.
  - The average cost per admission at Tripler was \$5,655 but \$10,431 at other providers.
  - Discussions with Tripler officials revealed that long stays in that hospital were often related to patients occupying beds in between treatments because they had no adequate home situation to provide minimum board and care. These officials estimated that ALOS for ASG referrals could be reduced 30 to 40 percent if housing and transportation were available for those Samoan patients requiring outpatient services after discharge from the hospital and, if a cooperative program of monitoring ASG patient length of stay were implemented.
- . There were 13 ASG referrals to Tripler in FY 1980 who would have had most of their costs reimbursed by Medicare if Tripler were Medicare certified. Since Tripler is ineligible to be certified for participation in the Medicare program, an analysis showed that ASG could have netted \$66,000 in Medicare reimbursement (or at least a very conservative \$50,000) if ASG had referred these patients to a certified provider in Honolulu.

**D. KEY FINDINGS FROM THE MEDICAL CARE EVALUATION**

- . After reviewing the resources and capabilities at LBJ, the opinion of the physician member of this study team was that LBJ has considerably greater capabilities and resources than are generally found in remote areas in serving a population the size of that in American Samoa.
- . An analysis of the FY 1981 referrals in relation to existing LBJ health care resources indicated that if four medical doctor specialities were acquired, along with the use of midwives and the acquisition of new equipment costing under \$5,000, between 10 to 15 percent of the referred patients could have been treated on-island.
- . The LBJ patient records for 92 of the 120 referrals receiving inpatient services were available and were examined, as well as the records of 20 of the 36 referrals receiving outpatient services only. Evaluating the priority or the need for the referral revealed that, for both inpatients or outpatients, there was not a single case where the stated health problem was insufficient to warrant off-island care. This is significant in relation to a similar review the team member conducted a year ago at another U.S. territory where he judged that 40 percent of the referrals were probably not justified. For the remainder of the FY 1980 ASG referrals, whose patients records were not available for examination (28 inpatients and 16 outpatients), there was insufficient information to make a definitive judgment or where, in retrospect, it appeared the case could have been treated satisfactorily at LBJ.
- . Almost two-thirds of the referrals for inpatient care come from an inpatient status at LBJ and one-fifth from an LBJ outpatient status, where definitive information was available.
- . The majority of referrals were for males and adults and the ALOS for males and females are similar.
- . Collectively, five disease groups accounted for 70 percent of the referrals in the charts examined:
  - Diseases of the Circulatory System: 17%
  - Diseases of the Nervous System and Sense Organs: 16%
  - Neoplasms: 13%
  - Diseases of the Genitourinary System: 12%
  - Diseases of the Digestive System: 11%

- The length of stay for virtually all diagnostic groups considerably exceeded the stays normally experienced at Tripler where the great majority of the ASG patients are referred.
- Data and medical charts for some of the on-island deaths in 1980 were examined to determine if there were patients whose health problems warrant off-island referral but who were not so referred. While the data are limited for this inquiry, there were three cases where, in retrospect, a referral may have been helpful. This may suggest an area of unmet need to investigate in the future.

**E. RECOMMENDATIONS**

As a result of the analyses and evaluations, we recommend five major improvements that are estimated to reduce costs by approximately \$350,000 in 1980 dollars. These are summarized below:

<u>Recommendation</u>	<u>Cost</u>	<u>Estimated</u>	
		<u>Gross Savings</u>	<u>Net Savings</u>
1. Improve LBJ Medical Staff and Equipment <sup>1</sup>	\$3,000	\$110,000	\$107,000
2. Improve ASG's Management of the Off-Island Referral Program	83,000	266,000	183,000
3. Refer Medicare Patients to a Certified Honolulu Provider	0	50,000	50,000
4. Charge Off-Island Inpatient Referrals at the LBJ Inpatient Rate	0	10,000	10,000
5. Expedite Plans for Preventive and Promotional Health Services	*	*	*
<b>TOTAL</b>	<b><u>\$86,000</u></b>	<b><u>\$436,000</u></b>	<b><u>\$350,000</u></b>

\*Not estimated

<sup>1</sup>The additional medical staff recommended are currently budgeted positions and would not result in additional budgetary expenditure to ASG. However, the savings would be approximately \$30,000 less if a physician recruiting firm were used to expedite and assure the acquisition of the four physician specialties recommended.

We believe the net savings to be a conservative estimate because gross savings have been estimated conservatively and costs have been liberally estimated. In addition to the significant cost savings possible over the short and long term, we believe all of the recommendations will result in at least equal if not improved medical care, on or off-island, without inhibiting the access or availability of referral services.

A suggested implementation approach has been included in this report which recognizes the interdependency and priority of the recommendations. For example: the recommendations for referring Medicare patients to a certified provider and charging referrals for inpatient stays are dependent on carrying out the improvements to the management of the referral program. This has been considered in the suggested implementation plan and, because these three have the highest potential for cost savings, they should receive high priority in the overall implementation plan, assuming ASG officials accept and provide budget authorization, where needed, for these recommendations.

\* \* \* \* \*

The next chapter presents background information on the referral problem and this project. This is followed by chapters on our findings, recommendations and a suggested implementation approach. An appendices contains detailed data, computations and estimates for a more technical review and reference.

**CHAPTER II**  
**BACKGROUND**

## II. BACKGROUND

The cost of off-island referrals and the number of patients referred has increased significantly over the last eight years, as the following summarizes:

<u>Fiscal Year</u>	<u>Expenditures (\$000)</u>	<u>Patients Referred</u>
1974 <sup>1</sup>	\$125	35
1975	Not Available	Not Available
1976 <sup>1</sup>	407	69
1977 <sup>1</sup>	512	109
1978 <sup>2</sup>	552	109
1979 <sup>2</sup>	713	90
1980 <sup>3/4</sup>	916	136
1981 (1st 10 mos.) <sup>4</sup>	913	104

As can be seen, costs have increased over 700 percent from 1974 to 1980, while the number of patients referred off-island has increased almost 400 percent over the same time frame. Experience thus far in FY 1981 would indicate that as the costs continue to increase they will consume approximately 16 percent of the Department of Health budget. Moreover, they are likely to pass Medical and Surgical Services as the second largest budget item this fiscal year and are likely to surpass Nursing Services to become the largest budget item, if the cost increases are not reduced or contained.

The increasing costs of off-island care come at a time when the DOH's budget is increasing almost twice as fast as the overall ASG budget. It also occurs at a time when ASG is faced with declining Federal financial participation and increasing ASG cost. Thus, the cost increases of off-island care aggravates an already serious budgeting problem in DOH and ASG.

### Sources:

1. ASHPDA Position Paper and DOH records; May 26, 1978, and includes MCH and CCH except in 1974.
2. ASG Final Budgets for FYs 1980 and 1981.
3. Department of Administrative Services computer report for the "Off-Island Referrals" account, number 095000, for year ended 9/30/80.
4. LBJ Business Office.

It should be recognized from the outset that the need for a referral program, in general, is not the issue. It is acknowledged almost universally that remote and isolated communities with small populations and limited economic resources, whether in the Pacific or rural U.S. or elsewhere in the world, cannot be totally self-sufficient in medical care. This is because there will always be some patients who will require specialty diagnostic or treatment services that cannot be economically provided locally and that can only be found in the larger population centers where these specialty services tend to cluster. Thus, the concern among caring people and the Government of American Samoa is not the concept of the program, but its cost and all that implies.

A. POSSIBLE CAUSES FOR INCREASING COSTS

There have been a number of explanations given for the increases in costs and the number of referrals. These can be categorized into unit cost increases and volume/case intensity increases.

1. Unit Cost Increases

In 1974, the all inclusive rate for routine, ancillary and physician services at Tripler Army Medical Center (TAMC), the predominate referral point for ASG, was \$66 a day, and that increased to \$253 a day in 1980 -- almost a fourfold increase. Over that time period, transportation costs have also increased.

2. Volume/Case Intensity Increases

Increasing hospital charges and transportation costs haven't been the only cause of increased costs, in the opinion of some informed observers. In 1974, for example, we have been told that the referrals were almost exclusively made because of life or organ threatening diseases. Over time, however, the scope of the referral program has been expanded to include the treatment of acute and

chronic diseases as well as the life and organ threatening diseases for which there is not adequate health care resources available at the LBJ Tropical Medical Center. The result of the expanded scope of the program seems, to some, to have accounted for the increased number of the patients referred and the more specialized services received and, correspondingly, some portion of the increased costs. A number of reasons have been advanced to explain the expanded scope of the referral program:

- . Some contend that there is a lack of confidence in LBJ to treat serious medical problems and a belief that off-island providers can better treat these problems.
- . Related to this is the opinion in some quarters that LBJ and DOH have failed to attract and retain qualified staff to provide the equipment and facilities to treat patients on-island who otherwise have been referred off-island.
- . A belief that better off-island medical care means better health care, thus increasing the demand for referral.
- . The lack of budgetary control and the ease with which budgetary augmentations are received for off-island care.
- . The lack of financial disincentives to patients seeking and receiving off-island care — because it's free.
- . A belief that the U.S. contract physicians at LBJ tend to refer patients to facilities which have more sophisticated diagnostic and treatment capabilities because of their mainland training and concern over malpractice.
- . The belief that certain citizens can exert personal or political pressure on departmental and ASG officials in order to be authorized off-island care.

**B. PURPOSE AND OBJECTIVES OF THIS PROJECT**

In order to determine the merits and validity of these explanations, opinions, beliefs or hypotheses, a factual information base is needed from which objective and defensible conclusions can be made. This then brings us to the overall purpose of this project — to analyze and evaluate the facts surrounding the ASG off-island referral program and to identify

ways to reduce or contain the cost of off-island care without reducing the quality, access and availability of care. More specifically, the key objectives of this project have been to find ways to:

- . Achieve cost savings by reducing the charges paid by ASG for off-island care.
- . Achieve savings by treating some of the referred cases on-island.
- . If either or both of the above objectives do not lead to absolute savings, then it is also the objective of this project to find ways to control and contain the rate of increase in order to minimize costs.\*

The technical approach to meeting these project objectives was composed of three major work phases which are summarized below:

- . Phase I: Data Collection and Analysis.
- . Phase II: Identification and Evaluation of Alternatives for Reducing and Containing Referral Costs.
- . Phase III: Reporting Findings and Recommendations.

The project work began in July and was completed in October 1981. The work was carried out by Gerald Siegel and Paul Zukin, M.D., who combined the required skills of financial analysis and health care evaluation, respectively. In addition, very substantial involvement and assistance was provided by the management and staff of the ASHPDA, DOH and the Department of Administrative Services' Data Processing Division, as well as the various providers we met with in Honolulu and, the Pacific PSRO and the Hawaii SHPA.

The following chapters contain:

- . An Analysis of the FY 1980 Referrals.
- . Recommendations for Improving Capabilities On-Island.
- . Recommendations for Improving Arrangements with Off-Island Providers.
- . Suggestions for Implementing the Recommendations.

\*It is important to note that the scope and intent of the work did not include a financial or medical audit in any way.

**CHAPTER III**

**ANALYSIS OF FISCAL YEAR 1980 OFF-ISLAND REFERRALS**

### III. ANALYSIS OF FISCAL YEAR 1980 OFF-ISLAND REFERRALS

A major effort during this project entailed the analysis of the patients referred off-island for medical care by the American Samoa Government during Fiscal Year 1980. Before presenting our findings, the scope of this analysis is discussed first in order to place the results in proper perspective.

#### A. SCOPE OF ANALYSIS

Both a financial and medical evaluation of the FY 1980 referral was conducted. From this, cost and utilization data were compiled and the medical necessity for the referral was evaluated. These, in turn, led to numerous areas of inquiry that formed the basis for our recommendations. The following are the major data considerations.

##### 1. ASG Costs Versus Total Costs

As noted above, only cases referred by ASG were included in this study. Accordingly, residents who obtained off-island care at their own expense are not represented in the data. In addition, patient care costs for patients authorized to travel and paid for by ASG are not included. These were patients authorized to travel for off-island care who received free care as retired military personnel or as dependents, or residents with health insurance or private funds, or children receiving free care at the Shriner's Hospital in Honolulu or the Medicare payment of approximately 80 percent of the cost of renal dialysis. There were also patients authorized to receive off-island care who paid for their transportation privately. Because the cost and utilization data for the non-ASG paid care and transportation were not available for this analysis, the reader can assume that the total cost and utilization of off-island care is greater than what is presented in this study of ASG referrals only.

2. Budget Versus Study Costs

The reader should also note that the cost and utilization data in this study are greater than those shown in the FY 1980 "Off-Island Referrals" budget account, number 095000. This is because:

- . The budget account contains the actual expenditures paid during FY 1980 — from October 1, 1979 to September 30, 1980 — in other words, on a cash basis. This study costed the services provided during FY 1980 regardless of whether they were paid in FY 1980 or FY 1981, as in the case of September, 1980 services that are not billed by the provider until October 1981 and fall into the FY 1981 expenditures. We believe the accrual approach used in this study portrays the most accurate data for the purposes of this analysis.
- . The budget account also contains a relatively small amount of expenditures in FY 1980 for medical personnel from Tripler Army Medical Center who provided services at the LBJ Tropical Medical Center. These amounts are not included in this analysis since they do not reflect costs incurred by ASG referrals while off-island.
- . The final reason for the differences between the budget account and this study deals with the treatment of expenditures for patients in the Maternal and Child Health (MCH) and the Crippled Childrens Health (CCH) programs. Expenditures for these patient referrals are posted to two other ASG budget accounts and, accordingly, are not shown in the "Off-Island Referrals" account. Since these patients are part of the total ASG referral case load, their costs and utilization have been included in this analysis.

3. Time Period Studied

As noted earlier, the study covered the one year FY 1980 period — from October 1, 1979 to September 30, 1980. When the initial data extracting began in June 1980, this was the most current 12 month period that data were available from the various sources used and that could also be compared to the most current fiscal year ended. While two or more years of data would have been desirable, it was not feasible from the standpoint of data availability and the significant amount of time that would have been required to extract, compile and evaluate a multi-year time series. Even

though a data base of one year has some limitations, we believe it is representative of current utilization and cost patterns.

4. Data Sources and Data Elements

The cost, utilization and patient data were extracted and computed from a number of sources:

- . The computerized discharge abstracts of LBJ patients from July 1979 to February 1981, including some of those inpatients referred from LBJ for off-island care.
- . The invoices from off-island providers which contain the costs and services received by the referred patients during the study period.
- . The ASG travel authorizations for the patients referred during the study period.
- . The hospital and other clinical records for the FY 1980 referrals, and some of the 1980 death records.
- . Other ASG budgetary accounting files, logs and reports related to the off-island referrals.

The data elements collected are shown on Exhibit I, following this page, which indicates that we were generally able to collect the minimum data set desired. However, the data have two major limitations which should be noted here and, to the extent correctable, they will be addressed in the recommendation chapters.

- . The computerized discharge abstract file is a fertile data base for analysis. However, it does not contain abstract data on inpatient services received at off-island facilities.
- . Comparability of costs between providers is virtually impossible at the cost component level because of the all inclusive rate that is used by the military and the Hawaii State Hospital which furnish the overwhelming majority of care. Thus, aggregate cost comparisons must be made.

B. KEY FINANCIAL AND UTILIZATION FINDINGS ON THE REFERRALS

Exhibit II, following this page, contains a summary of the costs and service utilization of those patients referred for off-island care by ASG during Fiscal Year 1980. For the reader wishing further detail, Appendix A

DESIRED AND OBTAINABLE DATA ELEMENTS

<u>Field No.</u>	<u>Description</u>	<u>Obtainable</u>
1.	Sequence/Control No.	Yes
2.	Patient Name	Yes
3.	Hospital Number	Yes (with minor exceptions)
4.	Off-Island Provider	Yes
5.	Admission Date	Yes
6.	Discharge Date	Yes
7.	LOS (Length of Stay)	Yes
8.	Outpatient Services from (Date)	Yes
9.	Outpatient Services to (Date)	Yes
10.	No. of Outpatient Treatments	Yes
11.	LBJ Diagnosis	Yes (when referred from LBJ inpatient status)
12.	Off-Island Diagnosis	Yes (with some exceptions)
13.	All Inclusive Rate	Yes
14.	Routine Cost	Yes (but not by bed type)
15.	Ancillary Cost	Yes (but usually not by service)
16.	Drugs/Supplies Cost	Yes
17.	Outpatient Cost	Yes (but not always by clinic type)

Continued...

DESIRED AND OBTAINABLE DATA ELEMENTS (contd.)

**EXHIBIT I**  
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<u>Field No.</u>	<u>Description</u>	<u>Obtainable</u>
18.	Physician Cost	Yes
19.	Other Patient Care Costs	Yes
20.	Total Patient Care Costs	Yes
21.	Patient Transportation Cost	Yes
22.	Attendant Transportation Cost	Yes
23.	Travel Authorization No.	Yes
24.	Attendant Per Diem Cost	Yes
25.	Other Transportation Cost	Yes
26.	Total Transportation Costs	Yes
27.	Total Cost	Yes

SUMMARY OF SERVICES AND COSTS FOR FY 1980 OFF-ISLAND PATIENT REFERRALS

EXHIBIT II  
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CONT. NO.	PATIENT HOSPITAL NO.	IN-PATIENT LOS	OUT-PATIENT TREAT.	ALL INCL. RATE	ROUTINE CHG.	ANC. CHG.	DRUGS/SUPPLIES	OUT-PATIENT CHG.	PHYS. CHG.	OTHER CHG.	PATIENT TRANS.	ESCORT TRANS.	ESCORT PER DIEM	TOTAL COST	PATIENT SERV.	TRANS.
1	014321	22	3	\$ 5,600	\$ .860	\$	\$	\$ 75	\$ 4,196	\$ 6,102	\$ 583	\$	\$	\$ 17,416	\$ 16,833	\$ 583
2	062738	118	77	7,152	12,690	8,446	899	4,842	4,137	669	523			39,358	38,835	523
3	023290	47	63	13,556				3,910			523			17,989	17,466	523
4	015914	40	10	11,622	430			261	4,222	5,835	775	911		24,056	22,370	1,686
5	025336	32	2	8,636				58			523	1,451		10,668	8,694	1,974
6	004287	70	7	19,195				203		220	463	1,129		21,210	19,618	1,592
7	000671	77	1	20,066						574	1,328			21,968	20,640	1,328
8	058030	17	1	4,301						572	1,198	323		6,394	4,873	1,521
9	065297	3		759							3,864	2,638		7,261	759	6,502
10	004660		134					5,540	253	103				5,896	5,896	
11	003622									103				103	103	
12	023317	33	93	3,874	3,868	4,889	584	6,461	2,430		463	463		23,032	22,106	926
13	041293	12	3	3,576				121						3,697	3,697	
14	004037		7				1,591	141	72					1,804	1,804	
16	068623	15	7	298	2,365	3,854		56	289			703		7,565	6,862	703
19	041756										323			323		323
20	068313	67	1	18,751				25		145				18,921	18,921	
21	035694	61	16	17,233				375		590	583	523		19,304	18,198	1,106
22	061025	1		298						153	643	583		1,677	451	1,226
23	036400	7	8	2,086				224						2,310	2,310	
24	040819	1	3	253				75			643			971	328	643
25	011180	7	8	2,086				216			583			2,885	2,302	583
26	000005	63	6	18,774				203			523			19,500	18,977	523
27	037678		4					108			643	523		1,274	108	1,166
28	052929	12	2	2,836				75			1,059			3,970	2,911	1,059
29	054630	5	9	1,265				225			903	903	70	3,366	1,490	1,876
30	027629	220	4	65,560				100			463	463		66,586	65,660	926

SUMMARY OF SERVICES AND COSTS FOR FY 1980 OFF-ISLAND PATIENT REFERRALS

EXHIBIT II

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CONT. NO.	PATIENT HOSPITAL NO.	IN-PATIENT LOS	OUT-PATIENT TREAT.	ALL INCL. RATE	ROUTINE CHG.	ANC. CHG.	DRUGS/SUPPLIES	OUT-PATIENT CHG.	PHYS. CHG.	OTHER CHG.	PATIENT TRANS.	ESCORT TRANS.	ESCORT PER DIEM	TOTAL COST	PATIENT SERV.	TRANS.
31	018633		2	\$ 27,112	\$	\$	\$	\$ 54	\$	\$	\$	\$	\$	\$ 54	\$ 54	\$
32	064381	94	2	27,112				54			43	916		28,125	27,166	959
33	004440		2					50			583			633	50	583
34	028461	72		18,216							643	643		19,502	18,216	1,286
35	068768	35	1	8,855				25		292	643	643	70	10,528	9,172	1,356
36	008776	75	1	17,362	836		374	96			613	583	210	21,614	20,208	1,406
37	003369	1	1	252				29			583			864	281	583
38	019914	70	1	19,195						92	813			20,100	19,287	813
39	043598	10		6,837							613			6,837	6,837	
40	019309	42	6	10,986				150			643	643	280	11,599	10,986	613
41	060171	29		7,382							643			9,098	7,532	1,566
42	008900	7		1,906							643			2,549	1,906	643
43	023387	26		6,578							643			7,221	6,578	643
44	047583	100		27,550							703			28,253	27,550	703
46	069782	88	2	24,289				50			583	583	140	25,645	24,339	1,306
47	006618	59		14,927			156				643			15,726	15,083	643
48	000652	77		19,526							2,243	643		22,412	19,526	2,886
49	009043		5					145						145	145	
51	027960	3	4	894				116			523	523		2,056	1,010	1,046
52	045625		1					29			583			612	29	583
53	024752		1					29						29	29	
54	031680	28	1	8,344				29			523			8,896	8,373	523
55	065656	6	1	1,743				25			583			2,351	1,768	583
56	007404	24		7,152										7,152	7,152	
57	005432	8		2,384										2,384	2,384	
58	018734	13	1	3,874						96	613	523		5,106	3,970	1,136

SUMMARY OF SERVICES AND COSTS FOR FY 1980 OFF-ISLAND PATIENT REFERRALS

EXHIBIT II

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CONT. NO.	PATIENT HOSPITAL NO.	IN-PATIENT LOS	OUT-PATIENT TREAT.	ALL INCL. RATE	ROUTINE CHG.	ANC. CHG.	DRUGS/SUPPLIES	OUT-PATIENT CHG.	PHYS. CHG.	OTHER CHG.	PATIENT TRANS.	ESCORT TRANS.	ESCORT PER DIEM	TOTAL COST	PATIENT SERV.	TRANS.
60	015336		2	\$	\$	\$		\$ 58	\$	\$				\$ 58	\$ 58	\$
61	060282	10	2	2,980				58						3,910	3,038	872
62	005082	61	21	18,178				609			349	523		18,787	18,787	
63	061000	26		7,748										7,748	7,748	
64	015732	5		1,490							523			2,013	1,490	523
65	062912	12		3,576							525			4,101	3,576	525
66	004354	12	2	3,576				58		498	403			4,535	4,132	403
67	004062	120	2	35,760				58		270	1,600			37,688	36,088	1,600
69	004363	17	1	5,066				29			523			5,618	5,095	523
70	069063	14		4,172										4,172	4,172	
71	025303	66	4	20,568				116			693			21,377	20,684	693
72	051613		1					29						29	29	
73	035834	15	2	4,470				58			523			5,051	4,528	523
74	002421		6					174			523			697	174	523
75	029332	11	1	3,278				29			523			3,830	3,307	523
77	014249	6	3	1,788				87			523			2,398	1,875	523
78	001288	33	10	9,834				290		247	243			10,614	10,371	243
79	072256	19		5,662						22	403			6,087	5,684	403
80	000360	31		9,238									131	9,369	9,238	131
84	052107	30	1	8,940				29		200	723	726	70	10,688	9,169	1,519
85	008977	2		596								2,669	420	3,685	596	3,089
86	007864	15	1	4,470				29		28	460	373		5,360	4,527	833
87	003081	44		13,112							523	523	140	14,298	13,112	1,186
88	007747	41		12,218							523			12,741	12,218	523
89	005733	21		6,258							523			6,781	6,258	523
90	059264	8	2	2,384				58			49	463		2,954	2,442	512

EXHIBIT II  
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SUMMARY OF SERVICES AND COSTS FOR FY 1980 OFF-ISLAND PATIENT REFERRALS

CONT. NO.	PATIENT HOSPITAL NO.	IN-PATIENT LOS	OUT-PATIENT TREAT.	ALL INCL. RATE	ROUTINE CHG.	ANC. CHG.	DRUGS/SUPPLIES	OUT-PATIENT CHG.	PHYS. CHG.	OTHER CHG.	PATIENT TRANS.	ESCORT TRANS.	ESCORT PER DIEM	TOTAL COST	PATIENT SERV.	TRANS.
92	027570		1	\$	\$	\$	\$	\$ 29	\$	\$	\$	\$	\$	\$ 29	\$ 29	\$
93	004693	43		12,814										12,814	12,814	
94	010326	62		18,476										20,099	18,650	1,449
95	038003		2					174		56	1,046	403		577	114	463
96	065465	14	6	4,172				174		162	400	403		5,311	4,508	803
97	003743	34	3	10,132				87		168	743	743		11,873	10,387	1,486
98	000175		12					348			926			1,274	348	926
99	051377		5					145			523			668	145	523
100	028986		1					29						29	29	
101	069592		3					87						87	87	
102	066323		3					87						87	87	
103	014521	73	17	21,754				493		509	803	403	140	24,102	22,756	1,346
104	007583		1					29			523	523		1,075	29	1,046
105	047927		1					29			523	523		552	29	523
106	074741		2					58			523	523		581	58	523
107	012092	15		4,470							463	463		5,396	4,470	926
108	020760	39	3	11,622				87			523	523		12,232	11,709	523
109	066102	61	3	18,178				87			1,483	403	140	20,291	18,265	2,026
110	001436	2	2	596				58			349	523		1,526	654	872
111	063268	3	1	894				29			586	883		2,392	923	1,469
112	059569		2					58						58	58	
114	025723	36		10,728										10,728	10,728	
115	008520	92	1	26,876				29			463			27,368	26,905	463
116	016786	8		2,384							523			2,907	2,384	523
117	020388	74	1	22,052				29			403			22,484	22,081	403
118	003069	41	1	12,218				29			743	743		13,733	12,247	1,486

SUMMARY OF SERVICES AND COSTS FOR FY 1980 OFF-ISLAND PATIENT REFERRALS

EXHIBIT II

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CONT. NO.	PATIENT HOSPITAL NO.	IN-PATIENT LOS	OUT-PATIENT TREAT.	ALL INCL. RATE	ROUTINE CHG.	ANC. CHG.	DRUGS/SUPPLIES	OUT-PATIENT CHG.	PHYS. CHG.	OTHER CHG.	PATIENT TRANS.	ESCORT TRANS.	ESCORT PER DIEM	TOTAL COST	PATIENT SERV.	TRANS.
119	003078	25		\$ 7,450	\$	\$	\$	\$	\$	\$	463	\$	\$	\$7,913	\$ 7,450	\$ 463
121	049933	30		8,940							463			9,403	8,940	463
122	055106	31		9,238										9,238	9,238	
123	009260	15	6	4,470				174			463	463		5,570	4,644	926
124	037086	20	1	5,960				29			463	463		6,915	5,989	926
125	066105	13		3,874							463			4,337	3,874	463
126	017606	24	1	7,152				29			463			7,644	7,181	463
127	028986		4					116						116	116	
128	050566		1					29			1,046			1,075	29	1,046
129	059635	5	4	1,490				116			463	463		2,532	1,606	926
130	031252		3					87			463			550	87	463
131	017142	14	1	4,172				29			463			4,664	4,201	463
132	UNK.		1					29						29	29	
133	056447	14	9	4,172				261						4,433	4,433	
134	022130	23	7	6,854				203			403			7,460	7,057	403
141	061666	14	4	4,172				116		151	463	463		5,365	4,439	926
142	015145		14					406						406	406	
143	063629		1					29						29	29	
144	066583		1					29						29	29	
145	UNK.		2					58						58	58	
146	054426		4					116			203	403	60	782	116	666
147	017927	20		5,960							463			6,423	5,960	463
148	043583	36		10,728										10,728	10,728	
149	012406	15		4,470							463	463		5,396	4,470	926
150	062822	14		4,172							463	463		5,098	4,172	926
151	040671	15		4,470							403	403		5,276	4,470	806

SUMMARY OF SERVICES AND COSTS FOR FY 1980 OFF-ISLAND PATIENT REFERRALS

EXHIBIT II

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CONT. NO.	PATIENT HOSPITAL NO.	IN-PATIENT LOS	OUT-PATIENT TREAT.	ALL INCL. RATE	ROUTINE CHG.	ANC. CHG.	DRUGS/SUPPLIES	OUT-PATIENT CHG.	PHYS. CHG.	OTHER CHG.	PATIENT TRANS.	ESCORT TRANS.	ESCORT PER DIEM	TOTAL COST	PATIENT SERV.	TRANS.
152	061145	10	1	\$ 2,980	\$	\$	\$	\$ 29	\$	\$	\$ 40	\$ 403	\$	\$3,452	\$ 3,009	\$ 443
153	022668		1					29			403	403		835	29	806
154	033006	4		1,192							266	403		1,861	1,192	669
155	003100	18		5,364							403			5,767	5,364	403
156	017563	13		3,874							403	403		4,680	3,874	806
157	011569	4		1,192							403			1,595	1,192	403
158	029478		1					29			403			432	29	403
159	018802	10	5	2,538				125						2,663	2,663	
160	071276		2					50						50	50	
161	020207	16		4,048										4,048	4,048	
162	021869	2		506										506	506	
163	004615	11		2,783										2,783	2,783	
164	013086	13		3,289										3,289	3,289	
165	022848	11		2,783										2,783	2,783	
166	070397	23		5,819										5,819	5,819	
167	022507	34		8,602										8,602	8,602	
168	067329	33		8,349									346	8,695	8,349	346
169	051621	19		4,807										4,807	4,807	
170	022066	13	1	3,289						123				3,412	3,412	
171	019411	15		3,795										3,795	3,795	
172	070614	22		5,566										5,566	5,566	
173	022176	20		5,060										5,060	5,060	
174	067660	22		5,566							643			6,209	5,566	643
176	068846	132		1,386										1,386	1,386	
177	UNK.		2					58						58	58	
Total before Adj.		3,786	716	\$1,006,401	\$ 21,753	\$ 18,025	\$ 3,604	\$30,353	\$15,599	\$17,980	\$ 62,868	\$ 32,679	\$ 2,217	\$1,211,479	\$1,113,715	\$ 97,764
Tripler Adj. *				(111,555)										(111,555)	(111,555)	
TOTAL		3,786	716	\$ 894,846	\$ 21,753	\$ 18,025	\$ 3,604	\$ 30,353	\$ 15,599	\$ 17,980	\$ 62,868	\$ 32,679	\$ 2,217	\$1,099,924	\$1,002,160	\$ 97,764

\*Tripler Army Medical Center Adjustment to the all inclusive inpatient rate to correct for overcharges in FY 1980

contains data on each occasion of service for a referral: for example, the dates of inpatient admission and discharge, length of inpatient stay, outpatient treatments, etc. Using these data in Exhibit II and Appendix A, the following are the key financial and utilization findings.

1. Patients Referred Off-Island in Fiscal Year 1980

In FY 1980 there were 156 patients referred off-island. Of these, 36 or 23 percent received outpatient services only, while the remainder, 120 or 77 percent, received inpatient as well as some outpatient services, based on billing information.

2. Inpatient Utilization

The 120 inpatients incurred 3,786 hospital days in FY 1980. During the same period LBJ provided approximately 27,700 inpatient days on-island. Thus, the off-island referrals represent 14 percent of the on-island case load.

With the exception of 132 days of long-term psychiatric care for one ASG patient at the Hawaii State Hospital, all of the remaining 3,654 days were provided in an acute care setting. Of these, the great majority were provided by the Tripler Army Medical Center and its military affiliate. These are summarized below:

	<u>Provider</u>	<u>IP Days</u>	<u>Percent</u>
.	Tripler	3,512	93%
.	Hawaii State Hospital	132	3
.	Rehabilitation Hospital of the Pacific	105	3
.	St. Francis	20	1
.	Kapiolani-Childrens	14	-
.	Queens	<u>3</u>	<u>-</u>
	<b>TOTAL</b>	<b><u>3,786</u></b>	<b><u>100%</u></b>

3. Inpatient Average Length of Stay (ALOS)

The ALOS for the 120 patients referred off-island during the study period was 31.6 days. The ALOS per admission is approximately a third less when we consider that the 120 patients had 165 distinct hospital admissions, which results in an average of 23 days per hospital admission.\* The following shows a comparison of this high ALOS with selected providers and areas for the 1979-1980 time frame:

	<u>Hospital Setting or Area</u>	<u>ALOS Per Admission</u>
.	ASG Referrals	23
.	Tripler (all patients)	8 to 9
.	Metropolitan Honolulu (all patients)	6.8
.	LBJ (all patients)	6
.	West Coast U.S. (all patients)	5.6

Of the 165 hospital admissions, 158 were to Tripler where the ALOS for ASG admissions was 22.2. 17 patients had stays of more than 50 days for a single admission and one ASG patient stayed 220 days. Because the high ALOS for ASG referrals has such a dramatic impact on the patient and costs, this subject will be addressed further in this chapter and in those dealing with recommendations.

Data on the diagnosis and other characteristics of the inpatient referrals were available from two sources: the providers' invoices and from the LBJ medical records. But, neither presents a com-

\*The ALOS would be at least one day more if FY 1979 and FY 1981 days were added to the FY 1980 days for those same admissions in the hospital in FY 1980.

plete diagnostic profile of all FY 1980 referrals. Data from the LBJ medical records, however, were considered by the study team to contain the more complete and accurate information. This information will be presented and discussed in detail in Section C of this chapter, Medical Education of the Referral Case Load.

4. Outpatient Treatments

Using a rather broad definition, there were 716 outpatient treatments provided to the ASG referrals in FY 1980. These are categorized as follows:

<u>Outpatient Services</u>	<u>Treatments</u>
. Renal Dialysis Related	275
. Protheses and Fittings	7
. Ambulance Services	5
. Physician and Outpatient Clinic Visits	<u>426</u>
<b>TOTAL</b>	<b><u>713</u></b>

Tripler provided the majority of the non-dialysis related outpatient visits, 327 visits in FY 1980. In addition, there were three referrals receiving mortuary services.

5. Overall Costs of Off-Island Referrals

Using the accrual and costing approach described in Section A, 2 of this chapter, the cost of off-island referrals in FY 1980 was \$1,099,924 or \$1.1 million rounded. The Department of Health expenditures in the same year amounted to approximately \$6.6 million and off-island care represented almost 17 percent of the Department's total budget.

Of the total off-island care costs, approximately \$1,002,000 or 91 percent was for patient care while the remainder of \$98,000 or 9

percent was for patient and escort transportation and per diem.

Exhibit III, following this page, contains a summary of the major cost components. From this it can be seen that inpatient care accounts for the great majority of the total costs — 85 percent or \$934,624 for inpatients receiving the all inclusive rate from Tripler for routine, ancillary and physician costs plus the other routine and ancillary services billed separately by other providers (approximately \$13,000 of the physician cost is also for inpatient services.)

The following categorizes the patient care costs by provider and shows the significance of Tripler:

	<u>Provider</u>	<u>Amount</u>	<u>Percent</u>
.	Tripler*	\$ 908,919	91%
.	Rehabilitation Hospital*	29,820	3
.	St. Francis*	25,600	3
.	Queens*	22,317	2
.	Kapiolani-Childrens*	6,275	1
.	Physician-Outpatient	2,408	-
.	Protheses	2,140	-
.	Mortuary Services	1,545	-
.	Hawaii State Hospital*	1,386	-
.	Radiology-Outpatient*	957	-
.	Ambulance Service	503	-
.	Nephrology Associates-Outpatient	253	-
.	EKG-Outpatient	<u>37</u>	<u>-</u>
	<b>TOTAL PATIENT CARE</b>	<b><u>\$1,002,160</u></b>	<b><u>100%</u></b>

\*Includes physican costs.

## EXHIBIT III

**MAJOR COST COMPONENTS OF OFF-ISLAND REFERRALS**  
**IN FISCAL YEAR 1980**

<u>Cost Component</u>	<u>FY 80 Cost</u>	<u>Percent</u>
. All Inclusive Inpatient Rate	\$ 894,846	81%
. Routine	21,753	2
. Ancillary	18,025	2
. Drugs & Supplies	3,604	-
. OP	30,353	3
. Physician	15,599	1
. Other Patient Care	17,980	2
. Patient Transportation	32,679	6
. Attendant Transportation	32,679	3
. Attendant Per Diem	<u>2,217</u>	<u>-</u>
<b>TOTAL FY 80 COST</b>	<b><u>\$1,099,924</u></b>	<b><u>100%</u></b>
. Patient Care	1,002,160	91
. Travel	<u>97,764</u>	<u>9</u>
<b>TOTAL PATIENT CARE</b>	<b><u>\$1,099,924</u></b>	<b><u>100%</u></b>
. Inpatient Care	957,434	95
. Outpatient Care	<u>44,726</u>	<u>5</u>
<b>TOTAL PATIENT CARE</b>	<b><u>\$1,003,924</u></b>	<b><u>100%</u></b>

6. Costs Per Patient Admission and Patient Day

The following summarizes average costs from several perspectives:

<u>Unit of Measure</u>	<u>Average Cost</u>		
	<u>Patient Care</u>	<u>Travel</u>	<u>Total</u>
• Per Inpatient (120)	\$7,979	\$ 627	\$8,606
• Per Patient Day (3,786)	\$ 253	\$ 20	\$ 273
• Per Admission (165)	\$5,803	\$ 456	\$6,259

As with all averages, consideration should be given to those items outside of the average and the reasons for the deviations. For example:

- The highest cost for inpatient care was \$65,660 for a 220 day stay by one patient, while the lowest was \$153 for a one day stay.
- The average cost per day at the Hawaii State Hospital was \$10.50, but \$254 at Tripler and \$441 at the other Honolulu hospitals.
- The average cost per admission at Tripler was \$5,655, but \$10,431 at the other Honolulu hospitals.

7. Medicare Off-Island Referrals and Reimbursement Implications

In FY 1980 there were 13 patients referred to Tripler who were eligible for Medicare benefits. These patients stayed 322 days and were charged \$81,885 for patient services, after adjusting for the FY 1980 rate reduction at Tripler. This would have been the amount to be claimed for reimbursement if Tripler were certified for participation in the Medicare program (Tripler officials reported they are ineligible to participate in the Medicare or Medicaid programs). A further analysis was performed, which is shown in

Appendix B, in order to determine if LBJ would have lost reimbursement for these patients because they had used their allotted Medicare benefit period service days while an inpatient of Tripler and then admitted to LBJ, or if they had used some or all of their service days at LBJ, thus reducing or eliminating the potential for Medicare reimbursement at Tripler (if they were Medicare certified). Computer abstract or medical records were available for all of the 13 patients and LBJ admission, discharge and LOS data were extracted for these. These were compared with the Tripler data and the Medicare service day rules. The result of this analysis was that LBJ would have lost an estimated \$3,160 in Medicare reimbursement for these patients but that the net gain to ASG would have been \$78,695 (\$81,855-3,160), if Tripler were Medicare certified.

Since Tripler is not now, nor will be Medicare certified, a further analysis was performed to estimate what the cost impact would have been if these patients had been treated by a certified provider. This analysis, which is also shown in Appendix B, used the ALOS for Medicare patients in Honolulu facilities with the same diagnosis as the ASG referrals, and estimates were made of the provider's routine, ancillary and physician charges adjusted for the Medicare contractual allowances for inpatient care and Medicare reimbursement of usual and customary for physician services. The result of this analysis was that ASG would have saved or offset approximately \$66,000 (81 percent) by having Medicare reimburse the care for these patients. This substantial estimated savings is a result of a combination of factors: (1) lower ALOS than at Tripler; (2) higher

averaged cost per day than at Tripler; (3) lower cost per case than at Tripler; and (4) Medicare reimbursement of all the charges except 20 percent of the charges and 40 percent of the physician fees, which in total are estimated at approximately \$13,000. Even if there were a combined adverse error of 25 percent in all of the assumptions used in these estimates, the savings would still have been \$50,000 in FY 80 and more in future years as the rates charged by Tripler to ASG continue to increase.

8. Implications of ALOS on Inpatient Costs

One of the factors contributing to the Medicare cost situation, discussed above, is the difference between the ALOS at Tripler versus the experience of other Honolulu providers participating in the Medicare program who have a utilization review (UR) committee and a Professional Service Review Organization (PSRO) program to monitor length of stay as well as inpatient admissions. An analysis was performed to determine what the cost impact might be if all ASG referrals achieved the ALOS at Hawaii providers with such UR and PSRO programs.

To estimate the ALOS for ASG referrals under these conditions, we used data from the Pacific PSRO in those cases where its ALOS experience for Medicaid patients corresponded to the admitting diagnosis of the ASG referrals. A simple average of those ALOS showed that there would have been an ALOS of slightly less than 8 days. Using the same costing factors as for the Medicare estimates, as shown in Appendix B, resulted in an estimate of \$3,432 per ASG admission in a representative Honolulu hospital in FY 1980, which is considerably more favorable than the \$5,655 per

admission experienced at Tripler in FY 1980. Viewed another way, the cost per admission at Tripler could approach the \$3,400 estimated if the Tripler ALOS were reduced by 40 percent.

The reader should be cautioned that we have not assured that the average cost per admission would have been \$3,400 if the ASG referrals had been admitted to the other Honolulu hospital. Assurance is not possible because of uncertainty regarding the actual length stay that would have been experienced in other hospitals by ASG referrals, who might be considered generally "sicker" than the Medicaid admissions, and because of uncertainties regarding the actual hospital and physician costs. However, these estimates do indicate that ALOS has a dramatic impact on the average cost per admission even though Tripler has a lower cost per day than the other providers in Honolulu.

We discussed the ALOS findings with the key Tripler officers responsible for the treatment of ASG referrals. They believed the situation was due to:

- . The ASG referrals are in general "sicker" than most of their admissions by the very fact that they are referrals from another medical care facility.
- . For those ASG referrals that will need outpatient follow-up treatment after inpatient discharge, they are housed and fed in Tripler guest quarters if available. These facilities, however, are often at capacity with other personnel. In those cases, Tripler physicians are reluctant to discharge Samoans into the community at large if they are not sure the patients will be properly housed, fed and returned for their outpatient treatments.
- . Tripler does not have a formal program of utilization review to monitor inpatient LOS, nor is one planned in the future. Such a program in the other settings has proven an effective process in reducing the LOS without affecting the quality of care.

In further discussions with Tripler officials, they felt that if ASG had a part-time physician who would perform utilization review for ASG inpatients on a collegial relationship with Tripler physicians and an outpatient social services coordinator of housing, meals and transportation, that it would be reasonable to estimate a 30 to 40 percent reduction in the ALOS for ASG inpatients.

9. Costs for Off-Island Outpatient Care in FY 1980

As shown on Exhibit III, outpatient care amounted to approximately \$45,000 or 5 percent of the total patient care costs. The average cost per treatment of the various outpatient services is summarized as follows:

<u>Outpatient Service</u>	<u>Average Cost</u>
. Renal Dialysis Related	\$ 62
. Protheses and Fittings	\$306
. Mortuary Services	\$515
. Ambulance Services	\$101
. Physician and Outpatient Clinic Visits	\$ 36

10. Travel and Per Diem Costs

Travel and per diem accounted for approximately \$98,000 or 9 percent of the total referral costs in FY 1980, which is summarized below:

<u>Cost Component</u>	<u>Amount</u>	<u>Percent</u>
. Patient Transportation	\$62,868	64%
. Escort Transportation	32,679	34
. Escort Per Diem*	<u>2,217</u>	<u>2</u>
<b>TOTAL</b>	<b><u>\$97,764</u></b>	<b><u>100%</u></b>

\*When patients incurred per diem costs for housing and food, these were excluded under "other patient care costs;" see column 19, Exhibit I.

A review of the travel data shows that:

- . Patients traveled with escorts 55 times or approximately one third of the time.
- . Approximately one-fourth or 42 of the referred patients received services but ASG did not pay for their transportation as a cost saving measure arranged by LBJ administration.
- . Approximately 10 percent or 14 patients had their transportation paid by ASG but incurred no service charges because they received free or virtually free care as veterans or their dependents, or were contract personnel, as reported by LBJ administration.

11. Other Findings

Four of the FY 1980 referrals were coded on the computerized LBJ discharge abstracts as non-residents, whose care is not normally paid for by ASG. Three of these were apparently coding errors, as LBJ administration reported these referrals were in fact American Samoans. The fourth was apparently a case of charity and compassion authorized by ASG. LBJ administration reports that in such cases as these, which are very infrequent, attempts are first made to have church or civic groups defray the off-island costs for the non-residents before ASG authorization is sought.

Although demographic data were not available on all referrals (available for approximately two-thirds of the patients), some interesting profiles do emerge:

- . Two-thirds are married, almost one-third single, while the remainder are either divorced or widowed.
- . Villages with the highest referrals were:
  - Leone, 12 percent.
  - Nu'uuli, 10 percent.
  - Fagatogo, 8 percent.
  - Aua, 6 percent.
  - Atu'u, 6 percent.
  - Utulei, 5 percent.

The age and sex of the inpatient referral, whose LBJ medical records were available, are summarized below. Their profile closely approximates the age/sex distribution for LBJ inpatient admissions.

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Percent</u>
Under 1	5	-	5	5
1-4	5	3	8	9
5-14	4	3	7	8
15-44	18	16	34	37
45-64	15	12	27	29
65+	<u>10</u>	<u>1</u>	<u>11</u>	<u>12</u>
<b>TOTAL</b>	<u>57</u>	<u>35</u>	<u>92</u>	<u>100%</u>
<b>Percent</b>	<u>62%</u>	<u>38%</u>	<u>100%</u>	

**C. KEY FINDINGS FROM THE MEDICAL CARE REVIEW AND EVALUATION**

The physician member of this study team conducted an evaluation of the referrals. In addition to the review of the on-island resources and capabilities, the following data were collected and analyzed in order to provide information on the kinds of health problems referred off-island, and the need and appropriateness of such referrals.

. A review of the LBJ Hospital and other clinical records of the patients treated off-island in FY 1980 produced the:

- Patient Name,
- Hospital Number,
- Sex,
- Diagnosis,
- Stated Reason for Off-Island Referral,
- Estimate of the Severity of the Health Problem,
- Ranking of the Priority or Need for Referral,
- The above were combined with the length of stay data in Exhibit II.

. A partial review of the records of death in 1980.

Although billing records indicate that costs were incurred by ASG for health services provided off-island in FY 1980 for 156 persons, patient records could only be found for 124 or 80 percent of these individuals at LBJ. Presumably, the records not immediately available were in use in clinics or elsewhere, or the patients were self-referred, or there is no history on these patients even though referred by ASG.

Of the 124 charts examined, 92 patients or 74 percent had inpatient stays as evidenced by the charges in the billing records. Of the remaining 32 patients, 20 or 63 percent received only outpatient services off-island. This leaves 12 patients or 10 percent of the total of 124 whose type of off-island care was not clearly documented in the charts, that is, whether as in or outpatients.

The great majority of patients who received inpatient services off-island did so for a single bout of illness. In some instances, patients had several admissions interspersed with periods of stays out of the hospital, often

in the guest quarters of Tripler Army Medical Center.

Given these circumstances and the data base described in the previous paragraphs, the following are the key findings of the medical care review and evaluation of the referred patients.

1. Review and Evaluation of the On-Island Health Status, Capabilities and Resources

American Samoa has a population of approximately 32,500, the majority of whom are under the age of 15 years. Health care is centralized at the LBJ Tropical Medical Center in the DOH, which provides the territory's medical care (curative services) and the great majority of its preventive services. A number of dispensaries are dispersed on the island, but generally these offer little health care and are poorly utilized.

LBJ is a general, acute care hospital of 151 beds, comprised of 72 medical/surgical beds, 42 pediatric beds and 37 beds for obstetrics. The hospital averages around 4,500 admissions per year, 27,500 patient days per year, has an occupancy rate of about 50 percent, and an ALOS of approximately 6 days. Hospital admissions, off-island referrals for medical care and deaths are events which primarily affect the male population — the ratio being approximately two-thirds male and one-third female. Life expectancy at birth is somewhat below that of the United States overall, but is higher than that in the U.S. for the non-white U.S. population.

Leading causes of death in American Samoa show significant differences from that in the U.S. One-third of infant deaths are due to prematurity. Gastroenteritis, congenital defects and asphyxia

and cerebral anoxia account for another third. The preponderance of deaths from these conditions suggest that maternal and child health and other basic preventive health services need strengthening and possibly decentralizing.

The pattern of adult deaths is similar to that in developed countries, but with trauma being a particularly frequent cause of death. Trauma is also the commonist cause for hospitalization, followed by infectious and respiratory diseases. The population also has an inordinate amount of gout and diabetes. Respiratory symptoms, trauma and skin diseases are the most frequent reasons for out-patient visits at LBJ.

LBJ is under the general direction of the Director of Health of American Samoa. A trained hospital administrator manages the facility and a medical doctor, who has lived in American Samoa for many years, functions as the deputy director of DOH and as the senior physician in the hospital.

As of August 13, 1981, the LBJ medical staff consists of 13 full-time Samoan medical officers (MOs) who are non-MDs, and 8 long-term contract medical staff. In the staff presently under contract, there is one Samoan MO and 7 MDs, or the equivalent. The MDs include a surgeon, OB/GYN specialist, pathologist — all board certified — as well as a pediatrician, two family practitioners and an internist. This staff is augmented by physicians on short-term assignments, from two weeks to three months, who are obtained from a variety of sources. The authorized and budgeted medical staffing level of the hospital is 18 medical doctors with the following distribution:

- . 3 Surgeons: Board Certified or Eligible.
- . 3 Internists: Board Certified or Eligible.
- . 3 Pediatricians: Board Certified or Eligible.
- . 1 Radiologist: Board Certified or Eligible.
- . 1 Eye Specialist: Board Certified or Eligible.
- . 1 Pathologist: Board Certified or Eligible.
- . 3 OB/GYN: Board Certified or Eligible.
- . 3 Emergency or Family Practice Physicians (Optometrists and other specialists are also authorized).

In the opinion of the physician member of this study team, the LBJ Tropical Medical Center has considerably greater capabilities and resources than are generally found in a remote area serving a population the size of that in American Samoa. The physical facility and equipment available permit the provision of quality primary, most secondary and some tertiary care. Particularly impressive is the clinical laboratory and related services. Radiology includes equipment to perform basic x-ray examinations and ultra sound imaging. The hospital is unable to carry out angiography and examinations utilizing radio-isotopes. The demand for these studies would be very small based on the Territory's population, and patients requiring these examinations would best be referred off-island. The absence of a qualified radiologist impairs the hospital's function. From the equipment side, the lack of a working cystoscope appears to be the most significant need. Serious efforts are being made to overcome these constraints and, in addition to a radiologist, an ophthalmologist is being sought.

The hospital, as equipped and staffed, is not able to provide definitive care for many malignancies, cardiac cases requiring open heart surgery, and, in this population, many other infrequently encountered medical problems. Persons with these difficulties are referred off-island for care.

2. Priority (Need) for Referral and Source of Referral

To assess the priority or the need for referral for off-island care, a priority ranking was established, as follows:

1 - High Priority Life threatening or significant organ threatening health problems for which there is no adequate health care resource on-island.

2 - Medium Priority Acute or chronic health problems of relatively serious nature for which there is no adequate health care resource on-island.

3 - Low Priority Chronic health problems, at least partially disabling, for which adequate health care resource are not available on-island.

4 - Referral Not Justified Health problem of insufficient severity to warrant off-island referral.

In addition to this priority ranking, the referral was noted with the following designations:

? Need for the referral is unclear. In addition to this priority ranking, the source of the referral was noted with the following designations:

I Referred off-island from an inpatient status at LBJ.

O Referred off-island by an outpatient clinic at LBJ.

? Source of the referral is unknown.