

**DIVISION OF HEALTH PLANNING  
AND RESOURCE DEVELOPMENT  
MAY 2004**

**CON REVIEW HG-MME-0304-006  
FORREST GENERAL HOSPITAL  
UPGRADE OF EXISTING LINEAR ACCELERATOR EQUIPMENT/SERVICES  
TO ALLOW INTENSITY MODULATED RADIATION THERAPY (IMRT)  
CAPITAL EXPENDITURE: \$3,417,986  
LOCATION: HATTIESBURG, MISSISSIPPI**

**STAFF ANALYSIS**

**I. PROJECT SUMMARY**

A. Applicant Information

Forrest General Hospital (FGH) is a short term, acute care, not-for-profit, public facility owned by Forrest County. FGH is governed by a seven-member Board of Trustees. FGH is accredited by the Joint Commission on Accreditation of HealthCare Organizations.

FGH is currently licensed to operate a total of 504 beds, which include 40 adult psychiatric beds, 16 adolescent psychiatric beds, 26 adult chemical dependency beds, 6 adolescent chemical dependency beds, 396 general medical and surgical beds, and 20 rehabilitation beds. FGH's occupancy rates, average lengths of stay (ALOS), and Medicaid utilization rates for the three most recent fiscal years for the medical/surgical beds only are shown below:

**Utilization Data  
Forrest General Hospital**

<b>Fiscal Year</b>	<b>Occupancy Rate (%)</b>	<b>ALOS (Days)</b>	<b>Medicaid Utilization Rate (%)</b>
2001	72.08	4.57	18.8
2002	64.70	4.72	12.1
2003	61.24	4.59	29.2

Source: Division of Health Facilities Licensure and Certification, MSDH.

B. Project Description

FGH requests Certificate of Need (CON) authority to upgrade its existing linear accelerator equipment/services at the hospital's cancer center. FGH's cancer center currently has two (2) varian model number 2100 linear accelerators. Each of the existing units has dual photon capabilities (15MV and 6MV). This proposed project will upgrade these existing units to allow for the new treatment modality (**intensity modulated radiation therapy**) in the cancer center. The proposed project will not replace or add any additional linear accelerator units to the hospital. According to the applicant, no new construction or renovation is involved in the project.

The following provides detailed characteristics of the intensity modulated radiation therapy (IMRT) proposed in this project:

FGH asserts that IMRT utilizes a highly precise radiation system to deliver carefully calculated beams of intense radiation directly into a tumor. Successful IMRT depends both on specialized equipment and on a highly trained team of physicians, physicists, and technologists. Twenty-First Century Oncology has acquired this equipment and FGH has assembled such a team to use this proposed intensity modulated radiation therapy equipment.

IMRT is delivered by specially equipped linear accelerators guided by a revolutionary computer system. After a comprehensive series of tests and evaluations, each patient's unique and complex data are programmed into the IMRT computer to create the ideal treatment plan. The beam itself is shaped by the linear accelerators 120 computer-controlled "fingers" and can be directed on a 360-degree axis. The painless procedure is repeated in a series of outpatient visits, enabling patients to return to the privacy of their own homes after each treatment.

Further, FGH indicates that the pinpoint accuracy of the IMRT beam has several vital advantages for cancer patients, the most significant being its ability to maximize the dose of radiation to the cancerous tumor while sparing surrounding health tissue from unnecessary exposure. IMRT technology is so advanced that it can be programmed to actually wrap and angle beams of radiation around normal tissue and organs, protecting the "good cells" as it destroys the tumor. As such, IMRT patients typically experience fewer side effects of high-dose radiation, which helps them to remain stronger and lead a more normal lifestyle during treatment.

The applicant asserts that the IMRT equipment acquisition for the proposed project would be as follows:

<b>Fixed Equipment</b>	<b>Non-Fixed Equipment</b>
Multileaf Collimator X2 Portal Imaging X2 HDR Treatment	Therapy Planning Computer System Remote Planning Computer System Therapy Planning Software Application and Imaging Licenses 4D Integrated Treatment Console Database Server Image File Server Water Phantom 4 Year Extended Service Contract

FGH indicates that the proposed project will have no impact on the hospital's licensed beds and no changes in the range, level, or types of services.

The total proposed capital expenditure is \$3,417,986; for fixed equipment - 47.23 percent, non-fixed equipment - 43.99 percent, and contingency reserve - 8.77 percent. The applicant indicates that the proposed capital expenditure will be funded through accumulated cash reserves.

The applicant indicates that the proposed project shall be obligated within 30 days of the approval of the CON and it is expected that this project shall be completed within approximately three months of the date of the initial approval.

## II. TYPE OF REVIEW REQUIRED

This application for acquisition of major medical equipment is reviewed in accordance with Section 41-7-191, subparagraphs (1)(j), of the Mississippi Code of 1972, Annotated, as amended, and duly adopted rules, procedures, plans, criteria and standards of the Mississippi State Department of Health.

In accordance with Section 41-7-197(2) of the Mississippi Code of 1972 Annotated, as amended, any affected person may request a public hearing on this project within 20 days of publication of the staff analysis. This opportunity to request a hearing expires on June 3, 2004.

**III. CONFORMANCE WITH THE STATE HEALTH PLAN AND OTHER ADOPTED CRITERIA AND STANDARDS**

**A. State Health Plan**

The **FY 2004 State Health Plan** addresses policy statements and specific criteria and standards which an applicant is required to meet before receiving CON authority for the acquisition or otherwise control of therapeutic radiation equipment and/or the offering of therapeutic radiation services. However, FGH is a current provider of the referenced services. The applicant proposes to upgrade its existing therapeutic radiation equipment/services. This application is in substantial compliance with the overall objectives of the **Plan**.

**B. General Review (GR) Criteria**

Chapter 8 of the **Mississippi Certificate of Need Review Manual**, 2000 revisions, addresses general criteria by which all CON applications are reviewed. This application is in substantial compliance with general review criteria.

**GR Criterion 2 - Long Range Plan**

According to the applicant, the proposed project has been approved by the hospital's Board of Trustees and is consistent with the hospital's long range plan.

**GR Criterion 3 - Availability of Alternatives**

According to the applicant, the first alternative was to do nothing and continue to treat patients with FGH's existing equipment. This idea was considered and found to be unacceptable for the cancer center of excellence. This upgrade will not only provide the most current treatment but will prevent the hospital's patients from traveling outside of the local service area to receive treatment. FGH believes that the proposed project is the best alternative to meet the growing needs of quality and efficiency in patient care.

**GR Criterion 4 - Economic Viability**

Three year operating projections reflect a first year loss of \$6,487, a second year loss of \$10,388, and a third year profit of \$18,842, respectively, for the proposed project.

FGH's Chief Financial Officer indicates that sufficient funds exist and will be generated to meet FGH's operating expenses, working capital needs and other financial requirements during the projection period.

**GR Criterion 5 - Need for the Project**

According to the applicant, FGH has been a leader in treatment of cancer for more than thirty years to the residents of South Mississippi. In 1997, the hospital created a center of excellence for cancer services, which was a further commitment to improving the quality of services.

The applicant asserts that the FGH built a new cancer center in 2000, which has more than 34,000 square feet of clinical, waiting and physician office space. At that time the hospital purchased the latest "state-of-the-art radiation and treatment planning equipment. On the second floor of the facility the Hattiesburg Clinic Medical Oncologists have slightly over 9,000 square feet of space, which includes six (6) exam rooms, twelve (12) chemotherapy infusion stations, four(4) physician offices and ancillary support space. In 2001 the hospital added a prostate seed program and has administered more than 100 procedures.

FGH indicates that justification for the upgrade of existing linear accelerator equipment/services at the hospital is driven by the following issues:

### **Advantages of Intensity Modulate Radiation Therapy**

Compared to the traditional radiation therapy, the advantages of IMRT include:

- Decreased chance of harming normal cells.
- Decreased radiation dosage to sensitive surrounding tissue.
- Higher radiation dosage to cancer cells.
- Precise radiation distribution.
- Increased chance of destroying cancer cells.

### **Quality of Care**

The mission of Forrest General Cancer Center is to provide the South Mississippi community with the state-of-the-art cancer therapy at home. IMRT targets cancer cells while limiting radiation to important normal tissues. IMRT is a powerful cancer-fighting technology available in all major cancer centers throughout the United States. Over the next few years FGH is expected to completely replace the conventional method of radiation therapy delivery. FGH asserts that it wants to provide the best possible radiation therapy services the hospital can offer its patients in the seventeen (17) county area.

### **Risk Management**

FGH asserts that the multileaf collimator will be used with over 95 percent of FGH's patients, so they will replace the custom cerrobend blocks that it currently fabricates for each patient. This will eliminate the risk of injury to the patient and personnel handling these quite heavy blocks. It will shorten the patient's setup as they get positioned once per session rather than multiple times. The multileaf collimator eliminates the need for clinicians to enter and leave the treatment room numerous times to insert and move the lead bean-shaping blocks.

### **Volume**

The applicant asserts that the **State Health Plan** shows FGH is the leading provider of megavolt visits in General Hospital Service Area 6 (11,555 visits for FY 2001). This is more than the three times the volume of the other treatment centers in the service area. FGH anticipates to use IMRT on approximately 30 percent of its population in the IMRT treatment categories.

FGH projects to perform 1,413 IMRT procedures the first year of operation, 1,533 the second year and 1,653 the third year.

The **FY 2004 State Health Plan** shows the following megavoltage visits for General Hospital Service Area 6 for FY 2001 and 2002:

Facility	Megavoltage Therapeutic Radiation Services/Visits for Fiscal Year 2001	Megavoltage Therapeutic Radiation Services/Visits for Fiscal Year 2002
Forrest General Hospital, Hattiesburg	11,555	12,393
South Central MS Cancer Center, Laurel	3,393	3,561
<b>Total Number of Treatments</b>	<b>14,948</b>	<b>15,954</b>

**Source:** Applications for Renewal of Hospital License for Calendar Years 2002 and 2003 and Fiscal Years 2001 and 2002 Annual Hospital Reports

The application contains six (6) letters of support/comments.

**GR Criterion 6 - Access to the Facility or Service**

Applicant asserts that FGH serves all of the population, including low income, racial and ethnic minorities, women, and handicapped persons. The applicant indicates that the hospital is located in an area which is proximal to this group of people and they are familiar with the hospital. FGH submits that it ranks fourth in the state in the number of visits for FY 2001.

Applicant provided the following percentage of gross patient revenue to charity/indigent patients for the past three years: 2000 -2.4 percent; 2001 - 2.8 percent; and 2002 - 5.3 percent. The applicant projects that it will provide approximately 2.7 percent charity/indigent care.

**GR Criterion 7 - Information Requirement**

FGH affirms that it will record and maintain the requested information and make it available to the Mississippi State Department of Health within 15 days of request.

**GR Criterion 8 - Relationship to Existing Health Care System**

Forrest General Hospital is located in General Hospital Service Area 6 (GHSA), which contains 1,194 licensed acute care beds distributed among eight (8) hospitals.

This application does not propose an increase in acute care beds or services in General Hospital Service Area 6; therefore, staff concludes that this project should have no adverse affect on other providers in the referenced service area.

**GR Criterion 9 - Availability of Resources**

The applicant projects no increase in FTE personnel as a result of this proposed project.

**GR Criterion 10 - Relationship to Ancillary or Support Services**

The applicant indicates that the ancillary or support services will not be affected as a result of the project.

**GR Criterion 16 - Quality of Care**

Forrest General Hospital is in compliance with the **Minimum Standards of Operation for Mississippi Hospitals**, according to the Division of Health Facilities Licensure and Certification.

**IV. FINANCIAL FEASIBILITY**

A. Capital Expenditure Summary

Fixed Equipment	\$1,614,196
Non-Fixed Equipment	\$1,503,790
Contingency Reserve	\$ 300,000
<b>Total Proposed Capital Expenditure</b>	<b>\$3,417,986</b>

The above estimated capital expenditure is proposed for the purchase of various fixed and non-fixed equipment and contingency reserve for the proposed project.

The applicant submitted the following depreciation schedule:

Description	Cost	Method of Depreciation	Useful Life	Annual Depreciation Expense
Varian Oncology System-1999	\$3,417,986	S/L	5 Years	\$683,597
<b>Total</b>	<b>\$3,417,986</b>			<b>\$683,597</b>

B. Method of Financing

The applicant proposes to finance the proposed capital expenditure through accumulated cash reserves. The application contains supporting documentation.

The applicant provided a financial feasibility study documenting FGH's ability to fund the project.

C. Effect on Operating Cost

The applicant projects the following expenses, utilization, and results from operation for the first three years following completion of the proposed project:

Expenses	Year 1	Year 2	Year 3
Contractual Services	\$ 30,000	\$25,000	\$ 20,000
Travel & Education	\$ 20,000	\$ -0-	\$ -0-
Leases & Rentals	\$ 26,616	\$ 26,616	\$ 26,616
Interest Expense	\$114,107	\$ 90,952	\$ 66,722
Insurance	\$ 10,000	\$ 10,000	\$ 10,000
Depreciation & Amortization	\$683,597	\$683,597	\$683,597
<b>Repair &amp; Maintenance</b>	<b>\$ -0-</b>	<b>\$ 52,056</b>	<b>\$ 52,056</b>
<b>Total Expenses</b>	<b>\$884,320</b>	<b>\$888,221</b>	<b>\$858,991</b>

**Revenue**

<b>Total Pt. Rev.</b>	<b>\$2,000,357</b>	<b>\$2,000,357</b>	<b>\$2,000,357</b>
<b>Deductions</b>	<b>\$1,122,524</b>	<b>\$1,122,524</b>	<b>\$1,122,524</b>
<b>Total Operating Rev.</b>	<b>\$ 877,833</b>	<b>\$ 877,833</b>	<b>\$ 877,833</b>
<b>Net Incremental Income (loss)</b>	<b>\$ (6,487)</b>	<b>\$ (10,388)</b>	<b>\$ 19,842</b>

**Utilization, Cost and Charge**

<b># of IMRT Procedures</b>	<b>1,413</b>	<b>1,533</b>	<b>1,653</b>
<b>Cost/Per* Procedure</b>	<b>\$625.84</b>	<b>\$579.40</b>	<b>\$519.65</b>
<b>Charge/Per* Procedure</b>	<b>\$1,415.68</b>	<b>\$1,415.68</b>	<b>\$1,415.68</b>

The cost and charge per IMRT procedure were calculated by staff for the proposed project.

D. Cost to Medicaid/Medicare

The impact of the project on third party payers is as follows:

Patient Mix by Type of Payer	Utilization	First Year Cost
Medicaid	16.5	\$145,913
Medicare	43.7	\$386,448
Other Payer*	39.8	\$351,959
Total	100	\$884,320

\*The applicant projects 2.5 percent of gross patient revenues to be provided to charity, and 8.1 percent to bad debt patients.

V. **RECOMMENDATIONS OF OTHER AFFECTED AGENCIES**

The Division of Medicaid was provided a copy of this application for comment. Based on their analysis, Medicaid estimates the increased annual cost to Medicaid to be \$112,179 for inpatient hospital services. Any portion which may relate to outpatient services will be paid as outlined in the State Plan.

VI. **CONCLUSION AND RECOMMENDATION**

The project is in substantial compliance with the criteria and standards contained in the **FY 2004 State Health Plan; Chapter 8 of the Certificate of Need Review Manual**, 2000 revisions; and all adopted rules, procedures, and plans of the Mississippi State Department of Health.

The Division of Health Planning and Resource Development recommends approval of this application submitted by Forrest General Hospital.