

Title

## **EQUIPMENT UTILIZATION STUDY**

Report prepared for:

**AMERICAN SOCIETY FOR RADIATION ONCOLOGY**

August, 2009

through knowledge, confidence



**dmr**kynetec

1807 Park 270 Drive, Suite 300

St. Louis, MO 63146

Tel: 314 878 7707

Fax: 314 878 7616

[www.dmrkynetec.com](http://www.dmrkynetec.com)



## CONTENTS

1	INTRODUCTION.....	2
2	THE RESEARCH CHALLENGE .....	2
3	THE RESEARCH OBJECTIVES.....	2
4	METHODOLOGY .....	2
5	RESULTS .....	3

## **1 INTRODUCTION**

The American Society for Radiation Oncology (ASTRO) commissioned **dmrkynetec** to conduct a project designed to determine the daily utilization rates for the most costly equipment used to provide direct patient services at Freestanding Radiation Oncology (FSRO) centers.

## **2 THE RESEARCH CHALLENGE**

The purpose of the research project was to create a database detailing the 2008 equipment utilization rates at FSRO centers. Data on the daily utilization rates was collected for six different treatment modality categories, depending upon the services and equipment used at each individual center. These treatment modalities included:

- a. 3D Conformal
- b. IMRT
- c. IGRT
- d. SRT
- e. Brachytherapy
- f. Hyperthermia

## **3 THE RESEARCH OBJECTIVES**

This study was designed to address the following objectives to provide relevant information for meeting the research objectives proposed by ASTRO:

1. Determine how many treatment modality categories (among the 6 most common) that each FSRO center is providing.
2. Determine what type of equipment each center is using to provide the treatment modality categories that they are offering to patients.
3. Identify the number of pieces of equipment of each type that centers have on hand to provide patient treatment.
4. Determine how many hours per day each piece of equipment is typically in use.

## **4 METHODOLOGY**

The information for this study was collected using a CATI questionnaire. Interviewing was conducted between July 7, 2009 and July 23, 2009. The average interview took approximately 19 minutes to complete. Completed questionnaires were obtained from centers located in 29 states, and covered all major geographic areas of the country. The study did not utilize an incentive.



The primary targets for this study were FSRO center business managers, ROs, or other staff members who would have the most complete knowledge of the equipment and usage patterns at their center. The sample pool for the study consisted of 2,844 RO physicians provided by ASTRO. The list included both RO physicians providing patient services solely at FSRO centers, as well as those who practice both at FSRO and hospital based facilities.

The qualifications for participation included the following eligibility criteria:

- The managers and ROs were associated with a FSRO center (and excluded any information regarding their hospital based practices)
- The FSRO center managers and ROs could provide information regarding the equipment at the specific center they represented.
- That the information provided on the equipment in question represented only radiation oncology services, and not any other type of direct patient services provided at that center.

In addition, the sample plan for this quantitative study was designed to ensure:

- A representative distribution of FSRO centers in each of four major geographic areas of the US (Northeast, South/Southeast, Midwest and West).
- A mix of practice sizes, from solo ROs to multi-physician RO practices.

## 5 RESULTS

In the course of the project, **dmrkynetec** collected 103 questionnaires, all but one of which proved to be useable. Completed questionnaires were collected from FSRO centers that fit the following center profiles:

<u>Geographic Setting</u>		<u>Patients Served per week</u>	
Urban	35 (34%)	Less than 50	17 (17%)
Suburban	52 (51%)	50 – 199	53 (52%)
Rural	15 (15%)	200 or more	32 (31%)

The following tables present the results of the survey findings, based on the responses from 102 FSRO centers. The first table presents results of the equipment utilization in raw form (i.e., based on the hours that each center is actually open for receiving patients each day, as listed in the column labelled “Mean Center Hrs/Day”). The equipment has been collapsed across the number of machines and also across the six treatment modalities. While the second table is based upon the same data, the values have been prorated to a standard 10 hour day.

Equipment Utilization; Based on Actual Center Hours (number of hours open each day)

	Mean Hrs in Use/Day	Mean Center Hrs/Day	Equipment Usage
SRS system, Linac	4.0	9.5	42.1%
SRS system, SBRT, six systems, average	3.2	9.7	33.0%
Gammaknife	2.0	11.0	18.2%
Accelerator, 6-18 MV	4.7	9.2	50.1%
Accelerator, 4-6 MV	5.6	8.9	62.9%
Room, CT	4.0	9.4	42.6%
IMRT CT-based simulator	3.2	9.1	35.2%

Equipment Utilization; Prorated to a 10 Hour Day

	Mean Hrs in Use/Day (Original)	Mean Hrs in Use/Day (Prorated)	CMS Center Hrs/Day	Equipment Usage
SRS system, Linac	4.0	4.2	10.0	42.0%
SRS system, SBRT, six systems, average	3.2	3.3	10.0	33.0%
Gammaknife	2.0	1.8	10.0	18.0%
Accelerator, 6-18 MV	4.7	5.1	10.0	51.0%
Accelerator, 4-6 MV	5.6	6.3	10.0	63.0%
Room, CT	4.0	4.3	10.0	43.0%
IMRT CT-based simulator	3.2	3.5	10.0	35.0%