From: Anne Cooper
To: Constantino, Mike
Cc: Kara Friedman
Subject: [External] RE: 19-057 OSF
Date: Tuesday, January 28, 2020 3:03:29 PM
Attachments: image003.png

Mike,

Please see OSF's response below.

Thanks

Anne

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From: Constantino, Mike [mailto:Mike.Constantino@Illinois.gov]
Sent: Tuesday, January 21, 2020 9:58 AM
To: Anne Cooper
Subject: 19-057 OSF

EXTERNAL EMAIL **mike.constantino@illinois.gov**

Anne:

How does OSF determine which patients receive Proton Beam therapy as compared to radiation therapy? What

factors are used to determine these patients?

When considering any radiation treatment protocol, physicians assess the best therapy to provide the patient that therapeutic benefit (maximum tumor control) with the minimum amount of harm (reduced short and long term ill effects including potential of secondary tumors). To the extent proton beam therapy (PBT) is available, a plan for both traditional radiation therapy and PBT can be compared and analyzed in the context of the most current medical literature. A therapy is recommended taking into account an in-depth understanding of each patient's individual factors in consideration of research findings. Within that framework:

- PBT is an ideal treatment for pediatric patients with tumors located in or near the spinal cord and brain, eyes, ears, mouth, heart, lungs and intestines. Traditional radiation has more effect on rapidly growing tissues than mature tissues. While tumors are rapidly growing, so are most of the normal tissues of the pediatric patient population. PBT dramatically reduces the impact of radiation on normal tissue and thereby reduces hematologic complications, growth abnormalities of organs and bones, and preserves intellectual and academic function for patients needing partial brain radiation treatment.
- For adult patients, PBT is recommended where it can improve tumor control, reduce major side effects, or both. Areas of special focus of PBT include:
    - Prostate Cancer – PBT is recommended for a small number of cases with special needs due to specific tumor factors. Protons reduce the risk of rectal cancer induction to negligible levels.
    - Head & Neck Cancers – PBT usually eliminates the use of gastric feeding tubes. Further, the reduction of acute mucositis and long term mouth dryness leads to a dramatic improvement in patient compliance and long term quality of life. Patients needing simultaneous pre-operative chemotherapy and radiation for esophageal cancer are rarely able to complete a full course of treatment with traditional radiation therapy, but are usually able to do so with PBT.
    - Patients who previously received suboptimal radiation - PBT offers the opportunity for retreatment of many patients who received suboptimal radiation because the normal tissue doses can be strictly limited.

Provision of Proton Beam Therapy

- The amount of treatment fractions delivered depends on several factors. In general, most patients today receive ~25-35 fractions per course of therapy, which depends on the daily and total prescribed dose of radiation.
- Treatment courses are often customized for the patient depending on the type of indication. In general, most patients receive 1 treatment per day, 5 days per week for a period of 4-6 weeks. The number of weeks depends on the total radiation dose prescribed by the physician
- The average treatment time depends on the type of technology installed. For actively treating proton centers using the Varian ProBeam system (the proton beam system proposed for the Comprehensive Cancer Center), facilities routinely schedule 3 patients per hour (i.e., 20 min. time slots) This can also vary depending on the type of cases being treated. For example, pediatric treatments can take much longer to treat as most of these cases require anesthesia, which adds to the overall setup time