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Radiotherapy (RT) is a crucial component of comprehensive cancer care, but there are large global gaps in access. Within Ghana, a West African country with a population of 31 million, there are only three RT centres with five external-beam (EBRT) and two high-dose rate (HDR) brachytherapy (BT) machines located in two cities in the south. This study describes the gaps in RT capacity and geographic accessibility.

Materials and Methods: A retrospective review of all RT centres in Ghana was done to determine the number of RT courses, EBRT fractions, and BT insertions for cervical cancer delivered annually between 2018-2020. Additional RT capacity required for optimal utilization was estimated from GLOBOCAN 2020 and the Collaboration for Cancer Outcomes Research and Evaluation (CCORE) model. A time-driven activity-based model was used to estimate the number of machines and centres required to deliver this capacity. Geospatial modeling was used to calculate current travel distances to access RT, and how access would improve with new RT centres strategically located throughout the country.

Results: In 2020, Ghana delivered 1,794 RT courses and 34,624 EBRT fractions for all cancers, and performed 497 HDR BT insertions for cervical cancer (the second most common cancer in women in the country). Based on a RUR of 48%, an additional 9,730 RT courses, 188,948 EBRT fractions and 4,538 HDR BT insertions are required. With standard operational parameters, this translates to five additional RT centres, each with four EBRT units and one HDR BT afterloader.

Based on current capacity and centre location, patients have a median one-way travel distance from their regional capital to the nearest RT centre of 157 km, with 54% of patients traveling less than 100 km, 15% traveling 100-150 km, 9% traveling 150-200 km, and 22% traveling >200 km. The North East, Upper East, and Upper West regions have the longest travel distances of 424 km, 533 km, and 439 km, respectively. Establishing a new RT centre in Tamale in northern Ghana would decrease median one-way travel distance from the regional capitals to the nearest centre to 145.5 km, and the proportion of the population with a travel distance >200 km to 4%. Optimizing the location of other new centres is needed to further reduce travel distances.

Conclusions: Ghana has a major national deficit of RT capacity, with significant geographic disparities among regions. Well-planned infrastructure scale-up that accounts for the population distribution can improve RT accessibility.

Purpose: Enhanced Infection prevention measures used during the COVID-19 pandemic have likely increased the time radiation therapists (RTs) need to treat patients, therefore potentially reducing treatment capacity. Here we propose comparing radiation treatment delivery metrics pre- and during COVID-19 at a large Canadian radiation treatment program.

Materials and Methods: Appointment information and timestamps on patient arrival, treatment mode up and completion for patients treated on nine linear accelerators between January 1, 2020 and June 22, 2020 were extracted from the electronic radiation treatment record. Data points collected (n=23,761) were initially reviewed for validity. 23,333 radiation treatment appointments were retained for analysis and divided into two comparison cohorts (pre-COVID-19 January 1st - March 13th; during COVID-19 March 16th - June 22nd). Descriptive statistics were used to evaluate the timing of patient arrival against their scheduled appointment, the scheduled appointment duration, the initiation of the treatment site set-up against the scheduled appointment time, the completion of the appointment against the scheduled appointment end time, the overall time the patient spent in the department and the number of patient visits per hour.

Results: Patients arrived earlier for their treatment appointment pre-COVID-19 (mean =22.33min versus 17.10 min). The average scheduled appointment was shorter pre-COVID-19 (mean= 19.91 min versus 21.98 min). RTs started to set-up the patient earlier than the scheduled appointment start pre COVID-19 (mean = 0.2 min early), but later during COVID-19 (mean = 3.63 min late). RTs completed the procedure ahead of schedule for both periods (mean= 6.52 min versus 5.91 min). Patients spent more time in the radiation treatment department pre COVID-19 (35.22min versus 33.17min). More patients per hour were treated pre COVID-19 (2.68 patients/hour versus 2.33 patients/hour).

Conclusions: According to our data analysis, additional precaution measures introduced by the COVID-19 pandemic increased the amount of time RTs needed to complete treatment procedures, reduced treatment capacity and changed patients’ habits while in and out of the radiation treatment department. Operational throughput assumptions may need to be adjusted to forecast future need for space, human resources and capital equipment investments if these measures extend beyond the pandemic.

Purpose: The COVID-19 pandemic forced the Quebec healthcare system (as elsewhere in the world) to reorganize itself in early 2020. Teleconsultation was featured as a tool to limit the exposure of patients and healthcare workers to the SAR-CoV-2 virus.

In this context, the radiation oncology department decided to review its practices and deploy teleconsultation (telephone and video) in order to reduce the number of hospital visits for its vulnerable clientele. After several months of using teleconsultation in radiation oncology, a research project was launched in pursuit of the different objectives. First, analyze the perceptions of radio-oncologists as well as their behavior in connection with the use of teleconsultation in the department. Second, identify the conditions where teleconsultation would be relevant in radio-oncology post-pandemic. And finally, make recommendations.