Radiation Therapy Performance Indicators – Measuring The Productivity of a Radiation Therapy Department

John French MSc. FCAMRT CHE
Director of Operations, Radiation Therapy and Surgical Oncology
Vancouver Centre, British Columbia Cancer Agency, Vancouver, BC

Introduction

- Health care resources are scarce, and should be utilized effectively and efficiently. This requires that measures be in place to monitor and improve the use of resources
- This poster presents how performance indicators are used to measure the productivity of various resources, and the complexity of work done, in a radiation therapy department and how these measures have changed over time

Methods

- Four performance indicators are used to measure productivity. These are:
  - Number of dosimetry cases (patients) completed per RT scheduled in the dosimetry area per day
  - Number of CT simulator (CTSIM) cases completed per Radiation Therapist (RT) scheduled in the CTSIM per day
  - Number of RT treatment fractions performed per operational hour available
  - Number of RT treatment fields performed per operational hour available
- Four indicators are used to measure of complexity. These are:
  - Radical Treatment complexity – The ratio of treatment fields to fractions for radical and adjuvant treatments
  - Palliative Treatment complexity – The ratio of treatment fields to fractions for palliative treatments
  - Dosimetry complexity. All plans are classified into 3 categories of complexity, level 1, 2 and 3. The complexity is measured as the percentage of total plans completed that are of level 2 or 3 complexity
  - Fractions per course – the number of fractions per course of RT
- The use of the indicators started in the 2006/7 fiscal year. In some cases historical data was available enabling reporting from the 2005/6 fiscal year
- Indicators are presented in the form of “DASHBOARD” graphs showing the value per accounting period per year, the mean value and the line representing 1 standard deviation above and below the mean. Embedded in each graph is a graph showing the change in value on a yearly basis, and a trend line indicating if this is on an upward or downward trend
- Data sources – data came from three sources: the BCCA Cancer Agency Information System (CAIS), the RT Stats warehouse and the RT staff schedule

Results

- Results for productivity are shown in Figures 1 to 4. Note that there has been an increase in productivity in all areas with the exception of the number of fractions per hour, although this indicator did increase from 2005/6 to 2007/8 before decreasing again
- Results for complexity are shown in Figures 5 to 8. Note that there has been an increase in the number of radical fields per radical fraction, but little change in the ratio of palliative fields to palliative fraction. Dosimetry complexity increased from 2007/8 to 2008/9, but is showing a decreasing trend in 2009/10. The number of Fractions per course has decreased over time, contrary to expectations

Discussion / Conclusion

- The collection of performance data is useful in monitoring both productivity and complexity in radiation therapy. Our data shows an increasing trend in planning productivity, and an increase in the number of fields treated per hour. This has not translated into an increase in the number of fractions per hour, likely due to the rising number of fields used per radical fraction. Radiation Therapy practice is constantly evolving, and measuring and responding to how it evolves will be useful in ensuring a department runs efficiently