Creating a culture of data collection with mobile technology for clinical assessments and Patient Reported Outcomes in radiotherapy for Head and Neck (HN) and Prostate services

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Purpose/Objectives

- Radiation oncology is ideal for building big data
  - Frequent interaction with patients
  - Highly computed treatment planning data

- However, resistance exists in high-volume clinics
  - Additional cost for data collection
  - Effort and time for documentation

- In this study,
  - We developed a tablet compatible browser-based platform which integrates clinical activities with data collection and analysis presentation.
  - The performance of a new culture of data collection and ability to support decision-making was evaluated.

Materials/Methods

- Platforms and tools
  - A browser-based platform was built to exchange and present real-time and pre-processed data from a MOSAIQ® database.
  - Tools to increase operation efficiency were developed, such as providing quick links to desired quality of life (QoL) instruments and clinical assessments grouped based on physician schedules and clinical needs.

- Clinic workflow and PHI protection
  - Tablets were distributed in HN and prostate cancer clinics to prospectively and routinely collect clinical data (Fig. 1a)

Results

Prostate (Fig. 2a-b)

- Electronic data capture of prostate QOL initiated in 2014
- There are 337 patients with prospectively collected data
- Compliance rate for baseline, 6 month, and 1 year QOL currently 90%, 63%, and 66%
- 74 User visits from May 2015

Tablets given to patients in the exam room for self-reported QoL questionnaires (Fig. 1b)

Kiosk mode prevents patient access to PHI

<table>
<thead>
<tr>
<th>Head and Neck QoL</th>
<th>Prostate QoL</th>
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<tbody>
<tr>
<td>FACT-Head and Neck</td>
<td>Int'l Prostate Symptom Score (IPSS)</td>
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<tr>
<td>MD Anderson Dysphagia</td>
<td>Sexual Health Inventory for Men (SHIM)</td>
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<td>Inventory</td>
<td>Sydney Swallow Questionnaire</td>
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<tr>
<td>Bowel Habits Questionnaire</td>
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</tbody>
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Data collection outside of our department

- Speech pathologists
- Medical oncologists
- Surgeons
- Physical therapists

Conclusions

- The new culture of prospective data collection facilitated by browser access to the Oncospace
- Operates seamlessly and is fully adopted in HN and prostate clinic activities
- Associated with a high data collection rate

Figure 1a. Data collection via tablet in waiting room

Figure 1b. Sydney Swallow Questionnaire with Kiosk mode

Figure 2a. Age and gender distribution among Prostate db

Figure 2b. Inventory of longitudinal QoL among Prostate db

Figure 3a. Age and gender distribution among HN db

Figure 3b. Inventory of longitudinal QoL among HN db

Figure 4. Pts’ ability to enjoy food in 3yrs (0: not at all; 4: very much)