

Introduction

The information derived from a cancer histopathology report (HPR) dictates staging, prognosis, adjuvant treatment planning after surgery and is an integral data-point of the national cancer registry [1]. The HPR is an extremely valuable document that links the pathologist to various stakeholders in cancer treatment; the surgeon is concerned with margins adequacy, oncologist on further treatment planning and the researchers on tissue banking and trials. Although it holds the key on various aspects of patient management and research, the existing narrative-HPR (N-HPR) has its limitations. In head and neck cancer (HNC) surgery, the conventional N-HPR can be elaborate and span over several pages (Fig1). Additionally, reporting style and format varies within the same institution between pathologists[2]. The elements of the HPR data dictating cancer treatment is well-defined by AJCC and College of American Pathologists (CAP). To retrieve these salient cancer relevant information from the traditional N-HPR during patient consultation or during multidisciplinary team (MDT) tumour board (TB) meetings requires extensive editing, time-intensive for pertinent data retrieval and may contribute to documentation errors due to incomplete data [3-5].

Synoptic HPR (S-HPR) is gaining acceptance worldwide for completeness and precision in various fields of healthcare but is yet not mandatory [1, 4-6]. The aim of this study was to introduce a synoptic format at the start of the traditional N-HPR to assist and improve clinical documentation and evaluate the impact on clinical work and clinicians.

Aims

- To have the salient data points at the start of the N-HPR for quick retrieval of pertinent data for documentation in patients clinic notes and for MDT-TB meeting discussions.
- Surgeons to submit pictures of specimen with labels orientating the specimen. This is to aid pathologists in reporting of margins.
- To increase patient safety
- Time-savings
- Evaluate the impact of these changes in reporting on clinician satisfaction and clinical practice.

Defining the Problem

- Head and Neck pathology reports are often very complex spanning 5-7 pages or more.
- Visibility of entire report to collect the cancer relevant parts from the HPR data requires extensive scrolling.(Fig1)
- The person summarising the report may be a junior clinician hence time consuming to collect pertinent data and crucial information may be overlooked.
- Resections can be complex and orientating the specimen can be troublesome.

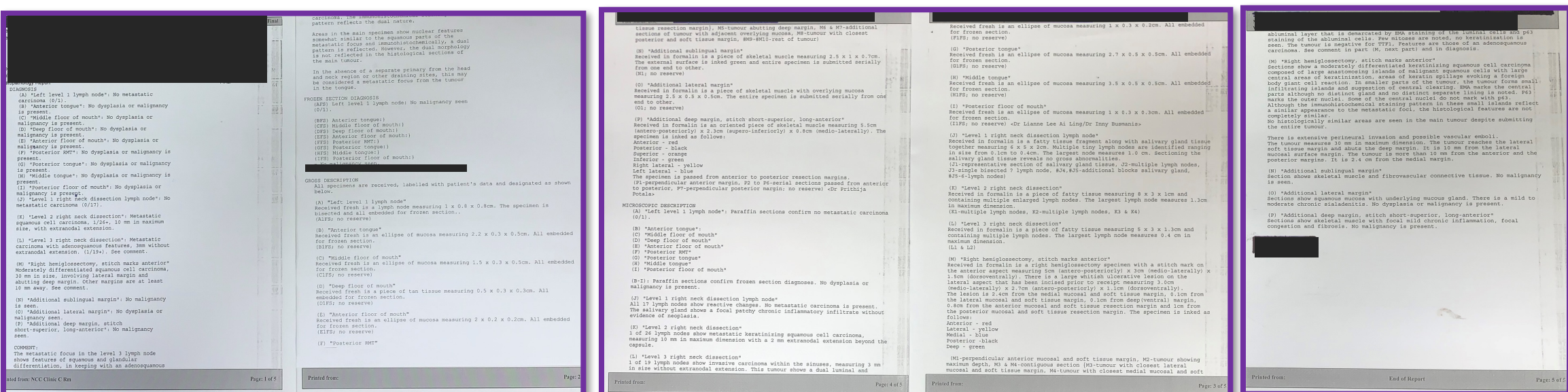


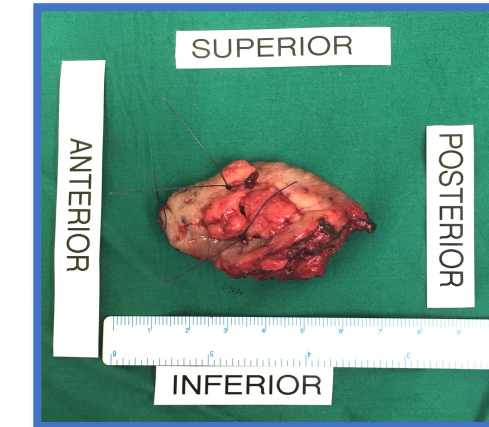
Figure1. Narrative Histopathology Report spanning 5 pages of Partial Glossectomy and Neck dissection

Methods

A quality improvement project between pathologists and head and neck surgeons in a setting of tertiary care hospital. The project was commenced in June 2017 to Jan 2018. To test S-HPR format for HNC surgery specimens. To submit labelled photos of specimens to facilitate grossing and reporting of margins. We proposed to introduce this new synoptic format initially on 10 glossectomy specimens as a pilot project study. (Fig.2) A proforma with all the relevant details was included in the Laboratory Medical Info System and retrieved when required. It incorporates relevant areas from the CAP checklist.(Fig3)

Figure 2. Glossectomy surgery and specimen photographs:

- Pre-operative picture to understand the pathological lesion in its original anatomical site
- Intraoperative picture partially resected, relays further information on wound bed where frozen section is taken
- Post-operative specimen submission: orientated & labelled



DIAGNOSIS
(I) RIGHT PARTIAL GLOSSECTOMY:
TUMOUR TYPE: INVASIVE SQUAMOUS CELL CARCINOMA, LATERAL TONGUE
TUMOUR SIZE: 1.5 CM, DEPTH: 9 MM
TMN: pT1 pN0
LYMPHOVASCULAR INVASION: NOT SEEN.
PERINEURAL INVASION: NOT SEEN.
MARGINS ON GLOSSECTOMY SPECIMEN:
ANTERIOR: 0.8 cm
LATERAL: 1.5cm
MEDIAL: 1.7cm
POSTERIOR: 0.5cm
DEEP: 0.7cm
P16: NOT APPLICABLE.
(F) RIGHT NECK DISSECTION LEVEL 1: NO METASTATIC CARCINOMA (0/5+).
(G) RIGHT NECK DISSECTION LEVEL 2: NO METASTATIC CARCINOMA (0/5+).
(H) RIGHT NECK DISSECTION LEVEL 3: NO METASTATIC CARCINOMA (0/15+).
(A) "Anterior margin": No malignancy seen.
(B) "Posterior margin": No malignancy seen.
(C) "Medial margin": No malignancy seen.
(D) "Lateral margin": No malignancy seen.
(E) "Deep margin": No malignancy seen.
FROZEN SECTION DIAGNOSIS
(AFS) Anterior margin:)
(BFS) Posterior margin:)
(CFS) Medial margin:)
(DFS) Lateral margin:)
(EFS) Deep margin:)
- Negative for malignancy.
GROSS DESCRIPTION
All specimens are received, labelled with patient's data and designated as shown below.
(A) "Anterior margin"
(B) "Posterior margin"
(C) "Medial margin"
(D) "Lateral margin"
(E) "Deep margin"
Received fresh are specimens which are entirely processed for frozen section.
(AFS to EFS; no reserve)

Figure 3. Synoptic report at the start of a traditional histopathology report is above and carries the following details:

- TNM staging(8th AJCC)
- Margins status
- Levels of lymph nodes dissected, harvested number of nodes and lymph nodes positive for cancer
- Additional details:
 - Metastatic focus size
 - Lympho-vascular invasion (LVI)
 - Peri-neural invasion (PNI)
 - Extra-nodal extension (ENE)
 - Worst pattern of invasion(WPOI)
- P16 status.

Survey

Clinicians were given several samples of de-identified HPRs of patients who had undergone glossectomy with neck dissection, reported in narrative style and in the synoptic format.

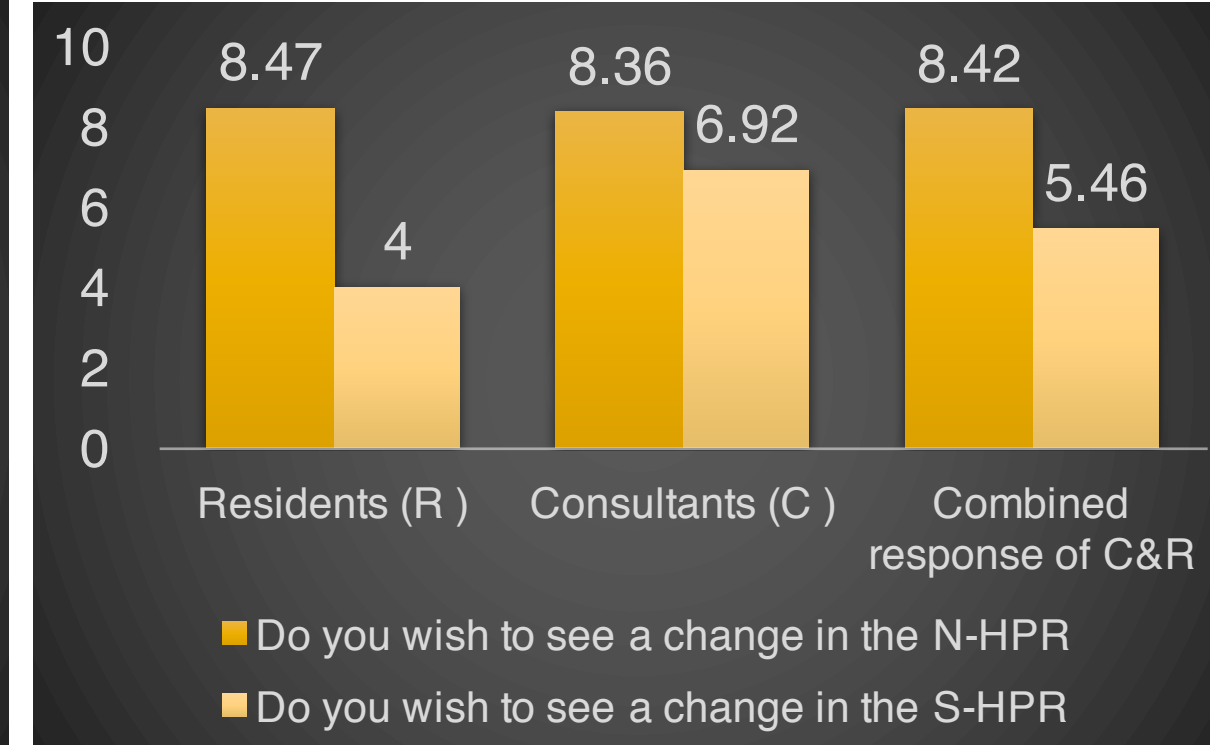
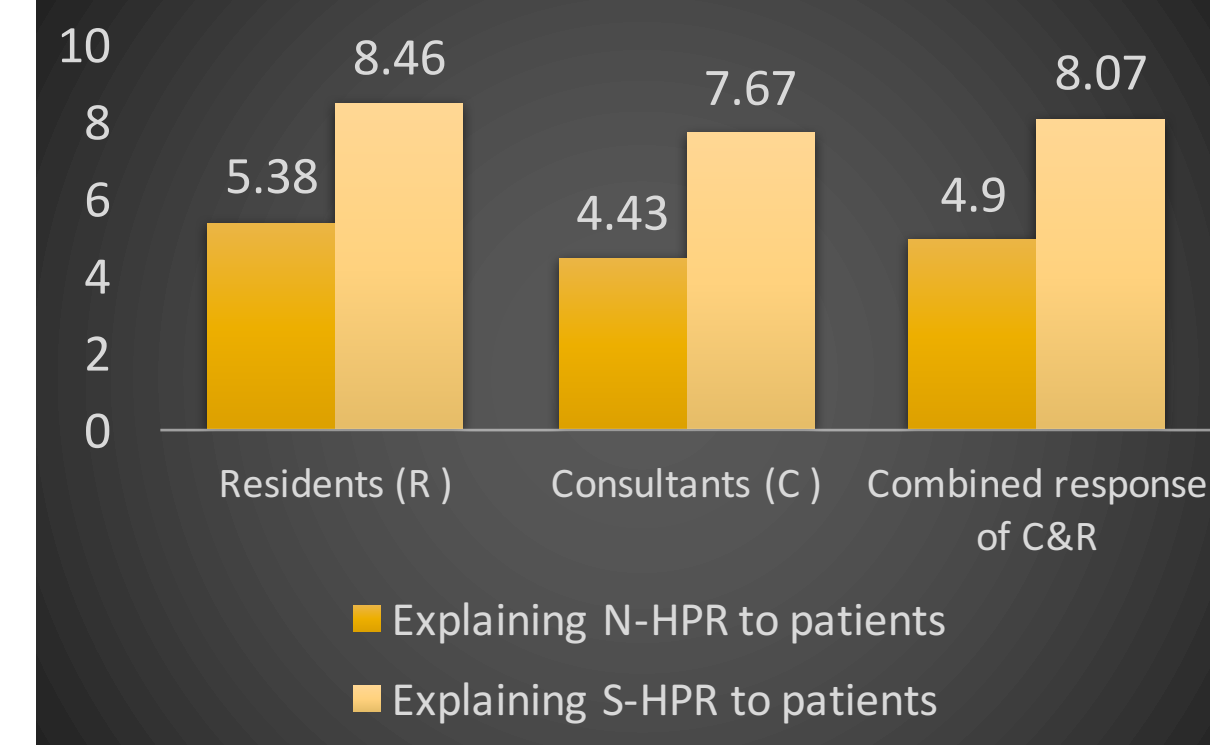
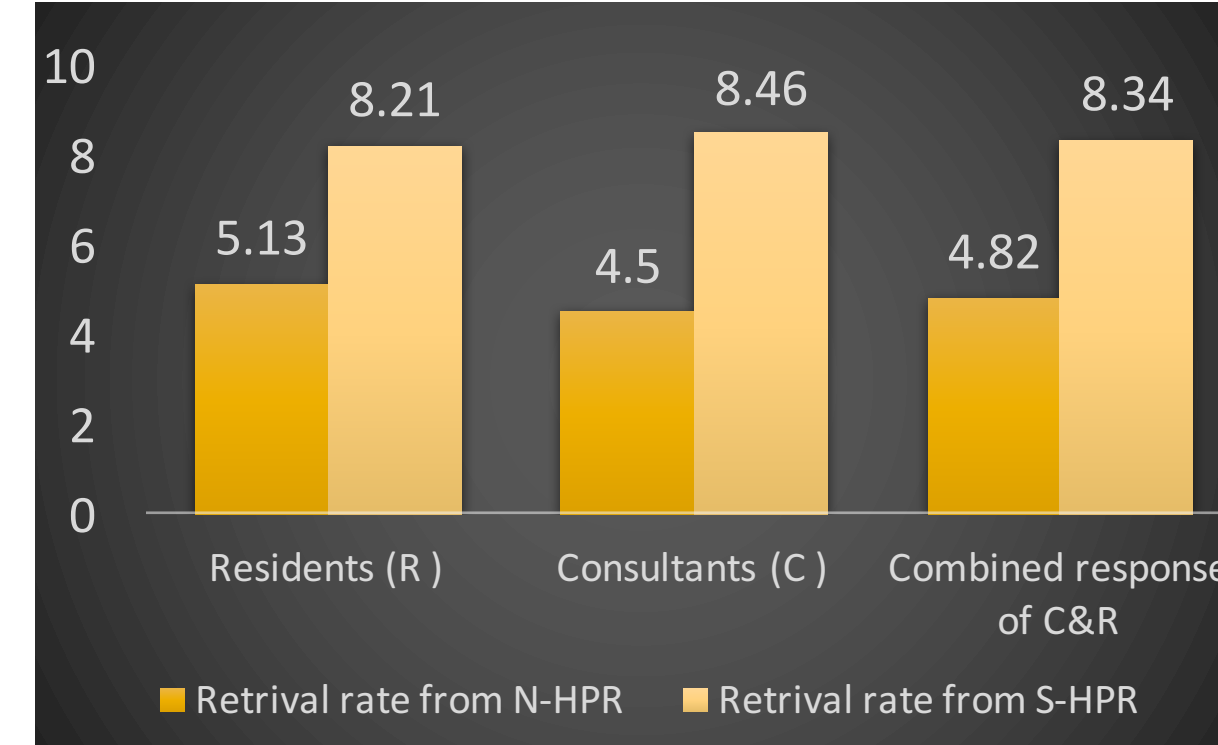
They evaluated and rated S-HPR & N-HPR on a survey measuring 5 factors:

- Capture rate of salient points of HPR
- Were juniors able to grasp salient points of HPR.
- Ease of explaining HPR to patients
- Discussion of HPR at MDT-TB meeting
- Would they prefer a change in the format on the existing N-HPR or in the S-HPR formats?

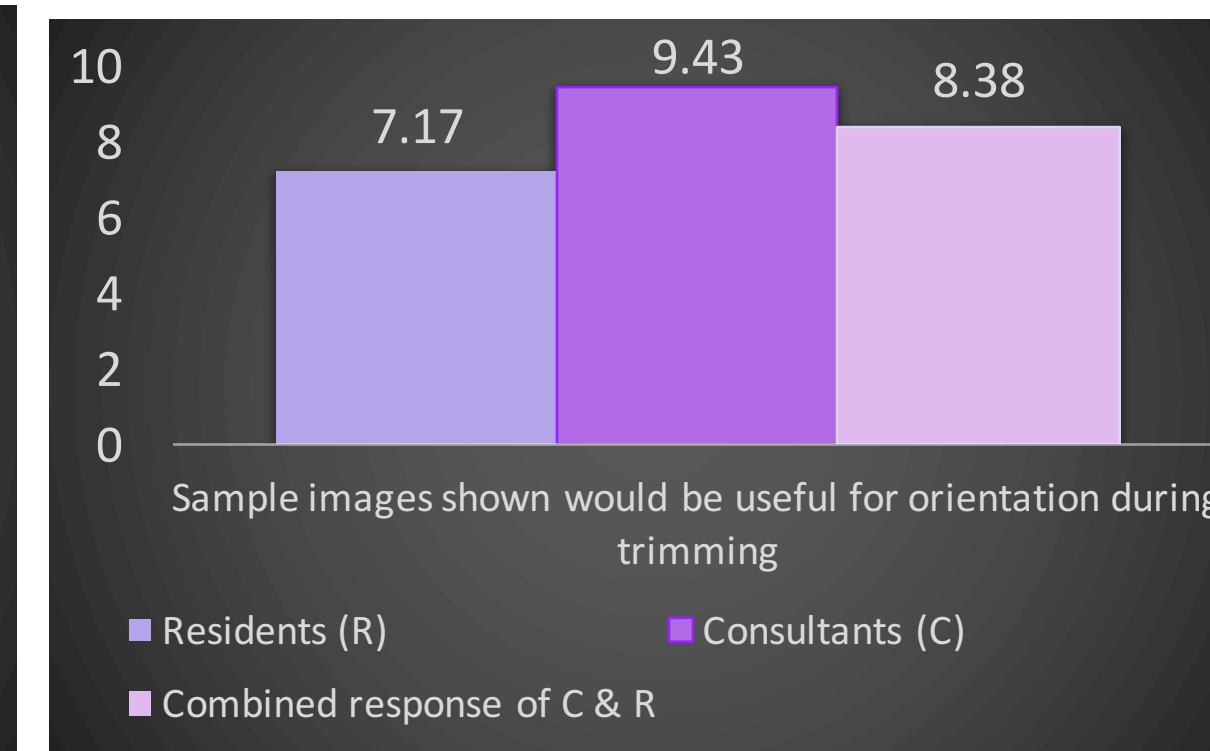
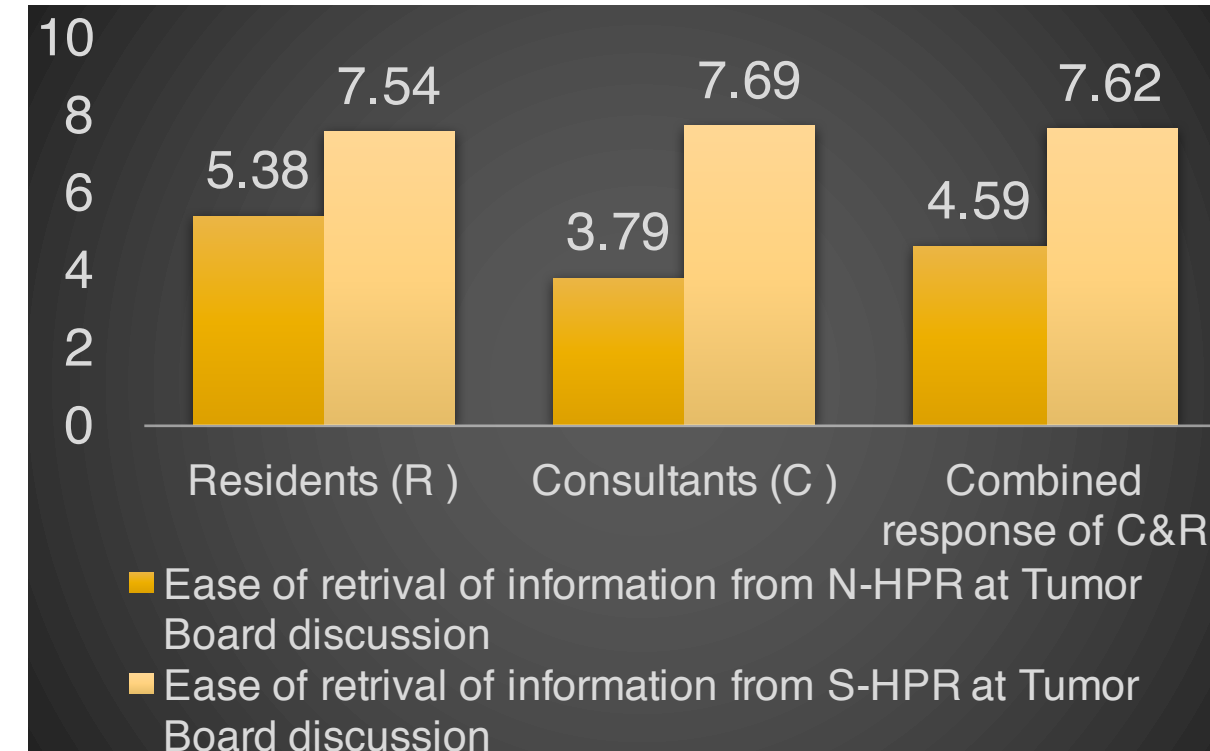
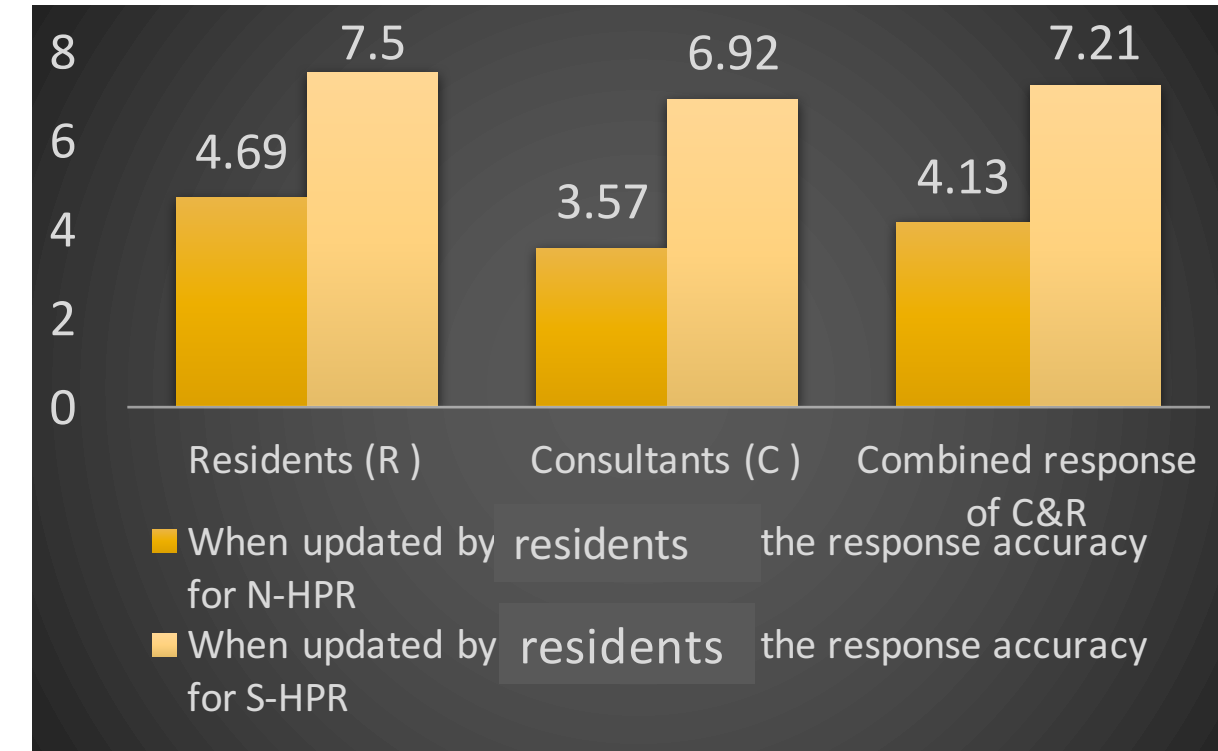
The surveys rating scale of 0 to 10 in terms of degree of agreement with statement 1= disagree 5= neutral and 10= strongly agree. The survey was taken by 14 consultants (surgeons, medical and radiation oncologists) and 16 surgical residents.

Pathologists took a survey if orientated specimen photographs of HNC resections helped to understand gross specimen orientation and reporting of margins (Fig1). The surveys rating scale of 0 to 10 in terms of degree of agreement with statement 1= disagree 5= neutral and 10= strongly agree. The survey was taken from seven pathology consultants and six pathology residents. In addition we also sought to have their opinion where specimen pictures made a positive difference to reporting.

Results



-Ease of data-retrieval (p=0.0001)
-Residents able to grasp salient points (p=0.0001)
-Ease of explanation of HPR to patients (p=0.0001)
-Ease of discussion over synoptic HPR at MDT-TB meeting (p=0.001)
-They strongly rated for a preference to change the N-HPR format (p=0.0001)
Currently the S-HPR at the start of N-HPR has been implemented for all major HNC resections since 2018.



- Specimen photographs with orientation and labels are useful for orientation during trimming (p=0.0754)
Final consensus on labelled resected specimen submissions is most useful for complex resections of maxilla, nasopharynx and temporal bone. In addition where anatomy was altered by previous surgery

Discussion

Structured and standardised format increases precision in reporting. Synoptic reporting has gained prominence and acceptance in various areas of scientific reporting [6]. The American and the British Pathology societies have introduced synoptic reporting for pathologists. However, though it is considered superior it is not routinely implemented [3]. This has been attributed to resistance or personal preference of pathologists who may feel restricted by the synoptic format [7,8]. While the introduction of a new format and change in reporting style may lead to delays in process flow, it contributes to increased accuracy and productivity[7]. The combination of embedding the synoptic data at the start of conventional N-HPR did not disrupt the continuity of the specimen part identity. The CAP stipulates key details to be reflected in resection reports and the synoptic format facilitates this review. This study provides evidence that clinicians rate the S-HPR better than the traditional N-HPR format for improved documentation and completeness of oncologic details in HNC surgery. Similar to other studies though salient details (tumor grade, size and depth of invasion) are covered in both formats, however we found additional details pertaining to lympho-vascular and peri-neural invasion, extra-nodal extension and lymph nodes harvested are consistently stated in the S-HPR in a succinct manner at the start of the report which saves time during retrieval and results in improved documentation for clinical practice [3]. Since the inception of the project in 2017, within 6 months of the project commencement synoptic format at the start of N-HPR was expanded to include all major HNC resections.

According to the 8th AJCC criteria there are increasing number of data-points required for reporting oral cancer HPR[9]. These additional granular details determine staging and impact subsequent adjuvant treatment plan. In view of this added data points it is recommended that the pathologist has a clear understanding of gross specimen orientation before it is subject to trimming [9]. Thus the submission of orientated labelled specimen photographs imparts greater understanding to reporting these additional details. However, the feedback from our pathologists was the submitted specimen photographs were most useful where anatomy was altered by previous surgery and for complex resections.

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