

# A NATIONWIDE AUDIT OF CROSS SECTIONAL IMAGING REPORTS AT THE CYBERKNIFE ROBOTIC RADIOSURGERY DEPARTMENT

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## ABSTRACT

**OBJECTIVE:** The purpose of this study is to provide a brief overview of formulating structured radiology reporting with a conclusion and to emphasize the anticipated benefits from standardized radiology reports. To be able to exactly answer the pertinent clinical question and to exactly mention the comparison dates in follow up scans. To assess the frequency of hedge terminology in report conclusions.

## Introduction

The radiology report plays a very important role in the communication between radiologists and referring clinicians.<sup>1</sup> In many departments/regions, reports are written as free text, but various studies have shown that structured reporting using dedicated report templates, improved consistency, clarity and decreased grammatical errors. It has significant advantages in comparison to conventional reports.<sup>2</sup> As the report is read by a range of healthcare professionals with varying levels of experience and knowledge, hence it is vital that the reports are understood in the way they are proposed in order to acquire appropriate clinical decisions. It is very important that diagnostic imaging reports should provide precise and comprehensive explanation of the imaging findings. The radiologist must keep the phrasing, length and clarity of radiology reports at priority in order to prevent ambiguity which may raise clinical concerns, increasing patient anxiety and rates of follow-up testing.<sup>3,4</sup> The Professional member associations like the American College of Radiology (ACR)<sup>5</sup> and the Australian and New Zealand College of Radiologists (RANZCR)<sup>6</sup> have guidelines regarding the content and structure of radiology reports. The aim of these guidelines is to improve the quality and utility of ima-

ging reports. The objective of our study is also to determine the extent to which radiology-reporting guidelines consider the preferences of the referring clinician mainly with regard to clarity of imaging reports. Therefore, many radiological societies have recommended the implementation of structured reporting in clinical routine as a new standard for radiology reporting.<sup>7,8</sup>

## Material and Methods

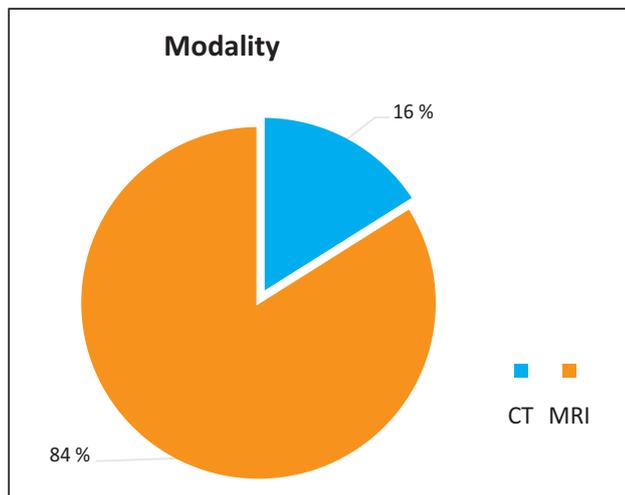
This is a retrospective audit undertaken at the Cyber knife facility in JPMC Karachi in which patients from all over Pakistan referred with scans done in almost all cities. The technical aspect, clinical question and conclusion of reports along with hedge terminology were focused. An audit proforma was designed and one investigator assessed each report by using it. One hundred consecutive reports of patients who presented to the Cyberknife department for treatment were collected and reviewed as Data collection procedure in May and June 2019.

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## Results

To ascertain the audit objective 84% of MRI and 16% of CT radiological reports are reviewed (Fig.1). Audit Performa was transcribed into Microsoft Excel 2010 for statistical analysis. P-value of hedging words calculated as 0.034 using Graph Pad QuickCalcs. In the context of reporting structure and context, hedging words were present in 94% of cases and 6% of reports were found without hedging words. Clinical question was mentioned in 30% of cases only, whereas 70% cases found without clinical questions provided. The comparison was missing in most of the radiology reports with the exception of only 7% of the cases. Selected reports were structured with 82% frequency and similarly conclusion was mentioned in 96% of the radiology reports.



	Hedging	Clinical Question	Comparison	Structure	Conclusion
Yes	94	28	14	82	98
No	6	72	86	18	2

**Table 1:** Different descriptors in reporting with their percentages

## Discussion

Radiology reports are very important for patient care as referring physicians depend upon them for deciding appropriate patient management. With the advancement and the introduction of structured reporting there are several initiatives in the field and numerous articles have been published.<sup>9</sup> Structured reporting is a word used to refer to a potential means of impro-

ving the quality of radiology reports benefiting both the radiologist and clinical practice. Structured reporting has many advantages and has been promoted for standard usage in order to improve reliability and precision.<sup>10</sup> It also improves readability and clarity, however Contextual reporting is a method of structured reporting that is specifically related to the disease or examination indication.<sup>11</sup>

The European Society of Radiology (ESR) states that content, quality, standard terminologies, datafication and accessibility are the practical needs for standardized and structured reporting.<sup>12</sup> We hardly have any formal training in writing a good & a sensible report. We need to learn to communicate a picture in words. Unfortunately, our training emphasizes immensely on radiological knowledge, develop all the necessary skills, but fails to address reporting even for a good radiologist. The radiology report is the document containing the official interpretation of a single radiological examination or procedure. It must be written in a style that is concise and pertinent, conveying the correct message to the referrer. A great variety in the style, structure, and effectiveness of radiology reports exists. The clinical importance of a report can be lost if the report lacks structure and is incoherent, rambling, and verbose.

In our study, we collected reports from almost all centers of Pakistan performing cross sectional imaging. Most of the reports were from tertiary care teaching hospitals. The reports were mainly of cancer patients who particularly require comparisons from past imaging. These comparisons decide the fate of management in such patients. We gathered hundred reports. The reports were not formulated on any pertinent guidelines and reflected personal preferences regarding the selection of terminology. Reports were compiled without knowing a clinical question and advised hedge words like to correlate clinically. One of the centers used the term correlate clinically even in normal reports. Words like seems, probably, appears to be, cannot be entirely excluded etc. were used very frequently. There was a trend of copy paste of body of report in conclusion in a lot of centers.

The publication from the United States surveyed 265 academic radiologists, and only 60% were satisfied with structured reports, whereas 27% were neutral and 13% were dissatisfied.<sup>13</sup> We have noticed that some of the Radiologists are not aware of this (in our

set ups in Pakistan) or not in favor of report standardization. By filtering the data of hundred reports most radiologists used Hedging language like possibly, may, certainly, belief, etc. The reason that some radiologists did not believe in report standardization and contextual reporting is likely knowledge with narrative reporting. The structured reporting restricts autonomy, potentially undermines curiosity, and limits personalization.<sup>14</sup>

Standardized Reporting guidelines are indeed helping hands for the Radiologist and can be used as a teaching-learning tool. It improves quality of reporting and satisfies the referring physician/surgeon. Inadequate reporting not only results in false credibility, but also risks the patient outcome with inappropriate management. The reports with excessive inconsistency in the language, length, and style, can effect report clarity and make it very difficult for referring clinicians to identify key information needed for patient care.<sup>15</sup> Structured reports also provide checklist so that a radiologist does not miss important points.

The benefits of structured reporting are optimizing radiology's contribution not only to patient outcomes, but also ensuring the value of a radiologist's work. It reduces the incidence of errors in reporting and makes communication easier for referring clinicians, medico legal representatives and researchers to extract and compare information from radiology reports. It also reduces ambiguity and misunderstanding and optimizes the impact of the reports.<sup>17</sup> It is important for a Radiologist to ensure that all relevant areas are addressed and communicate the diagnosis or differential diagnosis, clinical effects of radiologic findings, and appropriate recommendations for further management.<sup>18</sup> The impression should avoid technical language and be unambiguous, some of imaging study, answering the clinical question, helpful for treatment planning and easier to understand.

## Conclusion

The radiology reports contain important information that can help in the diagnosis and clinical decision for patient management. There were multiple reports with no formal conclusion so we need to work on sound reporting as a radiological society and need

to formulate certain guidelines. Dedicated sessions and lectures while training can help to groom our reporting skills. Initially there should be a guideline formulation by the national society followed by training of the trainers. These supervisors should later train the trainees during their residency programs. Guidelines should be available on the websites of society and should be included in the core curriculum of training.

**Conflict of Interest:** None

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