There is no more difficult art to acquire than the art of observation, and for some men it is quite as difficult to record an observation in brief and plain language. [1]

The radiology report is often the primary means of communication between the radiologist and the referring physician and is a formal medicolegal document. A good radiology report allows the referring physician to generate a mental picture of relevant abnormalities and suggests a diagnosis or next appropriate management step. A good report is not only accurate in content, but it is also concise, clear, and pertinent in style. Radiology training programs place appropriate emphasis on content, but style often receives little attention [2].

In our institution, we have developed style guidelines for radiology reporting to increase concordance in terminology between reports and to improve communication of radiologic findings to our referring physicians. We present these guidelines to increase awareness of reporting style issues but do not suggest that these are the correct or only approaches. The guidelines are arranged under the headings of brevity, clarity, and pertinence.

**Brevity**

Avoid beginning a string of sentences with “There is…” or “There are…” This usage is repetitious, and such sentences can usually be rephrased (Table 1).

Avoid redundant words and phrases (Table 1). For example, “review of the scan at bone windows shows no evidence of metastatic disease” is unnecessarily verbose. “No bone metastases are seen” implies we have examined the appropriate windows, in the same way that “the lungs are clear” implies we have reviewed lung windows.

Use “unremarkable” or “normal” rather than a long-winded phrase that may convey less meaning. For example, “no focal liver mass or intrahepatic duct dilatation is seen” is not only longer than “the liver is unremarkable,” but fails to address the possibility of a diffuse liver abnormality such as cirrhosis.

**Clarity**

The phrase “evidence of” should be reserved for findings that can only be inferred and not directly observed. For example, it is appropriate to say “There is no evidence of portal venous hypertension” on a CT report because portal venous pressure cannot be measured by CT; rather, CT may show indirect evidence of portal hypertension such as varices, splenomegaly, or ascites. Conversely, it is inappropriate to say “There is no evidence of pleural effusion” because a pleural effusion can be directly visualized.

Avoid the phrase “significant adenopathy.” There is no entity “insignificant adenopathy” because adenopathy, by definition, is abnormal and therefore significant. Avoid the phrase “cannot be excluded.” This usage is a grammatically undesirable double negative and is often used inappropriately (Table 1).

Certain terms are interpreted differently by clinicians than by radiologists. For example, clinicians often understand “collection” to mean “abscess.” Unless this is the intended impression, terms such as “fluid accumulation” or “fluid-filled structure” may be preferable. Another alternative is to be more explicit: “A fluid collection in the pelvis, which may be sterile or infected.”

Well-intentioned statements such as “careful examination of the retroperitoneum” can be harmful because they suggest other body parts were not carefully examined.

Certain terms have no uniform meaning among radiologists, so there is little chance that our referring physicians understand their meaning. For example, “nonspecific bowel gas pattern” is understood by different radiologists to mean normal, equivocal, or abnormal due to ileus or obstruction [3]. Such terms should be replaced by explicit phraseology—for example, “mildly dilated small bowel loops may be due to ileus or obstruction.”

Sufficient detail should be provided to allow the person interpreting the report to mentally vi-
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realize the critical findings. A 1.2-cm retroperitoneal node may have different clinical implications than a 5-cm node. For lesions that are not discretely measurable, such as pleural effusions, a semiquantitative assessment of size should be provided, although this is necessarily somewhat subjective. Avoid abbreviations (Table 1).

Pertinence

Although extraneous findings are a distraction, it is important to include pertinent negatives. For example, in a patient with jaundice, explicitly comment on the presence or absence of biliary dilatation or obstructing lesions.

When findings are truly nonspecific or equivocal, it is better to offer advice on the appropriate next test than to give a long list of differential diagnoses. From a practical point of view, a differential that includes four or more diagnoses is unlikely to be helpful.

The terms “if clinically indicated” or “clinical correlation is suggested” should be used sparingly and should never be used as a substitute for offering a diagnostic opinion. For example, to suggest clinical correlation for a solitary 4-cm solid non–fat-containing renal mass seen on CT is inappropriate; such a mass is a renal cell carcinoma until proven otherwise, irrespective of symptoms or hematuria.

Only additional investigations that are likely to be diagnostic should be suggested. For example, suggesting pelvic sonography to further evaluate a lobulated heterogeneous uterus seen on CT is of doubtful utility because most likely sonography in such a case would show a lobulated heterogeneous uterus but not change the diagnosis of probable leiomyomas.

Comparison studies are critical in radiology and especially in oncologic imaging. State the date and type of prior examination at the beginning of the study. It is also helpful to repeat the date of the prior study at the start of the impression—for example, “Since June 5, 2001, progression of hepatic metastases…”

It is not always sufficient to compare the current study with the most recent study because a comparison with earlier studies may show slow progression of disease or long-term stability of (presumed) benign lesions not otherwise discernable from comparison with the most recent examination. Not only can this provide clinically useful information, but it may also be medicolegally required [4].

The terminology “was not seen on the prior study” is ambiguous because it could mean that the lesion was present but not reported or that the lesion was not present previously. Preferable terminology would be “Bilateral pulmonary nodules are new (or have increased in size or are unchanged) since the prior study.”

The phrase “too small to characterize” should be used cautiously. Some hypodense lesions may be too small to characterize using CT density measurements alone, but comparison with prior studies may allow basic characterization as likely benign or malignant on the basis of progression or stability. Interpretation of such lesions is also dependent on clinical context. For example, phrases such as “multiple stable renal lesions that are too small to characterize” in a patient with progressive disseminated malignancy are of doubtful interest in the body of the report and should be omitted from the impression.

The impression should always address the clinical question. For example, if the requisition states “evaluate for abscess,” the impression should specifically state whether an abscess was or was not shown.

Items in the impression should be ordered by the importance of the findings, rather than following an anatomic order (such as head to toe). It is disconcerting to read an impression that begins with “1. Small hiatus hernia, 2. Gallstones,” and so on, only to end with “9. New bone metastases.”

Avoid impressions that are simply descriptive. A rambling description of findings without a reasonable conclusion adds nothing positive [5]. It also does not prevent successful litigation [6]. The impression should be short and omit needless words [7].

Summary

These style guidelines for radiology reporting represent our departmental approach and are offered as suggestions. We hypothesize that adherence to these guidelines would improve clarity, brevity, and readability of reports. Further research to validate style guidelines would add credibility, particularly in an area that is often the topic of opinion-based rather than evidence-based research.

Acknowledgment

We thank Ronald A. Castellino for having taught us to think critically about the style of reports and Hedvig Hricak for having inspired us to formalize these style guidelines.

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**TABLE I** Examples of Text in Radiology Reports Before and After Application of Selected Style Guidelines

<table>
<thead>
<tr>
<th>Selected Guidelines</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid beginning a string of sentences with “There is…” or “There are…..”</td>
<td>Before: There is left hydronephrosis. There is left hydroureter. There is a 6-mm stone at the ureterovesical junction.</td>
</tr>
<tr>
<td>After: Left hydroureteronephrosis can be traced to the level of a 6-mm stone at the left ureterovesical junction.</td>
<td></td>
</tr>
<tr>
<td>Avoid redundant words.</td>
<td>Before: The lungs are clear bilaterally. The common bile duct is dilated to the level of a mass in the pancreatic head. The right lung nodule is again identified and is unchanged.</td>
</tr>
<tr>
<td>After: The lungs are clear. A pancreatic head mass obstructs the common bile duct. The right lung nodule is unchanged.</td>
<td></td>
</tr>
<tr>
<td>Avoid abbreviations.</td>
<td>Before: Lung CA Mets</td>
</tr>
<tr>
<td>After: Lung cancer Metastases</td>
<td></td>
</tr>
<tr>
<td>Avoid the phrase “cannot be excluded.”</td>
<td>Before: A spiculated 4-cm lung mass is noted; bronchogenic carcinoma cannot be excluded.</td>
</tr>
<tr>
<td>After: The spiculated 4-cm lung mass is likely a bronchogenic carcinoma.</td>
<td></td>
</tr>
</tbody>
</table>
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