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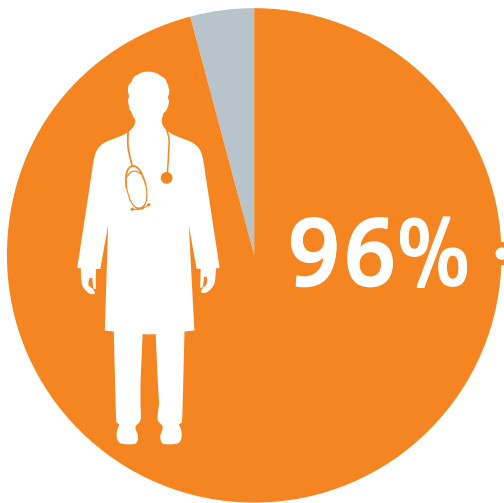
The PET/CT Imaging Center as Service Provider to their Clinical Partners

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Answers for life.

Table of Contents

Executive Summary	1
Introduction	1
Appropriateness of the PET/CT Scan	2
Current Situation	2
The Role of the Imaging Specialist	2
Ease of Ordering Scans	2
Current Situation	2
The Role of the Imaging Specialist	2
Communication of the Scan Results	2
The Diagnostic Report	2
Current Situation	3
The Role of the Imaging Specialist	3
The Preliminary Report	5
Case Presentation in Interdisciplinary Meetings	5
Non-Routine Communication	5
Conclusion	5
References	6
Additional Resources	6



96% of referring physicians who manage cancer patients agreed more interaction between referring and interpreting physicians would benefit patients.

D. Karantis Oncologic PET/CT: Referring Physician's Point of View.
J Nucl Med 2012

Executive Summary

Continuous and transparent communication between an imaging specialist and a referring physician is essential for maximizing the clinical impact of PET/CT and ensuring its appropriate use and appreciation in the medical community, in particular when the scan reveals critical or urgent results.

Ongoing bilateral education about PET/CT and its impact on the clinical workflow and patient management is instrumental in providing optimal care and allowing the appropriate patients access to this technology. In addition to personal interaction, several tools like web-based scheduling, sophisticated demonstration or visualization software can help to overcome potential uncertainty and reluctance on the part of the clinicians.

As the written diagnostic report often impacts patient management and may have legal and financial implications, its consistent high quality should be ensured by including essential elements and by standardizing its structure and language.

Introduction

From a commercial perspective, the referring clinician is the customer or client of the imaging physician and it is instrumental for the referring clinician to understand and address the needs of their customer. Close collaboration and continuous, clear and timely communication before and after a PET/CT exam is essential to understand and appreciate the challenges of making clinical decisions based on the results of a PET/CT scan. A successful and transparent interaction between the interpreting physician and the referring clinician is instrumental for medical treatment decision and patient outcome and for establishing and increasing the clinical acceptance of PET/CT in the medical community. The following article elaborates on several areas that can facilitate the creation and maintenance of a successful interdisciplinary relationship, establish better patient management and, ultimately help to increase the clinical acceptance and use of PET/CT.

Appropriateness of the PET/CT Scan

Current Situation

Even though PET/CT is included in many national and multinational guidelines such as the National Comprehensive Cancer Network (NCCN)¹ and European Society of Medical Oncology (ESMO), referring physicians are often uncertain about the appropriate use of PET/CT in oncology. Based on the results of an international web-based survey², only 25% of almost 1,000 referring clinicians agreed that the indications for PET/CT are well-defined and established and less than 4% felt highly confident about the indications. Almost two-thirds of referring physicians experience difficulties in accessing updates on indications for oncologic PET/CT. About 60% felt at least a frequent feeling of uncertainty when deciding about the need for a PET/CT scan. Since the participants of that survey were selected through their publications, one may suspect the average physician has even less access to indications and certainty about the appropriateness to refer a patient to a PET/CT scan.²

The Role of the Imaging Specialist

Two-thirds of the referring physicians thought that a consultation with an imaging expert in order to discuss the indication was, at least most of the time, useful.² Referring physicians as well as imaging specialists expressed that continuous in-house educational activities as well as presence and guidance in tumor board and other interdisciplinary meetings are essential in providing the appropriate use and clinical acceptance of PET/CT. Continuous in-person education and interaction are of utmost importance to realize the needed changes in the clinical workflow that would allow maximizing the impact of PET/CT³ and to better understand the “language” of the referring specialists.⁴ In addition, referring physicians would appreciate the opportunity to better explain what exactly they hope to learn from the results by ordering a specific type of exam.⁴

Ease of Ordering Scans

Current Situation

The results of a survey of 150 radiologists and referring physicians⁵ demonstrated that referring physicians would like to see an easy and straightforward procedure for ordering studies. Many clinicians experienced issues like inability to schedule scans for certain times and limited options for rapid scheduling of important studies, and would appreciate more transparency with respect to waiting times. Almost 20% of the referring physicians reported that not knowing the waiting time for a particular study before ordering it is very often or always a problem. For more than 50%, it represents an occasional problem. Clinicians often feel there is a lack of opportunities to communicate what they are looking for in the scan and why they are ordering it.^{4,5} They also would appreciate more user-friendly appointment scheduling methods and the opportunity to schedule an exam with a specific imaging physician, if applicable.

The Role of the Imaging Specialist

In addition to better communication, as discussed above, there are other possibilities to enhance the scheduling process for the referring physician. The implementation of an online portal for easier scheduling might improve the scheduling process. Access to business intelligence data that shows the waiting time for different tests could potentially increase the transparency and facilitate the decision for an imaging test within the clinical context. Lastly, referring physicians can be supported in ordering the right study through better exam-specific (web-based) forms or by establishing a routine where the radiologist can suggest more suitable exams based on the facts provided in the request.⁵

Communication of the Scan Results

The written diagnostic report of a PET/CT scan is, in most facilities, the primary mode of communication between the interpreting physician and the referring clinician. It often serves as the basis for medical treatment decisions and can be used to justify medical necessity and facilitate reimbursement.⁶ Depending on the clinical circumstances and institutional reporting preferences, the written diagnostic report can be complemented by preliminary reports and non-routine communications such as phone conversations, personal interaction and case presentation at interdisciplinary meetings.⁷

The Diagnostic Report

In addition to the accuracy of the interpretation of the PET/CT scan, the quality of the diagnostic report is instrumental to the clinical acceptance and continued success of PET/CT in the medical community. A clear and clinically relevant report may improve patient management and outcome, increase the confidence of the referring clinician and, subsequently, the clinical use of PET/CT for appropriate indications. If referring clinicians receive reports that are unclear and do not contribute substantially to patient care, they might consider PET/CT as unnecessary and not value its potential contribution to patient management and outcome.⁶

Furthermore, the diagnostic report can be used for litigation in medical malpractice cases and should be considered as a legal document. It is also used for reimbursement purposes.^{6,8}



90%



In **90%** of reports reviewed by National Oncologic PET Registry investigators, only **9 elements** of the **34 desirable elements** of a PET CT report from the American College of Radiology and Society of Nuclear Medicine were found.

RE Coleman PET & PET/CT Reports; Observations from the National PET Registry

Current Situation

While collecting data on the impact of PET and PET/CT imaging on the intended patient management, the investigators of the National Oncologic PET Registry (NOPR)⁹ used the opportunity to evaluate the quality of the diagnostic reports in the NOPR database.⁸ After compiling a list of 34 desirable elements in PET/CT reports from the American College of Radiology (ACR) and Society of Nuclear Medicine and Molecular Imaging (SNMMI) guidelines, a panel of four physicians assessed report content and quality. Each reviewer scored 65 randomly selected reports—20 of which were the same among all reviewers. The data showed that in more than 40% of the reports, several important elements were not included, such as the reason for the study, a description of treatment history, a statement about comparison to other imaging and time from radiopharmaceutical injection to imaging. Only 9 of the 34 elements reviewed were found in more than 90% of the reports. The authors encouraged imaging physicians to critically review their reports and to verify that they included all the necessary information for effective communication with referring clinicians and for billing compliance.⁸

Another publication looked into the referring physician's perception of the quality of the reports worldwide. About two-thirds of the referring physicians were either always, or in most cases, satisfied with the quality of the diagnostic report.² However, about 30% reported ambiguity, poor explanations and a lack of familiarity with the report terminology, and 11% expressed a very low level of comprehension.

Most of the referring physicians considered the discussion of differential diagnosis for the PET/CT abnormalities important; and about 60% preferred the report focusing on the clinically relevant differential diagnosis instead of a detailed and complete differential diagnosis. As for access to images, almost 50% of the clinicians expressed that access to images is absolutely necessary and around 37% considered it very useful.²

Naik et al. used the introduction of picture archiving and communication systems (PACS) to reassess the merits of traditional prose dictated reports in 2001.¹⁰ Based on the results of a review on the quality and content of existing prose records and a survey among referring physicians and radiologists, they concluded that the majority of the radiologists and referring clinicians preferred itemized reports over prose versions—the latter often showed a lack of standardization and wide varieties in the content.¹⁰

The Role of the Imaging Specialist

The SNMMI, the ACR, the European Association of Nuclear Medicine (EANM) and many other national societies of individual countries have published practice guidelines specific to PET/CT.^{11,12,13,14} Those documents list the essential components that should be included in the imaging report of a diagnostic study and are complemented by specific reporting guidelines and supporting documents.^{7,15} Niederkoher et al. compiled the existing information

in Table 1 in a guidance document in 2013⁶ and elaborated on the essential elements for a high quality PET/CT report (Table 1). The authors underline, again, the importance of the report for patient management, clinical outcome, reimbursement and legal documentation and its crucial role in increasing the clinical use and acceptance of PET/CT. They also suggest ensuring a consistent high-quality PET/CT report by standardizing their structure and language.⁶

In addition to the quality of the report, a timely turnaround is also very important to ensure the optimal patient management and maximal appreciation of PET/CT technology.^{3,6}

Of note is that almost 90% of referring physicians expressed the need to discuss the report with the imaging specialist at least sporadically (almost 50%) or even more frequently (almost 40%).²

More than 85% of the referring clinicians consider access to images as either absolutely necessary or very useful.² Access to images is thus a clinical need that can be easily addressed given the current image viewing and presentation options.

Table 1: The essential elements of a PET/CT report.⁶

Reporting Element	Description
Clinical history	<ul style="list-style-type: none"> • Indication for study • Cancer type and site, if applicable • Brief review of treatment history, if applicable
Technique	<ul style="list-style-type: none"> • Radiopharmaceutical name and dose/activity • Route of radiopharmaceutical administration • Uptake time (= from radiopharmaceutical injection to imaging) • Blood glucose level • Ancillary medications administered, if applicable • Precise body region scanned • CT technique (including whether oral or intravenous contrast was used; if applicable, name and volume of agent)
Comparison studies	<ul style="list-style-type: none"> • Whether comparison was made with prior PET or PET/CT studies; include dates when available • Whether correlation was made with prior non-PET imaging studies; include dates when available
Findings	<ul style="list-style-type: none"> • Location, size/extent, and intensity of sites of abnormal uptake • Abnormal PET findings correlated with concurrent CT images or correlative imaging studies, if applicable • Incidental PET findings • Incidental CT findings
Impression	<ul style="list-style-type: none"> • Clear identification of study as normal vs. abnormal • Interpretation of findings, rather than just restatement of findings • Succinct differential diagnosis provided, if applicable • Recommendations for follow-up studies, if applicable • Documentation of communication of urgent or emergent findings to referring physician or surrogate

The Preliminary Report

The preliminary report precedes the final report and is often used to direct immediate patient management. Most of the preliminary reports will contain limited or incomplete information. Those reports can be communicated in writing, verbally or electronically and should be documented and converted into a permanent format as soon as possible. Those documents have to be labeled as “preliminary report” and should be archived; in particular since they might have been the basis of clinical decisions.

It is of utmost importance that any significant change in findings and/or conclusion between the preliminary assessment and the final diagnostic interpretation should be reported to the referring clinician, especially when such differences may impact patient care.⁷

Case Presentation in Interdisciplinary Meetings

Presenting the findings and their interpretation during interdisciplinary meetings, such as tumor board meetings, allows the referring physician and the imaging partner to discuss the imaging finding within the clinical context in order to maximize their impact on the patient management. Potential questions and uncertainties can be addressed directly by the imaging physician. Such interaction often presents a highly educational value for all representatives of the different specialties. Both clinicians and imaging experts feel that the participation of the imaging physician in those meetings is instrumental for optimal patient management, bilateral education and the clinical acceptance and growth of PET/CT.³

Non-routine Communication

In emergent or other non-routine clinical situations, the interpreting physician should ensure the timely delivery of diagnostic results to the ordering physician, in particular in cases where failure to act may adversely affect patient health. Examples of such situations include results that suggest a need for immediate or urgent intervention, or are conflicting with a preceding interpretation of the same examination. Other examples are incidental findings which the imaging specialist reasonably believes may be seriously adverse to the patient’s health in the future, especially in situations when there is a potential break in the continuity of care.^{6,8}

The need for expedited, non-routine communication depends on the clinical context. For example, if a patient is scheduled for a curative surgery for lung cancer the next day, the presence of a previously unknown distant metastases certainly would justify a timely communication with the referring physician.⁸

It is important that any non-routine communication needs to be executed in a manner that reliably ensures reaching the attention of the ordering physician in time. Whereas interactions in person or by phone are appropriate to assure the reception and acknowledgement of the critical information, methods like texting, facsimile, voice messaging, instant messaging or e-mail may not and might not be compliant with the privacy requirements of the United States Health Insurance Portability and Accountability Act (HIPAA).

All non-routine communications should be documented and filed and should include a least the time of the interaction, the method of communication as well as the name of the person to whom the message was delivered.⁷

Conclusion

Any PET/CT center can be considered as a service provider for its clients, the referring physicians. Continuous communication and interaction between the imaging and the referring physician is of utmost importance to address the need of the clinician and to ensure optimal patient management as well as appropriate use of PET/CT imaging. In particular, the selection of the appropriate imaging study and the communication of urgent or critical results would benefit from more personal interaction between the interpreting physician and the clinician. The existing lack of standardization and the substantial amount of missing critical information in many written reports represents an area with significant room for improvement.

Even though more than 90% of clinicians were at least satisfied with the accessibility of imaging experts for consultation, more than 96.3% of the respondents agreed that even more interaction between referring and interpreting physicians would benefit patients² and consequently support the appropriate use of PET/CT.



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Additional Resources

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