Physicians' Assessment of Cancer Comorbidity Collection Methods: A Qualitative Analysis

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Abstract

Objective: We conducted a qualitative assessment of oncologists' preferences for comorbidity capture methods comparing the ICD-9 claims-based approach to the Adult Comorbidity Evaluation-27 (ACE-27) record abstraction approach.

Materials and Methods: Building upon theoretical foundations in anthropology, we developed a qualitative methodology to elicit the thoughts and reactions of 21 practicing oncologists about their preferences for claims-based *vs.* record-abstraction methods of capturing comorbidity. Grounded theory approach was used to identify recurring themes and dominant concerns expressed by multiple respondents. Codes were developed and applied in two phases: initial and focused.

Results: Thematic analysis of qualitative interviews revealed five key domains of concern: accuracy, specificity, utility, robustness and the ease of use of the information for clinical decision-making. There was a strong preference among physician respondents for comorbidity information captured through chart abstraction methods such as the ACE-27. Most respondents felt that claims-based comorbidity data, although easy to capture in the process of billing and coding medical encounters, generally lacked a level of specificity and robustness, thereby rendering the information less clinically useful.

Conclusion: For complex, chronic conditions, claims-based comorbidity was seen by respondents as superficial, nonspecific and at times inaccurate in which case medical record abstraction data would be preferred.

Introduction

Accurate assessment of cancer patients' comorbidity is essential for developing appropriate treatment plans, gauging prognosis and counseling patients [1]. Cancer patients with serious comorbid conditions such as heart disease, renal failure, psychiatric conditions and previous cancers diabetes, renal failure or COPD may have varying clinical outcomes in response to standard treatment regimens [2-4].

However, capturing comorbidity is problematic. Claims-based assessments using ICD-9 codes are convenient, but may miss important aspects of the patient's overall health and medical condition since codes are assigned by billing technicians primarily with regard to reimbursement for medical services provided [5,6].

Medical record abstraction approaches such as Adult Comorbidity Evaluation-27 ACE-27 are likely to be more comprehensive, but may be more time-consuming because they require the use of trained registrars to review patient charts to identify salient comorbid conditions [7]. Little is known about physician preferences with regard to comorbidity assessment or which method (claims-based or medical record abstraction) provides the most valuable information for practicing clinicians rendering care to cancer patients.

We conducted a qualitative assessment of oncologists' preferences for comorbidity capture methods comparing the ICD-9 claims-based approach to the ACE-27 record abstraction approach in order to determine which method provides the most helpful clinical information in a variety of patient care scenarios.

Materials and Methods

Building upon theoretical foundations in anthropology [8,9]. We developed a qualitative methodology to elicit the thoughts and reactions of practicing physicians about their preferences for claims-based *vs.* record-abstraction methods of capturing comorbidity information.

Qualitative research permits respondents to interact with and respond to interviewer questions and to offer observations, perceptions and preferences which may not be successfully recorded using structured survey approaches. Oncologists from academic and private medical practices in several US cities were identified through

professional contacts and those who agreed to participate were recruited between August 2007 and January 2009.

Eligible physicians were practicing clinical oncologists who were actively engaged in the care and treatment of patients with cancer. Respondents were sampled purposively to achieve diversity of geography; gender and oncologic specialty focus (medical, surgical, radiation). After providing informed consent, study participants were interviewed face-to-face by one of the two trained research assistants who assessed physician respondents' reactions to a series of five randomly selected cancer case scenarios.

Each scenario provided a brief history of an individual patient with a recent cancer diagnosis (brain, prostate, lung, breast or leukemia) along with additional co-morbidity information obtained from claims-based (ICD-9) and medical record abstraction (ACE-27) approaches. Physician respondents were first presented with the basic case scenario information about each patient and co-morbidity information was initially kept hidden from the respondents.

Then, after reading and understanding the basic circumstances of each case, respondents were asked to choose to learn co-morbidity information obtained through one and then the other method (claims-based *vs.* record abstraction). Respondents could choose to learn claims-based information first followed by record abstraction information, or vice-versa, depending upon their preference.

Then, respondents were asked a series of open-ended questions to elicit their reactions to learning this information from each of the methods, the clinical utility of the additional information, and their preferences for one or the other method. Each interview lasted approximately 60 minutes and participants were compensated for their time an example of a patient scenario and associated co-morbidities is presented (Figure 1).

All study procedures were approved in advance by the Washington University Human Research Protection Office (HRPO).

Figure 1: Example of patient case scenario.

Qualitative Data Analysis

Interviews were recorded using a digital voice recorder and then transcribed verbatim for content analysis. Using a grounded theory approach members of the research team sought to identify recurring themes and dominant concerns expressed by multiple respondents [10,11].

Grounded theory uses inductive logic to generate conceptual understandings based on iterative analyses of study participants' responses [12]. Interview transcripts are systematically analyzed by applying codes to various segments of interviews which address specific areas of study concern [8,13].

The codes themselves are generated through the process of reviewing interview transcripts and identifying thematic content raised by the study participants themselves. In this fashion, code development is iterative and ongoing and previously coded interviews must be reviewed and recoded if necessary, to apply new codes which emerge through the analytic process.

This "zigzag" relationship between interviewing, code generation and code application is fundamental to the grounded theory approach [8]. Coding of transcripts was facilitated using qualitative data analysis software (The Ethno graph v5.0, Qualis Research, Colorado Springs, CO). Codes were developed and applied in two phases: initial and focused [14].

The initial codebook was developed after analyzing the first half of the interview set and initial codes were applied to all interviews. These were basic codes which captured the robust sentiments about comorbidity collection methods generally expressed by members of the interview sample.

Following this a more detailed, focused codebook was developed to capture subtle themes and concerns of respondents which may not have been clearly evident at the outset of data analysis. Earlier interviews were then reviewed and additional focused codes were applied to all transcripts. In order to assure accuracy of the coding process, a research assistant independently co-coded a subsample of interview transcripts and results were compared with the initially-coded transcripts [15].

Results

A total of 21 physicians were interviewed for the study from 2007-2009 basic information about study participants: most respondents were male (n=17; 81.0%) and most were medical oncologists/hematologists (n=4; 66.7%) (Table 1).

The sample was quite geographically diverse: participants hailed from a six states across the U.S. South, Midwest and East. Physician participants had been in practice for an average of 20.2 years (std. dev. 10.9).

With regard to preference for comorbidity collection, most respondents clearly favored information obtained through record-abstraction using the ACE-27 method and were concerned about the quality of the information obtained using claims-based analysis of ICD-9 codes.

In many cases, respondents did not feel the claims-based information would materially contribute to their clinical management decisions. Thematic analysis of qualitative interviews revealed five key domains of concern: accuracy of the information, specificity of the information, utility of the information, robustness of the information and the ease of use of the information for clinical decision-making (Table 2). Each of these themes is explored in greater detail below.

Characteristic	N(%)
Gender	
Male	17 (81.0)
Female	4 (19.0)
Years in Practice	
0-10	6 (28.6)
11-20	5 (23.8)
21-30	5 (23.8)
31-40	5 (23.8)
Primary Specialty	
Medical Oncology/Hematology	14 (66.7)
Surgical Oncology	4 (19.0)
Radiation Oncology	3 (14.3)
Geographic Location	
Alabama	5 (23.8)
Arkansas	2 (9.5)
Maryland	2 (9.5)
Mississippi	2 (9.5)
Missouri	6 (28.6)
Texas	4 (19.0)

Table 1: Description of study participants.

S.No.	Domain	Assessed
1	Accuracy	√
2	Specificity	√
3	Utility	√
4	Robustness	√
5	Ease of Use for Clinical Decision Making	√

Table 2: Domains of concern regarding comorbidity capture method.

Accuracy

Physicians were concerned about the accuracy of claims-based data and expressed clear preferences for the chart abstraction method of assessing co-morbidity which they held to be more accurate and more complete. While claims-based ICD-9 data are generally easier to collect since this is done during the course of chart review; for billing many physicians were concerned that the codes themselves may not be accurately recorded particularly as these codes are generated for billing purposes rather than to assist with clinical care. Physician respondents were also concerned that claims-based codes may be arbitrary or incomplete, reflecting only what is captured in the immediate clinical encounter and may miss capturing certain underlying conditions such as hypertension or diabetes if they were not immediately relevant. By

contrast, while collecting ACE-27 data would be more time-consuming, the potential exists for these data to paint a more accurate and comprehensive picture of the patient's current comorbidity status, since the information would be gathered through chart review by trained paraprofessional staff who are clinically engaged. The following quotes illustrate sentiments commonly expressed by study participants.

"This ICD-9-it's vague, it doesn't, I don't even know, I question that diagnosis. But this ACE-27 is more objective and has some value that would determine whether or not she might be eligible for radiation." (Physician #19, medical oncology)

"I certainly think it would be better to have some sort of a registrar that was trained (to capture comorbidity information) rather than somebody who is just billing or coding because there are also inaccuracies incurred as a result. A person who doesn't know anything about it and so does it wrong."(Physician #1, hematology)

Specificity

Physicians generally expressed preference for comorbidity data which was more directed and specific and this generally emanated from the chart abstraction method of capturing this information. Respondents were concerned that claims-based codes are overly general and do not always contribute important nuanced information.

"Nonspecified alcohol abuse, depression not otherwise specified, [the ICD-9 information] does not tell you any more information here, so that does not help you [Information from the ACE-27] would be more helpful than the ICD-9. It tells you more about the comorbidities of the patient."(Physician #20, medical oncology)

"It seems like the ACE-27 give you a lot more specific information, you know, telling you not only this obviously is diabetes (but also that) somebody has got complications from diabetes."(Physician #16, radiation oncology)

"The ICD-9 is better than nothing, but it is not specific enough. It is not functionally oriented, you know. The ACE-27 is more refined, more specific, more useful and more reliable."(Physician #3, medical oncology)

"So here the ACE-27 gives you more information again with the FEV_1, and in particular lung cancer patients, FEV_1 is helpful." (Physician #19, medical oncology)

"The ACE-27 was much better, more specific. I assume that this picked up the hepatitis because it was too far down the list of ICD-9 codes and that was helpful."(Physician #9, medical oncology)

Utility

Physician respondents expected comorbidity data to provide useful information to enhance their clinical decision-making. By and large, study participants found chart abstraction data to be more clinically useful than claims-based data. In part this is due to the fact that they perceived chart abstract to be more accurate and specific, and more clinically relevant than information generated from billing claims.

"[The ICD-9 information] is not helpful. This will not help me to say anything about the breast cancer. It will not tell me about prognosis or chances of relapse of survival, so no, this is not useful."(Physician #21, medical oncology)

"[The ACE-27 information] is actually much more useful, this allows me to make decisions about-if she has an FEV_1 of 66-80% that

helps me with treatment planning and decision making this is much more informative."(Physician #17, surgical oncology)

"[ICD-9 codes] are not that useful in a sense like, I mean, it is all just for the diagnosis, so you can charge the patient. It tells you what the diagnosis is, but that's it." (Physician #20, medical oncology)

Robustness

Physicians expressed concern that the information obtained by claims-based methods was at times superficial and, even if accurate, did not provide the depth of detail needed to meaningfully affect clinical decisions.

"[ICD-9 information] does not add a whole lot to what we already know."(Physician #17, medical oncology)

"The ACE-27 provides a more clear idea of the patient's comorbidities. It gives me a better synopsis of her overall health." (Physician #7, radiation oncology)

Ease of use for clinical decision-making

Physicians expected comorbidity data to be immediately relevant to patient care, and to meaningfully contribute to clinical decision-making. Many respondents were concerned that claims-based data did not provide enough information to easily allow them to integrate this information into patient care decisions which would improve clinical outcomes. By contrast, chart abstraction data was seen as easily understood, clinically relevant and therefore easily integrated into clinical management practices without requiring additional clarification.

"I think some way to capture comorbidities is important. And I think that…probably overall, the ACE-27 would be better. The main purpose of the (ICD-9) registry is not-to me-no one makes treatment decisions based on these data."(Physician #19, medical oncology)

"Across the board, the ACE-27 seems to be the winner. Since it seems to be a bit more specific about what is ongoing, what is the current problem now, what is treated with medication, what are the chronic and acute (problems)."(Physician #16, radiation oncology)

"I think the ACE-27 has provided more information that would alter treatment decision-making as far as overall survival and outcome…as far as treatment management, the ACE-27 provided more information." (Physician #17, medical oncology)

"The ACE-27 just gives a bit more description… leads you to pay more attention. These are just going to cause some trouble, these comorbidities [and the] ACE-27 sort of points me toward more concrete information that I may base my decision on."(Physician #3, medical oncology)

Discussion

Qualitative in-depth interview discussions revealed a strong preference among physician respondents for comorbidity information captured through chart abstraction methods such as the ACE-27. Most respondents felt that claims-based comorbidity data, although easy to capture in the process of billing and coding medical encounters, generally lacked a level of specificity and robustness, thereby rendering the information less clinically useful. In some circumstances, claims-based comorbidity information may be entirely adequate for example, when the comorbid condition is likely to have limited impact on

cancer prognosis or treatment decisions. However, for more complex, chronic conditions, claims-based comorbidity was seen by respondents as superficial, nonspecific and at times inaccurate in which case medical record abstraction data would be preferred.

The use of a grounded theory approach for data analysis provided an opportunity to compare and contrast comorbidity collection methods without preconceived notions of physician desires or expectations. The identification of dominant themes and concerns through an iterative analysis of physician responses further supports the use of such an inductive research strategy. Allowing physicians to evaluate the two approaches and speak freely about their observations and concerns generated new insights which might not have been accessible through structured, closed-ended questioning or survey methods.

One potential concern about the ACE-27 voiced by some respondents was the amount of time and effort that might be required to generate medical-record abstractions. Whereas claims-based comorbidity may be generated in the normal course of coding and billing (and therefore would require no additional cost), medical record abstraction would require the additional cost of hiring and training professional or paraprofessional staff members with appropriate clinical expertise. Some respondents did express concern that this process might add to the overall cost of medical care in which case claims-based comorbidity assessments, while perhaps less robust and less specific might be a reasonable, less costly alternative. However, most physician respondents felt that the information generated by record abstraction was sufficiently more comprehensive than that obtained from claims-based data and small costs associated with this may be justifiable.

There are several limitations to our study. Our results may not be generalizable to the larger community of cancer specialists owing to the limited number of physicians who participated in the study. Qualitative studies generally require smaller sample sizes due to the large amount of textual data obtained and our sample did provide rich and complex narrative data to the point of saturation on issues related to comorbidity collection methods [16]. However, the small number of participants as well as the qualitative nature of the data collected precluded any sort of statistical analysis or statements about generalizability of study findings. Also, we cannot fully exclude the possibility of bias in the coding process, although steps were taken to minimize subjectivity in code generation and assignment, and to ensure intercoder reliability [8]. Nevertheless, within the confines of these limitations, we believe the qualitative research methodology provides a unique opportunity to explore physicians' reactions and preferences regarding different modes of comorbidity data collection. Focusing the study on the physicians themselves and their direct reactions to the scenarios gives us insight into what physicians need and find of utility as they attempt to manage patient care.

Conclusion

Physician respondents expressed a preference for medical record abstraction over claims-based methods of capturing cancer comorbidity. Record-abstraction data were considered to be more accurate, more specific, more clinically useful, more robust, and more easily integrated into patient management decisions. Additional research is required to clarify the extent to which these findings may be generalizable to a larger population of physicians caring for patients

with cancer and the extent to which comorbidity assessments can be incorporated into routine clinical care.

Acknowledgement

Declaration of Conflicting Interests

The Authors declare that there is no conflict of interest.

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