Referrals to Integrative Medicine in a Tertiary Hospital: Methods Appendix

Selection of Interview Participants

We set out to recruit 46 participants, comprised of physicians, nurses, and administrators at Abbott Northwestern Hospital (ANW). Our goal was to interview individuals representing various clinical service lines in the hospital: Cardiovascular, Mother Baby (maternity care), Neuroscience and Spine, Orthopedics, and Oncology, as well as physicians and an administrator in the Hospitalist Service. Physician and nurse participants had to have made at least one patient referral for integrative medicine services in the year before we created our list of prospective participants. Additionally, for nurses and physicians, we were interested in speaking with both "high referring" and "low referring" providers, that is, those who had a recent history of placing either many or very few orders for integrative medicine. The prospective study sample was as follows:

- 24 physicians: two high and two low IM referring physicians employed by or affiliated with Abbott Northwestern Hospital from the Cardiovascular, Mother Baby, Neuroscience and Spine, Orthopedics, and Oncology clinical service lines and the Abbott Northwestern Hospitalist Service.
- 16 nurses: two high and two low IM referring nurses from the Abbott Northwestern Hospital Cardiovascular, Mother Baby, Neuroscience and Spine, and Oncology clinical service lines. (It was decided the orthopedics nurses would not be included because their department generally relies on standing orders for IM, a process in which they do not have a role in decision making or placing orders.)
- 6 administrators (i.e., the acting physician lead) of the Cardiovascular, Mother Baby, Neuroscience and Spine, Orthopedics, and Oncology clinical service lines and the Hospitalist service.

Administrators were identified based on the study PI's (JD) knowledge of who the acting physician leads were for each service line. To identify prospective physician and nurse participants based on referrals, data were obtained from the hospital's Electronic Data Warehouse (EDW). To minimize the effects of employment length on referral rate, we only counted referrals from nurses and physicians who had continuously worked at Abbott Northwestern Hospital and had had referral privileges for the previous year. Nurses were required to be FTE>.6 at the time of the study to be considered eligible. Physician and nurse staff rosters were used to identify years/dates of employment and FTE. Using the 'Orders' file from the EHR, three order codes were retrieved: 207179-Acupuncture Evaluation and Treatment, 207180-IP Consult to Integrative Medicine, and 207853-Nursing Consult to Integrative Medicine. "Authorized provider" and "order writer" names were extracted from the file. A list of eligible nurses was generated by comparing a roster of nurses with a list of orders placed for IM services. The same process was used for physicians. Physicians and nurses were categorized according to specialty/location: hospitalist (physicians only) or clinical service line (Oncology,

Cardiovascular, Mother Baby, Orthopedics [physicians only], and Neuroscience and Spine). Specialty/location designation was determined by physician and hospitalist rosters obtained from the Medical Staff department and nursing rosters obtained from the Nursing department at Abbott Northwestern. Within each of the clinical service line/hospitalist and nurse groups, frequencies were obtained using SAS to determine high, moderate, and low referring provider status for physicians and nurses. High and low referring providers were identified (again, using SAS) by way of randomly ordering each list and isolating the top 10 percent most frequent referrers (high) and anyone with two or one referrals (low: two or fewer referrals constituted the bottom 50 percent of the population).

Random selection of physician and nurse participants was intended to occur until two interviews were completed from both the high and the low referring groups for each clinical service line. However, because interview transcripts were coded and analyzed as they became available (see Processing, Coding, and Analyzing Data below), data saturation was reached before completing all 24 physician and 16 nurse interviews.

Recruitment and Scheduling

JD initially proposed the study to all potential participants via an emailed letter. A "Common Questions" document and a consent information document accompanied the email letter and provided additional details on the study. Following low initial response rates in all groups, follow-up contacts were made in the following ways:

- Administrators: Follow-up phone calls or emails from JD to administrators and/or their administrative assistants.
- Physicians: A hard copy packet sent by FedEx or internal mail, depending on office location. Packets contained a signed copy of the invitation letter from JD, a signed copy of a generic support letter for the study (addressed "Dear Colleague") from the clinical service line administrator to any physician in that administrator's service line, the common questions sheet, and the verbal consent information. These packets were followed by a phone call and/or email from study coordinator KG asking for confirmation of receipt and inquiring as to interest in participation.
- Nurses: A hard copy packet sent by internal mail. Packets included a signed copy of the invitation letter from JD, a signed copy of a generic support letter for the study from the head of nursing at ANW, the common questions sheet, and the verbal consent information. These packets were followed by an email from KG inquiring as to interest in participation.

If a potential participant was interested in learning more about the study and/or scheduling an interview, they were asked to contact KG. KG scheduled all interviews and tracked recruitment status in a private Excel spreadsheet. Those who declined to participate communicated to KG that they were not interested (no reason given); had family/scheduling commitments or were too busy; or had recently retired. Other individuals provided no response after the initial invitation

and a series of follow-up communications, and were considered not interested in participation. Seventy invited individuals either did not respond or declined to participate (36 physicians and 34 nurses). Decisions to participate were communicated either to JD or KG via email or telephone. A total of 37 individuals participated (also see Figure):

- 15 physicians
- 15 nurses
- 7 administrators. This group included two administrators associated with the Neuroscience and Spine service line, because this service line was undergoing a leadership transition during the study period. One of the two neuroscience and spine interviews was not used when it was determined that that administrator's duties were primarily outpatient-focused.

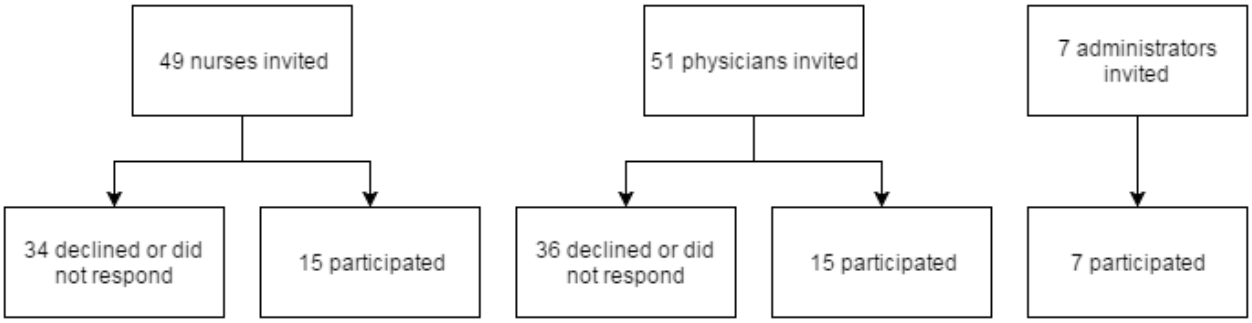

Figure: Recruitment of interview participants

Eight of the physicians, two of the administrators, and all of the nurses interviewed were women.

Recruitment began on March 19, 2014 and was completed on April 7, 2015. As mentioned above, data saturation was reached before completing all 24 physician and 16 nurse interviews. These two groups were also more challenging and time-intensive to recruit and schedule. Recruitment was completed for administrators.

Interviews and Consent Process

Interviewers

KG began the study as a Research Coordinator and her title changed to Associate Scientific Advisor during the course of the study. KG was trained in qualitative research methods and analysis and participated in qualitative data collection, management, and analysis on a range of projects for several years before this study. JC was an experienced qualitative researcher. As a consultant on the study, he designed the protocol and interview questions. Before data collection, the interviewers participated in a practice interview session to establish similar approaches to using the interview protocol with prospective participants. Neither interviewer had any interaction before the study with the participants interviewed.

Interviews

KG conducted 35 interviews among the administrators, physicians, and nurses. JC was in attendance for one of the nurse interviews. JC conducted two administrator interviews (with KG in attendance). Interviews were conducted between May 1, 2014 and April 16, 2015. Nurse interviews were conducted either in a private room at the study team office or in a quiet and unoccupied seating area near the hospital's main lobby. Nurse interviews were generally scheduled for a window of time before or after the nurse's shift. Physician interviews were conducted either at the physician's office or in a quiet and unoccupied seating area near the hospital's main lobby or another lobby area in the hospital (e.g. lobby of the Mother Baby Center). One physician interview was conducted in an unoccupied examination room near where the physician was working that day. Physician interviews were frequently conducted on same-day short notice, when the physician had a window of availability during a shift. Administrator interviews were held either at the administrator's office or in a private meeting room elsewhere in the hospital.

Separate interview protocols were used for each type of participant, having been created by the research team and approved by the IRB. Questions went through several rounds of revisions by the team, and were tested in practice interview sessions among the interviewers. An interpretivist paradigm was used in creating the interview guides and subsequently in analyzing the data. As data collection was underway, some commonly-used prompts were added after receiving approval from the IRB. Administrator questions addressed professional background, personal experience with IM, their assessment of the knowledge and support of IM services by providers in their service line, and personal perspectives on IM. Nurses were asked about professional background/role, personal and professional experience with IM, use of the IM referral system, and interactions with patients and patients' family members regarding IM services.

Interviews ranged from six to 28 minutes. Interviews were shorter than the estimated 30 to 45 minutes, due to time constraints of the participants (e.g., most physicians fit the interviews into the midst of a clinic day or on-call shift at the hospital). Each participant was interviewed only once. All interviews were recorded on a handheld Olympus DM-620 digital voice recorder, and immediately following the interview the digital files were saved to a private folder on the server only accessible to interviewers, and erased from the recording device. Notes were made by the interviewer during and/or after each interview. Immediately following each interview, these notes were scanned and saved to a private folder on the server only accessible to interviewers, and hard copies were securely destroyed.

Consent Process

The verbal informed consent process took place at the beginning of each interview, before recording was begun. Participants were asked if they had read and understood the consent information (provided during recruitment) and were given the option to take another hard copy of the information with them. For participants who had not read the information or wished to be

reminded of its contents, the interviewer reviewed key points of the document. Participants were asked if they agreed to be audio-recorded. All said yes without hesitation. Once recording began, each participant was asked again to confirm that she or he agreed to be recorded. At the conclusion of each interview, the interviewer confirmed that she was stopping the recording device. Only individuals able to consent of their own volition were recruited and interviewed.

Processing, Coding, and Analyzing Data

Interview audio files were transcribed in batches by two experienced transcriptionists hired through a local temporary employment agency. Either Olympus Sonority or Olympus DSS Transcription Module software was used for audio file playback, with files removed by KG from the playback software immediately after each transcriptionist's workday concluded. Only one transcriptionist worked at a time; the second was hired when the first moved away and was no longer available. A transcription protocol[1] was used to ensure consistency, and all transcripts were checked against the corresponding audio file by KG, with corrections made as necessary. Completed transcripts were saved in a secure and private folder on the server only accessible to the interviewers. Transcripts were not returned to participants for review.

KG and KCN used Atlas.ti version 7 to organize and code transcripts. This process was ongoing, as transcripts became available. The interview protocol questions were used to establish a basic coding structure, to which inductive analysis[2] principles then were applied. The inductive analysis process involves open coding to develop codes, categories, patterns, and themes. These elements then are refined, using deductive processes to form analytical hypotheses about the data. Different code catalogues were created for each participant group (i.e., physicians, nurses, and administrators). KG and KCN met regularly (weekly, in most cases) to discuss the coding process and the emerging catalogue of codes. Intercoder reliability was established early in the coding process by way of KG and KCN coding several of the same transcripts and comparing findings, which were overwhelmingly similar. JC and another consultant, Dr. Michael Finch, also met once with KG to review a sample of transcripts and review the accompanying codes that were associated with each interview question. KCN completed the majority of the coding and then created documents for each participant type in which he summarized primary findings by question, in addition to any other notable themes that had emerged in each participant group.

1. McLellan E, MacQueen KM, Neidig JL. Beyond the qualitative interview: data preparation and transcription. Field Methods. 2003;15(1):63.
2. Patton M. *Qualitative Research and Evaluation Methods.* 3rd ed. ed. Thousand Oaks, CA: Sage; 2002.