The Influence of Medicales on Patient Relevant Outcomes

BY

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THESIS
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SUMMARY

Physicians and patients generally use different kinds of languages during medical encounters. Physicians are familiar with and regularly use both their everyday language(s) and medical language, commonly referred to as 'medicalese', whereas patients are typically only fluent in their everyday language(s) and tend to be unfamiliar with medical language. A mixed methods survey based study was implemented to 1) investigate the influence of physicians’ use of ‘medicalese’ (formal medical terminology) on respondents’ (patients’) understanding of a newly presented diagnosis and associated management plan and 2) describe respondents’ (patients’) impressions of physicians’ competence, communication skills and professional conduct in relation to physicians’ use of medicalese. Medical language had an effect on participants’ comprehension of the presented information and on participants’ perceptions of the physician: the use of medical language was significantly and negatively associated with participants’ comprehension of the presented diagnoses and treatment plans, and participants’ perceptions of physician competence, communication skills and professional conduct.
I. INTRODUCTION

Communication between health care providers and patients is an essential clinical skill known to influence important outcomes including patient satisfaction, adherence to recommended treatment, and self-management of disease(1-3). This association between communication and outcomes has been demonstrated in a variety of settings including acute and chronic care(4-6), oncology(7, 8), rheumatology(9) and rehabilitation(10), and with patients of all ages, and socio-demographic and ethnic backgrounds(4). Doctor-patient communication has been proposed to involve a number of overlapping dimensions such as verbal and non-verbal communication, physician affective and emotional behaviors (e.g., reassurance, politeness, and patience), task-focused and controlling behaviors (e.g., information giving and seeking and interrupting) and the attention given to patient privacy issues(1, 8). The vocabulary used during medical conversations can be seen as an important component in the communication process, relevant during most doctor-patient interactions(1). Patient-appropriate language is considered to be a fundamental element of adequate communication(11). Yet, despite a substantial and growing body of literature focused on doctor-patient communication, relatively little attention has been devoted to the type of language used during medical encounters.

The limited literature on the language used during medical encounters suggests that doctors and patients generally use different kinds of languages(12). Doctors are familiar with and regularly use both their everyday language(s) and medical language, herein referred to as ‘medicalese’, whereas patients are typically only fluent in their everyday ‘lay’ language(s) and tend to be unfamiliar with medicalese(1, 12). Physicians,
for example, could use either “shortness of breath” or “dyspnea,” “itchiness” or “pruritis,” whereas patients are more likely to only be familiar with the latter “lay” terms. Discrepant levels of comfort with medical language has been proposed to be an important contributor to patients’ understanding, and occasional misunderstanding, of information communicated in conversations with physicians(12, 13), but this topic has yet to be well-explored in the literature.

Much of the work to date on medicalese has focused on its influence on either the public(14) or on medical trainees(15, 16), rather than on patients. For example, students rated disorders labeled with medicalese as more serious, more representative of a disease and less prevalent than the same disorder described in lay terminology(14). The language that students used in clinical case presentations was one of four dimensions found to be relevant to supervisor assessments of student trustworthiness, with medical language being associated with better impressions of trustworthiness, in a study of point of care assessments of competence for independent work (17). The role of medicalese on exam performance of medical trainees has been evaluated, with results suggesting that the influence of medicalese depends on the level of trainee expertise and aptitude(15). In a recent study, however, the use of medicalese does not seem to influence test results of medical graduates on the Canadian national qualifying exam(16). To our knowledge, the relationship between type of language (medical or lay) used during patient communication and specific patient-relevant outcomes has not previously been explored.
Although it can be assumed that physicians generally intend to speak in patient appropriate language, occasionally some may use patient-inappropriate language. In a survey of 40 physicians, student nurses and patients, physicians reported using mostly medical language with other health professionals, but changing to everyday lay language with their patients. However, patients and student nurses did not perceive doctors using more lay language with their patients than with other health professionals(18). Interestingly, all survey participants felt that lay language is more appropriate for patients than medicalese(18). However, other studies have suggested that most patients accept, and sometimes prefer, the use of medical terminology, as long as these words are explained in parallel with lay terminology(19, 20). Patient preference for medicalese, when it occurs, may be related to presumed positive views of physician competence and knowledge in doctors that use medicalese, but this remains speculative.

Patients’ understanding of their illness appears to be an important, potentially modifiable, mediator of adherence to medications for chronic conditions and self-management behaviors(5, 6, 21). For example, a prospective cohort study of adults with asthma showed that patients who reported they only had asthma when they were having symptoms (as measured by a direct question to this effect), had different views of asthma cause, management and prognosis from that of their physicians’, and consequently they had poor adherence to recommended asthma treatment(4). Similar patterns have been described in patients with hypertension(21, 22), high cholesterol(23, 24), and congestive heart failure(25), where patients’ misconceptions of their diagnoses and long term consequences have been associated with poor adherence to treatment, and have been
linked to poorer health outcomes. Patients’ conceptualizations of their illness also appears to be an important determinant of the health related distress that they may experience. For example, a study of breast cancer patients showed that those who thought of their cancer as an acute illness reported more anxiety, depression, and worry about recurrence compared with those who viewed their cancer as chronic or relapsing (26).

The use of medicalese may indirectly influence patient relevant outcomes, through the impact of different conceptualizations of health and disease. In other words, use of medical language may lead to understandings of a disease which differ from those of their physicians, and these differences in understanding have been previously documented to negatively influence patient outcomes (21-24). Extensive use of medicalese, as distinguished from patient-appropriate language, for example, may lead to patients’ incomplete or inaccurate understanding of information communicated in conversations with their physicians with subsequent inappropriate conceptualizations of disease. The language used during physician-patient conversations could be a potentially critical element influencing patients’ conceptualization of their disease and therefore, of disease outcomes.

The goals of this study are to:

1) Investigate the influence of physicians’ use of ‘medicalese’ (formal medical terminology) on respondents’ (patients’) understanding of a newly presented diagnosis and associated management plan.
2) Describe respondents' (patients') perceptions of physicians' competence, communication skills and professional conduct in relation to physicians' use of medical language.
II. METHODS

A. Study Population and Setting

The study population consisted of a convenience sample, comprised of individuals over 18 years of age, who have adequate functional mastery of the English language. Study investigators identified potential participants from among their acquaintances (e.g., friends, family and acquaintances). The study was conducted in quiet and private areas, using a laptop computer.

B. Recruitment

Eligible participants were first approached via email or text message from the lead study investigator (LB). A standard recruitment script was used (See Appendix A for recruitment script). Those who responded with interest were invited to meet in person with the lead study investigator. The study was then explained in detail during the subsequent meeting and, if the potential participant agreed to take part, informed consent was documented in writing. No incentives were provided.

C. Design

1. Overall Design

Participants viewed videos of physicians explaining a new diagnosis to a patient, presented in varying levels of medical language. Levels of medical language content in the videos were: a) mostly containing medicalese language, b) mostly containing lay terminology and c) mixed language (an approximate 50/50% blend of lay and
Each participant viewed one video from each language type, with a different
diagnosis in each presented video (counterbalanced across participants). The three videos
were presented in random order, with language and diagnosis counterbalanced across
participants (programmed using customized RunTime Revolution 3.5 software).
Participants completed computer-based surveys following the viewing of each video.

2. Study Materials

All diagnoses were fictional syndromes (constellation of signs and symptoms)
intended to sound like they could be a true medical illness (e.g., named using Latinate or
medicalese syndrome names). Fictional syndromes were checked in PubMed and internet
search software to ensure that they are indeed fictional (e.g., did not appear in any
PubMed or internet searches). The use of fictional diagnoses was done to avoid any bias
that could be potentially introduced by respondents’ prior knowledge of and/or
experience with established diagnoses. Video transcripts were developed for the purposes
of this study (by L Birnbaum and reviewed by M Young) (See Appendix B for transcripts
of videos).

A total of nine videos, in which physicians discuss three diagnoses, were created
(three language types for each of three diagnoses). The physicians in the videos were
played by trained actors, each diagnosis was presented by one actor and, as such, no
participant viewed the same actor/physician twice.

The survey was developed specifically for this study. Survey items were
developed by the lead study investigator and reviewed iteratively by the investigators.
The study survey and transcripts for videos were previously piloted by 10 health
professionals in the context of a masters’ level survey design course (See Appendix C for complete copy of the survey).

3. Procedure

Each study participant viewed three videos that portrayed a physician explaining a new diagnosis and associated management plan to a fictional patient (who was not visible in the video). Following the viewing of each video on a laptop computer, participants completed a survey, on a laptop computer, about their impressions of what they heard and saw. Demographic information was collected after the third (final) survey was completed. Following completion of the study, participants were given a debriefing sheet, reviewing the fictional nature of the diagnoses and including the email address of a research team member whom they could contact at any later time should they have any further questions, or should they decide to withdraw their data from the study.

D. Sample Size

A sample size of 38 participants was deemed appropriate using an anticipated mean difference in physician competence scores between each of the language groups of 0.6 based on the six-point scale, with a standard deviation of 0.75. The mean difference was chosen consistent with the results of physician competence assessments on our recent pilot study, where all participants were health professionals. The standard deviation value was chosen slightly larger than the standard deviation found in this pilot study as general community population responses are expected to be more variable than the health professional responses in the pilot study. A sample size of 38 participants is consistent
with other similarly structured studies (27). A total of 39 participants were recruited in order to have an equal number of participants (13) for each study condition.
III. DATA ANALYSIS

A mixed methods data analysis was implemented, and is described below.

A. Quantitative Analysis

A repeated measures ANOVA was used to explore patterns of responses across language types (where the repeated measures of interest were language type (lay, mixed, or medicalese), and relevant items). Questions with numerical scale answers (i.e., on a six-point scale) were combined for comparison of means under the main topics of views of competence (questions 1-3), communication skills (questions 4, 5 and 10) and professional conduct (questions 6 and 8) (See Appendix C for survey). Answers to questions about participant comprehension (questions 13, 14, 15, 16, 17 and 18) were converted into numerical scores in order to calculate means across language types. Multiple choice comprehension questions (questions 15, 16, 18 and 18) and scored on a scale where 1 was correct and 0 was incorrect; answers to other questions of comprehension (open ended questions 13 and 14 regarding expected physical problems and which body parts or organs are affected) were scored on a scale where 2 was correct, 1 was partially correct and 0 was incorrect (based on whether the participant named 2 or more, 1 or none of the correct answers). Questions of participant comprehension were then analyzed in two groups, those questions with a 3-point (correct/partially correct and incorrect) answer scale and those with a two point correct/incorrect scale. Post hoc analyses were conducted for each main effect identified using repeated measures ANOVA in order to compare the pattern of findings across the three language types. We completed analyses to determine the relationship between demographic factors and outcomes. We also completed analyses to verify the relationship of any particular
vignette, and/or order of language presentations, to our outcomes. Quantitative statistical analysis was done using SPAW and R software.

B. Qualitative Analysis

Questions with free response text answers were analyzed using qualitative analysis (questions 7, 9, and 12; see Appendix C for individual items). Qualitative data was reviewed independently by two researchers to identify themes, using an inductive constant comparative method(28, 29). Data from each question was analyzed separately and results were then compared and contrasted in order to negotiate final themes.
IV. RESULTS

A. Participants

Sixty-four (64) individuals were contacted by text message or email to request participation in the study, and fifty-two (52) of those individuals responded with expressions of interest. Face-to-face meetings were successfully arranged for 39 individuals, who all agreed to take part in the study and provided informed consent. Participants ranged in age from 21-75 years (mean age 48.7) and most had some recent experience with physicians with 16 (41%) having 2 or more visits in the past year, either personal or as regular accompanier of another (See Table 1). The majority held university undergraduate or postgraduate degrees (n=15 (38%) and n=11 (28%) respectively) and 5 were practicing health professionals or work in the health care field at the time of the study. Self-rated comfort with medical language ranged from low to high with 62% (n=24) reporting moderate comfort (3 or 4 on a 6-point scale where extremes were anchored with low (1 on the scale) and high (6 on the scale); see Table 1).

B. Results from the Quantitative Analysis

1. Participants’ Comprehension

Participants’ comprehension scores as measured by performance on open ended questions (survey items 13 and 14 regarding expected physical problems and affected body parts) were significantly higher when lay language was used compared to when medical language was included (mean score for lay presentation (SE) = 1.51 (0.09), mean score for mixed presentation (SE) = 1.18 (0.08), and mean score for medicalese
### Table 1: Participant Demographics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Percentage</th>
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<td></td>
<td></td>
<td></td>
<td>16</td>
<td>41%</td>
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<td></td>
<td></td>
<td></td>
<td>23</td>
<td>59%</td>
</tr>
</tbody>
</table>

| Visits/Year | Recent experience with doctors* | Total | | Percentage |
|-------------|---------------------------------|-------||------------|
| 1 or fewer visits per year | 23 (59%) | 23 | | | | |
| 2-4 visits per year | 13 (33%) | 13 | | | | | |
| 5-10 visits per year | 0 (0%) | 0 | | | | | |
| More than 10 visits per year | 3 (8%) | 3 | | | | | |

| Education | Highest level of education completed | Total | | Percentage |
|-----------|--------------------------------------|-------||------------|
| Less than high school | 0 (0%) | 0 | | | | |
| High School | 4 (10%) | 4 | | | | | |
| College | 0 (0%) | 0 | | | | | |
| CEGEP** | 9 (23%) | 9 | | | | | |
| University undergraduate degree | 15 (39%) | 15 | | | | | |
| University post graduate degree | 11 (28%) | 11 | | | | | |

| Medical Language Comfort*** | Total | | Percentage |
|-----------------------------|-------||------------|
| 1 | 1 (3%) | 1 | | | | |
| 2 | 6 (15%) | 6 | | | | | |
| 3 | 15 (39%) | 15 | | | | | |
| 4 | 9 (23%) | 9 | | | | | |
| 5 | 7 (18%) | 7 | | | | | |
| 6 | 1 (3%) | 1 | | | | | |

| Health Professional | Yes**** | Total | | Percentage |
|---------------------|---------|-------||------------|
| Yes**** | 5 (13%) | 5 | | | | | |
| No | 34 (87%) | 34 | | | | | |

*Either personal or as a person who normally accompanies someone

**Grade 12 and 13 equivalent in the province of Quebec

***Rated on 6 point scale, where only extremes were anchored (low and high);

****Participants included 2 social workers, 2 occupational therapists and 1 athletic therapist
presentation (SE) = 0.86 (0.09); $F(2, 76) = 15.3, p < .001$, on a scale where 2 is correct, 1 is partially correct and 0 is incorrect; See Figure 1). Post-hoc analysis showed significant differences in comprehension outcomes between lay language presentation compared to mixed and medical language presentations ($F_s > 12.6, p < .05$). The degree of self-rated comfort with medical language was significantly associated with these comprehension scores, with higher levels of comfort correlating with greater comprehension scores: $F(2, 64) = 4.66, p < .05$.

Participants’ comprehension scores as measured by performance on multiple choice items (survey items 15, 16, 17 and 18; regarding suggested treatment options and duration of the new condition) were also significantly higher when lay language was used compared to when medical language was included (mean score for lay presentation (SE) = 0.78 (0.04), mean score for mixed presentation (SE) = 0.61 (0.05) and mean score for medical language presentation (SE) = 0.51 (0.04); $F(2, 228) = 15.23, p < .001$, on a scale where 1 is correct and 0 incorrect. Post-hoc analysis showed a significant difference in these comprehension outcomes between lay language presentation compared to mixed and medical language presentations ($F_s > 6.2, p < .05$). The degree of self-rated comfort with medical language was again significantly associated with these comprehension scores, with higher levels of comfort correlating with greater comprehension scores $F(2, 132) = 4.24, p < .05$.

2. **Communication Skills**

Participants’ ratings of physician communication skills (survey items 4, 5 and 10 regarding clarity of doctor’s explanations, skill in communicating with patients and how
much a typical patient would understand) were rated significantly higher with lay
language compared to when medical language was included (mean score for lay
presentation (SE) = 5.5 (0.25), mean score for mixed presentation = (SE) 3.8 (0.25) and
mean score for medicalese presentation (SE) = 2.6 (0.24); $F(2, 152) = 31.67$, $p < .001$, on
a 6-point scale, anchored at extremes with poor and excellent (items 4 and 5) or with not
at all and completely (item 10); see Figure 2. Post hoc analysis showed significant
differences in participants’ ratings of communication skills between each language type
($F's > 1.85$, $p < .05$). Recent experience with physicians (rated as number of visits per
year) was significantly associated with participants’ ratings of physicians communication
skills: $F(2, 128) = 3.31$, $p < .05$, with more patient experience being associated with
higher ratings of the physicians communication skills.

3. Professional Conduct

Participants ratings of physician professional conduct (survey items 6 and 8
regarding the physicians degree of caring for patients and how likely a typical patient
would be to see this doctor again for follow up) were significantly higher with lay
language presentation compared to when medical language was included (mean score for
lay presentation (SE) = 5.39 (0.27), mean score for mixed presentation = (SE) 4.05 (0.29)
and mean score for medicalese presentation = 3.15 (0.25), $F(2,76)= 17.28$, $p= <.001$, on
6-point scales with extremes anchored with poor (as 1 on the scale) and excellent
(anchored as 6 on the scale) (item 6), not likely and likely (item 8); see Figure 3. Post hoc
analysis showed a significant difference in ratings of physician professional conduct
between lay presentation compared to mixed and medicalese language presentations
(Fs>9.5, p<.05). Recent experience with physicians (number of visits per year) was significantly associated with participants’ ratings of the physicians’ professional conduct ($F(2, 128)=3.31, p=.043$) with more patient experience being associated with higher ratings of professional conduct.

4. **Physician Competence**

We included in participants’ assessments of physician competence both physician knowledge (survey items 1 and 2) and quality of care provided (survey item 3). Participant ratings of physician competence showed significantly higher ratings with lay language presentation compared with when medical language was included (mean score for lay presentation (SE) = 5.62 (0.23), mean score for mixed presentation (SE) = 5.41 (0.19), mean score for medicalese presentation (SE) = 5.02 (0.22), $F(2, 152) =3.66$, $p=0.03$. Pairwise comparisons showed that language had differing effects on item 3 (quality of care) and the other two items (questions of physician knowledge). Post hoc analyses were then done separately for the quality of care (survey item 3) and knowledge items (survey items 1 and 2) and found a significant interaction between lay presentation compared with mixed and medicalese presentations for the quality of care a doctor can provide (mean score for lay presentation (SE) = 5.6 (0.24), mean score for mixed presentation (SE) = 5.05 (0.21), mean score for medicalese presentation (SE) = 4.46 (0.27), $F(2,76) = 9.484$, $p = <.001$); see Figure 4. No interaction was found between language type and physician knowledge mean scores (SE) = 5.62 (0.24) for lay presentation, 5.59 (0.19) for mixed presentation and 5.29 (0.23) for medicalese
presentation, $F(2, 16) = 1.255, p = 0.26$). No demographic factor was found to be 
associated with perceptions of competence outcomes.

5. **Seriousness**

Participants ratings of seriousness of the presented disorder (survey item 20) was 
significantly lower with lay presentation compared to when medical language was 
include (mean score for lay presentation (SE) = 3.56 (0.22), mean score for mixed 
presentation (SE) = 4.54 (0.18) and mean score for medicalese presentation = 5.03 (0.26), 
$F(2, 76) = 10.48, p < .001$, on a 6-point scale anchored at extremes with not serious (1 on 
the scale) and very serious (6 on the scale). Post hoc analysis showed a significant 
difference in ratings of seriousness between lay compared with mixed and medicalese 
presentations ($F$s >5.3, $p < .05$). No demographic factor was found to be associated with 
competence outcomes.

6. **Influence of Stress**

Participants’ impressions of whether stress influences the described medical 
condition (survey item 19) did not relate to language of presentation (mean scores (SE) 
3.87 (0.23) for lay presentation, 3.77 (0.22) for mixed presentation and 3.95 (0.21) for 
medicalese presentation, $F(2, 76)=0.185, p=.83$, on a 6-point scale anchored at extremes 
by not likely and likely.

7. **Vignette and Order Analyses**
The video vignette viewed (see Appendix B for transcripts of vignettes) and order of its presentation rarely interacted with language outcomes. We found that whenever vignettes and/or order of presentation did interact with our outcomes, the main effect of type of language remained. These analyses show that while vignette and its order of presentation were significant, they cannot explain the consistent findings of language type.

C. Qualitative Results

1. Reasons for ratings of the first six survey items

Considering answers to survey item 7 regarding reasoning associated with answers to survey items 1-6 regarding physician knowledge, quality of care provided, communication skills, clarity of explanations and degree of caring, we identified 10 themes, 7 of which were common to all language types. Table 2 presents these themes and their presence in each language presentation.

In participants’ responses, we identified eight themes not directly related to language, including physician demeanor and personal attributes, communication pace, relationship with the patient, non-verbal communication and knowledge/confidence in the physician; and two themes directly related to language: terminology and explanations.

When comparing participant impressions across language types regarding the terminology used and explanations provided, a greater number of participants made positive comments about physicians’ terminology and explanations provided with lay language scenarios, whereas a greater number of participants made negative comments
Table 2: Main Themes for Reasons in Rating Previous Six Questions

<table>
<thead>
<tr>
<th>Theme</th>
<th>Lay*</th>
<th>Mixed</th>
<th>Medicalese</th>
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<tr>
<td><strong>Demeanor and Personal Attributes</strong></td>
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<tr>
<td>e.g. patient, clam, nice, gentle, caring, compassionate, empathetic</td>
<td>Positive (14)</td>
<td>Positive (4)</td>
<td>Positive (1)</td>
</tr>
<tr>
<td>e.g. aloof, over-confident, lack of empathy</td>
<td>Negative (5)</td>
<td>Negative (8)</td>
<td>Negative (8)</td>
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<tr>
<td><strong>Terminology</strong></td>
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<tr>
<td>e.g. Used clear language, used words easy to understand, spoke clearly</td>
<td>Positive (17)</td>
<td>Positive (5)</td>
<td>n/a</td>
</tr>
<tr>
<td>e.g. Did not use clear language, did not use words easy to understand, did not speak clearly</td>
<td>n/a</td>
<td>Negative (14)</td>
<td>Negative (24)</td>
</tr>
<tr>
<td><strong>Knowledge/confidence About Medical Problem</strong></td>
<td>Yes (10)</td>
<td>Yes (6)</td>
<td>Yes (8)</td>
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<tr>
<td></td>
<td>No (2)</td>
<td>No (2)</td>
<td>No (3)</td>
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<tr>
<td><strong>Explanations</strong></td>
<td>Positive (8)</td>
<td>Positive (11)</td>
<td>Positive (2)</td>
</tr>
<tr>
<td>e.g. explained problems well, clear, concise,</td>
<td>Negative (2)</td>
<td>Negative (8)</td>
<td>Negative (7)</td>
</tr>
<tr>
<td>e.g. did not explain well</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments did not necessarily related to type of language used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reading from Notes/text</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Related to views of poor eye contact, lack of empathy, lack of caring</td>
<td>Negative (9)</td>
<td>Negative (11)</td>
<td>Negative (7)</td>
</tr>
<tr>
<td></td>
<td>n/a</td>
<td>Positive (2)</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Eye Contact</strong></td>
<td>Positive (5)</td>
<td>Positive (1)</td>
<td>Positive (2)</td>
</tr>
<tr>
<td>e.g. good eye contact</td>
<td>Negative (3)</td>
<td>Negative (7)</td>
<td>Negative (11)</td>
</tr>
<tr>
<td>e.g. poor eye contact, reading from notes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communication Pace</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.g. spoke at good pace, not rushed</td>
<td>Positive (5)</td>
<td>Positive (1)</td>
<td>Positive (2)</td>
</tr>
<tr>
<td>e.g. spoke too quickly, seemed rushed</td>
<td>Negative (3)</td>
<td>Negative (7)</td>
<td>Negative (11)</td>
</tr>
<tr>
<td>Theme</td>
<td>Lay*</td>
<td>Mixed</td>
<td>Medicalesse</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Relationship with Patient</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.g. asked if patient had questions, spoke to patient about her problems</td>
<td>Positive (2)</td>
<td>Positive (6)</td>
<td>Positive (2)</td>
</tr>
<tr>
<td><strong>Non Verbal Communication</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive (2)</td>
<td>Positive (1)</td>
<td>Positive (2)</td>
</tr>
<tr>
<td><strong>Confidence/comfort with MD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (3) n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>No (2) n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

*Number of comments for each theme with valence (positive or negative) where relevant.
about physicians’ terminology and explanations provided with medicalese (e.g. “spoke clearly,” “good choice of words”, “explained all well” versus “used too many medical terms,” “used strangely complicated terms”, “I doubt the patient would understand” and “explained in too much detail”).

For themes identified not directly related to language, impressions of physician demeanor and personal attributes were associated with more positive comments for lay language presentation (e.g. “seems calm”, “compassionate”, “nice, gentle, caring”) compared with more negative comments with medical language presentations (“no empathy for the patient.”) For communication pace, a greater number of participants commented that the pace was rushed with medical language presentations (e.g. “spoke too quickly”), whereas a greater number of participants commented that the pace was reasonable with lay language presentations (e.g. “He spoke at a good pace”). The use of medical language does not seem, however to be associated with impressions of physician knowledge and participants’ confidence in the physician, with a similar number of positive comments across all language types. Impressions of physician relationship with the patient were also similar across in all language types. Participants commented that physician (actors) seemed to be reading from text and showed poor eye contact, similarly in all language types.

2. **Reasons why a patient would or would not see this doctor again**

Considering answers to survey item 9 regarding reasons why a patient would or would not return to see the physician, we identified 9 themes, 7 of them common to all
language types. Table 3 presents these themes and their presence in each language presentation.

The terminology used was a theme identified frequently for medical language presentations, mentioned 9 times in the mixed language conditions and 14 times with medicalese language condition, whereas there was only 1 comment related to clarity of language in the lay language condition. Patient preference for certain physician attributes was a theme identified with all language types and was occasionally related to language e.g., “depends on priorities, e.g. want best doctor or one you can understand?”, “Depends if patient understands medical jargon.” Besides the language and patient preference themes, the other six identified themes have no obvious relationship with language; these themes include physician competence, physician demeanor and personal attributes, presentation style and difficulty finding physicians.

Physician competence was a theme identified similarly across language types. In fact, competence was identified slightly more often as positive in spite of criticized medical language (e.g. “In spite of above (critiques) he seemed smart, I have confidence in him”). As with responses to the previous question, physician demeanor and personal attributes are largely perceived as positive with lay language presentations, but perceived as more negative with both medical language presentations (e.g. “Was very impersonal”, “Can hopefully find someone nicer.”)

Presentation style was similarly critiqued in all language types (three negative comments with lay versus five in both medicalese and mixed language types, (e.g. “poor eye contact”, “seemed rushed”). Difficulty finding a replacement physician who would be
Table 3: Main Themes Why a Typical Patient Would OR Would Not See This Doctor Again

<table>
<thead>
<tr>
<th>Terminology</th>
<th>Lay*</th>
<th>Mixed</th>
<th>Medicalese</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. clear language, clear explanations</td>
<td>Positive (1)</td>
<td>Positive (1)</td>
<td>n/a</td>
</tr>
<tr>
<td>e.g. too many medical terms, difficulty understanding</td>
<td>n/a</td>
<td>Negative (8)</td>
<td>Negative (14)</td>
</tr>
</tbody>
</table>

**Physician Competence: Knowledge, Quality of care that they can provide**

e.g. good care, knowledgeable, confidence in md.

Negative (4)  Positive (4)  Positive (4)

e.g. not competent, not knowledgeable about condition, no confidence in md.

**Physician Demeanor and Personal Attributes**

e.g. caring, nice tone, gentle, empathetic, likeable

Positive (9)  n/a  Positive (2)

e.g. no empathy, not nice, no compassion, arrogant

Negative (6)  Positive (1)  Negative (4)

**Patient Personal Preferences**

e.g. depends on taste, priorities, professional background

Positive (2)  Negative (2)  n/a

**Neutrality**

e.g. no complaints

Positive (2)  Negative (2)  n/a

**Content**

e.g. good summary of choices,

Negative (14)  Positive (4)  Negative (3)

e.g. limited, too much information

Positive (2)  Negative (2)  n/a

**Difficulty Finding Physicians**

e.g. reading from paper, speaking quickly, poor eye contact

Positive (2)  Negative (2)  n/a
Table 3: Main Themes Why a Typical Patient Would OR Would Not See This Doctor Again

<table>
<thead>
<tr>
<th>Theme</th>
<th>Lay*</th>
<th>Mixed</th>
<th>Medicalesle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous, not related to language or other identified themes</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>e.g. depends if condition improves or not, depends if medication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>works</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Number of comments for each theme with valence (positive or negative) where relevant.
better than the one in the video was a theme cited frequently, indentified similarly with all language types of presentation.

3. **Any questions? Was anything missing or unclear?**

Considering participant answers to survey item 12 regarding any questions that the participant may want to ask the physician, we identified three themes, common to all language types. Table 4 presents these themes and their presence in each language presentation.

<table>
<thead>
<tr>
<th>Table 4: Main Themes for Any Questions? Was Anything Missing or Unclear?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lay*</td>
</tr>
<tr>
<td>No questions/none mentioned</td>
</tr>
<tr>
<td>Questions/clarification about things NOT discussed</td>
</tr>
<tr>
<td>a) treatment e.g. side effects, indication, posology</td>
</tr>
<tr>
<td>b) follow up plan</td>
</tr>
<tr>
<td>c) alternative treatments e.g. diet, homeopathy</td>
</tr>
<tr>
<td>d) other e.g. Chance of cure? Contagious? Can I work?</td>
</tr>
<tr>
<td>Questions/clarification about things discussed</td>
</tr>
<tr>
<td>a) review etiology</td>
</tr>
<tr>
<td>b) repeat name of disease</td>
</tr>
<tr>
<td>c) repeat part or all of conversation</td>
</tr>
</tbody>
</table>

*Number of participant comments for each theme and language type.
The number of requests for clarification of items discussed in the vignette (e.g., name or etiology of disease, repeat part or all of conversation) increased as medical language was added (5 requests for such review in the lay language condition, compared with 17 with mixed presentations and 28 with medicalese presentations). The increase was driven largely by requests to repeat some or all of the conversation: e.g. “Repeat all please in simpler language.” The number of requests for clarification of things not discussed (e.g., of treatment side effects or indication) was similar with lay and mixed presentations but less frequent with medicalese presentations, perhaps because the focus of concern/comments became around repeating things discussed but not well understood e.g. repeating part or all of conversation.

Notably, general negative comments were identified with medicalese presentations but were not identified with the other language types e.g., “Glad I don’t have this disease or this doctor.”
Our quantitative results indicate that participants’ understanding of the presented diagnoses and treatment plans was better with lay language compared to when medical language was used. Our findings also indicate that participants associated the use of lay language, as distinguished from medical language, with better physician communication skills, better professional conduct and higher quality of care that the physician can provide. Post hoc analyses demonstrated significant differences between lay presentation compared with mixed and medicalese presentations but rarely between mixed and medicalese. Qualitative analyses were consistent with quantitative findings, where patient physician conversations appear to be less well understood when medical language is used. Qualitative analyses also suggested that that medical language was associated with negative impressions of physician demeanor and personal attributes but with reasonably positive impressions of physician competence, in spite of participants’ criticizing the use medical language (e.g. …"too many medical terms", “hard to understand”). Patient preferences (comfort with medical language, for example) was an important theme in all language types.

The findings from this study are consistent with the majority of our hypotheses, namely that the use of medicalese would adversely impact: a) patient understanding of a presented diagnosis and treatment plan and b) patient impressions of physician communication skills and professional conduct. We hypothesized that impressions of competence would also be influenced by the use of medicalese. We also hypothesized
that perceptions of competence would include both physician knowledge and quality of
care that can be provided. In fact, our quantitative results showed that participant
impressions of the quality of care that a physician can provide was associated with
language type, with decreased positive impressions of the potential quality of care when
medical language was included, whereas impressions of physician knowledge did not
appear to be influenced by language of presentation. Qualitative results, however,
indicated more positive impressions of physician knowledge with the use of medical
language and comparable impressions of competence (or even somewhat improved)
when medical language was included. Qualitative results also indicated that impressions
of demeanor and personal attributes can be adversely impacted by the used of medical
language.

These results, both quantitative and qualitative, are consistent with previous
studies that patients are not familiar with medicalese(1) and provide further support to the
hypothesis that physicians’ use of medicalese may contribute to patient misunderstanding
of discussions with physicians regarding their diagnoses and treatment plans(12, 13).
Further, our qualitative results are consistent with previous research showing that patients
believe lay language is more appropriate than medicalese(19) and provide some reasons
for why patients may prefer lay language (e.g. more positive impressions of physician
communication skills, professional conduct, and quality of care that can be provided
(from quantitative analyses), and more positive impressions of demeanor and personal
attributes (from qualitative analyses)) but also some reasons why other individuals may
prefer medical language (e.g. personal preferences, possible improved impressions of
competence, (from qualitative analyses)). To our knowledge this is the first study to
evaluate the relationship between language used by physicians in medical encounters and these patient relevant outcomes (i.e. comprehension of presented diagnoses and treatment plans and impressions of physician competence, professional conduct and quality of care). The qualitative analyses of this study add reasons why patients may prefer one language type over another (lay versus medical language), findings which are also a novel contribution to the current literature.

In addition to our main outcomes, we explored the relationship between language and impressions of seriousness of the medical problem and patient stress associated with the medical condition. The use of medical language did not influence the degree to which stress was thought to be associated with the described condition. Participants, however, rated disorders presented with medical language as more serious compared to those presented with lay language, consistent with a previous study done with undergraduate university students(14). In this manner, physician language may influence patients’ conceptualization of their illness and contribute to patients health related distress(27).

It is noteworthy that in this study repeated differences were found between the use of lay language and medical language (mixed or medicalese) but rarely between the two medical language types. Further, when qualitative themes were associated with the type of language used, analyses also showed differences between lay presentation and the medical language presentations (both medicalese language and ‘mixed’ language presentations). The implication is that medical language, to any degree, should be used with caution. In fact, this study did not evaluate the use of medical terms in parallel with
lay language (i.e. explanatory lay term following each medical term) so it is possible that patients would accept medical language, and possibly prefer it to lay language, should it be used in parallel with lay language, as has been suggested in previous studies(19, 20). Nevertheless, this study appears to support the argument that medical terminology should generally not be used alone, i.e., without explanatory lay terminology, unless perhaps patient preferences suggest otherwise (e.g. where the patient is another health care professional).

Although there is an increasingly large literature on physician-patient communication(1, 9, 30-32), there is lack of empirical evidence on the use of medical language. The Accreditation Council for Graduate Medical Education (ACGME) and the CanMEDs physician competency framework in Canada identify communication as a core competency of medical practice(11, 33). The findings of this study add to the literature on communication skills training, identifying use of medical language as a relevant dimension in patient-appropriate communication assessment and teaching. The results suggest that targeted efforts must be made to educate physicians to avoid the use of formal medical terminology in speaking with patients, particularly if used without parallel lay terminology.

This study has several limitations. Firstly, participants were volunteers familiar to the lead study investigator, and therefore may not be perfectly representative of a typical patient population. Participants were mostly healthy, but had some patient experience in their lifetime, based on the self-report portion of our study survey. This was demonstrated
by their reports of recent experience with physicians with 16 (41%) having 2 or more physician visits in the past year, either personal or as regular accommoder of another (See Table 1). Interestingly, the majority of participants held university undergraduate or postgraduate degrees (n=15 (38%) and n=11 (28%) respectively) and 5 were practicing health professionals or work in the health care field, with reasonable self-rated comfort level with medical language (with 62% (n=24) reporting moderate comfort), yet nonetheless showed poor understanding and appreciation of medical language (lower comprehension in both quantitative and qualitative analyses and frequent critiques of medical language in qualitative analyses). It is conceivable that the difference in ratings for lay and medical language would be even larger for a population where the average education level was lower, where familiarity with medical language would likely be low(34). Importantly, avoiding the use of “medical jargon” is not simply relevant for those with limited health literacy, as has been suggested(35, 36), but here would appear to be important with all types of patients, including those with higher levels of education.

A second limitation of this study is that it is possible that the outcomes we measured, although indeed affected by language, would not be clinically relevant i.e. not have any relevance to actual patient decisions or compliance with management plans. This is an inherent limitation of our study design, as with any study using a self-report measure, especially given that we used hypothetical clinical cases. The data from this study, both quantitative and qualitative, provides several reasons suggesting the avoidance of medical language, including negatively affecting patients’ comprehension of conversations with their physicians, and negative influences on patients’ impressions of physician competence, professional conduct and quality of care. The relationship
between the outcomes found in this study and actual patient decisions/compliance with management plans is plausible but remains speculative and is beyond the scope of this study.

Patient background in terms of, but not limited to, education level, culture, personal experience with health care, and familiarity with medical terms may all influence patient comfort with medicalese, the related ability to comprehend physician explanations and consequent preferences for physician language. Qualitative analysis support this point- patient preference was a main theme in all language types, in explanations for why patients would or would not return to see a physician (e.g. “depends if patient understands medical jargon”). Patient background (i.e. familiarity with medical language) should be considered by the physician who should use language that can be easily understood by the patient (i.e., patient-appropriate language). It is possible that as physicians gain clinical experience they are more likely to pay attention to relevant patient characteristics(27), and may respond by using more patient-appropriate language.

It is also possible that experienced physicians, who are exceedingly comfortable with medicalese, may not be aware of when and how they are speaking it and inadvertently use patient-inappropriate language. Physician consideration and ‘matching’ of language to relevant patient backgrounds has yet to be discussed in the literature. Currently, a study is underway investigating the ability of physicians and physicians-in-training to appropriately ‘match’ language type with patient characteristics, however findings remain preliminary.

The results of this study are relevant to educators, physicians, patients and patient advocates. The results suggest that physicians should be educated to consistently speak to
patients in patient-appropriate language, in order to improve patient compliance with recommended management plans, through improved comprehension of their disease. The use of patient-appropriate language should also improve patient satisfaction with care and reduce health related distress, through improved comprehension of conversations with physicians, the perception of being cared for by a competent, professional individual and impressions of having a less serious disease. In conclusion, the results of this study suggest that, when communicating with patients, formal medical language should be avoided, particularly if used without parallel lay terminology.
REFERENCES


33. The ACGME core competencies: outcome project. [cited 2010 October 7]; Available from: http://www.acgme.org/outcome/comp/compmin.asp


APPENDICES
APPENDIX A: Figures

Figure 1: Participant comprehension of presented diagnosis and treatment plan
Mean scores from questions 13 and 14. Answers were scored on a scale where 2 is correct, 1 is partially correct and 0 is incorrect. Post hoc analyses showed significant differences between lay compared to mixed and medicalese presentations.

Figure 2: Participant ratings of physician communication skills
Mean scores for survey items 3, 4, and 10 where answers were scored on a 6-point scale. Post hoc analysis showed significant differences between each language type.
Figure 3: Participant ratings of physician professional conduct
Mean scores from survey items 6 and 8 where answers were scored on a 6-point scale.
Post hoc analyses showed significant differences between lay compared to mixed and medicalese presentations.
Figure 4: Participant rating of physician competence
Mean scores for survey items 1, 2 and 3, where answers were scored on a 6-point scale. Pairwise comparisons showed that language interacted with survey item 3 (quality of care) but not with items 1 and 2 (physician knowledge). Post hoc analyses for item 3 showed significant differences between lay compared to mixed and medicales presentations.
APPENDIX B: Recruitment Script

Hello ________,

I am wondering if you would be interested in helping me by participating in a research study that I am organizing. It would involve working on a laptop for about thirty minutes at a time convenient for you.

No pressure – simply let me know what you think

Thanks
APPENDIX C: Transcripts for Video Task

MEDICALESE A
Thanks for coming to see me on such short notice. The reason that I asked you to come in
today is because after reviewing the results of your recent tests, I believe we have found
your diagnosis and it is called Treboritis syndrome.
This is a rare syndrome, but explains well the various signs and symptoms which you
have been experiencing for the past few weeks.
The most common body organs affected in this syndrome are the respiratory and
renal systems and so common presenting signs and symptoms are dyspnea, cough, lower
extremity edema and hypertension.
The etiology of Treboritis syndrome is not known but we know that once it begins it
typically tends to be chronic, with periods of exacerbation and remission but since it is
rare it is hard to predict a person’s course. We usually treat this with daily steroid
medication to decrease inflammation to induce and maintain remission and I recommend
that you start the steroids soon. In the past, bed rest and relaxation techniques were used
but these treatments have never been proven to be beneficial but steroids seem to always help.
This is a lot of information. Before I continue, do you have any questions?

MIXED A
Thanks for coming to see me on such short notice. The reason that I asked you to come in
today is because after reviewing the results of your recent tests, I believe we have found
your diagnosis and it is called Treboritis syndrome.
This is a rare condition, but explains well the various signs and symptoms which you
have been experiencing for the past few weeks.
The most common body organs affected in this condition are the respiratory and renal
systems and so people commonly present with shortness of breath, cough, lower
extremity swelling and hypertension.
The etiology of this syndrome is not known but we know that once begins it typically
tends to be chronic, with periods of exacerbation and remission but since it is rare it is
hard to predict how you will do with this condition. We usually treat this with daily steroid
medication to decrease inflammation to promote and maintain remission and I
recommend that you start the steroids soon. In the past, bed rest and relaxation techniques
were used but these treatments have never been proven to be beneficial but steroids seem
to always help.
This is a lot of information. Before I continue, do you have any questions?

LAY A
Thanks for coming to see me on such short notice. The reason that I asked you to come in
today is because after reviewing the results of your recent tests, I believe we have found
your condition and it is called Treboritis syndrome.
This is a rare disorder, but explains well the various complaints which you have been
experiencing for the past few weeks.
APPENDIX C (continued)

The most common parts of the body affected in this disorder are the lungs and kidneys and so typical patient complaints are difficulty breathing, cough, swelling of the legs and high blood pressure.

The cause of this disorder is not known but we know that once it begins it typically tends to continue, with periods of more or less and sometimes no complaints, but since it is rare it is hard to predict how you will do with this disorder. We usually treat this with daily medication that brings down inflammation to help you feel better and keep you feeling well and I recommend that you start this medication soon. In the past, bed rest and relaxation techniques were used but these treatments have never been proven to be useful but the anti-inflammatory medications always seem to help.

This is a lot of information. Before I continue, do you have any questions?

MEDICALESE B
Thank you for coming to see me on such short notice. The reason that I asked you to come in today is because after reviewing the results of your recent tests, I believe we finally have found your condition and it is called Heisleroma syndrome.

This is a relatively common syndrome that occurs in about 3% of people in your age demographic. It explains well the various signs and symptoms which you have been experiencing for the past few weeks.

As you probably already suspect, the most common body organ system affected in this syndrome is the gastrointestinal tract but other systems may be involved as well, such as the respiratory and dermatological systems and so common presenting signs and symptoms are esophageal reflux, abdominal pain and diarrhea; intermittent symptoms may be dyspnea and rash, just like you are experiencing.

The etiology of Heisleroma syndrome is not known but we know that once begins it typically tends to be chronic, with periods of exacerbation and remission. We usually start treatment with daily non steroidal anti inflammatory medication to decrease inflammation and I recommend that you start these meds soon. Later we can consider anti-inflammatory steroid medications, if the NSAIDs are not effective. In the past, bed rest and relaxation techniques were used but these treatments have never been proven to be beneficial.

This is a lot of information. Before I continue, do you have any questions?

MIXED B
Thank you for coming to see me on such short notice. The reason that I asked you to come in today is because after reviewing the results of your recent tests, I believe we finally have found your condition and it is called Heisleroma syndrome.

This is a relatively common condition that occurs in about 3% of people your age. It explains well the various signs and symptoms which you have been experiencing for the past few weeks.

As you probably already suspect, the most common body organ affected in this condition is the gastrointestinal tract but other organs may be involved as well, such as the lungs and skin and so common presenting issues are reflux, abdominal pain and diarrhea;
intermittent symptoms may be shortness of breath and rash, just like you are experiencing. The cause of this condition is not known but we know that once begins it typically tends to be chronic, with periods of exacerbation and remission. We usually start treatment with daily anti-inflammatory medication called NSAIDs to decrease inflammation and I recommend that you start this medication soon. Later we can consider anti-inflammatory steroid medications, if the NSAIDs are not effective. In the past, bed rest and relaxation techniques were used but these treatments have never been proven to be beneficial. This is a lot of information. Before I continue, do you have any questions?

LAY B
Thank you for coming to see me on such short notice. The reason that I asked you to come in today is because after reviewing the results of your recent tests, I believe we finally have found your diagnosis and it is called Heisleroma syndrome. This is a relatively common disorder present in about 3% of people your age. It explains well the various complaints which you have been experiencing for the past few weeks. As you probably already suspect, the most common parts of the body affected in this condition are the digestive organs – stomach and intestines, but other body parts may be involved as well, such as the lungs and skin and so typical patient complaints are a rising discomfort in the chest toward to mouth, stomach pain and diarrhea; occasional complaints may be difficulty breathing and rash, just like you have. The cause of this disorder is not known but we know that once begins it typically tends to continue, with periods of more or less and sometimes no complaints. We usually start treatment with daily medication to decrease inflammation and I recommend that you start this medication soon. Later we can consider other stronger medications to decrease inflammation, if the first medications do not work well. In the past, bed rest and relaxation techniques were used but these treatments have never been proven to be useful. This is a lot of information. Before I continue, do you have any questions?

MEDICALESE C
Thank you for coming to see me on such short notice. The reason that I asked you to come in today is because after reviewing the results of your recent tests, I believe we have found your diagnosis and it is called Blankes syndrome. This is a relatively rare syndrome, but explains well the various signs and symptoms which you have been experiencing for the past few weeks. The most common body organ systems affected in this syndrome are the central nervous system and dermatological systems and so typical presenting signs and symptoms are dysesthesias, tremor of the upper extremities, dementia and rash. The etiology of this syndrome is not known but we know that it typically tends to be acute, with a short period of exacerbation followed by complete remission but since it is rare it is hard to predict a person’s course. We usually treat this with daily immunosuppressive medication to help induce quick remission. In the past, rest and relaxation techniques were recommended but these treatments have never been proven to be beneficial but immune targeted medications usually work well.
This is a lot of information. Before I continue, do you have any questions?

MIXED C
Thank you for coming to see me on such short notice. The reason that I asked you to come in today is because after reviewing the results of your recent tests, I believe we have found your diagnosis and it is called Blankes syndrome. This is a relatively rare condition, but explains well the various signs and symptoms which you have been experiencing for the past few weeks.

The most common body organs affected in this syndrome are the neurological system and dermatological systems and so common presenting signs and symptoms are unpleasant sense of touch, involuntary twitching movement of the upper limbs, memory loss and rash. The cause of this condition is not known but we know that it typically tends to be acute, with a short period of symptoms followed by a complete resolution of symptoms but since it is rare it is hard to predict how you will do with this condition. We usually treat this with daily immunosuppressive medication to help cause a quick remission. In the past, rest and relaxation techniques were recommended but these treatments have never been proven to be beneficial but immune targeted medications usually help. This is a lot of information. Before I continue, do you have any questions?

LAY C
Thank you for coming to see me on such short notice. The reason that I asked you to come in today is because after reviewing the results of your recent tests, I believe we have found your diagnosis and it is called Blankes syndrome. This is a relatively rare disorder but explains well the various complaints which you have been experiencing for the past few weeks.

The most common parts of the body affected in this disorder are the brain, muscles, nerves and skin and so common complaints are funny feelings under the skin, unintentional shaking of the arms and hands, memory troubles and rash. The cause of this disorder is not known but we know that it typically tends to be present only for a short period and then disappear completely but since it is rare it is hard to know how you will do with this disorder. We usually treat this with daily medication to calm the immune system and help you feel better quickly. In the past, rest and relaxation techniques were recommended but these treatments have never been proven useful but the medications usually help.

This is a lot of information. Before I continue, do you have any questions?
APPENDIX D: Survey

You have just seen a doctor trying to explain a new medical problem to a patient. You are
now being asked to complete this short survey about what you heard and saw. The main
goal of this survey is to determine how individuals view the doctors who explain medical
conditions to patients. All answers to questions will be made anonymous and be kept
strictly private. Please note this video is not intended to be related to any medical issues
that you may have.

1. Rate the doctor’s knowledge about the described condition.
   Poor • • • • • • Excellent

2. Rate the doctor’s knowledge about all of medicine.
   Poor • • • • • • Excellent

3. Rate the kind of care this doctor can provide for the described condition.
   Poor • • • • • • Excellent

4. Rate the doctor’s skill in communicating with patients.
   Poor • • • • • • Excellent

5. Rate the clarity of the doctor’s explanations.
   Poor • • • • • • Excellent

6. Rate the doctor’s degree of caring for patients.
   Poor • • • • • • Excellent

7. What were your main reasons for your ratings in the previous six questions?

8. How likely is a typical patient to see this doctor again for follow-up of this condition?
   Not likely • • • • • • Very likely

9. State the reasons why you think a patient would or would not see this doctor again

10. How much do you think a typical patient would understand of what the doctor was
trying to explain?
    Not at all • • • • • • Completely
APPENDIX D (continued)

11. Describe the new medical problem (that you learned about from the video) in 1-4 sentences, as you would explain it to a close family member or friend.

12. If you had the chance to ask this doctor some questions, what would they be? In other words, is anything that you would like to have heard missing or unclear?

13. Given the new medical condition, what physical problems can a patient expect to have?

14. Which body parts or organs are affected by this condition?

15. Do you think there is an effective treatment for the new condition?
   □ Yes       □ No       □ Not Sure

16. What is the treatment suggested for the new condition? (Check all that apply)
   □ Medication □ Bed Rest □ Exercise □ Other treatment □ There is no treatment

17. Do you think a typical patient would from now on always have this condition?
   □ Definitely □ Probably □ Possibly □ No

18. If not forever, for how long can one expect to have this condition?
   □ A few weeks □ A few months □ A few years □ A few decades

19. Do you think stress influences the condition?
   Not likely • • • • • Very likely

20. How serious is the condition?
   Not serious • • • • • Very Serious
APPENDIX D (continued)

Please complete the following information as yourself. Your answers will be kept strictly confidential.

All respondents:
Are you male or female?
□ Male      □ Female

What is your age? ______

What is your recent experience with doctors (either personal or as a “Or as a person who normally accompanies someone?”)
□ 1 or fewer visits per year
□ 2-4 visits per year
□ 5-10 visits per year
□ More than 10 visits per year

What is the highest level of education you have completed?
□ Less than high school
□ High School
□ College
□ CEGEP (this is equivalent to grades 12 and 13 in province of Quebec)
□ University undergraduate degree
□ University post graduate degree

Rate your comfort level with medical language
Low • • • • • High

Are you a health professional or do you work in the health field? □ Yes □ No
If yes, please tell us your profession ______

You have reached the end of the survey. Thank you for completing this survey.
VITA

NAME Leora M. Birnbaum

EDUCATION

BSc. Occupational Therapy, McGill University, 2000

MD. Université de Montréal, 2004

Postgraduate Medical Training, McGill University
General Internal Medicine 2010
Nephrology 2008
Internal Medicine 2007

Clinical Hypertension Fellow, continued Postgraduate Medical Training, Institute of Clinical Research of Montreal, 2010

MHPE, University of Illinois at Chicago, 2014

APPOINTMENT

Assistant Professor McGill University, Division of General Internal Medicine, Department of Medicine of the McGill University Health Centre.

Clerkship Coordinator for Internal Medicine, McGill University, Montreal General Hospital site of the McGill University Health Centre

TEACHING

Clinical Teaching

Introduction to Internal Medicine Tutor for second year medical students 2012-2013

Ward Rounds on Clinical Teaching Unit, recurring since January 2012.

Supervisor and/or evaluator at various McGill Simulation Center activities for medical students and residents

McGill University Faculty of Medicine Physicianship 3: The physician as healer: relating to other team members. Small group leader for third year medical students, February and May 2009

McGill University Faculty of Nursing: primary care nurse practitioner program, clinical reasoning course. “The care of patients with acute and chronic kidney disease” January 2009

Invited Lectures

McGill University Health Centre Obstetrics and Gynecology Grand Rounds. “Screening for Thrombophilia in pregnancy,” planned for May 2014

“Gastrointestinal Disorders in Pregnancy.” Obstetrics and gynecology resident teaching series (April 2014)

McGill University General Internal Medicine Fellowship Current Topics in Ambulatory Internal Medicine: Management of Diabetes (March 2012) and Management of Chronic Kidney Disease (Jan 2013)

Montreal General Hospital and Royal Victoria Hospital Clerkship Seminars “Approach to Acute Renal Failure” presentations for third and fourth year medical students, recurring one hour talks November 2008-ongoing

“A Case of Jaundice in a Patient with Crohn’s Disease” presentations at Quebec Interuniversity Day in Internal Medicine, April 2006, Residents Clinical Vignettes Evening, May 2006 and Montreal General Hospital Grand Rounds, June 2006

McGill University Health Center Grand Rounds presentation, “Interesting Cases from the Fifteenth Floor,” June 2007

HONOURS, AWARDS AND ACADEMIC DISTINCTIONS

The Lorne E Cassidy Teaching Award May 2007 for excellence in teaching
The Ezra Lozinski Prize June 2007 for compassion in patient care
University of Montreal Honour List 2000-2004
McGill Alumnae Society Prize May 2000
Golden Key Honour Society 1998

OTHER CONTRIBUTIONS

Administrative Responsibilities
Pedagogic Supervisor for McGill’s Medical Obstetrics Elective for students and residents
Participant member in development of an electronic medical record, to be implemented at the the Hypertension Clinic during winter 2013
Committees
The Medical Council of Canada Evaluating Examination Medicine Test Committee, ongoing
The McGill Internal Medicine Fellowship Program Training Committee, 2012-ongoing
McGill Strategic Planning Education Design Group, April 2009-2011
Chief Resident, McGill University General Internal Medicine Fellowship Program, 2009
Chief Medical Resident, Montreal General Hospital, January 2007-July 2007

Professional Certifications and Affiliations
American College of Physicians
Canadian Medical Association
Canadian Society of Internal Medicine
Fellow of the Royal College of Physicians of Canada
Quebec Medical Association

RESEARCH

The Influence of Medicaelese on Patient Relevant Outcomes. Master of Health professional education (UIC) Thesis project. In collaboration with advisors Meredith Young, Alan Scwartz, Ilene Harris and Linda Snell, ongoing.


Gait Speed as a Predictor of Dialysis and Mortality Among the Elderly with Stage 5 Chronic Kidney Disease. C. Tran, L. Birnbaum, S. Salami, A. Alam, M. Vasilevsky, G. Inglis, P. Barré, and S. Iqbal. Department of Medicine, McGill University Health Center. Abstract presented as poster at American Society of Nephrology 2012 meeting.


Poster presentation of Clinical Vignette “A Case of Jaundice in a Patient with Crohn’s Disease” Canadian Society of Internal Medicine annual scientific meeting, Calgary, November 2006.


CSIM Award for Excellence in Research awarded November 5th, 2005 for oral research presentation of Second Reading of Coronary Angiograms by Radiologists at the 2005 Canadian Society of Internal Medicine annual scientific meeting.