Patient Education Handouts for Patients: Extreme Makeover Final Report

April 17, 2006

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This report adheres to the Protected Health Information guidelines as outlined by the University of Michigan Health System confidentiality agreement signed by all team members.
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Executive Summary

The University of Michigan Health System (UMHS) has decentralized patient education materials. The Lead for the Program for Nursing Care Excellence – Patient Education has suggested that the handouts fail to offer appropriate content, reading levels, and information containing the date and author. These issues are thought to cause non-value added labor to UMHS nursing staff. Therefore, The Lead for Patient Education requested that we survey the current situation in CS Mott Children’s Hospital 5W and 6 to assess the degree of standardization of the patient education materials and the processes involved to create and distribute them. To address this question, The Lead for Patient Education asked our team to study the tasks involved in obtaining and distributing the patient education materials, and use our findings to provide recommendations that will create a methodology to build more efficient standards for the creation and distribution of the materials.

To address the problems with the Programs and Operations Analysis Team collected data in three forms: interviewed 5 key personnel, surveyed 29 CS Mott’s nursing staff members, and collected 231 education materials. From interviewing nurses, we were able to define the problem at hand and also identify the process involved in distributing education materials. Some of the key findings of our survey include that the average nursing staff feels that patient education materials are “unsuitable to somewhat suitable” in terms of reading level and language. They also feel that it is “difficult to somewhat difficult” to find patient education materials when they are looking for them. Finally, the nursing staff feels that it is an “often” occurrence that there are no available education materials in hard copy or electronic form when they are searching for them. After collecting education materials we found the following results:

- 52% of the materials had no date or were dated more than 10 years ago
- 26% of the folders were empty
- 67% of the materials collected can be legally and easily converted to an electronic format and added to Health Topics A-Z (current electronic resource)
- 39% of the materials collected did not contain an author

From this we concluded the management of the patient education materials to be inadequate. Based on these results, we recommend that the most effective way to accomplish our goals for managing patient education materials at UMHS, specifically Mott 5W and 6, would be the creation of an online or in-house database system. This database would encompass current hardcopy materials in addition to third-party resources and will be organized through the use of control numbers. To facilitate access to the database, a patient education station would need to be initialized in each nursing unit. Finally, to ensure that the patient education materials are accurate, consistent, suitable, non-redundant, and current, we recommend the creation of a patient education team whose task would be to maintain patient education materials for Mott Children’s Hospital. Although the following recommendations are intended for Motts, they can and should be extended to all of UMHS.
Introduction

The University of Michigan Health System (UMHS) has decentralized patient education materials. Currently, varying education handouts contain redundancies. Further, The Lead for the Program for Nursing Care Excellence – Patient Education has suggested that the handouts fail to offer appropriate content, reading levels, and information containing the date and author. These issues are thought to cause non-value added labor to UMHS nursing staff. For example, we found during interviews, that a nurse came across seven different patient education forms for the same diagnosis. Therefore, The Lead for Patient Education requested that we survey the current situation to assess the degree of standardization of the patient education materials and the processes involved to create and distribute them. To address this question, The Lead for Patient Education asked our team to study the tasks involved in obtaining and distributing the patient education materials, and use our findings to provide recommendations that will create a methodology to build more efficient standards for the creation and distribution of the materials. Such standards would provide consistent formatting and handouts that are accurate and suitable for distribution to patients. This report presents our observations and analysis of the current activities for the preparation and distribution of patient education materials specific to CS Mott Children’s Hospital. With our observations and analysis, we have provided recommendations that will help manage and improve the patient education material distribution processes.

Goals and Objectives

Our team has assessed the degree of standardization of the patient education materials and the processes involved to create and distribute them. Specifically, the student team has performed the following tasks:
- Observed the nursing tasks involved in obtaining and arranging patient education materials for distribution
- Identified wasted work
- Reviewed and categorized samples of patient education materials in terms of redundancy, appropriateness, accuracy, and currency
- Surveyed nurses to verify the views of The Lead for Patient Education

With this information, we have developed recommendations to:
- Eliminate duplicate forms between departments and units
- Ensure appropriate mode and formatting of patient education materials
- Provide just-in-time inventory of patient education materials
- Facilitate periodic reviews of patient education materials
- Eliminate outdated materials
- Manage patient education materials more centrally

Background

UMHS has had difficulty cataloging all patient education material on hand. Materials originate from multiple sources, often with inappropriate documentation that fails to display an author or a creation date. Therefore, redundant and obsolete materials are currently in circulation. Other hospitals have attempted different approaches to solve similar problems that UMHS faces. For example, The Lead for Patient Education informed our team that Duke University Hospital has implemented a program sponsored by pharmaceutical companies. The pharmaceutical companies create and distribute education forms for hospital use.
Other hospitals have also successfully implemented on-line resources that allow nurses and patients to quickly and conveniently search for patient education materials. One example of such a database can be found at the Cincinnati Children’s Hospital Medical Center (http://www.cincinnatichildrens.org/health/info/).

UMHS also wishes to explore online resources as a possible solution. Currently, the UMHS Cancer Center has started to implement such a program that utilizes online resources, but the program remains scoped to only cancer related material and has not yet extended to other UMHS programs. Another, more global, UMHS online resource is Health Topics A-Z. The patient education materials are universally available through this resource, but they are not properly monitored, specifically for currency, accuracy, appropriateness, and redundancy. Companies specializing in monitoring patient education materials like McKesson and Micromedics are currently being used by some UMHS nurses in combination with materials developed internally. Nursing staff believes that vendor products such as McKesson or Micromedics are not sufficient to meet patients’ educational needs and must be supplemented with extra information. In addition, the need to supplement vendor products has created concern that the UMHS nursing staff is performing extra tasks that should be eliminated from their workloads.

As has been found, sources outside of UMHS have attempted to create and implement solutions to the issues that UMHS is currently facing with its patient education materials. The Program and Operations Analysis Team hopes to use these resources in combination with information from our observations to provide further recommendations that will facilitate the creating of new standards to ensure that the handouts are accurate and suitable for distribution to patients.

**Project Scope**

The scope of this project has remained CS Mott 5W and 6. Departments outside of these were not considered, and therefore, were not surveyed.

This project included observing and analyzing the processes of creating and distributing patient education materials in CS Mott Children’s Hospital 5W and 6. The project did not include implementing a database or creating handouts. The hope is that the findings and recommendations of our project can be extended to the rest of UMHS.

**Methods and Findings**

The Programs and Operations Analysis Team collected data in three forms: interviewing key personnel, collecting education materials, and surveying CS Mott’s nursing staff.

*Interviewing Key Personnel*

We interviewed five nurses. From these interviews we were able to define the nurses’ responsibilities when creating and distributing patient education materials. From the detailed explanations of the current nursing responsibilities we drafted a flowchart (Appendix A) to document these tasks in a visual form. Utilization of the flowchart has allowed us to evaluate the current process to identify wasted work and opportunities for process improvements. An example of the identified non-value added work is the wasted effort and time nurses spend searching and walking to multiple patient education locations.
Collecting Education Materials

After interviewing nurses, we became familiar with the locations of hardcopy patient education materials in CS Mott Children’s Hospital 5W and 6 by gathering forms from their specific locations. We then read through and evaluated the materials using the following criteria: creation date, author, and ability to convert them to an electronic format. Figure 1 shows the distribution of publishing dates for the 231 folders that were checked.

As Figure 1 shows, 120 out of 231 of the materials collected (52%) had no date or were dated more than 10 years ago. Therefore, it is difficult for nurses to verify the currency, accuracy, and appropriateness of the materials. Also, 60 out of 231 of the folders checked (26%) were empty. This leaves nurses with online resources as their only source of information. If the online resource is not adequate, the nurses are forced to create new material on their own.

Figure 1. Patient Education Form Creation Dates.
Figure 2 shows the amount of patient education forms collected that could be easily converted to an electronic form (i.e., .pdf file).

As shown in Figure 2, 115 out of 171 materials collected (67%) can be easily converted to an electronic format. In other words, 67% of the hard copies in Mott 5W and 6 could either be added to Health Topics A-Z or added to another electronic database.
Figure 3 displays the number of patient education forms collected that contained author information.

Out of the 171 materials collected, 67 (39%) did not contain any author information. If no author information is available, it is difficult to verify the accuracy and appropriateness of the information since the origin of the material cannot be tracked.

**Surveying Nurses**

Our project team created and then distributed a survey to 110 nurses in CS Mott Children’s Hospital 5W and 6 during the weeks of March 26-April 5. This survey provided a quantitative representation for the opinions of 29 nurses about patient education materials. Some of the key findings include that average nursing staff feels that patient education materials are “unsuitable to somewhat suitable” in terms of reading level and language. Further, they feel that it is “difficult to somewhat difficult” to find patient education materials when they are looking for them. Finally, the nursing staff feels that it is an “often” occurrence that there are no available education materials in hard copy or electronic form when they are searching for them. A copy of the survey and complete list of the survey data can be found in Appendix B. The survey results support that the patient education materials are decentralized, redundant, inappropriate, inaccurate, and outdated.

**Recommendations**

After analyzing the data, The Program and Operations Analysis Team concluded that the most effective way to manage patient education materials at UMHS, specifically Mott 5W and 6, would be to create an online or in-house database system. This database will include current hardcopy materials, in-house database materials (i.e., Cancer Center), and third-party materials...
The database will be organized through the use of control numbers, which are reference numbers used to maintain the materials. Each specific control number will be linked to an individual diagnosis and a control number will not be given to a material until it has been reviewed for certain criteria: accuracy, consistency, suitability, redundancy, and currency. Finally, the control numbers act as a stamp of approval and a patient education material cannot be distributed until it receives one.

To facilitate access to the database, a patient education station, consisting of a computer, printer, and any necessary hardcopy materials, will need to be initialized in each nursing unit. The station will be designated solely for obtaining and printing patient education material.

Finally, to ensure that the patient education materials are accurate, consistent, suitable, non-redundant, and current, we recommend the creation of a patient education team whose task would be to review patient education materials, issue approved materials a control number, and maintain the database for Mott Children’s Hospital.

Although the following recommendations are intended for Motts, they can and should be extended to all of UMHS. The intention of the recommendations is to reduce the number of hardcopies on hand and to help centralize a majority of the patient education materials to one location. We will now discuss the details of the patient education team, database, control numbers, and patient education stations. A further description of the patient education team, database, control numbers, and patient education station follow below.

**Patient Education Team**

The patient education team would consist of a person or team of persons, whose task is to maintain patient education materials for Motts. Responsibilities of the team would include verifying accuracy, consistency, suitability, redundancy, and currency of patient education materials. They would have to work with each nursing unit to ensure that documents exist for every possible diagnosis. The initial task of the team would involve the removal of all patient education materials from circulation and upon verification that the necessary criteria has been met, the materials would be re-released into circulation after being issued a control number. Control numbers are an essential aspect of our recommendations and will be explained further later in the report.

Once all materials in Motts have been re-released with control numbers, the task of the patient education team will change. Their primary responsibilities evolve to the maintaining the database using periodic reviews of the materials. These reviews will be explained later in the report with the control numbers.

This team should include members who have experience working with patient education materials, with computer databases, and with members who have an understanding of the material that would be contained within the patient education. These qualities are necessary because the members should be knowledgeable about the materials and their management.

**Patient Education Database and Control Numbers**

The patient education database will be formed from multiple resources: current hardcopies, in-house databases, and third-party vendors. The first step to create a patient education database would be to eliminate unnecessary duplicate materials. Duplicate materials should be evaluated
from all resources. The best education material from these resources should be used or the resources should be combined to form one non-redundant handout. Using one non-redundant handout will also improve the consistency of the materials. The creation of one piece of material for each diagnosis using all available resources will ensure that the materials are complete. Completed materials will remove the need for nurses to supplement patient education material with other sources.

Once redundant materials are removed, and one complete copy of the material is created for each diagnosis, the patient education team should evaluate the accuracy and suitability of the patient education materials. The accuracy of the information contained in the materials should be reviewed and approved by the patient education team or a knowledgeable person(s) by request of the team. This approval will verify that the information contained within the patient education document is valid and appropriate for the given diagnosis. In order to address the suitability of the materials, the team must ensure that the reading level and language is appropriate for the recipient. Therefore, when the team finds a material that is not suitable, they must revise it until it is.

After the materials have been filtered for redundancy, consistency, accuracy, and suitability, a control number can be assigned to each specific document. This control number acts similarly to a serial number and allows the patient education team to keep track of each document. For example, the patient education material for appendicitis might be given the control number: UMHS-0001. Linked to each control number are an expiration date and a creator. The expiration dates would be set to a pre-specified amount of time to facilitate periodic reviews by the creator or patient education team. For example, if a control number was given an expiration date of 09/15/06, on this date the document must be re-approved to ensure that the material is still consistent, accurate, etc. After this approval, a new expiration date would be set. No material is to be given to patients unless it has an approved control number. If a nurse or doctor feels that he/she need a new material or that a material is not suitable, a request must be sent to the patient education team and they must make any necessary changes. By restricting the issuance of controls to only those on the patient education team, one is able to ensure that only approved materials are being given to patients.

Due to copyright laws, not all current material can be converted to an electronic format. Since not all materials can be converted to electronic format, some materials would remain in a designated filing location for hardcopies. We suggest this location be next to the patient education station to centralize patient education material. The hardcopies should also be organized by diagnosis and their locations can be found in the electronic database to reduce search time. Further, these materials must also be verified by the patient education team and given a control before they can be distributed to patients. Finally, inventory of hardcopy materials will be monitored by the patient education team.

**Patient Education Stations**

A patient education station will consist of one computer and printer designated solely for printing and searching for patient education materials. There will be one patient education station in each nursing unit. This computer will always be logged on and connected to the patient education database. This will reduce the time spent to retrieve materials. The only use of the station will be to access the database, unless changed by the patient education team. The patient education team will maintain and update information at a designated location determined by UMHS.
cost for each station could not be estimated because our team did not have access to UMHS computer contract information.

**Alternative Recommendations**

In the case that Motts feels that the recommendations stated above are not beneficial from an investment standpoint, we also have low-cost recommendations. The following recommendations will improve the availability of the materials, but do not address the concerns with accuracy, consistency, suitability, redundancy, and currency.

In speaking to *The Lead for Patient Education*, we found that current hardcopies of patient education materials can be added to Health Topics A-Z by simply submitting a request form. Many materials found do not have copyright issues and could be easily converted to electronic format. We suggest that a request be sent to Health Topics A-Z for these forms to be added to the site. The addition of forms to Health Topics A-Z goes along with our primary recommendation which will reduce the number of hardcopies on hand and help to centralize a majority of the diagnoses to one location.

Another low-cost alternative would be to organize the hardcopy filing system by diagnosis, which is currently being used in Mott 5W. Because patient education folders were often empty, we also suggest that refill cards be used to ensure proper inventory levels of patient education material. The refill cards should be easily noticeable, attached to a copy of the handout, and contain the number of copies needed. When the card is reached, the card and attached handout should be placed in a designated folder or bin located near the filing cabinets. On a specified day of the week all of the necessary handouts should be copied and restocked in their respective folders by a designated individual.
Appendix A

Patient Education Flowchart

The following represent the current process for obtaining and distributing patient education materials.

Figure 4. Current Processes.
Patient Education Flowchart

The following represent the proposed process for obtaining and distributing patient education materials.

Figure 5. Proposed Processes.
Appendix B

Patient Education Materials Survey – Nursing Staff
U of M – Senior Design Project – College of Engineering

Our team has been asked to assess the patient education materials on 5W Mott and 6 Mott.
Please take a couple of minutes and answer the following questions. Any additional comments that you have would be greatly appreciated.

When finished, please return to Cathy Lewis or Becky Schaedig.

1) How accurate do you find the patient education materials to be?
1 - Very Inaccurate 2 - Inaccurate 3 - Somewhat Accurate 4 - Accurate 5 - Very Accurate

2) How helpful are the patient education materials to the patients?
1 - Very Unhelpful 2 - Unhelpful 3 - Somewhat Helpful 4 - Helpful 5 - Very Helpful

3) How suitable are the patient education materials to the patients in the following ways?
• Reading Level
1 - Very Unsuitable 2 - Unsuitable 3 - Somewhat Suitable 4 - Suitable 5 - Very Suitable

• Language (English, Spanish, etc.)
1 - Very Unsuitable 2 - Unsuitable 3 - Somewhat Suitable 4 - Suitable 5 - Very Suitable

• Content
1 - Very Unsuitable 2 - Unsuitable 3 - Somewhat Suitable 4 - Suitable 5 - Very Suitable

4) How consistent are different materials concerning the same diagnosis/topic?
1 - Very Inconsistent 2 - Inconsistent 3 - Somewhat Consistent 4 - Consistent 5 - Very Consistent

5) How often do you find there to be redundant patient education materials about the same diagnosis/topic?
1 – Never 2 – Seldom 3 – Often 4 – Very Often 5 – Always

6) How difficult is it to find the patient education materials when you are looking for them?
1 - Very Difficult 2 - Difficult 3 - Somewhat Difficult 4 - Easy 5 - Very Easy

7) How long, on average, does it take you to gather and organize the patient education materials for a single patient? (Please answer in minutes)

8) How often do search for patient education materials and find the source to be empty?
1 – Never 2 – Seldom 3 – Often 4 – Very Often 5 – Always
9) How often do search for patient education materials and find that there is no material available (Does not exist in hard copy or electronic forms)?

<table>
<thead>
<tr>
<th>1 – Never</th>
<th>2 – Seldom</th>
<th>3 – Often</th>
<th>4 – Very Often</th>
<th>5 – Always</th>
</tr>
</thead>
</table>

10) How often do you check to ensure that the patient education materials are current?

<table>
<thead>
<tr>
<th>1 – Never</th>
<th>2 – Seldom</th>
<th>3 – Often</th>
<th>4 – Very Often</th>
<th>5 – Always</th>
</tr>
</thead>
</table>

11) How often does the patient education material fail to have an effective expiration date?

<table>
<thead>
<tr>
<th>1 – Never</th>
<th>2 – Seldom</th>
<th>3 – Often</th>
<th>4 – Very Often</th>
<th>5 – Always</th>
</tr>
</thead>
</table>

12) Do you know which conditions fail to have an effective expiration date? Please List:

13) How often do you find yourself creating new education materials?

<table>
<thead>
<tr>
<th>1 – Never</th>
<th>2 – Seldom</th>
<th>3 – Often</th>
<th>4 – Very Often</th>
<th>5 – Always</th>
</tr>
</thead>
</table>

14) Do you prefer using pre-printed hard copies or going to the web/database to print them out? (Check one)

_______ Hard Copies     _______Web/Database

15) Why do you prefer the choice you selected in the previous question? (i.e. more convenient, quicker, etc.)

16) What percentage of patient education materials that you use are found on hard copies, and what percentage are found on the web/database?

_______ Hard Copies     _______Web/Database
Please see the additional questions below.

Time Permitting:

1) Can you please describe the process needed to create and/or obtain patient education materials, organize them, and distribute them to the patients? Please be as specific as possible, indicating locations where materials are found and what would need to be done if there were no materials available (out or non-existent). Your answer will be used to create a flow chart of the entire procedure, enabling us to recognize possible improvement opportunities.

2) If you could make any changes to the current patient education materials or the processes used to obtain and distribute them what would they be?

Thank you for your time. Your input is much appreciated.
<table>
<thead>
<tr>
<th>Question #</th>
<th>Significance of numerical Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.26: Somewhat Accurate / Accurate</td>
</tr>
<tr>
<td>2</td>
<td>3.91: Somewhat Helpful / Helpful</td>
</tr>
<tr>
<td>3a</td>
<td>2.93: Unsuitable / Somewhat Suitable</td>
</tr>
<tr>
<td>3b</td>
<td>2.46: Unsuitable / Somewhat Suitable</td>
</tr>
<tr>
<td>3c</td>
<td>3.81: Somewhat Suitable / Suitable</td>
</tr>
<tr>
<td>4</td>
<td>3.79: Somewhat Consistent / Consistent</td>
</tr>
<tr>
<td>5</td>
<td>3.44: Often / Very Often</td>
</tr>
<tr>
<td>6</td>
<td>2.35: Difficult / Somewhat Difficult</td>
</tr>
<tr>
<td>7</td>
<td>14.03: Minutes to obtain material</td>
</tr>
<tr>
<td>8</td>
<td>3.56: Often / Very Often</td>
</tr>
<tr>
<td>9</td>
<td>3: Often</td>
</tr>
<tr>
<td>10</td>
<td>1.88: Never / Seldom</td>
</tr>
<tr>
<td>11</td>
<td>3.59: Often / Very Often</td>
</tr>
<tr>
<td>12</td>
<td>--------: Non-Standard Answers</td>
</tr>
<tr>
<td>13</td>
<td>2.76: Seldom / Often</td>
</tr>
<tr>
<td>14</td>
<td>0.56: Percent who prefer Web Solution</td>
</tr>
<tr>
<td>15</td>
<td>--------: Non-Standard Answers</td>
</tr>
<tr>
<td>16</td>
<td>0.57: Percent estimated use of Web Material</td>
</tr>
</tbody>
</table>