University of Michigan Health System
Program and Operations Analysis

Utilization of Nurse Practitioners in Neurosurgery

Final Report

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Date: December 11, 2012
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EXECUTIVE SUMMARY

Nurse Practitioners and Physician Assistants, namely Physician Extenders, work under the supervision of physicians to provide both direct and indirect patient care. Recent studies on physician extenders utilization conducted by the University of Michigan Health System (UMHS) in its Cardiovascular Center, Radiation Oncology Center and Cancer Center concluded that high variations in workload exist among the physician extenders. Also, there is a lack of standardized work expectations of the physician extenders by the physicians. To further investigate physician extenders’ utilization across the health system, UMHS asked an IOE 481 team to study the physician extenders’ utilization in its Neurosurgery Department.

Goals and Objectives
The primary goal of this project is to document and categorize the current workload and utilization of the physician extenders in the inpatient and clinic areas of Neurosurgery Department.

In addition, the team achieved the following objectives:

- Understand causes of variation in the workload for the physician extenders
- Quantify physicians’ and physician extenders’ perception of current workload and utilization
- Refine the methodology for future physician extender workload analysis in UMHS that can be applied to similar venues of care to standardize the workload and usage of physician extenders

Based on the project results, the team provided UMHS recommendations to achieve the following:

- Balance and standardize workload
- Maximize utilization
- Increase satisfaction

Background
The project focused primarily on two inpatient nurse practitioners in Neurosurgery 4-A and six outpatient nurse practitioners in Neurosurgery clinic. Primary responsibilities of the nurse practitioners involve direct and indirect patient care tasks. Direct patient care tasks performed by inpatient nurse practitioners include roundings and procedures, while indirect patient care tasks include order entry and consultation. On the other hand, direct patient care tasks performed by outpatient nurse practitioners include new patient visits and return patient visits, while indirect patient care tasks include dictations and triage phone calls. While the value of physician extenders is their ability to perform direct patient care tasks, previous studies conducted by UMHS found that physician extenders spent the majority of their time on indirect patient care tasks, and there are large variations in workload among the physician extenders, indicating that the physician extenders are underutilized. As a result, both the cost effectiveness of physician extenders to UMHS and the physician extenders’ job satisfaction are impaired. This project furthered the understanding of physician extenders’ workload and identified potential areas to improve their utilization and job satisfaction.
Methods
To achieve the project goals and objectives, the team conducted literature search, performed preliminary observations, performed workload collection, surveyed and interviewed nurse practitioners and physicians, and reviewed the past physician extenders’ utilization projects. Eight nurse practitioners participated in workload collection for a three-week period, and the results allowed the team to determine their current workload distribution. Besides, seven nurse practitioners and nine physicians participated in surveys, and eight nurse practitioners and five physicians participated in interviews, and the responses allowed the team to compare the nurse practitioners’ perceptions and the physicians’ perceptions to the actual workload distribution. From the data collected, the team drew findings, developed conclusions, and made recommendations to UMHS.

Findings
The summary of findings from workload collection, surveys and interviews are presented below:

Summary of Acute Care Findings
- Nurse Practitioners spend most of their time on Indirect Patient Care tasks
- Patient Discharge is consistent at about 24% of workload from 8:00 AM to 2:00 PM
- Personal Career Development time (Miscellaneous) is 1% of total workload
- Workload is based on the surgical schedule for each week
- Workload varies with each Nurse Practitioner

Summary of Outpatient Findings
- Nurse Practitioners spend most of their time on Indirect Patient Care tasks
- OR work is seen in three NPs and varies between 1% and 36% of total workload
- New Patient Visit-Individual is 33% of the New Patient Visits
- Workload varies with each Nurse Practitioner

Summary of Physician Survey Findings
- Physicians’ perceptions of NPs’ workload distribution are different from the NPs’ actual workload distribution
- Physicians expect their NPs to do less indirect patient care and more research and teaching/learning

Summary of Physician Interview Findings
- High variation on percentage of time spent with NPs among physicians
- Physicians’ perception on percentage of time that the NPs should spend with/without patients is equal to the actual value
- NPs should do more direct patient care tasks and less indirect patient care tasks
- Physicians think that they are utilizing their NPs fairly well

Summary of NP Survey Findings
- Most NPs get along well with their physicians
- Some NPs think that their physicians do not understand NP’s qualification
- NPs are not very satisfied with their job
Most NPs are comfortable having their appointments scheduled

**Summary of NP Interview Findings**
- NPs’ perceived workload is different from their actual workload
- NPs are most satisfied with Direct Patient Care tasks, and they would like to do less Indirect Patient Care

**Recommendations**
The summary of recommendations for UMHS to maximize physician extender’s utilization, balance their workload, and increase their satisfaction is presented below:

- The department should explore ways to secure time for personal career development. The literature listed “lack of personal career development” as one of the top three reasons for NPs’ dissatisfaction. Some potential ideas are securing a specific time during the week or possibly hiring an additional staff.
- The department should explore ways to decrease the Indirect Patient Care tasks performed by physician extenders, to allow for more time allotted to Direct Patient Care tasks. These tasks include:
  - Phone calls
  - Paper forms
  - Discharge work
  - Faxing/mailing
  - Prior authorization
- Tasks that are considered at a lower-skill level should be delegated to another staff member. This will allow physician extenders to work at more appropriate skill level tasks.
- The department should continue to re-evaluate the physician extenders’ job satisfaction over time. These evaluations will gauge the department’s risk of losing the physician extenders. In addition, the evaluations will show the physician extenders the department’s concern of losing them and appreciation of their work
- The department should explore ways to increase physicians’ understanding of physician extenders, capabilities. Based on the interviews and surveys there is a lack of understanding of the physician extenders’ capabilities. Less than a third of the physician extenders state that their physicians understand their qualifications.
INTRODUCTION

The University of Michigan Health System (UMHS) employs over 400 full time physician extenders, and they are categorized into two groups: Nurse Practitioners (NPs) and Physician Assistants (PAs). Each physician extender works under the supervision of one or more physicians, and provides both direct and indirect patient care. A physician extender’s direct patient care tasks include performing patient follow-up visits and rounding in place of physicians. Indirect patient care tasks include performing dictations, consultations, and preparation of roundings.

Recently, UMHS studied the utilization of its physician extenders in the Cardiovascular Center, Cancer Center, and Radiation Oncology Center and results have shown high variations in workload among the physician extenders. Also, a lack of standardized work expectations of the physician extenders by the physicians has been shown. UMHS would like to conduct a similar study in its Neurosurgery Department, which specializes in treating problems such as brain tumors, cerebrovascular diseases, and spinal cord injuries and diseases. Specifically, UMHS would like to know, within the Neurosurgery Department, the time allocation of its physician extenders, their perception on how they are being utilized, and their opinion on areas of potential improvement. Therefore UMHS asked an IOE 481 Team to analyze the current utilization of the physician extenders to make recommendations to optimize the utilization.

This final report presents the goals and objectives, methods, findings and conclusions, and recommendations of the project.

BACKGROUND

Based on previous studies on utilization of its physician extenders, UMHS has recognized that its physician extenders are being under-utilized in some departments such as Cancer Center and Cardiovascular Center. The recognition is reflected in the high variation of workload among the physician extenders. Physician extenders were often given too many indirect patient care tasks such as answering phone calls and replying to emails. Moreover, lack of standardized work expectations of the physician extenders has frustrated them. As a result, some physician extenders feel undervalued and dissatisfied with their current utilization, and have left their job, which impairs the return on investment of UMHS.

UMHS believes that by optimizing the utilization of its physician extenders and establishing a standardized workload expectation of them, the physician extenders will feel valued and recognized. Consequently, their job satisfaction will be increased, hence providing better return on investment to UMHS. UMHS has worked with other IOE 481 teams in the past to study the utilization of physician extenders in various departments across UMHS. This time, UMHS has requested an IOE 481 team to conduct a similar study in its Neurosurgery Department.

The goals of this project are to understand the utilization of the physician extenders in the Neurosurgery Department and to make recommendations to optimize the utilization. Currently in the Neurosurgery Department’s inpatient and clinic units, there are 8 NPs in total. The team worked closely with the department to carry out the study. The team first gathered data by
performing workload analysis on the physician extenders, conducting literature research, interviewing the physicians and physician extenders, surveying the physicians and physician extenders, and reviewing past project reports. Next, the team performed statistical analysis on the data to develop findings and conclusions. Ultimately, the team drew upon the findings to make recommendations to UMHS.

GOALS AND OBJECTIVES

The primary project goal is to document and categorize the current workload and utilization of the physician extenders in the inpatient and clinic areas of Neurosurgery Department.

In addition, the team seeks to:

- Understand causes of variation in the workload for the physician extenders
- Quantify physicians’ and physician extenders’ perception of current workload and utilization
- Refine the methodology for future physician extender workload analysis in UMHS that can be applied to similar venues of care to standardize the workload and usage of physician extenders

Based on the project results, the team provided recommendations to:

- Balance and standardize workload
- Maximize utilization
- Increase satisfaction

PROJECT SCOPE

The scope of this project included studying the inpatient and clinic areas in Neurosurgery Department. The inpatient area was the acute care unit (4A) and the outpatient area consisted of neurosurgery clinic. All of the physician extenders in these areas participated in the data collection process during on-location work hours.

This project did not focus on other healthcare providers within the Neurosurgery Department, such as residents and interns. It did not focus on any other departments within UMHS.

METHODS

The team will execute the following steps to conduct this study to document the current workload and utilization:

- Perform a literature search
- Observe and informally interview physician extenders
- Perform workload collection study
- Survey the physician extenders and physicians
- Interview the physicians
- Analyze the data
Literature Search
The team researched the utilization and type of work physician extenders do in credible medical journals and articles. These sources gave the team background and a better understanding of the tasks physician extenders completed on a day-to-day basis. The team gained knowledge about the current state of physician extenders’ work, satisfaction and utilization. The team also read a paper that analyzed the cost effectiveness of hiring support for the physician extenders. In addition, the team researched previous studies to learn about methods to conduct workload analysis.

Observations and Interviews
The team observed the current state of the physician extenders’ workload within the Neurosurgery Department for two weeks to better identify their tasks and responsibilities. These observations were key when collecting, analyzing, and understanding the data. In addition to observing, the team performed informal interviews with the nurse practitioners and physicians to gain knowledge of the current processes.

Workload Collection
The team conducted workload collections of the current state of the physician extenders’ utilization with help from the physician extenders. The team collected data about the type and frequency of tasks on a day-to-day basis. The purpose was to understand the workload and utilization of the physician extenders. First, the team educated the physician extenders on the correct way to record their tasks. Beepers were distributed to the physician extenders involved in this study, to be used only while they were working within Neurosurgery Department. When the beepers alert the participants throughout the workday, they marked down their current activity on a sheet provided by the team. The team created a separate activity sheet for the clinic and inpatient physician extenders. To validate the data, the team randomly shadowed the physician extenders. The team also insured that the beepers were working properly throughout the study. In the future, the goal is to standardize the workload to increase satisfaction and utilization. This study was conducted for ten workdays per nurse practitioner.

Survey of Physician Extenders
The Business School at the University of Michigan surveyed all the physician extenders in the hospital, so the team analyzed the data from the Neurosurgery department. The team will use the questions from the Business School survey to survey the current physician extenders within Neurosurgery. The total number of physician extenders surveyed was seven. The total number of physician extenders from the Neurosurgery department captured in the study was 12. The goal was to compare the perceived workload captured by the survey with the observed workload. The survey also gave the team a better understanding of the physician extenders’ current utilization and satisfaction.

Survey of Physicians
The team also surveyed the physicians that work with the physician extenders. The goal was to quantify the physicians’ perception on the current workload distribution and the physicians’ opinion on what the workload distribution should be. The survey included two questions: (1) list the percentage of time you believe physician extenders spend on major categories (Direct Patient Care, Indirect Patient Care, Teaching/Learning, Research and Other/Personal) and (2) list the
percentage of time you think the physician extenders SHOULD spend on major categories. A total of nine physicians were surveyed.

**Physician Interview**
The team also conducted face-to-face interviews with the physicians that work closely with the physician extenders. The goal of these interviews was four-fold: (1) quantify physicians’ perception on amount of time they spend with NPs, (2) quantify physicians’ perception on amount of time that NPs are spending with and without patients, (3) determine tasks that the physicians think the NPs should do less or more, and (4) quantify how well the physicians think they are utilizing their NPs. A total of five physicians were interviewed.

**Data Analysis**
The team combined the data from the workload analysis, survey, and informal interviews to determine the current utilization. The team used statistical analysis to analyze the data. The team analyzed the percentage and distribution of work along with the correlated satisfaction to determine the overall satisfaction and utilization of the physician extenders. The team used Pareto charts to deduce the tasks that are most commonly performed. After analyzing the data, the team drew conclusions and made recommendations to balance and increase the physician extenders’ workload utilization.

**FINDINGS**

In the following sections the findings will be presented from the:
- Literature Search
- Acute Care and Clinic Comparison
- Acute Care Workload Analysis
- Clinic Workload Analysis
- Physician Survey
- Physician Interviews
- Nurse Practitioner Survey
- Nurse Practitioner Interviews
- Comparison of Past Projects

**Literature Search Findings**
The student team conducted literature search to achieve the following (Please see Appendix A for all citations):
- Gain background information about nurse practitioners and the project
- Research previous physician extender utilization studies
- Review related articles to support conclusions and future steps

*Job Conflict Exists Between Nurse Practitioners and Residents*

One study stated that “There may be duties and responsibilities that physician assistants and nurse practitioners are qualified to perform, but physicians in training may need to perform these tasks to learn properly”, which reflects potential conflicts between physician extenders’ and residents in terms of types of work assigned by physicians.
Job Satisfaction and Anticipated Turnover are Negatively Correlated

Another study concluded that there is significant negative correlation between job satisfaction and anticipated turnover. The study surveyed over 250 nurse practitioners nationwide, and found that 27% of them intend to leave current positions due to their job dissatisfaction, and the major reasons for dissatisfaction are listed below:

- Lack of satisfying colleague relationships
- Limited opportunities for internal career development
- Not perceived as valuable member of the workforce

Hiring Additional MAs to Support Nurse Practitioners could Reduce Average Cost of Serving a Patient

Another study built and examined queuing models of patient flow in clinic areas, and concluded that the average cost of serving a patient could be reduced by nine to twelve percent if MAs are hired to support NPs. This is because MAs could perform administrative work for nurse practitioners, so that the nurse practitioners could see more patients and generate more revenue to the clinic.

Variation in Workload among Nurse Practitioners May Due to Physicians’ Varying Point of Views

A study stated that physicians have different point of view towards the abilities of non-physician clinicians to perform functions usually performed by residents, which is a potential cause of the variation in workload among nurse practitioners.

Summary of Literature Search Findings

- Job Conflict Exists Between Nurse Practitioners and Residents
- Job Satisfaction and Anticipated Turnover are Negatively Correlated
- Addition of MAs to Support Nurse Practitioners could Reduce Average Cost of Serving a Patient
- Variation in Workload among Nurse Practitioners May Due to Physicians’ Varying Point of Views
Acute Care and Clinic Comparison Findings
This section compares the workload distribution between Acute Care and Clinic of Neurosurgery. Figure 1 compares NPs’ workload distribution between acute care and clinic.

Figure 1: Comparison of NPs’ Workload Distribution between Acute Care and Clinic

NPs in Acute Care and Clinic Spend Similar Percentage of Their Time on Direct Patient Care Tasks
NPs in both units spend about 37% of their time on direct patient care tasks (when patient discharge (direct) and OR are included in direct patient care tasks).

NPs in Clinic Spend Less Time on Indirect Patient Care Tasks and More Time on Personal Career Development Tasks Than NPs In Acute Care
NPs in Clinic spend 22% less of their time on indirect patient care tasks than NPs in Acute Care do, but NPs in Clinic spend 6% of their time on personal career development tasks such as research and teaching/learning, while NPs in Acute Care do not.

Summary of Acute Care and Clinic Comparison Findings
- NPs in Acute Care and Clinic spend similar percentage of their time on direct patient care tasks
- NPs in Clinic spend less time on indirect patient care tasks and more time on personal career development tasks than NPs in Acute Care

Acute Care Findings
The Acute Care unit has two nurse practitioners. The categories of work and tasks performed in this unit are defined in the acute care workload analysis data collection sheet, shown in Appendix B.

Greatest Percentage of Time Spent on Indirect Patient Care
Based on the workload collection data, the physician extenders allocate most of their time on Indirect Patient Care tasks. This category claims 19% more of the physician extenders’ time than Direct Patient Care tasks. Including Patient Discharge (Indirect) to Indirect Patient Care and including Patient Discharge (Direct) to Direct Patient Care, Indirect Patient Care claims 25%
more of the physician extenders’ time than Direct Patient Care tasks. Figure 2 illustrates how the physician extenders distribute their time across the Direct Patient Care, Indirect Patient Care, Patient Discharge (Direct), Patient Discharge (Indirect), and Miscellaneous Tasks categories.

![Figure 2: Acute Care Overall Utilization](image)

*Figure 2: Acute Care Overall Utilization  
n=20, source = IOE 481 F12 Workload Collection, Oct-Nov 2012*

**Most Frequently Performed Tasks are Varied**
The three most frequency performed tasks by the acute care physician extenders are: AM Neurosurgery Rounds, Indirect Patient Discharge and Write Progress Notes. Figure 3 displays the percentage of time the physician extenders spend on each task. The left side of the dividing line on Figure 2 shows the tasks that comprise about 80% of the acute care physician extenders’ time. The Acute Care physician extenders have a greatly varied day as 13 tasks make up 80% of their time.
Several Tasks were Never Ticked under Miscellaneous Category

There were many tasks that were never ticked during our collection period, including three under Direct Patient Care, four under Indirect Patient Care and ten under Miscellaneous, amounting to 17 in total. Eight tasks within Miscellaneous are related to personal career development. Table 1 below shows the specific tasks.

Table 1: Acute Care Tasks that were Never Ticked during Data Collection Period

<table>
<thead>
<tr>
<th>Direct Patient Care</th>
<th>Indirect Patient Care</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveillance Rounding</td>
<td>Update Work Flow Tools</td>
<td>Mentoring/Training</td>
</tr>
<tr>
<td>Rounding Other</td>
<td>Prep for Rounding</td>
<td>Work Email</td>
</tr>
<tr>
<td>Procedure Other</td>
<td>Accept OR Patient</td>
<td>Miscellaneous Other</td>
</tr>
<tr>
<td></td>
<td>Handoff to General Care/Other</td>
<td>QI Data Collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Update Guidelines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prep Internal Presentations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prep External Presentations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Update M-Learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CME</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Coaching Related Work</td>
</tr>
</tbody>
</table>

Greatest Percentage of Time Spent in Direct Patient Care Tasks is AM Rounds

The most frequently performed task within Direct Patient Care is AM Neurosurgery Rounds, which accounts for 44% of the total Direct Patient Care. Four tasks, AM Neurosurgery Rounds, Direct Patient Discharge, Communicate with Patient or Family, and Direct Care Other, account for about 90% of the Direct Patient Care. Direct Care Other includes tasks such as removing staples. Figure 4 below shows the complete Direct Patient Care breakdown by task.
Greatest Percentage of Time Spent in Indirect Patient Care Tasks is Indirect Patient Discharge
The three most frequently performed tasks by the acute care physician extenders are: Indirect Patient Discharge, Write Progress Notes, and Order Entry. These three tasks claim 45% of the total Indirect Patient Care. Indirect Patient Discharge alone accounts for about 20% of the total Indirect Patient Care. Additionally, there are four tiers that each task can be assigned to: tasks that account for >10%, about 8%, 4-6% and <3% of total time. To clarify, Indirect Other contained comments such as communicating to the RN, discuss care with Charge RN, and fax and computer problems. Figure 5 below shows a Pareto Chart of Indirect Patient Care tasks within Acute Care.
Acute Care Time of Day Findings
The workload distribution varies considerably based on the time of day. Direct Patient Care takes up the vast majority, 68%, of the time between 6:00 – 8:00 AM. Patient Discharge stays constant at about 24% between 8:00 AM – 2:00 PM. Within this time period and Patient Discharge, Direct Patient Discharge is about one third while Indirect Patient Discharge accounts for the final two thirds. Finally, Indirect Patient Care is the highest from 2:00 – 4:00 PM amounting to 71% of the total workload. Figure 6 below shows the workload distribution for every two hours that the NPs work.

![Figure 6: Workload distribution varies considerably based on time of day.](n=20, source = IOE 481 F12 Workload Collection, Oct-Nov 2012)

Workload Distribution is Fairly Consistent Based on the Day of the Week
The workload distribution by day of week is vastly determined by the surgical schedule. This is shown by the fact that Direct Patient Care, Direct Patient Discharge, and Indirect Patient Discharge all are the highest on Wednesday. Total Patient Discharge, including Direct and Indirect, is 28% of the workload on Wednesday compared to an average of 15% on all other days. Finally, Indirect Patient Care is 37% on Wednesday while on all other days it ranges from 50-55% of the workload. Figure 7 shows the complete workload distribution by the day of the week.
Figure 7: Direct Patient Care and Patient Discharge both are highest on Wednesday.
n=20, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

Workload Distribution by Nurse Practitioner
The workload distribution varies considerably based on NP, which is because the two NPs have two different specialties. NP 1 performs 10% more Direct Patient Care than NP 2. NP 1 does 13% less Indirect Patient Care than NP 2. NP 1 executes 10% more Patient Discharge than NP 2. Figure 8 below shows the overall workload distribution by NP in Acute Care.

Figure 8: The workload distribution varies by NP
n=20, source = IOE 481 F12 Workload Collection, Oct-Nov 2012
Summary of Acute Care Conclusions
- Nurse Practitioners spend most of their time on Indirect Patient Care tasks
- Patient Discharge is consistent at about 24% of workload from 8:00 AM to 2:00 PM
- Personal Career Development time (Miscellaneous) is 1% of total workload
- Workload is based on the surgical schedule for each week
- Workload varies with each Nurse Practitioner

Clinic Findings
The following section presents the clinic workload analysis findings. The Neurosurgery unit has six nurse practitioners. The categories of work and tasks performed in this unit are defined in the clinic workload analysis data collection sheet, see Appendix B.

Greatest Percentage of Time Spent on Indirect Patient Care
Over half of the clinic nurse practitioners’ time was spent performing Indirect Patient Care tasks. This category claims 13% more of the nurse practitioners’ time than Direct Patient Care tasks (Direct Patient Care and OR Combined). Figure 9 illustrates how the physician extenders distribute their time across the Direct Patient Care, Indirect Patient Care and OR, Teaching/Learning, Research, and Other categories.

![Figure 9: Clinic Overall Utilization](image)
n=57, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

Overall Most Frequently Performed Tasks are Indirect Patient Care Tasks
The three most frequently performed tasks by the clinic physician extenders are: Discuss Patient Care, Return Patient Visit, and Assist in OR/Radiosurgery. These tasks include both Direct Patient Care tasks and Indirect Patient Care tasks. Figure 10 displays the percentage of time the physician extenders spend on each task. The dividing line on Figure 10 shows the tasks that comprise of 80% of clinic physician extenders time.
Most Tasks that were Never Ticked under Research, Teaching/Learning Category
There were many tasks that were never ticked, including two under Direct Patient Care, one under Indirect Patient Care, three under Teaching/Learning and ten under Miscellaneous, amounting to 17 in total. Eight tasks within Miscellaneous are related to personal career development. Table 2 below shows the specific tasks.

Table 2: Clinic Care Tasks that were Never Ticked during Data Collection Period
n=57, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

<table>
<thead>
<tr>
<th>Direct Patient Care</th>
<th>Indirect Patient Care</th>
<th>Teaching/Learning</th>
<th>Research</th>
<th>Other/Perso nal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staple/Suture Removal</td>
<td>Prior Authorization (CT) Phone Call</td>
<td>Present at Local/State Meetings</td>
<td>Raw data collection</td>
<td>Internet surfing</td>
</tr>
<tr>
<td>Wound Check/Debridement</td>
<td></td>
<td>Present at National/International Meetings</td>
<td>Data Analysis and Interpretation</td>
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<td>Giving Lectures</td>
<td>Preparing IRB Application/Hypothesis Formation</td>
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<td>Read/review journal manuscripts</td>
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<td>Preparing Grant applications Writing Manuscripts</td>
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Greatest Percentage of Time Spent in Direct Patient Care Tasks is Return Patient Visit
The percentage of Direct Patient Care within the clinic was 29% of the overall workload. This
percentage was divided into many tasks, most of which related to new and return patients. Figure 11 shows the breakdown of the direct patient care tasks, with Return Patient Visit having the highest percentage. The line in the middle indicates the top 80% of the direct care tasks (23%).

![Figure 11: Clinic Direct Patient Care Breakdown](image)

**Figure 11: Clinic Direct Patient Care Breakdown**  
n=57, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

**Greatest Percentage of Time Spent in Indirect Patient Care Tasks is Discuss Patient Care**
The percentage of Indirect Patient Care within the clinic was 50% of the overall workload. This percentage was broken down into many tasks. Figure 12 shows the breakdown of the indirect patient care tasks, with Discuss Patient Care having the highest percentage. The line in the middle indicates the top 80% if indirect patient care (41%) of the direct care tasks.

![Figure 12: Clinic Indirect Patient Care Breakdown](image)

**Figure 12: Clinic Indirect Patient Care Breakdown**  
n=57, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

**Clinic Care Day of Week Findings**
The percentage of time physician extenders spend on Direct Patient Care, Indirect Patient Care and other tasks are approximately related to the schedule of the clinic. All six NPs have designated clinic days and hours. The changes in Direct Patient Care and Indirect Patient Care vary according to the schedule of the clinic. Figure 13 shows the percentage of the Day of Week that is spent on each category.
Workload Distribution by Nurse Practitioner

The workload distribution varies considerably based on NP, which is because of the requirements and expectations of the physicians, the schedules, education level, or experience. The percentage of time spent on each category varies across the NPs. Figure 14 shows the overall workload distribution by NP in the Clinic.
Summary of Clinic Findings

- Nurse Practitioners spend most of their time on Indirect Patient Care tasks
- OR work is seen in 3 NPs and varies between 1% and 36% of total workload
- Percent of Individual New Patient visits is 33% of the New Patient category
- Workload varies with each Nurse Practitioner

Physician Survey Findings
The student team surveyed nine Neurosurgery physicians to achieve the following goals:
- Quantify physicians’ perceptions of NPs’ current workload distribution
- Quantify physicians’ expectations of NPs’ workload distribution

In the survey, physicians were asked to list the percentage of time that they believe the NPs are currently spending and the percentage of time that they believe the NPs should spend on the following major categories of task (Please see Appendix C for the physician survey form):
- Direct Patient Care
- Indirect Patient Care
- Teaching/Learning
- Research
- Other/Personal

Figure 15 compares the NP’s actual workload distribution with physicians’ perceptions and expectations.

![Figure 15: Physicians Perception of NPs Workload Distribution vs. Actual](image)

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Physicians’ perceptions of NPs’ workload distribution are different from the NPs’ actual workload distribution

Results from Figure 15 show that the physicians’ perceptions on what they think the NPs are doing are similar to physicians’ expectations; however, the physicians’ perceptions and expectations are different from the NPs’ actual workload distribution. Table 3 illustrates the differences between physicians’ perceptions, expectations, and the actual workload distribution.
Table 3: Differences between Physicians’ Perceptions and Expectations vs. NPs’ Actual Workload

n=9/9, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Physicians’ Perceptions vs. Actual</th>
<th>Physicians’ Expectations vs. Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Patient Care</td>
<td>9% higher</td>
<td>11% higher</td>
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<tr>
<td>Indirect Patient Care</td>
<td>12% lower</td>
<td>20% lower</td>
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<tr>
<td>Research</td>
<td>9% higher</td>
<td>9% higher</td>
</tr>
<tr>
<td>Teaching/Learning</td>
<td>3% lower</td>
<td>2% higher</td>
</tr>
<tr>
<td>Other/Personal</td>
<td>3% lower</td>
<td>3% lower</td>
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</tbody>
</table>

Physicians expect their NPs to do less indirect patient care and more teaching/learning

According to Figure 15, physicians expects their NPs to spend 30% and 7% of their time on indirect patient care and teaching/learning respectively, while the numbers from physicians perception of current state are 38% and 2% respectively.

Summary of Physician Survey Findings

- Physicians’ perceptions of NPs’ workload distribution are different from the NPs’ actual workload distribution
- Physicians expect their NPs to do less indirect patient care and more research and teaching/learning

Physician Interview Findings

The team conducted face-to-face interviews with five Neurology surgery physicians to achieve the following goals (Please see Appendix D for all physician interview questions):

- Compare the following:
  - Percentage of time that the physicians think they spend with NPs currently
  - Percentage of time that they think they should spend with NPs
- Compare the following:
  - Percentage of time that the physicians think the NPs are spending with/without patients
  - Percentage of time that the physicians think the NPs should spend with/without patients
  - The actual percentage of time that the NPs are spending with/without patients
- Determine the tasks that the physicians think the NPs should do less or more
- Quantify how well the physicians think they are utilizing their NPs
Figure 16 shows the percentage of time spent with NPs among different physicians.

![Bar chart showing the percentage of time spent with NPs among different physicians.](chart)

**Figure 16: Physicians’ Perceptions of Percent of Time They Spend with NPs**  
*n=6, source = IOE 481 F12 Workload Collection, Oct-Nov 2012*

**High Variation on Percentage of Time Spent With NPs among Physicians**  
According to Figure 16, the percentage of time spent with NPs varies greatly among physicians, with values ranging from 2% to 40%. Also, five out of six physicians think the current percentage of time they spend with NPs equals to the percentage of time that they should spend with NPs.

Figure 17 compares physicians’ perceptions, expectations, and the actual.

![Bar chart comparing physicians’ perceptions, expectations, and the actual time spent with NPs.](chart)

**Figure 17: Physicians’ Perceptions of Time NPs Spend with/without Patients vs. Actual**  
*n=8/6/6, source = IOE 481 F12 Workload Collection, Oct-Nov 2012*
**Physicians’ Perception on Percentage of Time That the NPs Should Spend With/Without Patients is Equal to The Actual Value**

Figure 17 shows that the percentage of time that the physicians think the NPs should spend with or without patients are 50% and 50% respectively, which equal to the value drawn from the workload analysis.

**NPs Should Do More Direct Patient Care Tasks and Less Indirect Patient Care Tasks**

According to the responses from the physician interviews, five out of six physicians believe NPs should do more direct patient care tasks and less indirect patient care tasks. Moreover, three out of six physicians have stated that they do not want the NPs to complete disability forms but the physicians do not have another option.

**Physicians Think That They Are Utilizing Their NPs Fairly Well**

On a scale of 1 to 5, with 5 being very well, the average value that the physicians think how well they are utilizing their NPs is 3.7 out of 5. Furthermore, one physician noted that he should use his NPs more predictably.

**Summary of Physician Interview Findings**

- High variation on percentage of time spent with NPs among physicians
- Physicians’ perception on percentage of time that the NPs should spend with/without patients is equal to the actual value
- NPs should do more direct patient care tasks and less indirect patient care tasks
- Physicians think that they are utilizing their NPs fairly well

**Nurse Practitioner Survey Findings**

The student team surveyed seven Neurosurgery NPs to understand their work life and job satisfaction (Please see Appendix E for full list of NP survey questions).

**Most NPs get along well with Their Physicians**

The following responses show that most NPs get along well with their physicians.

Q: Based on the physicians you work with most often, for how many of them would you characterize your relationship as strong and professional?

- All 43%
- Most 43%
- Some 14%
- Few 0%
- None 0%
  
  Total N=7
Q: Do you feel comfortable seeking supervision from physicians?
- Always 86%
- Usually 14%
- Sometimes 0%
- Never 0%
Total N=7

Some NPs think that their Physicians do not Understand NP’s qualification
The following responses show that some NPs think that their physicians do not understand NP’s qualification.

Q: Do you think the physicians you work with with fully understand your qualification and the types of medical tasks and procedures that you are capable of performing?
- Yes 29%
- No 71%
- Unsure 0%
Total N=7

Q: Why do you think the physicians you work with do not understand your qualifications?
- “The physicians I work with do not understand the scope of my role and/or prefer that residents perform the tasks I am trained/qualified to perform”
- “I don’t think the physicians I work with are fully educated on the scope of practice I have as an NP”

NPs are not Very Satisfied With Their Job
The following responses indicate that NPs are not very satisfied with their job.

Q: How valued and respected do you feel as a member of your hospital system?
1 (Not valued at all) to 10 (Very valued)
- Average: 6.0
Total N=7

Q: How satisfied are you as a NP with the type of work that you do?
1 (Very dissatisfied) to 10 (Very satisfied)
- Average: 5.9
Total N=7

Q: How should your department utilize NPs differently to improve patient and physician satisfaction?
- “Help with telephone triage”
- “Increase "touch time," time for communication, assessment”
- “We could be utilized more in patient care, developing educational tools for patients, and personal career development for our department as APP/MLPs”
- “It would help us to be able to have more direct patient time, if there was a RN to triage phone calls, so that we are not pulled away from clinic to address non-urgent issues”
**Most NPs are Comfortable Having Their Appointment Schedule**

The following responses indicate that most NPs are comfortable having their appointment schedule:

- Q: Are you comfortable having your appointment schedule?
  - Yes, regardless of on-site availability of the physician 60%
  - Yes, only when a physician is also on-site 20%
  - No 20%
  - Total N=5

Q: Why are you not comfortable having your appointment schedule?
- “As long as the patients understand that they will not be seeing the surgeon, I am comfortable having my own schedule. Also, would like a surgeon on site if there is an emergent tumor or issue that requires urgent operative intervention”

**Summary of NP Survey Findings**

- Most NPs get along well with their physicians
- Some NPs think that their physicians do not understand NP’s qualification
- NPs are not very satisfied with their job
- Most NPs are comfortable having their appointments scheduled

**Nurse Practitioner Interview Findings**

The student team conducted face-to-face interviews with eight Neurosurgery NPs to achieve the following goals (Please see Appendix F for all NP interview questions):

- Compare the following:
  - Perception of time that the NPs think they are spending on direct patient care, indirect patient care, and other tasks
  - The actual percentage of time that the NPs are spending on direct patient care, indirect patient care, and other tasks
- Determine tasks that the NPs would like to do more or less
Figure 18 shows the acute care NPs’ perceived workload versus their actual workload.

Figure 18: Acute Care NPs’ Actual vs. Perceived Workload  
$n=2$, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

Figure 19 shows the clinic NPs’ perceived workload versus their actual workload.

Figure 19: Clinic NPs’ Actual vs. Perceived Workload  
$n=6$, source = IOE 481 F12 Workload Collection, Oct-Nov 2012

**NPs Perceived Workload is Different from Their Actual Workload**

As shown from Figure 18 and 19, the perceived workload of NPs from both acute care and clinic is different from their actual workload. The differences range from 7% to 20% and from 0% to 18% in acute care and clinic respectively.
**NPs Are Most Satisfied With Direct Patient Care Tasks and They Would Like To Do Less Indirect Patient Care**

During the interviews, NPs have expressed that they are most satisfied with direct patient care tasks, and they would like to perform more of them. In contrast, NPs would like to do less indirect patient care tasks, which include, but not limited to, the following:

- Phone calls
- Paper forms
- Discharge work
- Faxing/mailing
- Prior authorization

**Summary of NP Interview Findings**

- NPs’ perceived workload is different from their actual workload
- NPs are most satisfied with direct patient care tasks, and they would like to do less indirect patient care

**Past Projects Comparison Findings**

The student team reviewed similar physician extenders utilization projects, and compared their findings with our project.

<table>
<thead>
<tr>
<th>Table 4: Comparison with Past Projects</th>
<th>source = IOE 481 F11, W12, and F12 Workload Collection, Oct 2011-Nov 2012</th>
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</thead>
<tbody>
<tr>
<td>Inpatient</td>
<td>Neurosurgery – 4A</td>
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<tr>
<td>Direct Patient Care</td>
<td>37%</td>
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<tr>
<td>Indirect Patient Care</td>
<td>62%</td>
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<tr>
<td>Others</td>
<td>1%</td>
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</table>

<table>
<thead>
<tr>
<th>Outpatient</th>
<th>Neurosurgery</th>
<th>Cardiac Surgery</th>
<th>Cancer Center Physician Team 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Patient Care</td>
<td>37%</td>
<td>31%</td>
<td>24%</td>
</tr>
<tr>
<td>Indirect Patient Care</td>
<td>50%</td>
<td>50%</td>
<td>49%</td>
</tr>
<tr>
<td>Others</td>
<td>13%</td>
<td>19%</td>
<td>27%</td>
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**NPs on Average Spend Low Percentage of Their Work Time on Direct Patient Care Tasks**

Based on Table 4, the average percentage of time that NPs across different department spend on direct patient care tasks are 33% and 31% for inpatient and outpatient units respectively.

**High Variation in Workload Exists Between Acute Care NPs across Neurosurgery 4-A, Cardiac Surgery 4-C, and Cardiac Surgery ICU**

According to Table 4, the percentage of time that NPs spend on each major category of task varies greatly across different units.
Outpatient NPs across Different Department Spend Different Percentages of Time on Direct Patient Care Tasks but Similar Percentages of Time on Indirect Patient Care Tasks

Percentage of time that outpatient NPs, across different units, spend on direct patient care range from 24% to 37%, while the percentage of time that they spend on indirect patient care tasks are about 50%.

Summary of Past Projects Comparison Findings

- NPs on average spend low percentage of their work time on direct patient care tasks
- High variation in workload exists between acute care NPs across Neurosurgery 4-A, Cardiac Surgery 4-C, and Cardiac Surgery ICU
- Outpatient NPs across different department spend different percentages of time on direct patient care tasks but similar percentages of time on indirect patient care tasks

RECOMMENDATIONS

From the workload analysis, literature search, physician and physician extenders surveys and interviews the team developed recommendations to maximize utilization, balance workload and increase satisfaction, in order to enable the Neurology Surgery Department decrease turnover and achieve its goals.

Recommendations for Acute Care and Clinic

- The department should explore ways to secure time for personal career development. The literature listed “lack of personal career development” as one of the top three reasons for NPs’ dissatisfaction. Some potential ideas are securing a specific time during the week or possibly hiring an additional staff.
- The department should explore ways to decrease the Indirect Patient Care tasks performed by physician extenders, to allow for more time allotted to Direct Patient Care tasks. These tasks include:
  - Phone calls
  - Paper forms
  - Discharge work
  - Faxing/mailing
  - Prior authorization
- Tasks that are considered at a lower-skill level should be delegated to another staff member. This will allow physician extenders to work at more appropriate skill level tasks.
- The department should continue to re-evaluate the NPs job satisfaction over time. These evaluations will consistently gauge the department’s risk of losing the NPs. In addition, the evaluations will show the NPs the department’s concern of losing the NPs, appreciation of the NPs’ current work, and view on the great value of the NPs.
- The department should explore ways to increase physicians’ understanding of NPs’ capabilities. Based on the interviews and surveys there is a lack of understanding of the NPs’ capabilities. Less than a third of the NPs state that their physicians understand their qualifications. Due to this lack of understanding of the NPs’ qualifications the department should investigate ways to increase the physicians’ understanding of NPs’ capabilities.
Recommendations for Acute Care

- The department should further investigate patient discharge. Currently, discharge is consistent from 8:00 to 2:00 PM and in the ideal situation discharge would be higher before noon to increase the flow and efficiency of the hospital operations.

Recommendations for Clinic

- The department should continue to let the NPs see new patients independently. There has been an institutional push recently to increase independent new patient visits and since the department is already ahead of the curve the department should continue this trend.
- The department should further investigate increasing the time physician extenders spend in the OR. Increasing OR time would also increase the Direct Patient Care tasks as well as adding revenue to the hospital.
- The department should further investigate workload equity across the NPs with particular focus to increase Direct Patient Care tasks. The workload analysis showed a high variation; however, some NPs had a high amount Direct Patient Care tasks so the department should look at these NPs for ways to increase the Direct Patient Care time.

Future Steps

- The department leaders should further investigate and develop a plan to carry out workload leveling suggestions across physician extenders, through the use of concrete and measurable goals, that will provide improvement.
- The department leaders should continue researching other inpatient and outpatient areas of UMHS, using the refined methodology detailed previously. By comparing more findings and conclusions to this project, more ideal improvements for physician extenders will be recognized.
APPENDIX

Appendix A: Literature Search Citations


Appendix B: Workload Collection Sheets

*Acute Care Tick Sheet (front)*

<table>
<thead>
<tr>
<th>Time spent on work since you last left the office? YES NO</th>
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<tbody>
<tr>
<td>Brief description of tasks:</td>
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**Acute Care Tick Sheet (back)**

**Instructions:**
- Please complete the entire top portion of the sheet, otherwise the data collected cannot be used.
- Keep the beeper provided to you for the duration of the study, please turn the beeper on at the beginning of your work day and off at the end of your work day. NOTE: Please keep the beeper on silent, the beeps are unreliable.
- When the beeper vibrates please mark a tick in the box that describes the task you are doing in the appropriate time column.
- When the beeper vibrates record only your primary task (1 tick mark), not any secondary tasks.
- If your beeper vibrates while you are marking the sheet, please mark the same activity.
- Beepers will vibrate on average of 4 times per hour; it could be more or less. If you notice the beeper has not vibrated in the past couple hours your battery may be low. Please let a student know if this an issue so the battery can be replaced.
- When finished place completed tick sheet in the folder located in Room TBD. Please pass your beeper to the next person, or place in the box in the work room.

**Definitions of Tasks:**

- **Direct Care**
  - Surveillance Rounding: rounding done individually, either proactively or to f/u non-acute problem identified on computer surveillance

- **Indirect Care**
  - Prep Pre-Op Patient: includes completion of data card
  - Initiate Consult: Initial verbal communication w/ consultant regarding a patient problem.
  - Consult with Surgeon: discussions other than in rounds
  - Admit New/Transfer Patient: Refers to review of OSH medical records and other communication to gather history and develop plan care.

- **Miscellaneous**
  - Preparing Ext Presentations: for example, S.O.N. presentation, presentation for conference

**Description of Tasks Marked in Other:**

**Additional Comments:**

**Contact Information:**
- If there is a problem with the study or your beeper, please contact:
  - Zach Hawkins (231)-313-0030
  - Taylor Stamp (901)-921-1007
  - Raphael Lam (224)-392-2201
# Outpatient Tick Sheet (front)

## Outpatient Tick Sheet

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date</th>
<th>Total # of Pts</th>
<th>Work Done Outside Hospital</th>
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<tbody>
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</tbody>
</table>

- **New Staffed**: Ind., Ret., Post-Op
- **Circle**: NP / PA

**Time spent on work since you last left the office?** YES NO

If yes, how much time spent (est. to nearest 15 minutes)?

**Brief description of tasks:**

<table>
<thead>
<tr>
<th>Start Time:</th>
<th>End Time:</th>
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<tbody>
<tr>
<td>6:00-7:00</td>
<td>7:00-8:00</td>
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<td>8:00-9:00</td>
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<td>10:00-11:00</td>
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<td>12:00-1:00</td>
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<td>2:00-3:00</td>
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<td>4:00-5:00</td>
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<td>6:00-7:00</td>
<td>7:00-8:00</td>
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### Direct Clinical Care:
- New Patient Visit
- Return Pt Visit
- Post-Op Visit
- H & P Visit - Complete
- H&P Visit - Teaching only
- Shunt Check/Tap
- Staple/Suture Removal
- Wound Check/Debridement
- Pump Fills
- Assist in OR
- Other

### Indirect Clinical Care:
- Dictation (General)
- Dictation - Editing
- Review Test/Lab Result
- Notification
- E-prescribe
- Clinic Preparation
- Order testing, make referrals
- Discuss Patient Care
- Review of CT
- Care Coordination
- Referral review/triage
- Waiting to Staff (not multitasking)
- **Phone Calls**
  - Calling in a prescription
  - Medication adjustment
  - Test results
  - Triage new problem
  - Prior Authorization (CT)
  - Miscellaneous Pages
  - Other
- Checking / revising clinic appointment
- Clinical care by email
- Other

*Please See REVERSE Side for More Task Options and Instructions*
# Outpatient Tick Sheet (back)

**Teaching / Learning:**
- Continuing Medical Education (including clinical conferences, etc.)
- Present at Local / State Meetings
- Present at National / International Meetings
- Mentoring Students
- Preparing Patient Education Materials
- Giving Lectures
- Preparing Presentations
- Other

**Research:**
- Raw data entry
- Raw data collection
- Data analysis and interpretation
- Preparing IRB application / hypothesis formation
- Read / review journal articles and manuscripts
- Preparing grant applications
- Attending research meetings
- Writing manuscripts
- Other

**Other / Personal:**
- Check personal email
- Internet surfing
- Lunch
- Break
- Walking time
- Other

**Description of Tasks Marked in Other:**

**Instructions:**
- Please complete the entire top portion of the sheet, otherwise the data collected cannot be used.
- Keep the beeper provided to you for the duration of the study, please turn the beeper on at the beginning of your work day and off at the end of your work day. NOTE: Please keep the beeper on silent, the beeps are unreliable.
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- When finished place completed tick sheet in the folder located in the Room TBD. Please pass your beeper to the next person, or place in the box in the work room.

If there is a problem with the study or your beeper, please contact:
- Zach Hawkins: (231) 313-0030
- Taylor Stumpf: (9631)-921-1207
- Raphael Law: (224)-392-2201
Appendix C: Physician Survey Form

Please list the percentages of time you think the nurse practitioners are spending on the following categories of tasks

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
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<tbody>
<tr>
<td>Direct patient care</td>
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<td>Indirect patient care</td>
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<td>Teaching/Learning</td>
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<td>Research</td>
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<td>Other/Personal</td>
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<tr>
<td><strong>Total:</strong></td>
<td>100%</td>
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</tbody>
</table>

Please list the percentages of time you think the nurse practitioners should spend on the following categories of tasks

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<th>Category</th>
<th>%</th>
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<tbody>
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<td>Indirect patient care</td>
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<td><strong>Total:</strong></td>
<td>100%</td>
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Appendix D: Physician Interview Questions

- Circle the top 5 most frequent tasks they think the NPs complete
- Star next to the top 3 tasks they think the NPs should do more often
- X next to the top 3 tasks they think the NPs should do less often
- What percentage of time do you think the NPs spend with/without patients?
- What percentage of time do you think the NPs SHOULD spend with/without patients?
- Are there any tasks that you do not want to assign to NPs but you have no other option? What are the difficulties?
- How well do you think you are utilizing your NPs, on a scale of 1 to 5, with 5 being very well? What are the difficulties?
- What percentage of time are you working directly with the NPs?
- What percentage of time do you think you SHOULD be working directly with the NPs?
Appendix E: Nurse Practitioner Survey Questions
Physician Assistant (PA) and Advanced Practice Nurse (NP, CNM) Utilization Survey
This survey is part of a project to better understand the work life of physician assistants and nurse practitioners, who are an increasingly important part of our care giving teams. Your participation is valuable and greatly appreciated. Your answers will be kept completely confidential. Thank you for your participation.

A1 I am a:
- Nurse Practitioner (NP/DNP) (1)
- Physician Assistant (PA-C) (2)

A2 This section contains questions about your primary clinical job/specialty. Your primary clinical job/specialty is the clinical job where you spend most of your time in clinical practice. If your time is split evenly between two settings or specialties, choose the specialty designated as your primary department for your credentialing and privileging. For the purposes of this survey, my primary clinical job/specialty is in: (answer the survey questions based off the area you chose)
- Addiction Medicine (1)
- Diagnostic Radiology (2)
- Surg: Orthopedics (3)
- Surg: Plastic (4)
- Allergy (5)
- Pathology (6)
- Surg: Cardiovascular/Cardiothoracic (7)
- Surg: Neurological (8)
- Surg: Otorhinolaryngology (9)
- Surg: Spine (10)
- Ped: Critical Care (11)
- Ped: Hematology (12)
- Ped: Rheumatology (13)
- IM: Critical Care (14)
- IM: Nephrology (15)
- Anesthesiology (16)
- IM: Rheumatology (17)
- Radiation Oncology (19)
- Ped: Endocrinology (20)
- Dermatology (21)
- Pain Management (22)
- General Surgery (23)
- Surg: Bariatric (24)
- General Pediatrics (25)
- Ped: Emergency Medicine (26)
- Ped: Cardiology (34)
- IM: Cardiology (35)
- Surg: Thoracic (36)
- Surg: Urology (37)
- Ped: Adolescent Medicine (38)
Ped: Other (39)
Family Medicine (40)
Psychiatry (41)
Ped: Neonatal-Perinatal (42)
Genetics (44)
Emergency Medicine (45)
Public Health (47)
Family Medicine with Urgent Care (48)
Obstetrics/Gynecology (49)
Ped: Pulmonology (50)
Ped: Nephrology (51)
Ped: Neurology (52)
Geriatrics (53)
Ophthalmology (54)
Physical Medicine/Rehab (55)
Hospital Medicine (56)
Surg: Colon & Rectal (58)
Surg: Oncology (59)
Surg: Pediatric (60)
Surg: Transplant (61)
Surg: Vascular (62)
Surg: Other (63)
Ped: Allergy (64)
Ped: Gastroenterology (65)
IM: Hematology (66)
Ped: Infectious Disease (68)
Ped: Oncology (69)
General Internal Medicine (70)
IM: Pulmonology (71)
IM: Endocrinology (73)
IM: Immunology (74)
Other (75)
IM: Neurology (76)
IM: Oncology (79)
Interventional Radiology (80)

A3 I work in the following clinical setting(s):
Exclusively outpatient (1)
Exclusively inpatient (2)
Both outpatient and inpatient (3)

A4 Which types of non-physician providers work in your department? (Please check all that apply)
Nurse Practitioner (NP/DNP) (1)
Nurse Midwife (CNM) (2)
Nurse Anesthetist (CRNA) (4)
Physician Assistant (PA-C) (5)
S2 FOR THE REMAINDER OF THIS SURVEY, ANSWER QUESTIONS FROM THE PERSPECTIVE OF YOUR WORK IN THE DEPARTMENT YOU IDENTIFIED IN QUESTION 3 AS BEING YOUR PRIMARY CLINICAL JOB/ SPECIALTY.

B1 Do you have your own patient visits appointment schedule (separate from the physician)?
- Yes (1)
- No (2)
- Sometimes (3)

B2 "Do you have your own patient visits appointment schedule (separate from the physician)?". You answered "Sometimes" for this, please explain why:
- Only if asked (1)
- All new patients (2)
- Pre-identified patients (by complexity, diagnosis, presenting problems) (3)
- Other (4) ____________________

B3 What are the barriers to you having an independent clinic schedule?
- RVU Structure (1)
- Physicians asking midlevels to perform the jobs of nurses and MAs (2)
- Acuity of patient needs (3)
- Physicians are unwilling to let go oversight of patients not needing high levels of care (4)
- There is no barrier (5)
- Other: (6) ________________

B4 I am/would be comfortable having my own patient appointment schedule.
- Yes, regardless of on-site availability of the physician (1)
- Yes, only when a physician is also on-site (2)
- No, why? (3) ________________

B5 Which types of visits are scheduled with you independently? (Please check all that apply)
- New Patients (1)
- Routine Annual Physicals (2)
- Post-op Global Visits (3)
- Procedures (4)
- Established Patients/ Follow-up (5)
- Urgent Visits (6)
- Pre-op H+Ps (7)
- Established Patients/New-problems (8)
- Consultations (9)
- Independent Medical Exam (IME) (10)
- Other (11)

**Answer If I work in the following clinical setting(s): Exclusively inpatient Is Not Selected**

**B6** How often (% of patients) does your supervising physician also see patients that you see in clinic?

____ % (1)

**Answer If I work in the following clinical setting(s): Exclusively inpatient Is Not Selected**

**B7** How often are you in the clinic/office seeing patients when no physician is physically present in the office/clinic?

____ % (1)

**Answer If I work in the following clinical setting(s): Exclusively inpatient Is Not Selected**

**B8** Who sees post-op global visits? (Please check all that apply)

- MD only (1)
- PA/NP with MD available by phone if needed (2)
- PA/NP with MD (3)
- Does not apply (4)
- PA/NP with MD available in clinic if needed (5)
- I don't know (6)

**B9** How often are you used as a scribe? (Definition: A scribe is present during the clinical encounter to record the actions and the words of the physician in real time. Scribes MAY NOT interject or provide their own observations or impressions into the medical record. Thus, scribes may not provide any portion of the E+M service)

____ % of time used as scribe (11)

**Answer If I work in the following clinical setting(s): Exclusively outpatient Is Not Selected**

**C1** Do you participate in hospital rounds?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Block

**Answer If Do you participate in hospital rounds? Yes Is Selected**

**C2** Of the time you spend rounding, what percent of the time is with:(answers should total to 100)

- The supervising physician (1)
- Intern, Residents, and/or Fellows (2)
- Supervising physician and Interns, Residents, and/or Fellows (3)
Round Autonomously (with general physician supervision)* General supervision means the procedure/task is furnished under the physician’s overall direction and control, but the physician’s presence is not required during the performance of the procedure/task.

D1 Do you perform procedures?
- Only after checking with the physician (1)
- Delegated to PA/NP per delegation agreement; PA/NP sees and treats accordingly (2)
- The physician and I see patients together: we each do procedures (3)
- The physician and I see patients together: physician performs all procedures (4)
- No (10)

D2 In a typical week, what percentage of your time would you estimate is spent on the following tasks: direct patient care, indirect patient care and other tasks? Using the slider bars below, indicate what percentage of the time you perform each task. If you don’t perform a certain task, leave the slider at 0. Your total must equal 100%.

Direct Patient Care Tasks (i.e. “touch time” and face-to-face time with patient such as time spent with patient during rounds or time directly with patient in clinic) (1)
Indirect Patient Care Tasks (Activities that are clinical in nature but not performed while touching the patient, e.g. Carelink orders, dictations, clinic preparation, answering pages, etc.) (2)
Other tasks (non-clinical tasks or non-PA/NP tasks that would be better performed by other staff) (3)

D3 How many physicians do you work with?
- 1-2 (1)
- 3-4 (2)
- 5-6 (3)
- 7-8 (4)
- 9-10 (5)
- 10+ (6)

D4 How would you describe your level of independence?
- My level of independence is consistently maximized across all of my physicians (1)
- My level of independence varies greatly between all the physicians I work with (2)
- My level of independence is consistently underoptimized across all of my physicians (3)

D5 What duties are you required to perform, if any, that you feel could be delegated to another person, which in turn will open more direct patient care time for you? (Please check all that apply)
- Administrative work (1)
- Email patients (2)
- Clerical Work (3)
- Insurance and disability paperwork (4)
- Prior authorizations (5)
- Phone calls (6)
- Prescription Refills (7)
- Other (8) ____________________

D6 How should your department utilize PAs/NPs differently to improve patient and physician satisfaction?
D7 Do you provide First Assist services?
- Yes (1)
- No (6)

**Answer If Do you provide First Assist services? Yes Is Selected**

D8 You responded "Yes" to "Do you provide First Assist services?". Please elaborate:
- All of my surgeon's cases (1)
- Only when there is no resident available (2)
- Residents and I both perform services (3)
- Only for emergency cases (4)
- All other reasons (5)

**Answer If Do you provide First Assist services? No Is Selected**

D9 You responded "No" to "Do you provide First Assist services?" Please elaborate. (Please check all that apply)
- Residents assist in surgery (1)
- I would if I could (2)
- Physician doesn't allow me to (3)
- Not applicable to my role (4)
- All other reasons (5)

D10 Which of the following team members are providing surgical First Assist services in your department/specialty? (Please check all that apply)
- NP (1)
- Certified First Assistant (CST/CFA) (2)
- PA (3)
- Registered Nurse First Assistant (RNFA) (4)
- Both NP's and PA's (5)
- Other (6) ____________________
- Not Applicable (7)
- I Don't Know (8)
- Residents (9)

E1 How long have you been working with your current physician(s)/group?
- Less than 6 months (1)
- Between 6 months and 1 year (2)
- Between 1 year and 3 years (3)
- Between 3 years and 5 years (4)
- More than 5 years (5)

E2 How long have you been working in your current specialty?
- Less than 6 months (1)
- Between 6 months and 1 year (2)
- Between 1 year and 3 years (3)
- Between 3 years and 5 years (4)
- More than 5 years (5)
E3 Based on the physicians you work with most often, for how many of them would you characterize your relationship as strong and professional?
- All (1)
- Most (2)
- Some (3)
- Few (4)
- None (5)

E4 Based upon the physicians you work with most often, are you comfortable seeking/asking for supervision from the physicians?
- Never (1)
- Sometimes (5)
- Usually (6)
- Always (7)

E5 Please explain why you are not or unsure of "I am comfortable seeking/asking for supervision from the physicians that I work with."

E6 I believe the attending physicians I work with fully understand my qualifications and the types of medical tasks and procedures that I am capable of performing.
- Yes (1)
- No (2)
- Unsure (3)

E7 You selected "No" or "Unsure" to "My primary physician that I work with fully understands my qualifications and the types of medical tasks and procedures that I am capable of performing?". Please explain:

E8 Acknowledging that there is overlap in clinical duties, what do you think about the overlap in clinical duties between you and attending physicians?
- 5 (Too much) (1)
- 4 (3)
- 3 (Just right) (4)
- 2 (5)
- 1 (Too little) (6)

E9 Acknowledging that there is overlap in clinical duties, what do you think about the overlap in clinical duties between you and residents/interns?
- 5 (Too much) (1)
- 4 (3)
- 3 (Just right) (4)
- 2 (5)
- 1 (Too little) (6)
E10 How much of this duplication is necessary?
- 0% (1)
- 20% (2)
- 40% (3)
- 60% (4)
- 80% (5)
- 100% (6)

F1 How valued and respected do you feel as a member of your hospital system?
- 1 (Not valued at all) (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (Very valued) (10)

F2 How satisfied are you as a PA/NP with the type of work that you do?
- 1 (Very dissatisfied) (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (Very satisfied) (10)

F3 Please think about how often you perform each tasks that are lower, at, or higher than your skill level. Using the slider bars below, indicate what percentage of the time you perform roles at each level. If you never perform tasks at a certain level, leave the slider at 0. Your total must equal 100%.
- _____ is lower than your skill level? (1)
- _____ is at your skill level? (2)
- _____ higher than your skill level? (3)

F4 Although you have identified your primary service, many staff work with multiple departments. Please identify all of the Departments/Specialties/Divisions where you practice (including your primary service). Check all that apply.
- Addiction Medicine (1)
- Diagnostic Radiology (2)
- Surg: Orthopedics (3)
- Surg: Plastic (4)
- Allergy (5)
Pathology (6)
Surg: Cardiovascular/Cardiothoracic (7)
Surg: Neurological (8)
Surg: Otorhinolaryngology (9)
Surg: Spine (10)
Ped: Critical Care (11)
Ped: Hematology (12)
Ped: Rheumatology (13)
IM: Critical Care (14)
IM: Nephrology (15)
Anesthesiology (16)
IM: Rheumatology (17)
Radiation Oncology (19)
Ped: Endocrinology (20)
Dermatology (21)
Pain Management (22)
General Surgery (23)
Surg: Bariatric (24)
General Pediatrics (25)
Ped: Emergency Medicine (26)
IM: Gastroenterology (27)
IM: Infectious Disease (28)
IM: Other (29)
Occupational Medicine (30)
Surg: Hand (32)
Surg: Trauma (33)
Ped: Cardiology (34)
IM: Cardiology (35)
Surg: Thoracic (36)
Surg: Urology (37)
Ped: Adolescent Medicine (38)
Ped: Other (39)
Family Medicine (40)
Psychiatry (41)
Ped: Neonatal-Perinatal (42)
Genetics (44)
Emergency Medicine (45)
Public Health (47)
Family Medicine with Urgent Care (48)
Obstetrics/Gynecology (49)
Ped: Pulmonology (50)
Ped: Nephrology (51)
Ped: Neurology (52)
Geriatrics (53)
Ophthalmology (54)
Physical Medicine/Rehab (55)
Hospital Medicine (56)
Surg: Colon & Rectal (58)
Surg: Oncology (59)
Surg: Pediatric (60)
Surg: Transplant (61)
Surg: Vascular (62)
Surg: Other (63)
Ped: Allergy (64)
Ped: Gastroenterology (65)
IM: Hematology (66)
Ped: Infectious Disease (68)
Ped: Oncology (69)
General Internal Medicine (70)
IM: Pulmonology (71)
IM: Endocrinology (73)
IM: Immunology (74)
Other (75) _________________
IM: Neurology (76)
IM: Oncology (79)
Interventional Radiology (80)

G1 Please share any additional feedback:
S3 Thank you for taking the time to fill out our survey. We rely on your feedback to help us improve how your skills and expertise can be better utilized moving forward. Your input is greatly appreciated.
Appendix F: Nurse Practitioner Interview Questions

- What percentage of your work is direct/indirect patient care?
- What tasks do you feel could be passed off?
- What tasks are you most satisfied with?
- What are the main tasks that constitute about 80% of your day?
- Percentage of time used as a scribe?
- Percentage of time in clinic seeing patients with physician-%
- Percentage of time in clinic seeing patients with no physician-%
- Percentage of time spent rounding? (Inpatient)
- Percentage of time spent in appointments? (Outpatient)
- What tasks would you like to spend more of your time doing?
- What are your relationships like with the physicians?