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# Patient factors and day of the week influencing physical therapy non-treatment events in the acute care setting

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PATIENT FACTORS AND DAY OF THE WEEK INFLUENCING PHYSICAL  
THERAPY NON-TREATMENT EVENTS IN THE ACUTE CARE SETTING

by

Daniel Goodrich

Bachelor of Science  
Brigham Young University  
2008

A doctoral document submitted in partial fulfillment of  
the requirements for the

**Doctor of Physical Therapy  
Department of Physical Therapy  
School of Allied Health Sciences  
Division of Health Sciences**

**Graduate College  
University of Nevada, Las Vegas  
May 2011**

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THE GRADUATE COLLEGE

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## ABSTRACT

### **Patient Factors and Day of the Week Influencing Physical Therapy Non-Treatment Events in the Acute Care Setting**

by

Daniel Goodrich

Curtis Doug Jensen

Dr. Daniel Young and Dr. Merrill Landers, Examination Committee Chairs  
Professors of Physical Therapy  
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**Background.** In acute care hospitals, scheduled physical therapy visits not resulting in treatment may increase patient length of stay and the financial burden to the hospital. Previous literature has not fully evaluated the occurrence of these events, nor have any associated factors been identified.

**Objective.** Measure the rate of non-treatment and determine which patient characteristics were most likely to predict a non-treatment event.

**Design.** Retrospective review of documentation at a suburban hospital.

**Methods.** Data were collected from records of 1,096 patients, totaling 6,097 scheduled sessions. The rate of non-treatment was calculated and logistic regression used to evaluate the odds of scheduled therapy visits resulting in no treatment. Variables included in the model were: patient age, gender, diagnosis, and day of the week.

**Results.** Non-treatment rate for all scheduled sessions was 15.9%. The only significant predictor for non-treatment was “day of the week” with treatments scheduled on Sunday being 1.76 times more likely to not occur than treatments



scheduled on Wednesday. Patients scheduled on Tuesday were 2.70 times more likely to receive treatment than patients scheduled on Wednesday. Patient age, gender and diagnosis did not have any significant effect on the rate of non-treatment.

**Discussion and Conclusion.** Therapists should not base their judgment of patients on their age, gender and diagnosis as these factors did not affect non-treatment. Day of the week may have a significant effect on non-treatment rates in the acute setting and may be considered when seeking to improve patient care.

## Introduction

Physical therapy (PT) services are provided to patients with a broad spectrum of debilitating conditions in a wide variety of settings, including acute care hospitals. In this setting, PT intervention focused on functional activities has been shown to optimize patient recovery, shorten length of stay (LOS), and facilitate discharge to a less restrictive environment.<sup>1-9</sup> Unfortunately, certain inefficiencies in the delivery of therapy services typically render less than optimal care. This study targets instances where scheduled treatment did not occur with the goal of identifying patient-related factors that contributed to missed treatment.

Reimbursement policy has significantly impacted the utilization of PT services and, consequently, LOS.<sup>10,11</sup> Since the implementation of prospective payment systems (PPS) in 1983, there has been an increased incentive for hospitals to minimize costs while providing quality treatment.<sup>10,12</sup> Under PPS, hospitals are reimbursed a lump sum of money for each patient per hospital stay, regardless of how long that stay is. This payment is based on the admitting diagnosis and referred to as a diagnostic related group.<sup>10</sup> An analysis of changes in hospital productivity from 1992 to 1995 revealed that decreased LOS explained 97 percent of the reduction in hospital costs per patient discharge.<sup>12</sup> The authors attributed this change to shifting the burden of care from the inpatient to subacute settings, but neglected to suggest how the shorter LOS was achieved while maintaining acceptable patient outcomes. Holt and Winograd<sup>11</sup> attributed part of this reduction in LOS to increased utilization of PT services.

They reported that referral to PT increased under the PPS, which is consistent with Dore's findings.<sup>10</sup> Additionally, they noted this increase in PT referral was associated with shorter LOS and fewer PT sessions per patient when compared to pre-PPS numbers.<sup>11</sup>

There have been several methods for improving the utilization and provision of PT services addressed in the literature. The most common of these is initiation of weekend therapy, which appears beneficial both in terms of outcomes and reducing LOS across a variety of patients when compared to treatment five days per week.<sup>4-6</sup> Other programs have included early mobilization in the ICU through implementation of mobility teams<sup>1</sup> and increasing full time PT staff and administration of PT services.<sup>9</sup> These adjustments improved patients' functional mobility while decreasing both the patient's LOS in the intensive care unit (ICU) and their total LOS in the hospital.<sup>1,9</sup> A 2009 Cochrane review<sup>3</sup> evaluating the effects of exercise for acutely hospitalized elderly patients concluded that with individualized exercise programs, patients may expect a one day reduction in LOS. This shortened LOS reduced hospital operating costs by \$278.65 per patient when compared to usual care.

Poor patient participation in therapy has a negative impact on both functional outcome and LOS in other settings,<sup>13</sup> and may be influenced by patient motivation.<sup>14</sup> In the inpatient rehabilitation setting, Lenze et al<sup>13</sup> demonstrated that patients who participated poorly in therapy were able to achieve comparable outcomes as their controls, but required three additional days to do so. Patients

who frequently had poor participation had worse outcomes and an extended LOS.<sup>13</sup>

Jette et al<sup>8</sup> provides us with context for an alternative means for increasing the utilization of PT services without significant staffing changes or alterations to the payment system. Their study described PT practice in three acute care hospitals which reported non-treatment rates of 26.5%, 15.6%, and 15.9%. The average time lost in these hospitals per missed treatment was estimated to be eight minutes per therapist per event.<sup>8</sup> This reduces therapist productivity and results in missed opportunities for the patient. Therefore, one potential method for improving outcomes related to provision of PT services is to minimize the number of non-treatment events, wherein a scheduled treatment does not occur. By reducing the number of scheduled sessions where treatment are missed, hospitals may be able to deliver PT services much more efficiently, which may logically improve patient outcomes and reduce LOS.

There are many factors which we hypothesize may contribute to scheduled visits resulting in non-treatment; however, there is currently a paucity of evidence regarding this topic. Factors specific to the patient, the therapist, or the environmental context may all potentially impact the rates of non-treatment in PT and warrant further exploration to determine which have the greatest effect. Patient-related factors may include, but are not limited to: age, gender, diagnosis, presence of co-morbidities, prior experience with therapy, relationship with the therapist, patient motivation and level of adherence to treatment protocol.

To explore feasible modes of reducing the frequency of non-treatment events, this study evaluated the non-treatment rate, or rate of scheduled visits not resulting in treatment, in light of patient age, gender and diagnosis. The effect of day of the week on non-treatment was also evaluated to determine if an inconsistent pattern of non-treatment exists during the week. Our goal was to measure the rate of non-treatment and determine which patient characteristics were most likely to predict a non-treatment event. If a set of factors could be isolated, this information would be useful for providers as they could identify patients at high-risk for missing treatment and modify their approach to better meet patients' needs. Hospital administrators may also find this information useful in making decisions regarding staffing and hospital policy.

## Methods

### Study Population

Data were collected retrospectively from Summerlin Hospital in Las Vegas, NV. This is a 454 bed hospital with a PT staff consisting of 8 full-time and 7-9 per diem therapists, 2 full-time physical therapy assistants (PTA), and 3 full-time aides. Weekday staffing typically requires 6 PTs, 2 PTAs and 2 aides. Weekends see a 20-35% reduction in therapist-hours. The typical Medicare patient has an average LOS of 4.3 days in this facility. From therapist documentation, data were obtained on 1,096 patients, 593 (54.1 %) females and 503 (45.9%) males, totaling 6,097 individual patient-therapist encounters. Adult mean age was 68.3 years (SD=18.758). Inclusion criteria were that patients be

admitted to the hospital and receive at least two PT treatments as an inpatient. There were no specific exclusion criteria for patients, but patient records lacking significant information were not included in the study. The study was approved by the University of Nevada, Las Vegas institutional review board.

### Data Collection and Interpretation Procedures

Data were extracted from a therapist-generated card separate from the official patient medical record and variables were categorized. Reason for non-treatment and categorizing diagnosis occasionally required some interpretation to determine how to accurately and appropriately classify the patients and their encounters. In cases where the documentation was not clear, or the data were not easily classifiable, the cards were flagged so the research team could reach a consensus.

Patient non-treatment rates were calculated by dividing the total number of visits that did not result in treatment by the total number of scheduled or prescribed treatment sessions. To determine the number of scheduled sessions the prescribed frequency of treatment was noted and compared to the number of sessions clearly documented. When these figures did not match (due to scheduled treatments with no documentation), the encounters were assumed to be non-treatment events and were counted as such. For example, a patient who was prescribed treatment twice a day for 5 days should receive 10 treatments over a 5 day period. If this patient received two treatments on days 1, 2, 4 and 5, but no treatments were documented on day 3, it was clear that both prescribed treatments for that day were missed and the non-treatment rate would be 2/10 or

20%. This was done to ensure that sessions where the therapist failed to document a non-treatment event were included in the analysis, providing a more accurate rate.

Occasionally, documentation indicated the patient received some treatment, but combined all treatments for the day into totals (rather than specifying AM and PM for BID, or 1, 2, or 3 for TID, etc.). When therapists did not clearly designate the number of separate treatments in a day, it became impossible for us to know if the patient had received the full number of scheduled visits, or if a treatment was missing. Under these circumstances, the therapist was credited for one treatment, but there was not enough information to count the other scheduled treatment as either a non-treatment event or a successful treatment. To avoid counting successful treatments that did not occur, or counting them as non-treatment events, the questionable treatment was removed from the total count. For instance, if the record indicated this same patient from the previous example received some treatment on day 3, but the total number of treatments performed was unclear, the rate was calculated as 0/9 instead of the expected 0/10. We determined this was fair because it was clear the patient received some treatment on that day, warranting some credit. This policy gives credit for the treatment provided and documented, but does not inflate the rate of treatment by adding an extra treatment that may not have occurred, nor does it inflate the non-treatment rate by counting the questionable session as missed.

The categories for non-treatment were developed by the primary author for a study which is currently under review for publication.<sup>16</sup> Each event of non-

treatment was assigned to a category based on documentation. If there was no reason for non-treatment specified, or no session documented when one was scheduled, the reason was coded as "Unknown." "Refusal" was used when it was clear the patient refused treatment for that encounter. In cases where documentation indicated the patient refused treatment due to their condition, the failed encounter was coded as "Medical condition" rather than "Refusal." If a medical hold was placed on a patient and documented, all missed encounters during that time were also counted as "Medical condition." If a patient was noted to be unavailable due to additional testing or treatments, the failed encounter was categorized as "Scheduling conflict." "Insufficient staff" was used when either it was stated as such on the record or when the therapist documentation indicated a high patient load or not having enough time to see all patients. Very few therapists clearly documented failed encounters as "Already discharged," "Patient death" or "Other."

Patient diagnosis was determined by the primary medical diagnosis listed on the patient record. If multiple diagnoses were listed, the diagnosis thought to most likely contribute to the patient's current condition was used. For example, a patient whose current episode of care indicated "recurrent pneumonia" but had a "history of left congestive heart failure" was categorized as having a cardiovascular condition. A patient with a diagnosis of chest pain may be experiencing musculoskeletal symptoms or referral from some other structure.<sup>14</sup> Such instances were coded according to the most probable cause for the condition. A patient with chest pain due to musculoskeletal causes would be less



likely to be admitted for inpatient care than one who was experiencing acute myocardial infarction. Therefore, chest pain in this instance was categorized as cardiovascular. Any diagnoses that could not be clearly classified with the given information were classified as “Other.”

### Data Analysis

All data were analyzed using SPSS, version 17.0.\* Descriptive data were compiled for each factor as well as by number of prescribed treatments and day of the week. Crosstab analysis was used to guide variable entry into the regression model. Logistic regression was used to determine which variables significantly contributed to non-treatment events. The variables included in the model were: patient age, gender, diagnosis, and day of the week.

To avoid violating assumptions of regression analysis, scheduled session number two was selected as the data set for the model. This seemed an appropriate choice as it had the largest number of subjects with possible sessions and its non-treatment rate was similar to the overall non-treatment rate. Because the first documented encounter between a therapist and individual patient was always a successful encounter, it was not included in the analysis. “Neurological” and “Wednesday” were selected as the reference variables for the logistic model because their rates were closest to the 15% non-treatment rate for the second session.

### Results

The overall non-treatment rate for all prescribed treatment sessions

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\* SPSS Inc, 233 South Wacker Drive, Chicago, IL 60606

including the initial evaluation was 15.9%. However, because the first documented treatment always resulted in a successful treatment, the following descriptive statistics include only encounters from the second prescribed treatment until discharge. Sunday and infectious disease diagnosis had the highest non-treatment rates (33.7% and 29.1% respectively) whereas Tuesday and musculoskeletal diagnosis had the lowest non-treatment rates (13.3% and 11.1% respectively, see Tables 1 and 2). "Unknown," "Medical condition," and "Refusal" were the three most common reasons for non-treatment (37.1%, 25.7% and 18.4% respectively, see Figure 1).

The following descriptive data include only the second encounter and are given to show which data were used in the logistic regression analysis. The non-treatment rate for all patients with a second prescribed treatment session was 15%. Sunday and pulmonary diagnosis had the highest non-treatment rates (25.3% and 21.7% respectively) whereas Tuesday and musculoskeletal diagnosis again had the lowest non-treatment rates (6.7% and 7.2% respectively, see Tables 3 and 4).

Logistic regression analysis revealed odds ratios of 1.76 for Sunday ( $p=0.049$ , 95% confidence interval (CI) = 1.003 to 3.075) and 0.37 for Tuesday ( $p=0.015$ , 95% CI = 0.163 to 0.820). This indicates that when controlling for age, gender and diagnosis, patients scheduled for treatment on Sunday were 1.76 times less likely to receive treatment than patients scheduled for treatment on Wednesday. Also, patients scheduled on Wednesday were 0.37 times as likely to receive treatment as patients scheduled for treatment on Tuesday. Stated

another way for clarity, patients scheduled for treatment on Tuesday were 2.70 times more likely to receive treatment than patients scheduled on Wednesday. The  $r^2$  value for these variables was 0.079, which indicates that 7.9% of the variance in the model can be predicted by day of the week. Age, gender, and diagnosis were not significant and did not enter the final model. Additionally, the diagnoses of musculoskeletal ( $p=0.073$ ) and pulmonary ( $p=0.094$ ) approached significance and had odds ratios of 0.511 (95% CI = 0.245 to 1.065) and 1.822 (95% CI = 0.903 to 3.676), respectively.

## Discussion

This study helps to describe non-treatment, its reasons and contributing factors in the acute care setting. The overall non-treatment rate was 15.9% with "Unknown," "Medical condition" and "Refusal" being the most common reasons for non-treatment. Patient age, gender and diagnosis classifications did not significantly predict non-treatment events. Day of the week, with Sunday having the lowest treatment rate and Tuesday having the highest treatment rate, was predictive of non-treatment. This variable only predicted 7.9% of the variance in the model.

The overall non-treatment rate including all visits in this study was 15.9%. This is similar to the previously mentioned study by Jette et al which recorded rates of 15.6%, 15.9% and 26.5% at three different acute care hospitals.<sup>8</sup> This is also similar to research that is currently under review for publication by Young et al, which obtained a non-treatment rate ranging from 12.9% to 16.8% over a

period of four years in one mid-western hospital.<sup>16</sup> These three studies indicate the overall non-treatment rates in many cases appear to be close to 15%. This study's results for reasons of non-treatment (see Figure 1) are comparable to those in a study by Young et al. In their study, "Medical Condition," "Refusal" and "Scheduling Conflict" were consistently the highest reasons for non-treatment. "Medical Condition" and "Refusal" were often reasons given for non-treatment in this study, but "Unknown" was the most common. This is because therapists in our study frequently did not report a reason if no treatment occurred, while therapists in their study were required to document a reason for each occurrence. As a result, the percentage of the "Unknown" category for non-treatment in this study is so high that it may not be possible to compare to the previous study since their "Unknown" category was close to only 1%. Importantly, these two studies provide evidence that medical conditions and patient refusals are among the most common reasons for non-treatment.

As previously mentioned, results of this study indicate that patient age, gender and diagnosis do not predict a non-treatment event. This is somewhat in disagreement with research presented by Witt et al<sup>17</sup> which reports that older patients and female patients tended to participate less in cardiac rehabilitation after myocardial infarction than their counterparts. They found that women were 55% less likely to participate than men and persons 70 years or older were 77% less likely to participate than persons younger than 60. The authors, however, attributed this finding to a lower rate of physician referrals for females and the elderly to cardiac rehabilitation which explains the differing results. It also may

not be possible to make a valid comparison of the two settings due to the inherent differences therein. The reason that patient age, gender and diagnosis demonstrated no significant predictive value is likely due to a larger contribution of other factors not measured in this study.

The clinical implications of this study relate to therapists' expectations regarding a new patient's performance or participation in therapy. Just as a teacher's expectations of how students will perform based on certain characteristics may influence that student's behavior,<sup>18,19</sup> a physical therapist's expectations of a certain patient may also affect patient performance. For example, upon reviewing a patient's chart before the initial evaluation, a therapist may read, "91 year old female with end-stage lung cancer and COPD exacerbation" and predict she will not participate. The therapist's preconceived notion has the potential to be projected onto the patient and, as a result, the patient may not participate. Due to the findings of this study, however, we suggest that no patient of any certain age, diagnosis grouping or gender is more or less likely to participate as a result of these characteristics. Instead, therapists should enter the patient's room with no preconceived expectations of whether or not that patient will participate based on age, gender or diagnosis.

Other clinical implications of this finding relate to future research. The aim of this study was to create a model of factors to predict whether or not a prescribed treatment would be completed. However, the final model, with an  $r^2$  value of 0.079, explained only 7.9% of the variation. This leaves 92.1% of the reasons why patients don't receive treatment still unexplained. The fact that

patient factors of age, gender and diagnosis did not significantly predict treatment rate helps solve a piece of the non-treatment puzzle, suggesting that other factors not measured in this study need to be analyzed to effectively develop a predictive model. To do so requires future research on concepts that include, but are not limited to: physical therapist characteristics, expectations, values, and beliefs, measures of patient motivation, cognition levels and severity of condition, and the environmental context.

Another finding produced by this study was that patients scheduled for treatment on Tuesday were 2.70 times more likely, and patients scheduled on Sunday 1.76 times less likely, to receive treatment in comparison with Wednesday. It is not surprising that Sunday would have the highest non-treatment rate since it is the most common day for rehabilitation units in hospitals to be understaffed.<sup>6,20</sup> Total therapist hours on Sunday in this hospital were 34% below the average for the rest of the week. Total amount of prescribed treatments by day of the week (range = 57.7-60.5) does not significantly vary in this hospital. Therefore, there were fewer therapists on Sunday trying to cover the same workload. An analysis of the reported reasons for non-treatment for Monday through Saturday revealed that the "insufficient therapists" category was 7.6% of the total reasons for non-treatment. This increased to 23.1% on Sunday. This is easily the most likely reason that less treatment occurred on Sunday in this study. Also, there were often per diem therapists working on Sunday. They may not have been as efficient in that environment or as vested in each patient's care as the full-time therapists.

Another possible reason for decreased rate of successful treatment on Sunday is level of severity in patients seen on that day. It may be that patients with scheduled elective surgeries have lower severity and better treatment rates than patients who are admitted due to an emergency. Although unable to provide us specific data to support this, rehab department managers and employees confirm that this hospital purposely schedules more of these elective surgeries to take place earlier in the week. Therefore, it may be that these supposed lower severity patients were treated and discharged before the weekend, leaving the hospital with a greater proportion of supposed higher severity patients on the weekend.

The finding that Sunday had a lower treatment rate can be beneficial for hospital administrators who want to control costs by improving their treatment rates. The amount of improvement may depend on the specific hospital's weekend PT staff. For a hospital similar to the one in this study, hiring more full-time, weekend staff may result in small improvement since day of the week only accounted for a small fraction of the total factors that influence non-treatment rates. Other hospitals with less Sunday staffing may benefit from increasing their staffing with a subsequent improvement in their treatment rates. Therefore, Sunday staffing should be reviewed. If the cultural setting in which a hospital operates differs and is likely to produce a different day with poorer rates, that day should be reviewed. Hospitals can then take measures, such as hiring more staff who consistently work on Sunday, to increase treatment rates on that day. This would decrease length of stay and lower expenses, which is paramount in

healthcare cost containment measures. More importantly, patients themselves will also likely benefit from having more therapy with better outcomes and decreased LOS.

Future research concerning the most effective ways to convince therapists to work on Sundays would be valuable. The following questions point out other important items to consider: Is there a difference in treatment rates between full-time weekend staff and per diem staff? When do families visit and does visitation increase or decrease treatment rates? Should elective surgeries requiring therapy take place earlier in the week, or should they be scheduled evenly throughout the week? Answers to these questions would be important to hospital administrators to improve the delivery of PT services.

The fact that the non-treatment rate on Tuesday (6.7%) was so much lower than the average rate (15%) for the second prescribed treatment was an unexpected finding. After an in-depth review of the available data, we were unable to find any valid explanation for the difference between it and other weekdays. The total number of therapist hours worked on Tuesday was only 6% above the average of the other weekdays which would not account for the discrepancy in non-treatment rates. Variables previously mentioned, but not measured in this study, would probably help to account for the differing results. Tuesday's low rate for the second visit also may be a spurious finding as the Tuesday non-treatment rate increases to 13.3% when all patient data for the second and all subsequent sessions are analyzed.



One limitation of this study was the subjective interpretation of documentation. As previously described, some interpretation had to be made regarding the prescribed frequency of treatment for certain patients. Another difficulty was the grouping of diagnoses. While many patients were easily classifiable into one of the diagnosis groups, this was not always true. Grouping of diagnoses into body systems eliminated the individuality of each diagnosis and the consideration of secondary diagnoses. For example, a significant difference may be noted if one were to compare individual diagnoses such as joint replacement versus pneumonia, but such analyses were beyond the scope of this study. These reasons could have contributed to the absence of a significant finding for different diagnoses.

Another limitation of the study was that data were gathered from one hospital. This limits the ability to generalize these data to other hospitals and settings. Finally, due to the statistical design only each patient's second treatment was included in the analysis. Patients in this study had an average of five prescribed treatments each, with nearly 14% of the patients having ten or more prescribed treatments. Only including 22% of the total visits likely influenced these findings. If analysis for all visits were conducted, different results may have been obtained.

## Conclusions

The overall non-treatment rate was 15.9%. Patient age, gender and diagnosis groupings were not found to have any significant effect on the rate of non-treatment. In comparison with Wednesday, patients scheduled for treatment

on Tuesday were 2.70 times more likely, and patients scheduled on Sunday 1.76 times less likely, to receive treatment. Implementing measures to improve treatment rates on Sunday, such as hiring more full-time, regular staff for that day, may improve treatment rates. This improvement may in turn improve care and decrease hospital length of stay. Future research involving other factors not measured in this study is required to develop a more comprehensive model to better predict events of non-treatment. As these factors are discovered, measures can be taken to minimize their influence towards non-treatment which may improve treatment rates.

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Table 1. Non-treatment rates excluding session 1

	Treatment			Total
	Yes	No	Rate*	
<b>Diagnosis</b>				
Musculoskeletal	790	99	11.1%	889
Cardiovascular	646	180	21.8%	826
Gastrointestinal	485	141	22.5%	626
Pulmonary	419	118	22.0%	537
Neurological	344	91	20.9%	435
Genitourinary	276	86	23.8%	362
Cancer	164	60	26.8%	224
Infectious disease	95	39	29.1%	134
Other	712	176	19.8%	888
<b>Gender</b>				
Male	2007	577	22.3%	2584
Female	1974	413	17.3%	2387
<b>Age group</b>				
0-1	242	73	23.2%	315
2-20	78	14	15.2%	92
21-40	149	50	25.1%	199
41-60	632	187	22.8%	819
61-80	2040	485	19.2%	2525
81+	840	181	17.7%	1021
<b>Total prescribed treatments</b>				
2	210	18	7.9%	228
3	378	52	12.1%	430
4	401	85	17.5%	486
5	417	75	15.2%	492
6	350	80	18.6%	430
7	356	94	20.9%	450
8	282	61	17.8%	343
9-10	325	83	20.3%	408
11-12	306	91	22.9%	397
13-15	267	127	32.2%	394
16-19	297	72	19.5%	369
20+	392	152	27.9%	544
<b>Total</b>	<b>3981</b>	<b>990</b>	<b>19.9%</b>	<b>4971</b>

\*Non-treatment rate

Table 2. Non-treatment rates excluding session 1

Day	Treatment		Rate*	Total
	Yes	No		
Sunday	439	223	33.7%	662
Monday	642	141	18.0%	783
Tuesday	660	101	13.3%	761
Wednesday	596	140	19.0%	736
Thursday	611	111	15.4%	722
Friday	552	139	20.1%	691
Saturday	481	135	21.9%	616
<b>Total</b>	<b>3981</b>	<b>990</b>	<b>19.9%</b>	<b>4971</b>

\*Non-treatment rate

Table 3. Second session non-treatment rates

	Treatment		Rate*	Total
	Yes	No		
<b>Diagnosis</b>				
Musculoskeletal	220	17	7.2%	237
Cardiovascular	164	38	18.8%	202
Gastrointestinal	101	21	17.2%	122
Pulmonary	94	26	21.7%	120
Neurological	92	16	14.8%	108
Genitourinary	71	9	11.3%	80
Cancer	32	6	15.8%	38
Infectious disease	22	5	18.5%	27
Other	134	26	16.3%	160
<b>Gender</b>				
Male	417	86	17.1%	503
Female	513	78	13.2%	591
<b>Age group</b>				
0-1	24	1	4.0%	25
2-20	15	2	11.8%	17
21-40	31	5	14.3%	36
41-60	161	33	17.0%	194
61-80	440	78	15.1%	518
81+	259	45	14.8%	304
<b>Total</b>	<b>930</b>	<b>164</b>	<b>15.0%</b>	<b>1094</b>

\*Non-treatment rate

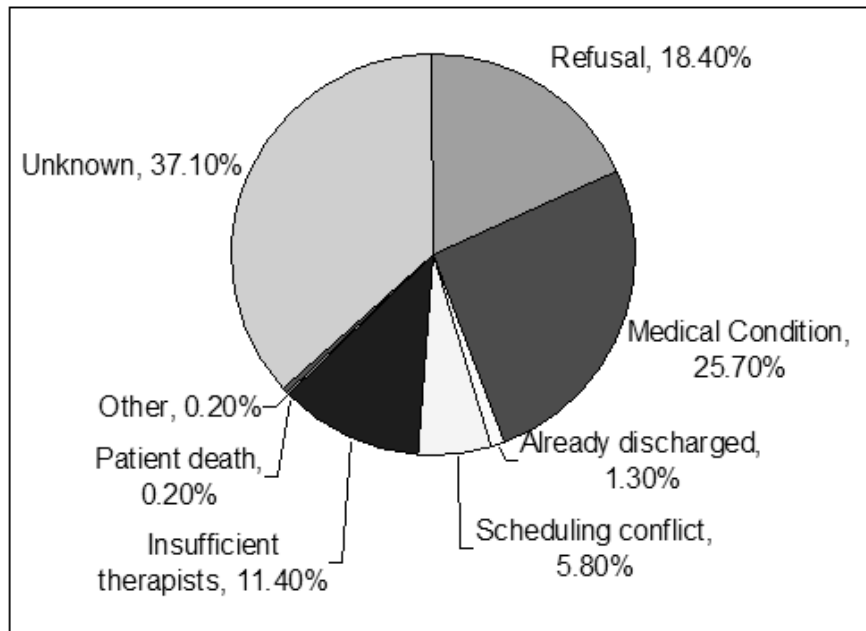
Table 4. Second session non-treatment rates

Day	Treatment		Rate*	Total
	Yes	No		
Sunday	133	45	25.3%	178
Monday	104	25	19.4%	129
Tuesday	126	9	6.7%	135
Wednesday	136	25	15.5%	161
Thursday	169	19	10.1%	188
Friday	152	25	14.1%	177
Saturday	110	16	12.7%	126
<b>Total</b>	<b>930</b>	<b>164</b>	<b>15.0%</b>	<b>1094</b>

\*Non-treatment rate



Figure 1. Distribution of reasons for non-treatment excluding session 1





## Biomedical IRB – Expedited Review Approval Notice

### **NOTICE TO ALL RESEARCHERS:**

*Please be aware that a protocol violation (e.g., failure to submit a modification for any change) of an IRB approved protocol may result in mandatory remedial education, additional audits, re-consenting subjects, researcher probation suspension of any research protocol at issue, suspension of additional existing research protocols, invalidation of all research conducted under the research protocol at issue, and further appropriate consequences as determined by the IRB and the Institutional Officer.*

**DATE:** October 14, 2009

**TO:** **Dr. Daniel Young**, Physical Therapy

**FROM:** Office for the Protection of Research Subjects

**RE:** Notification of IRB Action by Dr. John Mercer, Chair  
Protocol Title: **The Influence of Patient and Physical Therapist Characteristics on Non-Participation in Physical Therapy Treatment among Hospital Inpatients**  
Protocol #: 0903-3071

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This memorandum is notification that the project referenced above has been reviewed by the UNLV Biomedical Institutional Review Board (IRB) as indicated in regulatory statutes 45 CFR 46. The protocol has been reviewed and approved.

The protocol is approved for a period of one year from the date of IRB approval. The expiration date of this protocol is October 13, 2010. Work on the project may begin as soon as you receive written notification from the Office for the Protection of Research Subjects (OPRS).

### **PLEASE NOTE:**

Attached to this approval notice is the **official Informed Consent (IC) Form** for this study. The IC contains an official approval stamp. Only copies of this official IC form may be used when obtaining consent. Please keep the original for your records.

Should there be *any* change to the protocol, it will be necessary to submit a **Modification Form** through OPRS. No changes may be made to the existing protocol until modifications have been approved by the IRB.

Should the use of human subjects described in this protocol continue beyond October 13, 2010 it would be necessary to submit a **Continuing Review Request Form** *60 days* before the expiration date.

If you have questions or require any assistance, please contact the Office for the Protection of Research Subjects at [OPRSHumanSubjects@unlv.edu](mailto:OPRSHumanSubjects@unlv.edu) or call 895-2794.

VITA

Graduate College  
University of Nevada, Las Vegas

Curtis Doug Jensen

Degree:

Bachelor of Science, Exercise Science, 2008  
Brigham Young University

Doctoral Document Title:

Patient Factors and Day of the Week Influencing Physical Therapy  
Non-Treatment Events in the Acute Care Setting

Doctoral Examination Committee:

Chairperson, Daniel Young, PT, DPT  
Committee Member, Merrill Landers, DPT, OCS