

Pharmacist Conducted Patient Education at Discharge in a Rural Hospital Setting

BECKY HORNE DUNN, PHARM.D.

PGY-1 PHARMACY RESIDENT

LAKE REGION HEALTHCARE/NORTH DAKOTA STATE UNIVERSITY

MARK DEWEY, PHARM.D., BCGP, FASCP

DANIEL FRIESNER, PH.D.

Conflict of Interest

The speaker has no actual or potential conflict of interest in relation to this presentation.

This study was approved by the North Dakota State University IRB.

Background

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is a public reporting initiative that asks patients to rate their experiences following an inpatient stay.

A 2013 study by Huebner et. al found that daily patient education provided by pharmacists in an inpatient setting significantly increased HCAHPS scores within the 'communication about medicine' domain.

A 2016 study by Phatak et. Al found that patients receiving medication reconciliation, discharge counseling, and a post-discharge phone call had a significant reduction in 30-day readmission rates. They also found that while there was an increase in HCAHPS scores, these results were not statistically significant.

Purpose

At Lake Region Healthcare (LRH), nursing staff is in charge of patient education throughout the duration of the patient's stay, as well as at discharge.

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores are consistently below the 75th percentile for the "Communication about Medicine" domain.

- Tell you what new medicine was for
- Staff describe medicine side effect

Practice Site

Lake Region Healthcare, Fergus Falls, MN



<http://www.wday.com/news/3770476-doctors-lake-region-healthcare-fergus-falls-be-certified-write-medical-marijuana>

Objectives

Primary Objective:

- To determine whether pharmacist intervention with patient education at discharge will help to improve HCAHPS scores in areas pertinent to pharmacy at Lake Region Healthcare.

Secondary Objective:

- To determine whether pharmacist intervention with patient education at discharge can help reduce 30-day readmission rates at Lake Region Healthcare.

Research Methodology

INCLUSION CRITERIA

- ≥ 18 years or older
- Patients being discharged to their own independent home following discharge from LRH

EXCLUSION CRITERIA

- Patients being discharged to a skilled nursing facility or long-term care facility
- Patients transferred to another hospital or institutional setting.

Research Methodology

Prior to discharge, patients admitted to Lake Region Healthcare were counseled on current medications, as well as any new medications the patient was being discharged on.

- Counseling provided by a pharmacist and included indication, frequency, route, and side effects.
- Written information also available per patient request.

Research Methodology

Data collected from quarterly readmission rates and monthly HCAHPS scores for patients discharged within:

- 6 months preceding pharmacist intervention
(April 1, 2017 – September 30, 2017)
- 6 months following pharmacist intervention
(October 1, 2017 – March 31, 2018)

Research Methodology

Patient Demographics:

- Provided discharge counseling to a total of 50 patients discharging from Lake Region Healthcare.
- 67% male

	Age (years)	Number of New Medications	Total Number of Medications
Average	73.1	2.6	15
Range	39 – 95	0 – 8	7 – 43

Results

PRIMARY AND SECONDARY OUTCOMES

Primary Outcome: HCAHPS

Month	Communication about Medicines Domain (%)	Tell you what new medicine was for (%)	Staff describe medicine side effect (%)
April 2017	61.8	76.2	47.4
May 2017	60	66.7	53.3
June 2017	37.5	37.5	37.5
July 2017	56.9	72.4	41.4
August 2017	43.1	61.1	25
September 2017	79.9	95.8	64
TOTAL	59.7	73	46.4
October 2017	76.4	83.3	69.6
November 2017	72.8	78.9	66.7
December 2017	66.8	73.7	60
January 2018	69.7	78.1	61.3
February 2018	69.9	83.3	56.5
March 2018	68.4	89.5	47.4
TOTAL	70.7	81	60.4
	p = 0.07	p = 0.17	p = 0.04

Secondary Outcome: Readmission Rates (Results Pending)

Currently, only Quarter 2 (April 1 – June 30) and Quarter 3 (July 1 – September 30) of 2017 have been published.

	Quarter	Readmission Rate
6 Months Preceding Intervention	Quarter 2 of 2017 (April 1 – June 30)	13%
	Quarter 3 of 2017 (July 1 – September 30)	15.4%
6 Months Following Intervention	Quarter 4 of 2017 (October 1 – December 31)	N/A
	Quarter 1 of 2018 (January 1 – March 31)	N/A

Limitations

- Longitudinal rotation
- Prominent advanced geriatric population
- Nursing Impact

Conclusions

Results showed an increase in HCAHPS scores within the “communication about medications” domain, but this increase was only significant for the one question.

Pharmacist conducted patient education could help increase HCAHPS scores in areas pertinent to pharmacy, however, more research should be done in this area.

- More pharmacist hours
- Longer duration

References

1. HCAHPS Regulatory Survey. <http://www.pressganey.com/solutions/service-a-to-z/hcahps-regulatory-survey>. Accessed March 28, 2018.
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3. Huebner M, Temple-Cooper ME, Lagzdins M, et al. A pilot study evaluating the effect of daily education by a pharmacist on medication related HCAHPS scored and medication reconciliation satisfaction. *J Biosafety Health Educ*. 2013;1(2):
4. Phatak A, Prusis R, Ward B, et al. Impact of pharmacist involvement in the transitional care of high-risk patients through medication reconciliation, medication education, and postdischarge call-backs (IPITCH Study). *J Hosp Med*. 2016;11:39-44.

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FERGUS FALLS, MINNESOTA

Medication Regimen Review for Patients Returning to Independent Living Following Skilled Nursing Facility Stay

JAYSON THOMPSON, PHARM.D.

PGY-1 PHARMACY RESIDENT

NDSU/LAKE REGION HEALTHCARE/CPI

MARK DEWEY, PHARM.D., BCGP, FASCP, DANIEL FRIESNER, PH.D.

Conflict of Interest Disclosure

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- Study was approved by North Dakota State University IRB

Learning Objective

- Explain the potential significance of medication regimen reviews in keeping patients in an independent living situation and at a lower level of care

Background

- Many studies performed to evaluate pharmacist's impact during transitions of care
 - Home to hospital
 - Hospital to skilled nursing facility (SNF)
 - Hospital to home
 - SNF to home??
- Each transition of care has the potential to create medication discrepancies
- 2013 study by Sinvani et. al assessed medication discrepancies for three transitions of care (Home -> Hospital -> SNF -> Home or LTC) within a large health care system¹
 - 44 patients (132 transitions), 1,002 total discrepancies identified (1,696 total meds)
 - Number of medication discrepancies per transition: 357, 315, 330

History

- Long history of doing MTMs through grants to Area Agency on Aging (AAA)
- Presentation at AAA state meeting
- MN Return to Community and MN Board on Aging
- Missing medication reviews on Transition of Care from SNF to home
- Goal of our project is to assess the number and types of recommendations being made for Return to Community patients

Process of Medication Reviews

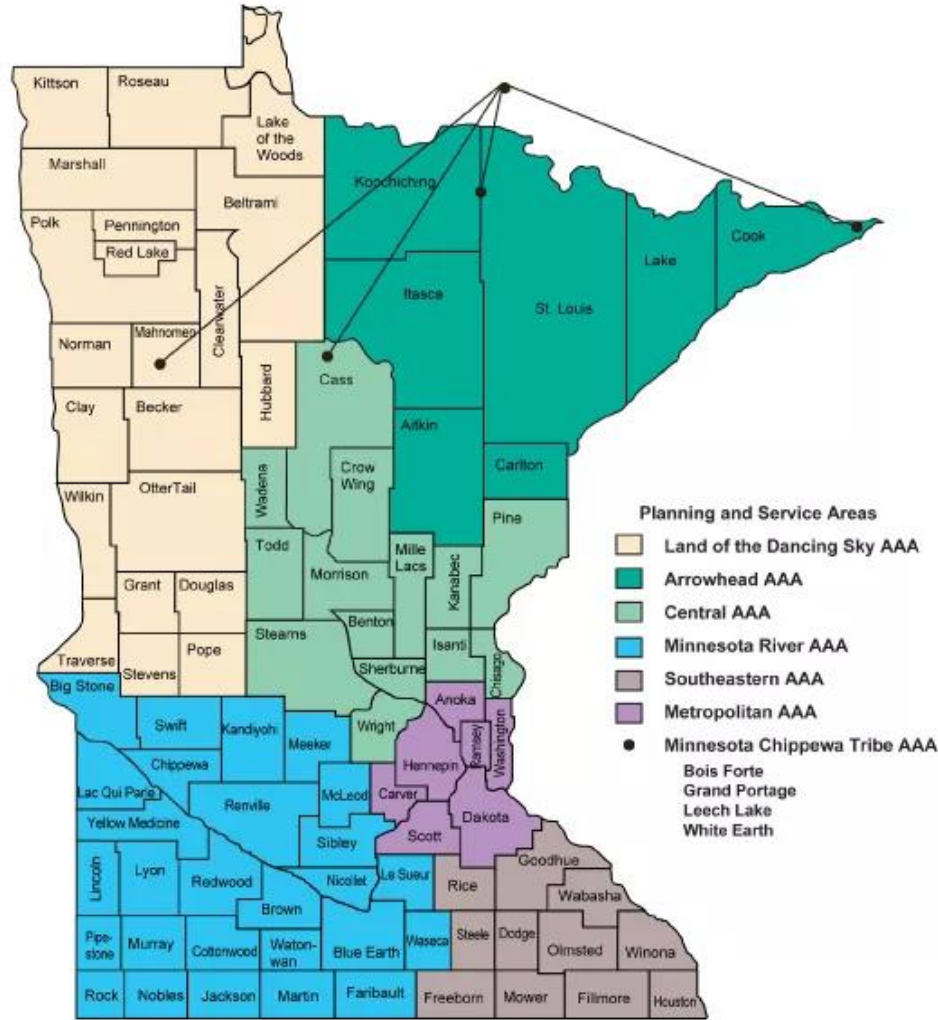
- Community Living Specialist (CLS) attaches important documents for review to the patient's profile
 - Medication list
 - Most recent labs
 - H&P
 - Physician progress notes from nursing home
- Pharmacist reviews uploaded documents and attaches another document with their recommendations
- CLS brings printed copy of recommendations to the patient
- Patient brings recommendations to their next provider appointment
- Reviews are done for patients across the entire state of Minnesota

Data Collected

- Age
- Gender
- Number of medications (Rx, OTC, Total)
- Number of recommendations
- Category of each recommendation
- Data collected 12/5/17 through 3/31/18

Minnesota Area Agencies on Aging

2005



Recommendation Categories²

- Unnecessary drug therapy (UDT)- medication intended for short term use or medication no longer of benefit to patient, duplicate therapy
- Ineffective drug therapy (IDT)- drug-drug interactions, more effective medication available
- Needs additional therapy (NAT)- untreated disease/condition, preventative therapy
- Dose too low (D2L)- drug-drug interaction, frequency too long, duration too short
- Dose too high (D2H)- drug-drug interaction, assessment for lowest effective dose, frequency too short, duration too long

Recommendation Categories cont.

- Adverse drug reaction (ADR)- drug-drug interaction, undesirable reaction, allergic reaction, inappropriate taper/titration
- Adherence (ADH)- cheaper medication available, instructions/education for use, medication is taken only for prescribed duration
- Medication monitoring (MMN)- Includes lab monitoring and monitoring such as blood pressures, pulses, and orthostatic blood pressures
- Order clarification (ORC)- Confusing instructions, clarify if medication should be continued/discontinued, which formulation patient should be taking (ER or IR)

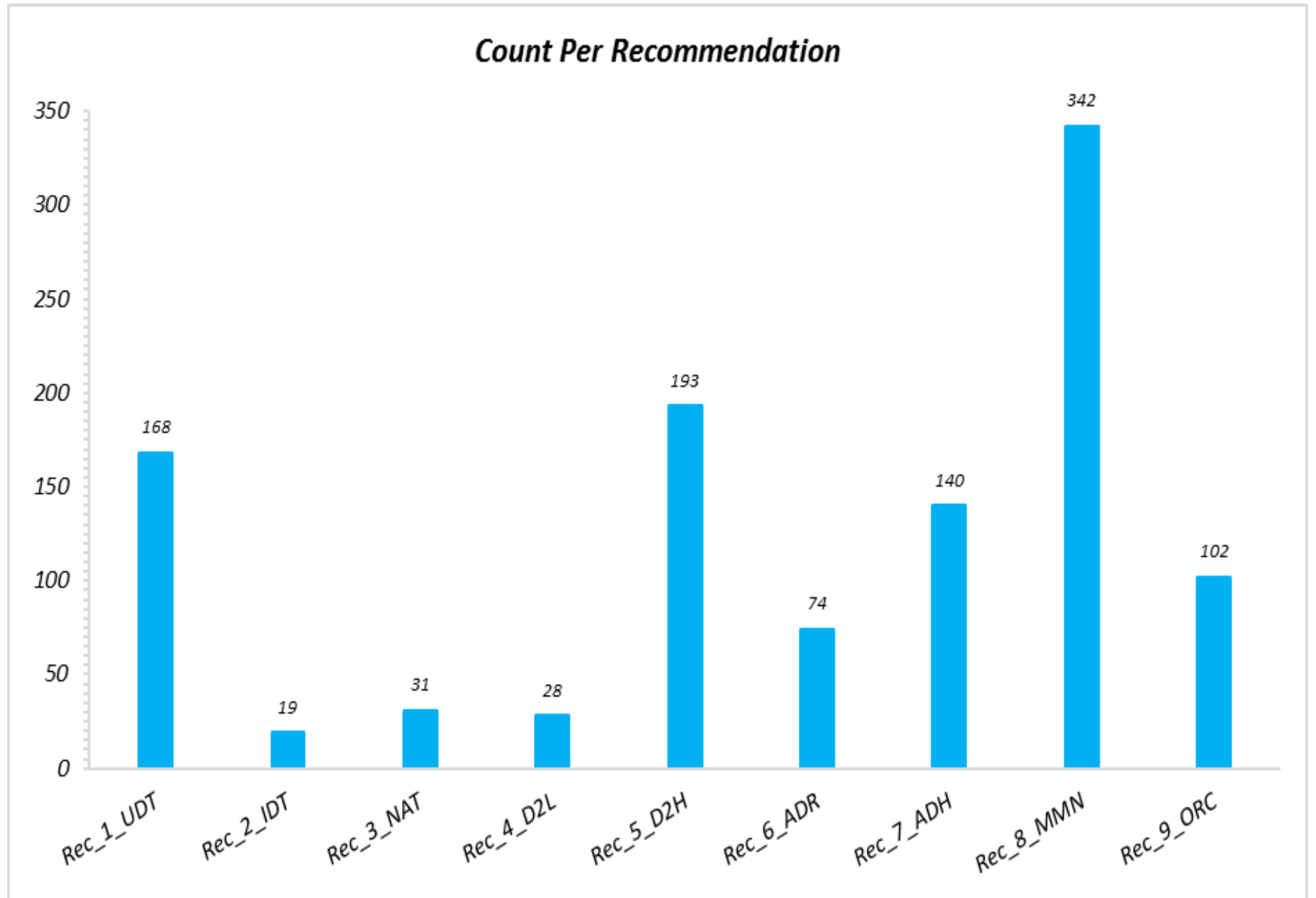
Results

- 350 adult patients had their medications reviewed
 - 198 Female, 152 Male
- Average age was 79 years old (Range: 53 to 99 years)
- Average number of total medications taken was 14.08 (Range: 2 to 30 total medications)
 - Average number of prescription medications was 8.74 (Range: 0 to 21 Rx medications)
 - Average number of over-the-counter medications was 5.34 (Range: 0 to 19 OTC medications)

Results

- Average age of females was 80.87 (Range: 53 to 98 years) versus 77.84 for males (Range: 53 to 99 years)
- Average number of total medications taken if female was 14.08
 - Average number of Rx medications was 8.64
 - Average number of OTC Medications was 5.43
- Average number of total medications taken if male was 14.08
 - Average number of Rx medications was 8.86
 - Average number of OTC Medications was 5.22

Results



Results

- Increasing age was not related to number of medications (Rx and OTC)
- **Females** were more likely to be taking a greater number of **OTC** medications ($p= 0.025$). No relation between gender and number of prescription medications
- Taking a higher number of **prescription** medications was related to taking a higher number of **OTC** medication ($p= 0.004$)
- Taking a higher number of **prescription and OTC** medications was related to a higher **number of recommendations** ($p<0.001$)

Results

- Increasing age and gender were not related to the number of recommendations
- Higher number of **prescription** medications was related higher likelihood of recommendations in the following categories: UDT ($p=0.013$), IDT ($p=0.048$), D2H ($p<0.001$), ADR ($p<0.001$), ADH ($p=0.001$), and MMN ($p=0.001$)
- Higher number of **OTC** medications was related to higher likelihood of recommendations in the following categories: D2H ($p<0.001$), ADR ($p=0.007$), and ADH ($p=0.011$)

Challenges and Limitations

- Some CLS have very limited healthcare/clinical knowledge
- Limited documents uploaded
- Classifying prescription vs. OTC medications
- Wording of the recommendation by the pharmacist makes categorizing recommendations difficult
- Follow-up to recommendations not feasible
- No direct contact with patient by the pharmacist
- Different pharmacists doing the medication regimen review
- Reviews are done for patients all across Minnesota

Conclusion

- When a patient transitions from a skilled nursing facility to an independent living situation, there is opportunity to improve patients' medication regimens and to identify discrepancies
- Future studies should be performed to assess physician/patient acceptance rates to recommendations as well as impact of medication review on readmission rates into the hospital or SNF

Questions?

References

1. Sinvani LD, Beizer J, Akerman M, et al. Medication Reconciliation in Continuum of Care Transitions: A Moving Target. *Journal of the American Medical Directors Association*. 2013;14(9):668-672. doi:10.1016/j.jamda.2013.02.021
2. Cipolle RJ, Strand LM, Morley PC. Chapter 5. Drug Therapy Problems. In: Cipolle RJ, Strand LM, Morley PC. eds. *Pharmaceutical Care Practice: The Patient-Centered Approach to Medication Management Services*, 3e New York, NY: McGraw-Hill; 2012. <http://accesspharmacy.mhmedical.com.ezproxy.lib.ndsu.nodak.edu/content.aspx?bookid=491§ionid=39674905>. Accessed October 17, 2017.

Supplemental Tables

Table 1: Cross-tabulations for Prescription Medications

Table 1: Crosstabulations for Prescription Medications						
	<i>Number of Prescription Medications</i>					
<i>Age</i>	<u>3 or Fewer</u>	<u>4 to 6</u>	<u>7 to 9</u>	<u>10 to 12</u>	<u>13 or More</u>	<u>Total</u>
75 and Younger	7	18	27	27	22	101
75-84	10	29	38	26	26	129
85 and Older	16	33	33	25	13	120
Total	33	80	98	78	61	350
Chi-Square Statistic						11.336
Probability						0.183
	<i>Number of Prescription Medications</i>					
<i>Gender</i>	<u>3 or Fewer</u>	<u>4 to 6</u>	<u>7 to 9</u>	<u>10 to 12</u>	<u>13 or More</u>	<u>Total</u>
Female	24	43	55	41	35	198
Male	9	37	43	37	26	152
Total	33	80	98	78	61	350
Chi-Square Statistic						4.299
Probability						0.367
<i>Number of OTC Medications</i>	<i>Number of Prescription Medications</i>					
	<u>3 or Fewer</u>	<u>4 to 6</u>	<u>7 to 9</u>	<u>10 to 12</u>	<u>13 or More</u>	<u>Total</u>
3 or Fewer	14	20	33	15	8	90
4 to 6	15	43	35	34	31	158
7 or More	4	17	30	29	22	102
Total	33	80	98	78	61	350
Chi-Square Statistic						22.570
Probability						0.004
<i>Number of Medication Recommendations</i>	<i>Number of Prescription Medications</i>					
	<u>3 or Fewer</u>	<u>4 to 6</u>	<u>7 to 9</u>	<u>10 to 12</u>	<u>13 or More</u>	<u>Total</u>
1 or Fewer	23	10	7	8	1	49
2	8	29	29	17	7	90
3	2	22	29	18	9	80
4	0	14	16	20	17	67
5 or More	0	5	17	15	27	64
Total	33	80	98	78	61	350
Chi-Square Statistic						147.786
Probability						<0.001

Table 2: Cross-tabulations for OTC Medications

Table 2: Crosstabulations for OTC Medications					
	<i>Number of OTC Medications</i>				
<i>Age</i>	<u>3 or Fewer</u>	<u>4 to 6</u>	<u>7 or More</u>	<u>Total</u>	
75 and Younger	30	42	29	101	
75-84	35	54	40	129	
85 and Older	25	62	33	120	
Total	90	158	102	350	
Chi-Square Statistic				3.832	
Probability				0.429	
	<i>Number of OTC Medications</i>				
<i>Gender</i>	<u>3 or Fewer</u>	<u>4 to 6</u>	<u>7 or More</u>	<u>Total</u>	
Female	42	101	55	198	
Male	48	57	47	152	
Total	90	158	102	350	
Chi-Square Statistic				7.362	
Probability				0.025	
<i>Number of Medication Recommendations</i>	<i>Number of OTC Medications</i>				
	<u>3 or Fewer</u>	<u>4 to 6</u>	<u>7 or More</u>	<u>Total</u>	
1 or Fewer	20	24	5	49	
2	33	36	21	90	
3	13	43	24	80	
4	15	27	25	67	
5 or More	9	28	27	64	
Total	90	158	102	350	
Chi-Square Statistic				29.739	
Probability				<0.001	

Table 3: Cross-tabulations for Medication Recommendations

Table 3: Crosstabulations for Medication Recommendations						
	<i>Number of Medication Recommendations</i>					
<i>Age</i>	<u>1 or Fewer</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5 or More</u>	<u>Total</u>
75 and Younger	15	24	21	23	18	101
75-84	17	43	25	19	25	129
85 and Older	17	23	34	25	21	120
Total	49	90	80	67	64	350
Chi-Square Statistic						9.949
Probability						0.269
	<i>Number of Medication Recommendations</i>					
<i>Gender</i>	<u>1 or Fewer</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5 or More</u>	<u>Total</u>
Female	35	50	39	34	40	198
Male	14	40	41	33	24	152
Total	49	90	80	67	64	350
Chi-Square Statistic						8.273
Probability						0.082

Table 4: Analysis of Prescription Medications by Recommendation Category

Table 4: Analysis of Prescription Medications by MTM Recommendation Category							
<i>Number of Prescription Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 1				6.992	0.009	6.190	0.013
No	220	8.29	3.974				
Yes	130	9.49	4.323				
Total	350	8.74	4.142				
<i>Number of Prescription Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 2				4.654	0.032	3.917	0.048
No	332	8.63	4.116				
Yes	18	10.78	4.209				
Total	350	8.74	4.142				
<i>Number of Prescription Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 3				0.032	0.858	0.163	0.686
No	320	8.73	4.207				
Yes	30	8.87	3.431				
Total	350	8.74	4.142				
<i>Number of Prescription Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 4				2.623	0.106	1.383	0.240
No	324	8.64	4.047				
Yes	26	10	5.107				
Total	350	8.74	4.142				

Table 4: Analysis of Prescription Medications by Recommendation Category continued

<i>Number of Prescription Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
<i>Recommendation in Category 5</i>				20.330	<0.001	18.468	<0.001
No	201	7.9	3.857				
Yes	149	9.87	4.256				
Total	350	8.74	4.142				
<i>Number of Prescription Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
<i>Recommendation in Category 6</i>				14.588	<0.001	12.362	<0.001
No	287	8.35	4.019				
Yes	63	10.51	4.265				
Total	350	8.74	4.142				
<i>Number of Prescription Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
<i>Recommendation in Category 7</i>				11.435	0.001	10.084	0.001
No	229	8.2	4.112				
Yes	121	9.75	4.023				
Total	350	8.74	4.142				
<i>Number of Prescription Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
<i>Recommendation in Category 8</i>				10.732	0.001	10.409	0.001
No	101	7.61	4.363				
Yes	249	9.19	3.968				
Total	350	8.74	4.142				
<i>Number of Prescription Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
<i>Recommendation in Category 9</i>				4.409	0.036	2.248	0.134
No	269	8.48	3.972				
Yes	81	9.58	4.59				
Total	350	8.74	4.142				

Table 5: Analysis of OTC Medications by Recommendation Category

Table 5: Analysis of OTC Medications by MTM Recommendation Category							
<i>Number of OTC Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 1				4.832	0.029	3.408	0.065
No	220	5.100	2.517				
Yes	130	5.750	3.004				
Total	350	5.340	2.722				
<i>Number of OTC Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 2				0.065	0.798	0.117	0.732
No	332	5.330	2.719				
Yes	18	5.500	2.854				
Total	350	5.340	2.722				
<i>Number of OTC Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 3				0.003	0.955	0.113	0.669
No	320	5.340	2.685				
Yes	30	5.370	3.146				
Total	350	5.340	2.722				
<i>Number of OTC Medications</i>				Kruskal-Wallis			
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 4				0.212	0.645	0.585	0.444
No	324	5.320	2.757				
Yes	26	5.580	2.283				
Total	350	5.340	2.722				

Table 5: Analysis of OTC Medications by Recommendation Category continued

<i>Number of OTC Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 5				10.187	0.002	12.495	<0.001
No	201	4.950	2.772				
Yes	149	5.870	2.569				
Total	350	5.340	2.722				
<i>Number of OTC Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 6				9.173	0.003	7.312	0.007
No	287	5.140	2.558				
Yes	63	6.270	3.234				
Total	350	5.340	2.722				
<i>Number of OTC Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 7				5.989	0.015	6.388	0.011
No	229	5.080	2.619				
Yes	121	5.830	2.857				
Total	350	5.340	2.722				
<i>Number of OTC Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 8				0.300	0.584	0.041	0.840
No	101	5.470	2.955				
Yes	249	5.290	2.627				
Total	350	5.340	2.722				
<i>Number of OTC Medications</i>						Kruskal-Wallis	
	<u>N</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>F-Statistic</u>	<u>P-Value</u>	<u>Statistic</u>	<u>P-Value</u>
Recommendation in Category 9				0.194	0.660	0.142	0.706
No	269	5.300	2.730				
Yes	81	5.460	2.711				
Total	350	5.340	2.722				