Physician Acceptance of Pharmacist Recommendations With and Without Cytochrome DNA Testing Among Medicare Patients

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Purpose

- The purpose of this randomized control trial is to evaluate if the addition of hepatic cytochrome P450 enzyme (CYP) testing to pharmacist and pharmacy student recommended medication therapy management (MTM) drug therapy problems (DTPs), enhances physician acceptance and clinical value. To answer this question, the investigators will look at the (DTPs) identified by CYP genetic testing compared to DTPs identified without CYP genetic testing.

Introduction

- Medication therapy management (MTM) is an encompassing term that is used to describe patient centered services that focus on increased adherence, cost minimization, identification of drug-drug interactions and guideline based medication use to name a few.[1,2] Pharmacist led MTM services can lead to enhanced patient care and decreased costs.[3] Studies have shown that prescriber acceptance rates are less than half for out-of-clinic pharmacist MTM recommendations versus more than half for in-clinic recommendations.[4,5] The use of Cytochrome P450 (CYP) genetic testing coupled with pharmacist led MTM services can lead to patient specific prescribing practices that decrease and avoid drug-drug and drug-gene interactions and enhance response to therapy.[6,7] The aim of this study is to evaluate if the addition of CYP genetic testing to pharmacist and pharmacy student MTM recommendations increases physician acceptance that leads to medication therapy changes.

Methods

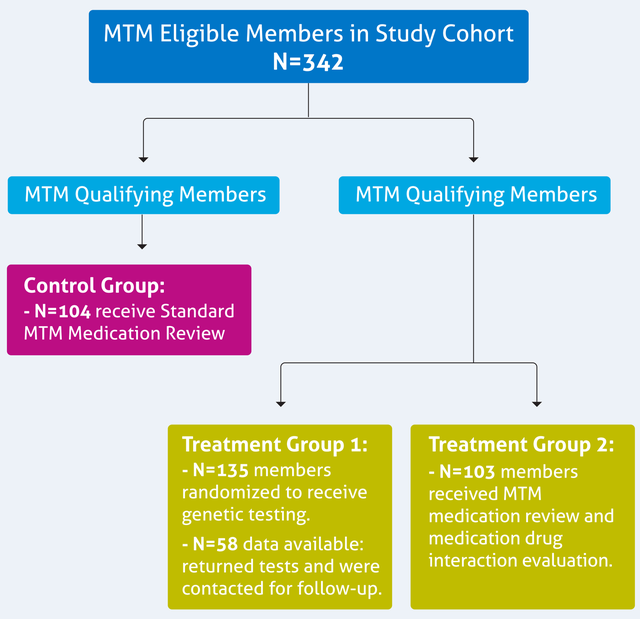
A randomized, non-blinded control trial in which consenting Medicare patients aged 65 years and older are randomized based on their date of birth (DOB).

- **Inclusion criteria:**
  Medicare Part-D enrolled patients aged 65 years and older, currently prescribed 6 or more chronic medications and have 3 or more chronic disease states.
- **Exclusion criteria includes:**
  Inability to perform the MTM encounter, patient identifies themselves as being unable to perform the oral swab test for genetic testing and patient had a known and recorded MTM session within the preceding 12 months.
- **Patient source:**
  The subjects for this study will be recruited from the Magellan Health MTM database based on the inclusion criteria set by this protocol and CMS guidance. Patients are qualified quarterly into the MTM program and are eligible to receive 1 medication review annually.
- **Randomization:**
  100 patients will be randomized to group one, which will consist of odd DOB patients who will receive MTM services, drug interactions checked with specific computer software, plus CYP genetic testing. Another 100 patients will be randomized to group two based on even DOB to receive MTM services and identification of drug interactions using specific software and another 100 patients will serve as a control and will receive MTM services and drug interactions checked with non-specific software.

The genetic testing supplies are mailed from the manufacturer to group one patients, after which the patient performs the test and mails the completed test in a pre-paid envelope back to the manufacturer for analysis. Genetic test results are sent to Magellan Health and the patient. Upon receipt of the test results, a follow-up patient phone call is initiated to interpret these results with the patient. If any additional DTPs were identified during the follow-up phone call, these recommendations are sent to the patient and provider. During this process the patient is free to and encouraged to take their genetic test results and follow-up letter to their physician for further discussion.

Results

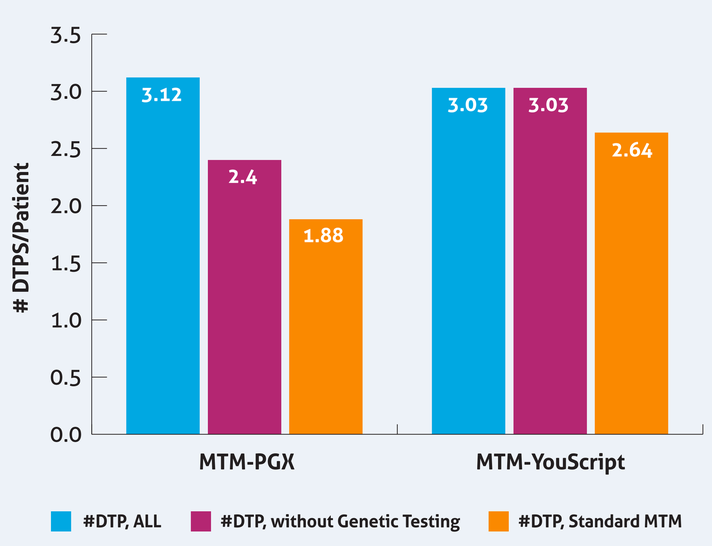
MTM Eligible Members



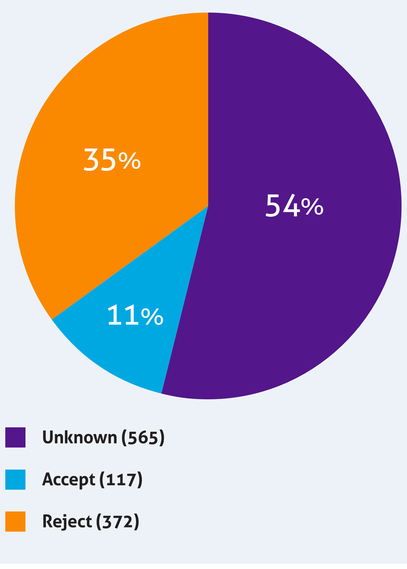
Baseline Characteristics

N=342	MTM-Genetic Testing n=58	MTM-Specific Drug Interaction Software n=180	Standard MTM-Nonspecific Software n=104	P-value
Mean (± SD)				
Age	74.2 (± 6.3)	75.16 (± 8.3)	75.06(±7.4)	0.6894
Number of Conditions	6.5 (± 2.8)	6.6(±)	6.2(± 2.2)	0.3406
Number of Actual Medications	11.5(± 4.1)	11.5(±)	11.2(± 3.8)	0.8000
Number of ADR	0.75(± 1.2)	0.47(±)	0.44(± 0.76)	0.0640
n (%)				
Female	17 (29.3)	79 (43.9)	50 (48.1%)	0.0613
Current Conditions				
Allergy	17 (29.3)	24 (13.3)	15 (14.4)	0.0136
Ischemic Stroke	13 (22.4)	14 (7.8)	10 (9.7)	0.0069
Myocardial Infarction	14 (24.1)	21 (11.7)	16 (15.4)	0.0671
Nerve Disorder	6 (10.3)	40 (22.2)	7 (6.7)	0.0012
Pain	8 (13.8)	52 (28.9)	23 (22.1)	0.0546
Peptic Ulcer	2 (3.4)	2 (1.1)	8 (7.7)	0.0147
Type 2 DM	18 (31.0)	85 (47.2)	45 (43.3)	0.0962
Urinary disorder	18 (31.0)	26 (14.4)	23 (22.1)	0.0160

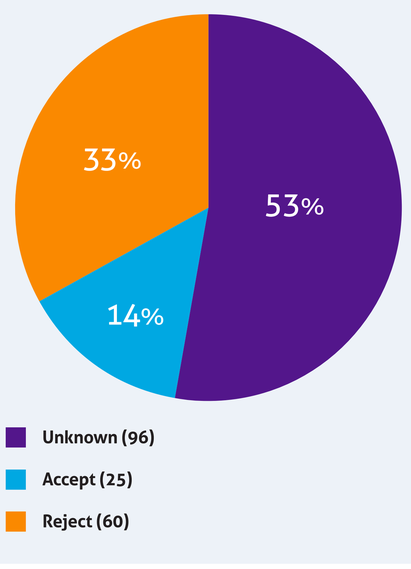
Number of DTPs Per Patient



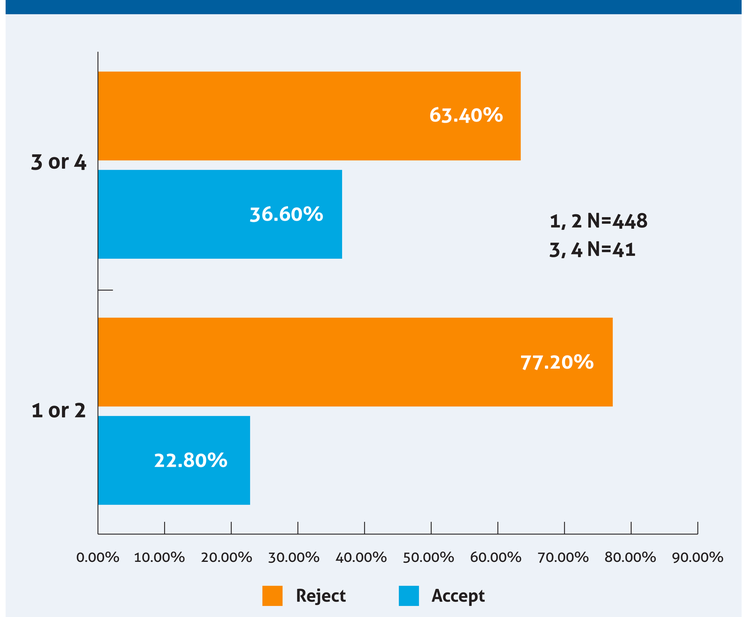
Physician Acceptance of DTPs From All Groups



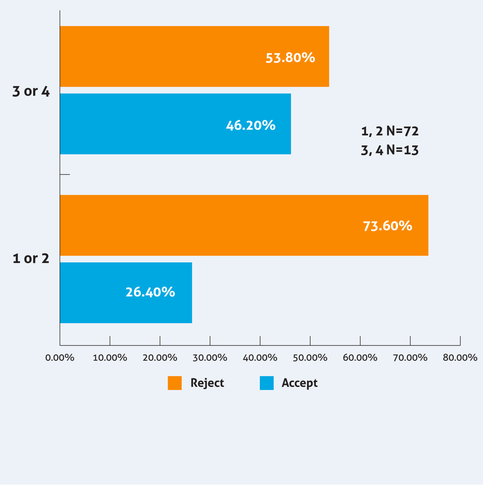
Physician Acceptance of DTPs From Group 1 - Genetic Study



Physician Acceptance of DTPs From All Groups Based On Seriousness



Physician Acceptance Group 1, Genetic Tested Patients Based on Seriousness



Conclusion

- Over the period of the study it was seen that the DTPs identified from the CYP genetic testing (group1) were more likely to be labeled as serious 3/4 than DTPs from specific drug software (group 2) and conventional MTM (control). This was due to the identification of drug-drug-gene and drug-gene interactions that were not possible to identify before CYP testing. DTPs labeled serious 3/4 were more likely to be accepted by prescribers in comparison to less serious DTPs, 1/2. Although specific patient health outcomes were not available in this study, previous studies have shown that pharmacist involvement in patient care has positive results.[1-5] The use of CYP genetic testing resulted increased identification of more serious DTPs and slightly increased physician acceptance. One of the major limitations of this study is that acceptance of DTPs was unknown for more than 50% of the DTPs due to the lack of claims data. However, even with this limitation, this study is beneficial in showing that physician acceptance of pharmacy student and pharmacist driven DTPs is low, but was enhanced when genetic testing was implemented.

References

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