RICK SCOTT
GOVERNOR

June 30, 2015

Sylvia Mathews Burwell, Secretary
U.S. Department of Health and Human Services
200 Independence Avenue S.W.
Washington, D.C. 20201

Dear Secretary Burwell:

The Centers for Medicare and Medicaid Services (CMS) originally approved Florida's MEDS AD 1115 Research and Demonstration Waiver (CMS 11-W-00205/4) for the period January 1, 2006 through December 31, 2010. In December 2010, the waiver was renewed for the period January 1, 2011 through December 31, 2013. In June 2013, the State submitted a three-year renewal request and CMS granted two 1-year temporary extensions through December 31, 2015. Pursuant to application procedures required in 42 CFR 431.412(c) for Section 1115(a) waivers, the state requests a three-year extension, under the same waiver and expenditure authorities as those approved in the current demonstration, through 12/31/2018.

The demonstration objectives and the eligibility criteria for waiver recipients remain unchanged since implementation of the project. However, the State is requesting to adapt the Medication Therapy Management program during this renewal period. Medicaid services for individuals eligible for this waiver are authorized statewide by section 409.904(1) of the Florida Statutes.

Please find enclosed documentation as required in 42 CFR 431.412(c) to support this request. We appreciate your efforts in working with our State to extend federal authority to maintain Medicaid eligibility for this vulnerable population.

Sincerely,

[redacted]

Rick Scott
Governor

Enclosures

THE CAPITOL
TALLAHASSEE, FLORIDA 32399 • (850) 488-2272

Florida MEDS-AD
1115 Research and Demonstration Waiver

Waiver Extension Request
June 30, 2015
Updated 7/14/15

Posted on Agency Website

(http://ahca.myflorida.com/medicaid/MEDS-AD/MED_AD_1115_Waiver_2015-06.shtml)

Florida Agency for Health Care Administration

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I. Purpose, Goals and Objectives

A. Statement of Purpose

The state is seeking federal authority to extend Florida's MEDS-AD Waiver (Project Number 11-W-00205/4) for the period January 1, 2016 to December 31, 2018. The waiver provides Medicaid eligibility for individuals who meet the following criteria:

- Have a disability or are age 65 or over,
- Income is 88 percent of the federal poverty level or lower, and
- Have assets that do not exceed $5,000 for individuals or $6,000 for couples;

and are in one of the following Medicaid eligibility groups:

- Group 1: Medicaid-only eligibles not currently receiving Medicaid-covered institutional care services, hospice services, or home and community-based services
- Group 2: Medicaid-only eligibles currently receiving Medicaid-covered institutional care services, hospice services, or home and community-based services
- Group 3: Medicaid and Medicare (dual) eligibles receiving Medicaid-covered institutional care services, hospice services, or home and community-based services.

Individuals enrolled in the demonstration receive state plan benefits and may also receive pharmacy case management services. Applicable Medicaid state plan co-payments apply and services are delivered through the same delivery system available to state plan enrollees. The state seeks to use the current authorities granted by the Centers for Medicare and Medicaid Services (CMS) in December 2010 to continue the waiver.

B. Goals and Objectives

The intent is to demonstrate that access to health care services and voluntary pharmacy case reviews result in measurably improved outcomes. The continued coverage, as well as the Medication Therapy Management program, will be funded through savings obtained by avoiding institutional costs that would otherwise occur in the next five years had these vulnerable individuals not had access to prescribed drugs and other medical services.

The demonstration was predicated on the assumption that continued access to medical care, including home and community-based services and pharmacy management services, for this population, will delay deterioration in health status, which drives hospitalization and/or institutionalization, and will result in improved patient's perceptions of their health care services.

C. Current Program

<u>Medication Therapy Management Program</u>

The Agency for Health Care Administration (Agency), through an agreement with the University of Florida (UF), provides Medicaid Drug Therapy Management (MTM) Program services to Medicaid recipients assigned to the MEDS-AD Waiver program. The goals of the program are to improve the quality of care and prescribing practices based on best-practice guidelines, improve

patient adherence to medication plans, reduce clinical risk, and lower prescribed drug costs and the rate of inappropriate spending for certain Medicaid prescription drugs.

The program uses these high-intensity pharmacy case management services in conjunction with access to appropriate medical care for select individuals as a way to maintain care in the community and prevent premature institutionalization.

The services focus on fee-for-service recipients within the waiver as these individuals are not receiving institutional care or are served by a managed care entity. The process includes an initial direct telephone contact to a recipient from medically trained staff (which may include nurses, pharmacists, clinical associates, etc.) who explain the review process and invite the recipient to participate in a comprehensive medication review (CMR) with a pharmacist (covering all prescription, over the counter, herbal and other medications and chronic diseases). If the recipient agrees, a call with a case reviewer is scheduled for performance of an annual CMR. A personalized medication list and a medication action plan is then developed and mailed to the participating recipients. As part of the services, prescribers are notified of potential issues or problems via phone and/or facsimile, depending on the urgency of the issue, following the review. All encounters are documented within the MTM software system. Encounters may involve patient specific interventions and interventions to prescribers, which are later evaluated in quarterly follow-up reviews based on patient and prescriber response. During the quarterly follow-up a review of the patient health information and claims history are performed. The patient and prescriber are contacted again if issues or risks are identified.

These MTM services help to resolve clinically significant medication-related and health-related problems, optimize medication use for improved patient outcomes, and promote patient self-management of medication and disease states. They provide access to patients mainly via telephone and, by doing so, provide the opportunity to communicate with patients at their convenience and in the comfort of their own home.

Recipients are given the option at the end of the year of participation in the program to continue into the next year. This is an added service for the benefit of the recipient and allows for evaluation of the long-term impact of the MTM program.

Data Mining

Data mining refers to the practice of electronically sorting Medicaid Management Information Systems claims through sophisticated statistical models and intelligent technologies to uncover patterns and relationships contained within the Medicaid claims and history files. Data mining has the goal of identifying abnormal utilization and billing practices that are potentially fraudulent.

D. Federal and State Waiver Authority

The following is a historical description of the federal and state authority granted since authorization of the waiver was obtained in 2005.

1. Initial 5-Year Period (2006-2010): The 2005 Legislature, through chapter 2005-60, Laws of Florida, instructed the Agency to seek federal waiver authority to revise Medicaid eligibility coverage for the Medicaid MEDS A/D eligibility group beginning January 1, 2006. On November 22, 2005 the Agency received approval from CMS for the period January 1, 2006 through December 31, 2010.

2. Three-Year Extension Period (2011-2013): December 30, 2009 the Agency submitted a 3-year extension request to CMS. On December 14, 2010 the Agency received approval from CMS for the period January 1, 2011 through December 31, 2013.

3. Authority to Seek Waiver Extension (2014-2016): June 28, 2013, the Agency submitted another 3-year extension request to CMS for the period January 1, 2014 through December 31, 2016. The Agency received a 1-year temporary extension on August 14, 2013, for the period January 1, 2014 through December 31, 2014. On November 21, 2014, the Agency received a second 1-year temporary extension from CMS for the period January 1, 2015 through December 31, 2015.

E. Federal Waiver Extension Requirements

1. Public Notice Document: In accordance with 42 Code of Federal Regulations 431.412 and Special Term and Condition (STC) #12 of the waiver, the Agency is posted the "Public Notice" document for public input 30 days, May 21, 2015 through June 20, 2015. The public notice document was required to include a comprehensive description of the waiver extension request that contained sufficient level of detail to ensure meaningful input from the public, including:

a. The program description, goals and objectives to be extended under the waiver, including a description of the current or new recipients who will be impacted by the waiver. (See Section I of this document for program goals and overall objectives, Section IV for specific program objectives and Section II.A for a description of the current or new recipients impacted by the program.)
b. To the extent applicable, the proposed health care delivery system and the eligibility requirements, benefit coverage and cost sharing (premiums, co-payments and deductibles) required of individuals that will be impacted by the waiver and how such provisions vary from the state's current program features (see Section II of this document).
c. An estimate of the expected increase or decrease in annual enrollment and annual aggregate expenditures, including historic enrollment or budgetary data, if applicable. This includes a financial analysis of any changes to the waiver requested by the state in its extension request (see Section V of this document).
d. The hypothesis and evaluation parameters of the waiver (see Section VII of this document).
e. The specific waiver expenditure authorities that the state believes to be necessary to authorize the waiver (see Section VII of this document).
f. The locations and Internet address where copies of the waiver extension request are available for public review and comment (see Section III of this document).
g. Postal and Internet e-mail addresses where written comments may be sent and reviewed by the public and a minimum 30-day time period in which comments will be accepted (see Section III of this document).
h. The location, date and time of at least two public hearings convened by the state to seek public input on the waiver extension request (see Section III of this document).

2. Final Waiver Extension Request: The Agency will include information from the public input process in the final waiver extension request in compliance with the transparency requirements specified in 42 CFR, section 431.412 and, the public notice requirements provided in STC #12.

II. Program Overview

A. Eligibility

Eligibility methodologies and standards will be the same as those used in determining eligibility under the state plan, and this waiver will continue to include only individuals who meet the following criteria:

- Have a disability or are age 65 or over,
- Income is 88 percent of the federal poverty level or lower, and
- Have assets that do not exceed $5,000 for individuals or $6,000 for couples;

and are in one of the following Medicaid eligibility groups:

- Group 1: Medicaid-only eligibles not currently receiving Medicaid-covered institutional care services, hospice services, or home and community-based services
- Group 2: Medicaid-only eligibles currently receiving Medicaid-covered institutional care services, hospice services, or home and community-based services
- Group 3: Medicaid and Medicare (dual) eligibles receiving Medicaid-covered institutional care services, hospice services, or home and community-based services.

B. Enrollment

There is no cap on enrollment in this waiver; all individuals who meet the eligibility standard are provided Medicaid services.

C. Medication Therapy Management Program

During this extension period the state plans to refine the MTM program by incorporating a case management component that will allow for a more comprehensive and integrated approach. The comprehensive medication review practice model will remain very much the same, but the MTM will collaborate with Managed Medical Assistance (MMA) health plans to develop an “enhanced coordinated care” program for the targeted recipients. Recipients enrolled in the MTM program who are also enrolled in an MMA plan will have a case manager provided by the MMA plan and receive ongoing care coordination services from the case manager. In addition, these members will also receive MTM services as provided by a UF pharmacist, which includes a CMR and/or targeted medication review, and quarterly follow-up reviews. The case managers and UF would work in tandem. Ongoing care coordination and medication reviews, with a focus on communications between prescribers/providers integrated into case management activities, will occur.

This new practice model will initially be implemented July 1, 2016 as a pilot project. The period of January 1, 2016 to June 30, 2016 will be identified as the pre-implementation period for Agency coordination with MMA plans to customize the model to their particular organizations. The recipients participating in the annual comprehensive review for the period of June 1, 2015 to May 31, 2016 will also be afforded the complete year of the current program model (one comprehensive medication review and three quarterly follow-ups).

At the time of the revised MTM program implementation the population receiving the medication review services will increase from 150 to 225. The population will be divided into a managed care pilot group and a fee-for-service standard group. The managed care group would be the group to participate in the “enhanced coordinated care” program. The pilot program will continue for one year. Based on the clinical and financial outcomes, the Agency will reevaluate the model for continuation or revisions. However, since this is a voluntary program there is expected to be a small portion of this eligible population that chooses to participate. Some of this dynamic population will no longer be eligible for the program due to gaining Medicare eligibility or institutionalization (e.g., nursing home, hospice), therefore a larger population may not be sustainable.

D. Data Mining

Data Mining Activities for the Florida Office of the Attorney General, Medicaid Fraud Control Unit (OAG-MFCU) were approved by CMS on July 15, 2010. On September 13, 2010, Agency’s Bureau of Medicaid Program Integrity (MPI) and the OAG-MFCU entered into a Memorandum of Understanding which specifies the roles and responsibilities of the two organizations relative to data mining activities.

Data mining is recognized as a tool adding a new dimension to the work structure within the OAG-MFCU and as an opportunity to add to the inter-agency activities of the OAG-MFCU, the Agency’s MPI, and possibly other state and federal agencies. This added tool is highly qualitative in nature and its full impact will be recognized in time by the recovery of funds attributed to these sophisticated data analysis techniques.

Since the inception of the Data Mining Initiative the OAG-MFCU has been granted an increase in the number of analysts permitted to participate in the data mining projects, as well as an increase in the percentage of time they may devote to the data mining analyses. Data miners have become a more integral component of the OAG-MFCU team. The timeframe for the analyses was October 2010 through September 2014 (i.e., Federal Fiscal Year (FFY) 2010-11 through FFY 2013-14).

Data mining activities have significantly added to the quantity of opened new cases.
Data mining activities (FFY 2010-11 through FFY 2013-14) have led to the OAG-MFCU opening 102 complaints. Forty-seven complaints have been closed, 5 have an ongoing active status, and 50 complaints were converted to full case investigations by the OAG-MFCU. Of the 50 case investigations opened, 30 have been closed and 20 have an ongoing active status. Four individuals have been arrested as a result of the Data Mining Initiative, and one case ended in a criminal conviction with restitution of $329,665.17 ordered. There have been a total of 20 OAG-MFCU complaints or cases referred to the Agency’s MPI unit for action they deem necessary.

Communications between OAG-MFCU and the Agency’s MPI unit have greatly improved since the inception of this initiative. There are monthly conference calls between OAG-MFCU and the Agency’s MPI unit to discuss many aspects of the various projects in progress. There are bimonthly calls within the OAG-MFCU of the participating analysts to discuss updates, trends and patterns observed during the review of the data. Interim calls are conducted as needed. Closer collaborative coordination between the two agencies exists because of the Data Mining Initiative, and the State of Florida is better positioned to more expeditiously address emerging changes to these threats to the integrity of the program.

In addition to detecting fraud and recovering funds, there is a focus on prevention of fraud. As a result of data mining activities, the agencies have recognized that problems in current legislation need to be addressed to assist in preventing fraud. Recommendations for changes to the law are periodically submitted to the Florida Legislature.

III. Public Process

This section of the document provides a summary of the public notice and input process used by the Agency in compliance with 42 CFR 431.412 and STC #12 of the waiver including: the State Notice Procedures set forth in 59 Fed. Reg. 49249 (September 27, 1994) and the tribal consultation requirements pursuant to Section 1902(a)(73) of the Social Security Act (the Act) as amended by section 5006(e) of the American Recovery and Reinvestment Act of 2009.

A. Public Notice Process

The following list describes the notification process used to inform stakeholders of the public meetings to be held to solicit input on the waiver extension request.

- Published a public notice for the two public meetings, one of which was held with the Medical Care Advisory Committee, in the Florida Administrative Register in compliance with Chapter 120, Florida Statutes.
- Emailed the meeting information to individuals and organizations from the Agency's interested parties list, which was created during the development of the initial waiver application and has been updated regularly thereafter.
- Posted on the Agency's home webpage, a prominent link to the webpage where the following information can be found: the public meeting schedule including dates, times and locations, as well as the public notice document for the waiver extension request. The meeting materials and the public notice document can be viewed by clicking on the following link: http://ahca.myflorida.com/medicaid/MEDS-AD/MED_AD_1115_Waiver_2015-06.shtml

A. Consultation with Indian Health Programs

The Agency consulted with the Indian Health Programs[1] located in Florida through written correspondence to solicit input on the waiver extension request. Appendix A of this document provides the correspondence sent on May 21, 2015 to the Seminole Tribe and Miccosukee Tribe requesting input on the waiver extension request. No comments or questions were received from the tribe.

B. Florida Medicaid Advisory Meetings

The Agency requested input on the extension request from the members of the Medical Care Advisory Committee. The public meeting notice for the advisory group was published in the Florida Administrative Register. During the meeting, the Agency provided an overview of the MEDS-AD Waiver extension request and sought to obtain input on the waiver extension request. The agenda and presentation materials were posted on the Agency's website provided above.

The following is a brief description of the Medicaid advisory groups.

1. Florida Medicaid's Medical Care Advisory Committee

[1] The State of Florida has two federally recognized tribes: Seminole Tribe and Miccosukee Tribe; and does not have any Urban Organizations.

This committee is mandated in accordance with 42 CFR, Section 431.12, based on Section 1902(a)(4) of the Social Security Act. The purpose of the Committee is to provide input on a variety of Medicaid program issues, and to make recommendations to the Agency on Medicaid policies, rules and procedures. The link to the States MCAC Webpage is as follows: http://ahca.myflorida.com/medicaid/mcac/index.shtml

The Committee is comprised of: board-certified physicians and other representatives of the health professions who are familiar with the medical needs of low-income people; members of consumer groups, including four representatives of Medicaid recipients; and representatives of state agencies involved with the Medicaid program, including the secretaries of the Florida Department of Children and Families, the Florida Department of Health and the Florida Department of Elder Affairs, or their designees.

2. Post Award Forum – Medical Care Advisory Committee

The Agency held the Post Award Forum on the 1115 MEDS AD Waiver with the MCAC on June 2, 2015. Public notice was published in the Florida Administrative Register on May 21, 2015, inviting all interested parties to the public meeting. During the meeting, the State provided an overview of the waiver as well as the upcoming renewal request and allowed time for public comment.

The following summarizes the verbal comments received during the Post Award forum for the 1115 MEDS-AD Waiver.

- A verbal concern was expressed regarding the prior authorization process for recipients enrolled in Managed Medical Assistance plans.

  This comment is not relevant to the MEDS-AD Waiver as recipients do not receive prior authorization through the MEDS-AD Waiver. This comment was shared with Agency staff responsible for the oversight of the managed care plans operated under Florida's 1115 Managed Medical Assistance Waiver.

- A verbal comment was received regarding how the waiver proposed to improve patient adherence to medication plans.

  This comment is not relevant to the MEDS-AD Waiver as the Medication Therapy Management Program does not work directly with recipients on adherence to medication plans. This comment was shared with Agency staff responsible for the oversight of the managed care plans operated under Florida's 1915(b)(c) Long-term Care Waiver.

No written comments were received from the public regarding this waiver as a result of the post award forum.

Please Note: Recipients enrolled in the MEDS-AD waiver receive their services and medications through their existing delivery systems. There are no services provided under the MEDS-AD Waiver.

C. Public Meetings

The Agency published a public meeting notice in the Florida Administrative Register on May 21, 2015, inviting all interested parties to the two public meetings listed in the table below, which provides the dates, times and locations. Individuals who were unable to attend the meetings in person could participate via conference call by using the toll-free number provided in the notice. During the meetings, the Agency provided an overview of the existing waiver, a description of the extension request and allowed time for public comments.

Table 1
Schedule of Public Meetings

Location	Date	Time
Tampa Agency for Health Care Administration 6800 North Dale Mabry Highway Main Training Room Tampa, FL 33614 Conference Call-in: 1-877-299-4502 Participant Code: 905 751 44#	June 1, 2015	1:00 – 2:30 P.M.
Tallahassee Agency for Health Care Administration 2727 Mahan Drive Building 3, Conference Room A Tallahassee, Florida 32308 Conference Call-in: 1-877-299-4502 Participant Code: 433 017 68#	June 2, 2015	1:00 – 2:30 P.M.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting was asked to advise the agency at least seven days before the workshop/meeting by contacting Heather Morrison at (850) 412-4034 or email at Heather.Morrison@ahca.myflorida.com.

Individuals who are hearing or speech impaired were advised to contact the agency using the Florida Relay Service, 1 (800) 955-8771 (TTY) or 1 (800) 955-8770 (Voice).

D. Public Notice Document Made Available to the Public

The Agency posted on its website (link provided on page 7) beginning May 21, 2015 through June 20, 2015, the public notice document and information on how to provide a comment on the extension request.

E. Submission of Written Comments

The Agency's website provides the public the option of submitting written comments on the waiver extension request by mail or email (see below). In addition, the Agency provided attendees of the public meetings a comment card for the submission of written comments.

Mail comments and suggestions to:

1115 MEDS-AD Waiver Extension Request
Office of the Deputy Secretary for Medicaid
Agency for Health Care Administration
2727 Mahan Drive, MS #8
Tallahassee, Florida 32308

You may also e-mail your comments and suggestions to:
FLMedicaidWaivers@ahca.myflorida.com

F. Summary of Public Comments

The State did not receive any written comments during the 30-day public comment period. The State received two verbal comments during the June 2, 2015 post award forum and public meeting; these comments can be found on page 8 under "Post Award Forum – Medical Care Advisory Committee."

IV. Program Description and Objectives

The Florida MEDS-AD Demonstration was approved in November 2005 and provides coverage for certain individuals who are elderly or who have a disability who have incomes up to 88 percent of the Federal poverty level.

The objective of this waiver is to delay deterioration in health status which drives hospitalization and/or institutionalization by providing continued access to medical care, including home and community-based services and pharmacy management services, for this population.

V. Budget Neutrality

A. Budget Neutrality Compliance

The Agency is required to provide financial data demonstrating the detailed and aggregate, historical and project budget neutrality status for the requested waiver extension period (July 1, 2014 to June 30, 2017) and cumulatively over the lifetime of the waiver. The Agency is also required to provide up-to-date responses to the Federal CMS Financial Management standard questions. The following addresses the items specified above and documents that the waiver is budget neutral.

1. General Budget Neutrality Requirements

A requirement of any 1115 Research and Demonstration Waiver is that the program must meet a budget neutrality test and provide documentation that the demonstration did not cost the program more than would have been experienced without the waiver. In addition, prior to an extension of the waiver, a projection and extension of new budget neutrality benchmarks using rebased trends must be provided for the requested waiver extension period.

The established STCs of the waiver, as agreed upon by the state and Federal CMS, are provided in the approved waiver document. To comply with the STCs, the Agency must pass the budget neutrality "test", as well as provide quarterly reporting of the expenditures and member months for the waiver, which is used to monitor the budget neutrality. Florida's Research and Demonstration Waiver is budget neutral and is in compliance with all STCs specific to budget neutrality.

2. Budget Neutrality Historic Trends and Projected Renewal Years

The following discussion is specific to this extension budget neutrality analysis and is considered an addendum to the original waiver and prior renewal budget neutrality descriptions.

The historic trend table (Table 2) identifies all the actual waiver Demonstration Year expenditures and member months from DY1 (2006) through DY9 (2014). Utilizing the historic trend rates calculated from these actual figures, Table 3 projects the waiver's expenditures and member months for the renewal years DY10-DY13 (calendar years 2015, 2016, 2017, 2018). The member month figures in the historic table are an annual accumulation of the figures identified in the waiver quarterly progress reports submitted to CMS. The historic annual expenditure figures are the costs identified for this waiver in the State's quarterly CMS 64 reports for the same time periods.

Historic Trend:

Table 2 includes costs and member month figures reported for DY1 (2006) are not included in the historic trend calculations utilized for the renewal projected years. The DY1 figures are not considered to be representative of current and future waiver population and cost characteristics. The State considers the annual trend patterns subsequent to 2006 to be a more accurate basis for measuring future waiver performance. DY9 figures are shown for information only and are not utilized in the trend rate calculations since additional claims are expected to be paid covering services in this demonstration year.

Table 2
Historic Trend
DEMONSTRATION RENEWAL: Historic with Waiver Data

	DY1 (2006)	DY2 (2007)	DY3 (2008)	DY4 (2009)	DY5 (2010)	DY6 (2011)	DY7 (2012)	DY8 (2013)**	DY9 (2014)**	Total
Total Expenditures *	$476,509,435	$357,168,588	$399,593,828	$484,172,897	$556,747,935	$637,187,556	$668,048,221	$637,469,029	$305,112,041	$4,522,009,530
Eligible Member Months	291,263	275,464	300,276	334,134	413,463	477,686	520,424	456,592	456,702	3,526,004
Cost per Eligibles	$1,636.01	$1,296.61	$1,330.76	$1,449.04	$1,346.55	$1,333.90	$1,283.66	$1,396.15	$668.08	$1,282.47
										DY2-DY8
Trend Rates	**Annual Change**									**Trend Rate**
Total Expenditures *		N/A	11.88%	21.17%	39.33%	14.45%	4.84%	-4.58%	N/A	10.14%
Eligible Member Months		N/A	9.01%	11.28%	23.74%	15.53%	8.95%	-12.27%	N/A	8.79%
Cost per Eligible		N/A	2.63%	8.89%	-7.07%	-0.94%	-3.77%	8.76%	N/A	1.24%

* As reported on the CMS 64 Schedule C.
**Expenditures reflect claims with dates of service in the specified demonstration year and paid through Deember 2014. Additional claims are expected to be paid covering services in these demonstration years, especially DY9.

Months of Aging:

For Table 3, the State identified 24 months for the months of aging calculation in the projection table. The 24 months are the number of months between the midpoint of the completed DY8 (July 2013) and the midpoint of the first renewal year DY10 (2015). The period of July-December 2013 accounts for six months, twelve months of DY9 (January-December 2014), and the January –June 2015 accounts for the other six months.

Table 3
Projected Waiver Expenditures
DEMONSTRATION RENEWAL: With Waiver Budget Projection

			Renewal Demonstration Years (DYs)				Total Renewal
	Trend Rate	**Months of Aging** *	**DY10(2015)**	**DY11 (2016)**	**DY12 (2017)**	**DY13 (2018)**	
Eligible Member Months	8.79%	24	540,389	587,889	639,564	695,782	
Total Cost Per Eligible	1.24%	24	$1,431	$1,449	$1,467	$1,485	
Contracted Case Review Costs **			$107,675	$107,675	$107,675	$107,675	
Total Projected Renewal Expenditures			**$773,395,756**	**$851,799,403**	**$938,152,394**	**$1,033,260,710.24**	**$3,596,608,263**

* Mid Point of DY8(July 2013) through DY10 (July 2015): 24 months of aging.

** University of Florida Call Center operation

Table 4 Current Waiver Expenditures					
Quarter	**Date of Payment Expenditures**	**Target**	**Cumulative Target**	**Difference**	**Annual Cumulative Difference**
Q1	$51,696,950	$507,710,894		456,013,944	
Q2	$132,235,096	$507,710,894		375,475,798	
Q3	$105,271,113	$507,710,894		402,439,781	
Q4	$146,356,839	$507,710,894	$2,030,843,575	361,354,055	1,595,283,577
Q5	$69,927,763	$460,700,626		390,772,863	
Q6	$79,047,475	$460,700,626		381,653,151	
Q7	$87,567,517	$460,700,626		373,133,109	
Q8	$90,210,963	$460,700,626	$3,873,646,079	370,489,663	3,111,332,363
Q9	$93,882,619	$455,999,599		362,116,980	
Q10	$103,108,178	$455,999,599		352,891,421	
Q11	$95,761,142	$455,999,599		360,238,457	
Q12	$96,128,169	$455,999,599	$5,697,644,476	359,871,430	4,546,450,652
Q13	$107,727,900	$465,401,653		357,673,753	
Q14	$106,365,677	$465,401,653		359,035,976	
Q15	$120,849,499	$465,401,653		344,552,154	
Q16	$133,665,863	$465,401,653	$7,559,251,086	331,735,790	5,939,448,324
Q17	$138,153,082	$460,700,626		322,547,544	
Q18	$144,235,948	$460,700,626		316,464,678	
Q19	$134,966,909	$460,700,626		325,733,717	
Q20	$148,599,566	$460,700,626	$9,402,053,590	312,101,060	7,216,295,323
Q21	$154,004,876				
Q22	$146,340,361				
Q23	$155,017,074				
Q24	$163,774,246				6,597,158,766
Q25	$163,734,277				
Q26	$184,629,761				
Q27	$165,063,579				
Q28	$168,922,270				5,914,808,879
Q29	$151,084,893				
Q30	$150,685,372				
Q31	$159,542,998				
Q32	$162,697,430				5,290,798,186
Q33	$158,788,398				
Q34	$154,320,363				
Q35	$139,559,287				

Q36	$116,880,369				4,721,249,768

$ 4,680,803,821.76

* These are based on dates of payments which could get distributed across the DYs.

At the time of the prior renewal's approval for DY6-8 (calendar years 2011, 2012, 2013), the State and CMS mutually agreed to limit the future cumulative ceiling at the DY5 target of $9,402,053,590. The Expenditure to Date chart above identifies that beginning with DY6, the demonstration actual expenditures are being deducted from this agreed upon ceiling cap. The State will continue to demonstrate budget neutrality under this ceiling cap during the requested renewal for DY10-13 (calendar years 2015, 2016, 2017, 2018).

VI. Evaluation Status and Findings

The goals of the MTM program, implemented by UF College of Pharmacy, are to improve the quality of care and prescribing practices based on best-practice guidelines, improve patient adherence to medication plans, reduce clinical risk, and lower prescribed drug costs and the rate of inappropriate spending for certain Medicaid prescription drugs for a high-risk population of Medicaid recipients. The program uses high intensity pharmacy case management services in conjunction with access to appropriate medical care for select individuals as a way to maintain care in the community and prevent premature institutionalization.

The Agency has contracted with Florida State University to conduct an independent evaluation of the MTM program and Data Mining Activities authorized under Florida's section 1115 MEDS-AD Research and Demonstration Waiver approved by CMS. The evaluation of the MTM program measures the following:

- Number of MEDS-AD participants who receive a CMR, Medication Action Plan and three quarterly follow-up reviews.
- Number and types of recommendations for changes in medication use; number of recommendations communicated to and accepted by the primary care physicians.
- Pre- versus post-intervention utilization of prescribed medications consistent with best practice guidelines and Medicaid policies.
- Pre- versus post-intervention expenditures for pharmacy services, physician visits, hospitalizations, preventable hospitalizations, emergency department visits, institutional services and total Medicaid services.

The evaluation reports integrate findings across all quantitative and qualitative evaluation questions for MTM participants, MTM eligible non-participants, and a matched group (age, gender, health status, etc.) of the MTM eligible non-participants using the latest available data for inpatient, outpatient, long-term care, medical, and pharmacy claim types. Although the research team's examination of many health, utilization, and financial outcomes potentially influenced by the MTM intervention has, so far, found no statistically significant differences between the intervention group and comparison groups, some improvement was evident in the following areas:

- Medication adherence
- Pharmacy reimbursement savings
- Fewer hospitalizations and lower likelihood of emergency department visits

In contrast to the quantitative findings above, the qualitative findings did support several benefits based on MTM participants' responses to open-ended questions and survey items. For example, participants consistently stated that their medication adherence was positively enhanced by participation in the program. They also indicated greater understanding of their medications and made positive remarks regarding the program itself, indicating that they knew more about the use of each medication. Furthermore, MTM participants requested continuing the program for a longer period of time.

The goal of the Data Mining Initiative under the MEDS-AD Waiver is to determine if data mining activities by the Office of the Attorney General-Medicaid Fraud Control Unit (OAG-MFCU), in conjunction with the Bureau of Medicaid Program Integrity (MPI) in the Agency, result in the recovery of Medicaid funds paid as a result of fraudulent or abusive billing. In Florida, the

investigation of suspected Medicaid fraud is under the auspices of the OAG-MFCU, while cases of suspected abuse of the Medicaid program are handled by the Agency's MPI unit.

The evaluation of the MEDS-AD waiver also includes the evaluation of data mining in terms of recoveries and costs. Specifically, the evaluation is required to determine if the data mining-related recoveries or measurable cost avoidance are directly attributable to analyses performed by analysts from OAG-MFCU and MPI.

The evaluation's quantitative analysis includes comparing pre- and post-intervention periods for the number of case files initiated, action taken, amount recovered, fraud-related convictions, and time to case resolution. Qualitative analysis includes key informant interviews with programmers, data analysts and administrators in OAG-MFCU and MPI to identify recommendations for increasing the efficiency and effectiveness of the data mining process leading to successful identification and recovery of inappropriate Medicaid payments.

As a result of the analyses conducted so far, it has been shown that data mining activity significantly adds to the quantity of new fraud and abuse complaints and cases opened.

Final Evaluation Report

The contract between the Agency and Florida State University (FSU) was renewed on June 25, 2015 for the period July 1, 2015 through June 30, 2016 to cover the renewal period for the MEDS-AD Waiver. A final evaluation report of the MTM program (See Appendix B) is produced by FSU once a year. The evaluation report covering DY8 (calendar year 2013) was included with the last annual report on the waiver that was submitted to CMS in the spring of 2015. The next final evaluation report will be available in March 2016 and will report on DY9 (calendar year 2014). Therefore, there are no updated findings to report at this time.

The federal reports for Florida's 1115 MEDS-AD Waiver can be found at the following link: http://ahca.myflorida.com/medicaid/MEDS-AD/reports.shtml.

Evaluation during the Extension Period

The evaluation of the Data Mining Initiative and the MTM program for fee-for-service recipients will remain the same, as these components of the waiver are not changing.

The evaluation of the "enhanced coordinated care" program, combining Managed Medical Assistance (MMA) plan case management and MTM services for MMA plan enrollees, will focus on how the plans participating in the pilot program are incorporating MTM services into overall case management. It will look at the benefits and challenges of combining these services, and how and whether combining these services has improved clinical outcomes and whether there is an impact on expenditures for Medicaid services.

Research Question 1: How many MMA plans participate in the enhanced coordinated care pilot project? If more than one, are the plans using the same or similar models for incorporating MTM into case management/care coordination? How are the plans combining MTM and case management, and to which enrollees are they targeting these services?

- This question is intended to provide descriptive information about how the pilot is being implemented by the MMA plans and the MTM program staff; there is no hypothesis to be tested.

Research Question 2*:* Based on Medicaid claims and encounter data submitted by the MMA plans, do enrollees with MTM and case management services through the pilot have better outcomes (e.g., fewer avoidable hospitalizations and emergency department visits) than those Medicaid recipients receiving MTM services only?

- Hypothesis: Those enrollees receiving MTM and case management services (i.e., those participating in the pilot project) will have better outcomes than those recipients who are just receiving MTM services (i.e., the FFS MTM participants). It should be noted that care will need to be exercised in this analysis, as the pilot project group of enrollees and the FFS recipients group may not be comparable in terms of health status (e.g., presence of one or more chronic conditions or special health care needs).

Research Question 3*:* Based on responses to open-ended questions and survey items, do enrollees who participate in the enhanced coordinated care pilot project report more satisfaction and better experiences with the program than those recipients who are receiving MTM services only?

- Hypothesis: Those enrollees in the pilot project will report more satisfaction and better experiences with the program than those recipients who are just receiving MTM services.

Summary of External Quality Review Organization

To the extent that MEDS-AD Waiver recipients are enrolled in MMA plans, the plans' performance as a whole has been subject to external quality review activities and monitoring, the MEDS-AD Waiver population has not been broken out from other populations served by MMA plans. Similarly, any MEDS-AD Waiver recipients that are eligible for EPSDT services would be included in the state's CMS Form 416 EPSDT/CHIP report, but the MEDS-AD Waiver population has not been broken out from other populations in this report.

More information on the EQRO can be found at the following link: http://ahca.myflorida.com/Medicaid/quality_mc/review.shtml.

VII. Waiver Expenditure Authorities

To effectively maintain the program, the state is seeking a three-year extension of Florida's Section 1115 Research and Demonstration waiver.

Under the authority of Section 1115(a)(2) of the Act, expenditures made by Florida for the items identified below, which are not otherwise included as expenditures under Section 1903 of the Act, shall, for the period of this Demonstration, be regarded as expenditures under the State's Title XIX plan.

Maintaining the following expenditure authorities shall enable Florida to operate the MEDS-AD Medicaid section 1115 Demonstration.

1. **Demonstration Population 1.** Expenditures for services provided to individuals who are elderly or have a disability and who are not otherwise eligible for Medicaid and who:
    a. Are eligible for Medicare;
    b. Have income less than or equal to 88 percent of the Federal poverty level;
    c. Have assets up to $5,000 for an individual or $6,000 for a couple; and
    d. Are receiving hospice, home and community-based services, or institutional care services.
2. **Demonstration Population 2.** Expenditures for services provided to individuals who are elderly or have a disability who are not otherwise eligible for Medicaid and who:
    a. Have income less than or equal to 88 percent of the Federal poverty level;
    b. Have assets up to $5,000 for an individual or $6,000 for a couple; and
    c. Are receiving hospice, home and community-based services, or institutional care services.
3. **Demonstration Population 3.** Expenditures for services provided to elderly or disabled individuals who are not otherwise eligible for Medicaid and who:
    a. Have income less than or equal to 88 percent of the Federal poverty level;
    b. Have assets up to $5,000 for an individual or $6,000 for a couple; and
    c. Are not receiving hospice, home and community-based services, or institutional care services.
4. **MFCU Data Mining.** Expenditures claimed by the State Attorney General's Office to the Office of Inspector General, for data mining activities performed by the Medicaid Fraud Control Unit (MFCU) to screen and analyze the Medicaid Management Information System (MMIS) claims information to identify potential Medicaid fraud. These expenditures may not include expenditures for tools or activities that already exist in the State's Surveillance and Utilization Review Subsystem application, that are currently being performed by the State Medicaid agency, or that would otherwise be eligible for MMIS financial support

Title XIX Requirements Not Applicable

All requirements of the Medicaid program expressed in law, regulation, and policy statement, not expressly identified as not applicable to the list below, shall apply to Demonstration Population 3 beginning January 1, 2015 through December 31, 2015.

1. **Freedom of Choice** **Section 1902(a)(23)(A)**
   To enable Florida to require the Demonstration population to enroll in a managed care delivery system authorized under the State's 1915(b) waivers and the successor managed care delivery system authorized under the section 1115 demonstration titled the Managed Medical Assistance Program.
   The following requirements shall not apply to the expenditure authority for MFCU data mining:
2. **Amount, Duration, and Scope** **Section 1902(a)(10(B)**
   To the extent necessary to permit some individuals in Demonstration Population 3 to receive High Intensity Pharmacy Case Management services that are not available to other individuals in the group.
3. **Limitation on MFCU activities** **Section 1903(q)**
   42 CFR Part 1007
   To the extent necessary to permit Federal financial participation in data mining activities performed by a MFCU that is otherwise prohibited.

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Appendix A
Letters to the Miccosukee Tribe and the Seminole Tribe

RICK SCOTT
GOVERNOR

ELIZABETH DUDEK
SECRETARY

May 21, 2015

Ms. Cassandra Osceola
Health Director
Miccosukee Tribe of Florida
P.O. Box 440021, Tamiami Station
Miami, FL 33144

Dear Ms. Osceola:

This letter is being sent to solicit input on the State of Florida's plan to submit a three-year extension request for Florida's 1115 MEDS-AD Waiver to the Centers for Medicare and Medicaid Services (CMS) for the period January 1, 2016 through December 31, 2018. The waiver provides Medicaid eligibility for individuals who meet the following criteria:

- Have a disability or are age 65 or over
- Income is 88 percent of the federal poverty level or lower; and
- Has assets that do not exceed $5,000 for individuals or $6,000 for couples.
-

and are in one of the following Medicaid eligibility groups:

- Group 1: Medicaid and Medicare (dual) eligibles receiving hospice services, home and community-based services, or institutional care services.
- Group 2: Medicaid-only eligibles currently receiving hospice services, home and community-based services, or institutional care services.
- Group 3: Medicaid-only eligibles not currently receiving hospice services, home and community-based services, or institutional care services.
-

A full description of the proposed amendment is located on the Agency for Health Care Administration's (Agency) website at the following link:

http://ahca.myflorida.com/medicaid/MEDS-AD/MED_AD_1115_Waiver_2015-06.shtml

The Agency will conduct a 30-day public notice and comment period prior to submitting the extension request to CMS. The 30-day public notice and public comment period will begin May 21, 2015 through June 20, 2015 The Agency has scheduled two public meetings to solicit

meaningful input on the proposed waiver amendment from the public. The meetings will be held in:

- Tampa, Florida on June1, 2015, 1:00 p.m. – 2:30 p.m. at the Agency for Health Care Administration, 6800 North Dale Mabry Highway, Main Training Room, Tampa, FL 33614. To participate by phone, please call 1-877-299-4502 and enter the participant passcode: 905 751 44#.
- Tallahassee, Florida on June 2, 2015, 1:00 p.m. – 2:30 p.m. at the Agency for Health Care Administration, 2727 Mahan Drive Building 3, Conference Room A, Tallahassee, FL 32308. To participate by phone, please call 1-877-299-4502 and enter the participant passcode: 433 017 68#.

If you have any questions about this extension request or would like to hold a call please contact Heather Morrison of my staff via email at Heather.Morrison@ahca.myflorida.com or by phone at (850) 412-4034.

Sincerely,

/s/

Justin M. Senior
Deputy Secretary for Medicaid

JMS/hm

RICK SCOTT
GOVERNOR

ELIZABETH DUDEK
SECRETARY

May 21, 2015

Ms. Connie Whidden, MSW
Health Director
Seminole Tribe of Florida
3006 Josie Billie Avenue
Hollywood, FL 33024

Dear Ms. Whidden:

This letter is being sent to solicit input on the State of Florida's plan to submit a three-year extension request for Florida's 1115 MEDS-AD Waiver to the Centers for Medicare and Medicaid Services (CMS) for the period January 1, 2016 through December 31, 2018. The waiver provides Medicaid eligibility for individuals who meet the following criteria:

- Have a disability or are age 65 or over
- Income is 88 percent of the federal poverty level or lower; and
- Has assets that do not exceed $5,000 for individuals or $6,000 for couples.

and are in one of the following Medicaid eligibility groups:

- Group 1: Medicaid and Medicare (dual) eligibles receiving hospice services, home and community-based services, or institutional care services.
- Group 2: Medicaid-only eligibles currently receiving hospice services, home and community-based services, or institutional care services.
- Group 3: Medicaid-only eligibles not currently receiving hospice services, home and community-based services, or institutional care services.

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If you have any questions about this extension request or would like to hold a call please contact Heather Morrison of my staff via email at Heather.Morrison@ahca.myflorida.com or by phone at (850) 412-4034.

Sincerely,

/s/

Justin M. Senior
Deputy Secretary for Medicaid

JMS/hm

Appendix B
Medication Therapy Management Program
Final Evaluation Report

Deliverable #24

MEDs-AD Waiver (MTM) Program Final Report

Prepared for Florida Medicaid
In Partial Fulfillment of Contract MED143

College of Medicine
Florida State University

March 16, 2015

Table of Contents

Executive Summary

This report summarizes the final findings of the pre-intervention period (prior to June 1, 2011) and the MEDs-AD Waiver (intervention) years (June 1, 2011 through May 31, 2014) for the quantitative and qualitative evaluation of the Florida Medicaid Medication Therapy Management (MTM) intervention implemented by the University of Florida (UF) College of Pharmacy (COP). This report includes findings based on combined or pooled data for the first three years of the current waiver for the MTM program interventions beginning in 2011 (Year 1 Cohort 1), 2012 (Year 2 Cohort 2), and 2013 (Year 3 Cohort 3). The goals of the MTM program are to improve the quality of care and prescribing practices based on best-practice guidelines, improve patient adherence to medication plans, reduce clinical risk, and lower prescribed drug costs and the rate of inappropriate spending for certain Medicaid prescription drugs for a high-risk population of Medicaid recipients eligible through Florida's Section 1115 MEDs-AD Research and Demonstration Waiver (MEDs-AD Waiver).

Within the quantitative component, MTM program participants (MTM-P) are compared with MTM program non-participants (MTM-NP). The MTM-NP is also referred to as comparison group 1 (CG1). Medicaid recipients who were members of the MEDs-AD Waiver Medicaid eligible population number three (MEG3[1]), but either declined the opportunity to participate or were never contacted about the opportunity were used to form a second comparison group (CG2). The evaluation uses the latest available data for inpatient, outpatient, long-term care (LTC), medical, and pharmacy claim types as reported to the Florida Medicaid Agency on standard claims forms: UB-04 (facility) and CMS-1500 (professional services) as of September 2014.

Claims and enrollment data used for this report are believed to represent nearly all Medicaid recipient utilization for the period January 1, 2010 to May 31, 2014. Claims files are merged with demographic information. Periods of enrollment under the MEDs-AD Waiver and periods of excluded enrollment were identified. Additional information on the data used for this report is provided in the Method Section. Descriptive and regression tables for the pooled analysis of Cohort 1, Cohort 2, and Cohort 3 for the pre-intervention study period (SP-PRI) and the intervention study period (SP-INT) are presented and contrasted with comparison groups defined later in the report. Findings for the UF COP MTM

[1] Previous reports incorrectly referred to this population as MEG1. The MEG3 waiver population is comprised of individuals who meet specific income and asset criteria. They are not eligible for Medicare. They are eligible for, but not currently receiving: 1) LTC, 2) hospice services in the home or a facility, 3) home and community-based services (HCBS), or 4) recipients covered under a contract with a managed care organization (MCO).

process measures are also presented for Cohort 1, Cohort 2, and Cohort 3 using data provided by the UF COP MTM program.

The intervention study period for each of the 3 cohorts is 12 months and is preceded by a 12 month observation period before the intervention in order to contrast the pre-intervention utilization with utilization during the intervention year. Therefore, each cohort and comparison group was followed for up to two years as long as the recipients maintained eligibility under the MEDs-AD Waiver for the MEG3 population. The intervention group population for all three cohorts totaled 456 recipients and the MTM-NP (CG1) population for all three cohorts totaled 1,540 recipients before attrition. Additional information on the construction of comparison groups and the relationship between cohorts is presented in the Methods Section.

Evaluation Questions Addressed in this Report

1. What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2[2] for utilization measures?
2. What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for expenditure measures?
3. What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for clinical outcomes?
4. What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for demographic categories?
5. What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for mortality and morbidity measures?
6. What are the differences in the pre-intervention and intervention periods within the intervention group for MTM process measures?
7. What are the most successful aspects of the MTM program based on participant perspectives?

[2] Comparison group 1 is formed from recipients who gave consent to AHCA staff to be contacted by the MTM program vendor (UF COP) but who either refused to participate when contacted by the vendor or were not contacted by the vendor. Comparison group 2 members are drawn from the eligible MEDs-AD Waiver population that were either not called by AHCA staff or did not give consent for their names to be forwarded to UF COP staff by the AHCA pharmacy program.

8. What are the lessons learned from this program from the perspectives of Florida Medicaid administrative personnel (MCAP), MTM staff, recipients (i.e., participants), and Primary Care Physicians (PCPs)?
9. How does this program impact recipients' (i.e., participants') ability to understand medications, take a more active part in their care, and understand the questions to ask their doctor or when to contact their doctor?
10. How do recipients view this program from individual perspectives?

Integrated Findings

The findings contained in this report integrate both quantitative and qualitative research and analyses of data from multiple sources. By reviewing existing literature, conducting quantitative analyses, qualitative participant and key informant interviews, and identifying best practices, the evaluation team was able to better examine the totality of the MTM program under the MEDs-AD Waiver. The current literature on MTM suggests that many patients receiving MTM counseling see improved health outcomes that include: 1) better medication adherence, 2) reduced exposure to potential drug-drug or drug-disease interactions, 3) reduced instances of over or under medication, and 3) better control of their conditions as reflected by fewer inpatient hospitalizations and visits to the Emergency Department (ED). Payers have reportedly observed lower medical and prescription drug reimbursements for populations that receive an MTM intervention. However, the majority of the published literature evaluating MTM programs was conducted on populations of working age adults covered by private insurance through their employer or within the covered population of private insurance companies providing Medicare Part D coverage to an elderly Medicare population. Typically, these published evaluations included a large number of patients who received MTM counseling and were followed for at least one year.

The object of this evaluation was to examine the effectiveness of an MTM program in the context of a publicly funded Medicaid population of mostly working age adults who are not working due to the impact their disease or condition has on their ability to function in the workplace. Social determinants of health are known to play a larger role in the observed health outcomes of persons covered by Medicaid as compared with private insurance.

A variety of utilization, financial, and clinical outcomes of interest were compared that controlled for demographic factors, chronic disease burden, and length of enrollment. The evaluation of the Florida Medicaid MTM program for all three combined cohorts of recipients receiving the MTM intervention between 2011 and 2014 found no statistically significant differences between the intervention group

and comparison groups constructed from Medicaid recipients from the same eligibility pool who did not receive the MTM intervention. This finding was consistent in our strongest analytic models across all the economic, service utilization, and clinical outcomes measured. These models were fully adjusted models controlling for age, race, ethnicity, gender, morbidity, and length of enrollment.

This contrasts with findings reported in our previous report[3] that found a statistically significant difference for the Cohort 2 population for the number of inpatient discharges and the likelihood of one or more inpatient discharges, suggesting improvement among MTM participants from the pre-intervention to the intervention year as compared with the MTM non-participant group.

The current evaluation did identify one model, inpatient discharges, that suggested the intervention group had overall lower odds of one or more inpatient discharges (OR-0.78, p=.066) across all study periods; but after controlling for baseline differences between the intervention and comparison group, the difference was not statistically significant (p=0.85).

Less rigorous descriptive measures that adjusted only for the length of enrollment found lower average reimbursement costs per recipient for inpatient care in the intervention group as contrasted with a comparison group during both the pre-intervention and intervention periods and a larger decline from pre-intervention to intervention periods. However, this measure does not control for population characteristics nor specifically test the difference in differences (DiD) from baseline to intervention period.

Although the estimates for the propensity score matching models were not statistically significant, the average treatment effect per recipient in the models for total reimbursement were lower in the MTM-P group (Table 28).

Although no direct comparison group is available to gauge UF COP MTM services against, UF COP staff identified many problems among the three cohorts of MTM-P (nominal n=455).

- 54 clinically significant Level 1 or 2 drug interaction problems were identified.
- 43 instances where pill burden could be decreased, opportunities for combination therapy, or removal of duplicate therapies.

[3] MEDs-AD Waiver (MTM) Program Evaluation—Final Report Prepared for Florida Medicaid by the Florida State University College of Medicine, April 18, 2014 (page 52).

- 235 instances of a gap in therapy, insufficient dosage, insufficient duration of therapy, or a lack of therapy were identified.
- The mean number of problems identified per MTM-P group member was 0.7, 1.3, and 0.4 for Cohorts 1, 2, and 3, respectively.
- The mean percentage of identified problems resolved was 28.6%, 40.9%, and 10.2% for Cohorts 1, 2, and 3, respectively.

Physician engagement with the Florida Medicaid MTM process continues to be a problem, similar to what was reported in other MTM evaluations.

Possible explanations for the divergent findings for the outcomes studied between the published findings on MTM programs and the results of this evaluation may be categorized as:

1. Characteristics of the MEG3 Florida Medicaid population that make measurement and evaluation difficult may mask a true benefit that could not be identified,
2. Characteristics of the design and implementation of previously published evaluation studies and their target populations make them a poor comparison for this study population, and
3. The program simply has not produced any statistically significant differences in the fully adjusted metrics included for this evaluation.

Each of these possible explanations is explained below:

Characteristics of the Florida MEDs-AD Waiver MEG3 Population. The MEG3 population studied for this evaluation is dynamic with members exiting and occasionally reentering eligibility over the course of the pre-intervention and intervention year. Very few intervention or comparison group members were followed for two full years. Half or more were followed for 6 months or less during the two year study window for each cohort. Persons become ineligible when they become eligible for Medicare as a result of age or meeting the two-year waiting period for receiving Medicare benefits as a disabled individual younger than age 65. A smaller number become ineligible for the MTM program by entering into LTC facilities, hospice, or HCBS and still others become covered under a MCO and are therefore ineligible. It was not unusual to see more than one exclusionary criteria met in the same program year for a given person. The dynamic nature of the population makes measurement difficult because recipients are observed for less time than is optimal. By comparison, Healthcare Effectiveness Data Information Set

(HEDIS) metrics by the National Committee on Quality Assurance requires 12-24 months of continuous enrollment in order to establish a stable population for measurement.

The Medicaid population is also known to exhibit characteristics that are collectively known as the social determinants of health (SDH)[1,2]. Social determinants of health are the circumstances in which people are born; grow up, live, work, and age, as well as the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics[3]. Healthy People 2020 uses five key areas to categorized the SDH: 1) neighborhood and built environment, 2) economic stability, 3) education, 4) food security, 5) social and community context[4]. SDH are associated with poorer health outcomes. Social determinants of health can be positive or negative but here we refer to determinants that have a negative impact on health. Medicaid recipients are more likely have characteristics that are classified as social determinants of health because they are disproportionately minority (21% black versus 12% national estimates for 2010)[5], living below the Federal Poverty Level (35% vs. 15.1%, 2010 national estimates for 2010)[5] , have lower average education, have disproportionately low levels of literacy [6]. The impact of low education[7], low income[8], and low literacy on health behaviors and outcomes have been widely documented[9-12] These characteristics may have a direct bearing on adherence to medical regimens and short and long-term health outcomes. Evidence of the feasibility of addressing these issues can be found in the hospital industry. Recent changes in reimbursement policy have incentivized hospitals to consider mechanisms for reducing re-hospitalizations. Most of these approaches embrace some form of transition program from hospital discharge back to the community that includes social workers or other mid-level providers to help patients "solve problems" that are typically categorized under social determinants of health[13]. The Tallahassee Memorial Hospital Transition Center is a good example of one organization that has demonstrated a business case for addressing social problems in a medical setting[14].

Characteristics of other studies. The other published evaluations of MTM programs are not easily comparable because the privately insured populations in those studies are very different from the MEG3 Medicaid population in Florida. Although positive findings have been reported, the research designs in many of the published studies are not very strong; either the MTM intervention group is studied without any comparison group or the comparison group is not carefully chosen. Comparative effectiveness studies of this sort are very susceptible to misleading findings when a comparison group is not carefully chosen and differences between the intervention and comparison group are not carefully controlled statistically.

No statistically significant differences. It is possible that the lack of statistically significant differences were because none existed in the context of this particular program for the outcome measures studied.

However, the qualitative findings did support several benefits based on the responses to open-ended questions and survey items. For example, the subset of MTM participants consistently stated that their medication adherence was positively enhanced by participation in the program. Furthermore, they also indicated greater understanding of their medications. These beneficial outcomes were based, in part, on positive evaluations of the pharmacists who contacted them. They saw the pharmacists as genuinely caring for them, respectful, and engaged. This dynamic, improved adherence based on a medical partnership, is supported in extant MTM literature. In addition, participants made positive remarks regarding the program itself, indicating that they knew more about the use of each medication. MTM participants also requested continuing the program for a longer period of time. This support for continuation of the program was reflected in earlier interviews with UF COP staff, who expressed a desire to follow MTM participants longer based on their genuine concern for their well-being. When asked what should be changed about the program, MTM participants saw little need to improve the program beyond continuing it longer. The simple survey questions asked at the end of the qualitative interview further support the positive evaluation of the MTM intervention based on participant responses. The third cohort, as with earlier cohorts, almost unanimously endorses the program (see tables 55 and 56).

Recommendations:

1. Continue to evaluate the Florida MTM program over time to improve population size and choose alternate analytic designs and measures to address program effectiveness.
2. Mitigate the loss of sample size due to recipients aging into Medicare by only selecting persons for the original query list that are less than 63 years old. If the original query used by AHCA staff to obtain consent at the first stage only includes persons age 63 and below, then recipients that provide consent and are sent to UF COP will not turn 65 until the post-intervention year.
    a. If feasible, it would be optimal to exclude recipients receiving Medicare or with previous enrollment in an MCO from the original query that is provided to AHCA pharmacy staff.
3. If a written, step-by-step protocol for creation of the original query by AHCA staff does not exist, then create one that addresses the following issues:
    a. Documents the query terms used to create the original query call list.

b. Explains how to identify recipients who are already ineligible for the MTM program at the time of original query creation due to Medicare, LTC, HCBS, MCO, or hospice utilization before calls are attempted.
    i. Standard operating procedures would be facilitated by creation of a detailed list of codes that indicate exclusion or inclusion as potential MTM program participants using the Aid Category, Benefit Category, and Assignment Plan data elements. Codes could be reviewed on an annual basis for changes.
c. Establishes a method for calling recipients on the original query list in random order to provide an equal probability of contacting recipients with the opportunity.
d. Ensure Spanish speaking pharmacy staff is available to make calls for consent by AHCA staff at the first stage of selection in order to mitigate possible adverse selection probabilities of Spanish speakers.
e. Provide a check list to AHCA staff calling to obtain consent to assist callers in inquiring about current Medicare, LTC, HCBS, or hospice status before the name is forwarded to the UF COP.
f. Develop a method to use existing information in AHCA files to identify persons who are likely to become eligible for Medicare before the intervention year is completed. The actual date of the first receipt of SSI may be useful in this regard or perhaps targeting recipients who have been eligible for MEDs-AD for less than 6 months.

4. Consider approaches to improving physician engagement with the MTM program to enhance the number of problems identified by UF COP that are resolved.
5. Consider approaches that address the social determinates of health that are highly prevalent in Medicaid populations. Anecdotal evidence suggests that UF COP staff provide some social work services on an ad hoc basis. Thus, the addition of medical social service agents (e.g., social workers or case managers) to the UF call center could be helpful.
6. Increase the amount of direct contact between the pharmacists and the participants by:
    a. Increasing the number of phone calls required per protocol; and/or
    b. Extending the program for more than the current one-year interval.
7. Increase PCP engagement by notifying physicians that individual patients are enrolled in the program prior to making recommendations.

Report Prepared By:

Principal Investigator	Leslie M. Beitsch, MD, JD
Evaluation Team	Henry J. Carretta, PhD
	Jean Munn, PhD
	Charles Saunders, PhD
	Michael P. Smith, MA, MPA
	Elvis Martinez, PhD, MS
	Tiffany Schleeter, PhD (Candidate), MS
	Danisha Baker, MS
	Vladimir Geneus, MS
	Michael Barnes, MSW (Candidate)
	Sarah Bradburn, MSW (Candidate)

List of Tables

List of Terms, Acronyms, and Abbreviations

Acronym or Abbreviation	Explanation
ACE	Angiotensin-Converting-Enzyme inhibitor
ACG	Adjusted Cost Groups, e.g., John's Hopkins ACGs®
ACSC	Ambulatory Care Sensitive Condition
ADG	Aggregated Diagnostic Groups, a John's Hopkins ACGs® indicator
AHCA	Florida Agency for Health Care Administration
AHEC	Area Health Education Center
AHRQ	U.S. Agency for Healthcare Research and Quality
ARB	Angiotensin Receptor Blockers
ARIMA	Auto-Regressive, Integrated, Moving-Average (a time-series modeling approach)
BETOS	Berenson-Eggers Type of Service codes
CG1	Comparison group 1 constructed from MTM pool sent to UF COP that did not receive the intervention (MTM non-participants, i.e., MTM-NP).
CG2	Comparison group 2 constructed from MEDs-AD eligible recipients whose names were not submitted to UF COP
CI	Confidence Interval
CMR	Comprehensive Medication Review
CMS-1500	The standard form used by medical professionals to submit claims for reimbursements
Cohort 1, COH1	MTM program participants and non-participants for project year June 1, 2011 to May 31, 2012
Cohort 2, COH2	MTM program participants and non-participants for project year June 1, 2012 to May 31, 2013
Cohort 3, COH3	MTM program participants and non-participants for project year June 1, 2013 to May 31, 2014
COPD	Chronic Obstructive Pulmonary Disease
CPT	Current Procedural Terminology
CSA	Continuous Single-Interval Measure of Availability (an ACG adherence measure)
CY	Calendar Year
DiD	difference-in-difference
DUR	Drug Utilization Review
ED	Emergency Department
EQ	Evaluation Question
ESRD	End-Stage Renal Disease
ET	Evaluation Team

Acronym or Abbreviation	Explanation
FAMU	Florida A&M University
FSU COM	Florida State University College of Medicine
FY	Fiscal Year
GERD	Gastroesophageal Reflux Disease
HCBS	Home and Community-Based Services
HCPCS	Health Care Procedure Coding System
ICD or ICD-9	International Classification of Disease, Version 9 CM (Clinical Modification)
ICN	Internal Control Number
IOR	Incidence Odds Ratio
IP	Inpatient as in inpatient discharge or inpatient claim type
IRB	Institutional Review Board
IRR	Incidence Rate Ratio
LCL	Lower Confidence Interval Limit
LTC	Long-Term Care
LOE	Length of Enrollment
MAP	Medication Action Plan
MAS	Morisky Adherence Score
Max.	Maximum
MCAP	Medicaid Administrative Personnel
MCC	Multiple Chronic Conditions
MCO	Managed Care Organization
MED143	Contract between FSU COM and AHCA
MEDs-AD	Medicaid for Aged and Disabled. Florida's Section 1115 MEDs-AD Research and Demonstration (Project No. 11-W-00205/4).
MEG3	Medicaid eligible population number three. A category of persons eligible for Medicaid under the MEDs-AD Waiver.
Min.	Minimum
MMAS-8	Morisky Medication Adherence Scale 8-item
MPR	Medication Possession Ratio—an ACG medication adherence measure
MPY	Per Member per Year
MTM	Medication Therapy Management
MTM CCC	Medication Therapy Management Communication and Care Center
MTM-NP	Medication Therapy Management Non-Participants
MTM-P	Medication Therapy Management Participants

Acronym or Abbreviation	Explanation
N or No.	Number, as in number of recipients or events
OLS	Ordinary Least Squares regression, i.e., linear regression
OR	Odds Ratio
OTC	Over- the-Counter
OUT	Outpatient claim type
Participant	Any Medicaid recipient who participates in the MTM program intervention, i.e., has completed a CMR with the UF COP staff
PCP	Primary Care Physician
Pharm.	Pharmacy claim type
PMPY	Per Member Per Year
POS	Place Of Service
PQI	Prevention Quality Indicator, an AHRQ quality measure
PSA	Propensity Score Analysis
PSM	Propensity Score Matching
PY	Program Year, e.g., MTM PY 1, 2 and 3.
QFUR	Quarterly Follow-Up Review, e.g., QFUR3, QFUR6, QFUR9
RA	Research Assistant
RCT	Randomized Controlled Trial
recip./recipient(s)	Any person enrolled in Florida Medicaid
RIT	Research Investigative Team
RUB	Resource Utilization Band (an ACG measure)
SNF	Skilled Nursing Facility
SP	Study Period (pre-intervention, intervention, & post-intervention)
SPC	Specialty Care Physician
SP-INT or I	Study Period Intervention
SP-PRI	Study Period Pre-Intervention
Std. Dev. or STD	Standard Deviation
UB-04	Standard form used by facilities to submit claims for reimbursement
UCL	Upper Confidence Interval Limit
UF COP	University of Florida College of Pharmacy

Introduction

Purpose of this Report

This report summarizes the final findings of the pre-intervention period (prior to June 1, 2011) and the MEDs-AD Waiver (intervention) years (June 1, 2011 through May 31, 2014) for the evaluation of the Florida Medicaid Medication Therapy Management (MTM) intervention implemented by the University of Florida (UF) College of Pharmacy (COP). MTM services are not typically covered by Medicaid and the recipients included in this evaluation are adults that are often not eligible for Medicaid. Recipient eligibility for Medicaid and approval for the MTM program was achieved through a Section 1115 MEDs-AD Waiver approved by the Centers for Medicare and Medicaid Services. The waiver is referred to as the MEDs-AD Waiver in this document. Waivers under Section 1115 allow states flexibility to design and improve Medicaid programs by expanding coverage to individuals not otherwise covered by Medicaid and to provide services not typically available. The MEDs-AD Waiver defines three distinct populations. This evaluation only relates to a population designated in this report as MEG3[4]. Eligibility criteria for the evaluated population includes individuals eligible for Medicaid, but not eligible for Medicare and who are eligible for, but not currently receiving: 1) long-term institutional care, 2) hospice services in the home or a facility, 3) home and community-based services (HCBS), or 4) recipients covered under a contract with a MCO. Eligibility criteria also include limits on the recipients' income and assets. This evaluation examines a new service provided to some MEG3 Florida Medicaid recipients: Medication Therapy Management.

This report includes findings based on combined or pooled data for the first three years of the current waiver for MTM program interventions beginning in 2011 (Year 1 Cohort 1), 2012 (Year 2 Cohort 2), and 2013 (Year 3 Cohort 3). MTM program participants are compared with Medicaid recipients who were members of the MEDs-AD Waiver population (MEG3), but either declined the opportunity to participate or were never contacted about the opportunity. The evaluation uses the latest available data for inpatient, outpatient, LTC, medical, and pharmacy claims for services received by recipients before May 31, 2014. Claims submitted to the Florida Medicaid Agency and finalized as of September 2014 were included. Finalized claims received after September 2014 were not included in this analysis.

Claims and enrollment data used for this report are believed to represent nearly all Medicaid recipient utilization for the period January 1, 2010 to December 31, 2013 (last extracted on September 23, 2014)

[4] Previous reports incorrectly referred to this population as MEG1.

and utilization for the period January 1, 2014 to May 31, 2014. Claims for the period January 1, 2014 to May 31, 2014 (last extracted on October 28, 2014) may be less complete since providers have a full year to submit claims to AHCA. Claims files are merged with demographic information found in the recipient demographic file, benefit plan file, assignment plan file, and the aid category file to determine periods of enrollment under the MEDs-AD Waiver and periods of excluded enrollment when recipients were enrolled in Medicare, above age 65 or below age 21, utilized HCBS, hospice services, or LTC services, received benefits through a MCO, or had no observable utilization. Enrolled days were calculated using the aid category file after exclusions. Descriptive and regression tables for the pooled analysis of Cohort 1, Cohort 2, and Cohort 3 for pre-intervention study period (SP-PRI) and intervention study period (SP-INT) are presented and contrasted with comparison groups defined later in the report.

Findings for the UF COP MTM process measures are also presented for Cohort 1, Cohort 2, and Cohort 3 using data provided by the UF COP MTM program.

The active intervention study periods for each cohort were: Cohort 1) June 1, 2011 to May 31, 2012, Cohort 2) June 1, 2012 to May 31, 2013, and Cohort 3) June 1, 2013 to May 31, 2014. Each SP-INT is preceded by a SP-PRI of 12 months in order to contrast MTM program metrics before and during the intervention, as well as by constructed comparison group(s) as deemed appropriate for each metric presented. Therefore, each cohort and comparison group was followed for up to two years as long as the recipients maintained eligibility under the MEDs-AD Waiver for the MEG3 population.

Background on the MTM Program and Evaluation

The goals of the MTM program were to improve the quality of care and prescribing practices based on best-practice guidelines, improve patient adherence to medication plans, reduce clinical risk, and lower prescribed drug costs and the rate of inappropriate spending for certain Medicaid prescription drugs for a high-risk population of Medicaid recipients eligible through Florida's Section 1115 MEDs-AD Research and Demonstration Waiver.

Recruitment of the Intervention Population

Selection of recipients covered by the waiver to participate in the intervention is a multistep process involving AHCA agency staff, UF COP (the MTM program provider), and consent at two points in time by targeted Medicaid recipients. Here the word "selection" refers to processes used by AHCA and UF COP that may be associated with which recipients end up in the intervention group. For example, calling

recipients from a list of names sorted alphabetically might create different probabilities of being called based on their ethnic background and therefore influence the opportunity to choose participation. AHCA does not actually "select" MTM participants rather recipients self-select into the intervention. Steps in the selection and intervention processes are as follows. Step 1: A list of recipients currently enrolled in the MEDs-AD MEG3 population was created by AHCA staff in the spring (March to May) before the start of each intervention year on June 1st. The number of recipients on this "original query" ranged from approximately 3,300 to 3,600 across the three cohorts. Efforts were made to screen ineligible recipients, e.g. Medicare beneficiaries, from the original query. Step 2: Pharmacy staff at the AHCA contacted recipients on the list to obtain consent for later telephone contact by UF COP. Beginning in June 2014 UF COP made these calls to obtain initial consent. The number of recipients giving consent at Step 2 ranged from approximately 650 to 850 across the three cohorts. Contact information for recipients giving consent was forwarded to the UF COP staff in order to schedule a Comprehensive Medication Review (CMR). Step 3: UF COP staff made telephone contact(s) with recipients, confirmed their continued interest and consent to participate, and scheduled a future telephone interview during the June to August period of each intervention year. Occasionally, CMRs were conducted during the scheduling telephone call. Step 4: Upon completion of the telephone CMR, recipients were designated as MTM-P. Recipients referred to UF COP by AHCA that did not complete a CMR were designated as MTM-NP and were used to construct two versions of comparison group one (CG1) with either lenient or strict inclusion/exclusion criteria. Step 5: Any problems identified by UF COP staff were discussed with the recipients and the CMR document and recommendations were typically faxed to each recipient's physician. A copy of the Medication Action Plan (MAP) was also sent to the recipient unless declined. Step 6: UF COP staff followed up with MTM program participants by telephone and/or review of electronic claims records at least every 90 days to identify resolution to previous recommendations and new problems. The intervention period ends May 31st of the year following the start of the intervention year.

Study Group Definitions and Size

The MEDs-AD Waiver MEG3 population at the core of this evaluation is a dynamic group with membership changing frequently due to new or lost eligibility under the waiver throughout the course of the observation period (June 1, 2010 through May 31, 2014). The evaluation design required a pre-intervention year observation period to contrast with intervention year metrics and identification of suitable comparison groups for each cohort and year. MEG3 population members were often observed

across multiple study periods. They also were observed to transition in and out of the pool of recipients eligible to be contacted by the AHCA pharmacy staff for referral to UF COP and in and out of the intervention group. Recipients who received the intervention at one point in time were identified and excluded from subsequent comparison groups. There were 21 Cohort 1 MTM-P recipients who also received the intervention with Cohort 2. Their Cohort utilization was excluded from this analysis. MEG3 recipients who were never exposed to the intervention may serve as a member of a comparison group in more than one study period. The analysis for combined Cohorts 1, 2, and 3 refined methods to more carefully define inclusion and exclusion criteria for both intervention (MTM-P) and comparison group recipients.

Therefore, a nomenclature for referring to various study groups, time periods, and comparison groups that forms the intervention and comparison group(s) for a given time period is desirable and is presented in Table 1.

Table 1 defines the study periods and cohort size for recipients referred to the UF COP for potential inclusion in the intervention. The initial study groups designated as MTM-P and MTM-NP for each cohort are the names of consenting recipients forwarded to the UF COP for potential selection into the MTM intervention. They are labeled as the "nominal" cohorts of size 651, 499, and 846 for each cohort, respectively. These cohorts are labeled as "nominal" because in truth, they only exist as a complete population of size "n" for a short period of time. The defined "nominal" cohorts begin shrinking in size due to lost eligibility almost immediately and additional losses continue throughout the intervention year. This is an artifact of the timing of the selection process beginning in the spring quarter before each intervention year starts (which is the 4th quarter of each cohort's SP-PRI) and is not completed until the CMR is completed by the UF COP by the beginning of the 2nd quarter of the intervention year. SP-PRI and SP-INT overlap as cohorts were observed over time for study periods one through four (Table 1).

Table 1. Overlapping enrollment periods and nominal cohort size for the Florida Medicaid MTM program evaluation, 2010 to 2014

Study Period Begin	Study Period End	Nominal Cohort 1	Nominal Cohort 2	Nominal Cohort 3	Nominal Comparison Group 2 Pool	Study Period
6/1/2010	5/31/2011	Pre-intervention Period			Comparison Group 2 Selection Pool	1
6/1/2011	5/31/2012	Intervention Period	Pre-intervention		Comparison Group 2	2

			Period		Selection Pool	
6/1/2012	5/31/2013		Intervention Period	Pre-intervention Period	Comparison Group 2 Selection Pool	3
6/1/2013	5/31/2014			Intervention Period	Comparison Group 2 Selection Pool	4
6/1/2014	5/31/2015					
Nominal Cohort Size		MTM-P + MTM-NP n = 651	MTM-P + MTM-NP n = 499	MTM-P + MTM-NP n = 846	Not MTM-P + MTM-NP N= 19,864	

In summary, the nominal cohorts listed in Table 1 represent the list of names sent by AHCA to the UF COP for each cohort and study period. The 19,864 recipients listed under the Nominal Comparison Group 2 column are persons enrolled in MEDs-AD Waiver MEG3 population at one or more points in time, but who were never contacted by AHCA staff and therefore, had no possibility of selection into the MTM intervention. The 19,864 recipients were the source for Comparison Group 2 (CG2) used in the propensity score analysis. The sum of nominal study groups (651 + 499 + 846 + 19,864) is 21,860 however; this is not the number of unique persons observed because some recipients were observed in more than one cohort as members of the MTM-NP population. The actual number of unique recipients followed for this evaluation was 20,707 persons with at least some MEDs-AD Waiver MEG3 population eligible in study period one to four.

Table 2 clarifies the issue of the study group nomenclature and the impact of attrition in defining both the MTM-P and MTM-NP (CG1) groups for the analysis. The nominal cohort sizes are listed in column one and two for the SP-PRI and SP-INT study periods. Lenient inclusion-exclusion criteria were applied in columns three and four. Strict inclusion-exclusion criteria were applied in columns five and six. Criteria were applied to each program year separately. Lenient criteria removed enrolled days when exclusionary criteria were observed. Strict criteria removed the entire program year when any exclusionary criteria were observed. The strict approach is more in keeping with published Medicaid research which typically restricts observation to recipients enrolled continuously for 12 month increments, but allows gaps of up to 45 days to be treated as continuous enrollment. Criteria were applied in the same manner to MTM-P and MTM-NP study group members. The last two rows of Table 2 demonstrate how severe the shrinkage is in this study population under both the lenient and strict exclusion approaches. The number of enrolled days by study group is presented later in this document.

Table 2. Nominal cohort size per the list of names transmitted to the UF COP before June 1st of each intervention year and the observed size by study period and cohort for the evaluation study after applying lenient and strict inclusion-exclusion criteria for the Florida Medicaid MTM program evaluation, 2010 to 2014

Study Population and Cohort	Nominal Study Population Size SP-PRI	Nominal Study Population Size SP-INT	Observed Study Population Size Lenient Criteria SP-PRI	Observed Study Population Size Lenient Criteria SP-INT	Observed Study Population Size Strict Criteria SP-PRI	Observed Study Population Size Strict Criteria SP-INT
	SP 1	SP 2	SP 1	SP 2	SP 1	SP 2
Cohort 1 MTM-P	147	147	129	72	77	44
Cohort 1 MTM-NP	504	504	458	227	259	250
Cohort 1 sub-total	651	651	587	299	336	294
	SP 2	SP 3	SP 2	SP 3	SP 2	SP 3
Cohort 2 MTM-P	171[a]	171[a]	123	73	82	51
Cohort 2 MTM-NP	324[b]	324[b]	238	132	131	88
Cohort 2 sub-total	495	495	361	205	213	139
	SP 3	SP 4	SP 3	SP 4	SP 3	SP 4
Cohort 3 MTM-P	137	137	111	46	24	7
Cohort 3 MTM-NP	709	709	569	280	66	26
Cohort 3 sub-total	846	846	680	326	90	33
	SP-PRI Total	SP-INT Total	SP-PRI Total	SP-INT Total	SP-PRI Total	SP-INT Total
Total MTM-P	455	456	363	191	183	102
Total MTM-NP	1,537	1,537	1,265	639	456	364

a. Includes 21 recipients who completed the intervention with Cohort 1 and Cohort 2 who were excluded from the pooled analysis.

b. Includes 22 recipients who completed the intervention with Cohort 1 and were excluded from the pooled analysis.

Table 3 lists the inclusion-exclusion criteria used to define the lenient and strict population definitions by the order in which there were applied.

- Step 1 removed claims and enrollment that occurred before the first study year or after the last evaluation study year.
- Step 2 potential MEDs-AD Waiver population members for this evaluation were identified using the AHCA Aid Category codes. This indicator captures recipients enrolled under all three eligibility categories.
- Step 3 and 4, persons with no observed utilization or who were outside the designated age range were removed.
- Steps 5-8 excluded persons based on factors that, by definition, made them ineligible for the MEDs-AD Waiver for this study population. These factors include: enrollment in Medicare or a Managed Care Plan or use of LTC, hospice services, or HCBS.
- Steps 9-11 excluded persons with no observed utilization or enrolled days during the study period, persons who were included in the MTM intervention in a previous time period, and persons who died during the study period. Inclusion and exclusion criteria were applied separately for each study year.

Table 3. Criteria and steps used to identify recipients for inclusion and exclusion from the evaluation study population (SP) for the Florida Medicaid MTM program evaluation, 2010 to 2014

Step	Inclusion-Exclusion Condition Type	Filtering Variable Applied by SP	Filtering Variable Source	Action Description	Domain	Why is Action Taken?
1	Exclude claims and enrollment for SP= 0 OR SP=5	SP Indicator	Created using date ranges for SP's	Exclude if SP indicator is (6/1/2010 to 5/31/2010) or (6/1/2014 to 5/31/2015	Study Design Require-ment for PRE-I & INT SPs	Keep all study periods equal to 12 months and remove enrollment outside of defined SP
2	MEDs-AD Waiver MEG3	Aid Category Inclusion	AHCA Program Codes	Include if present	Aid Category Inclusion	Identify potential MEG3 population members
3	No Utilization	Utilization Indicator by SP	Calculated amount of utilization by SP	Include if utilization >0	Utiliza-tion	Remove recipients with no utilization in SP
4	AGE <21 or >65	Age Category	Created using recipient date of birth and PY date ranges	Exclude if < 21 or > 64 at end of SP	Age	Very few <21 in sample; age > 64=Medicare eligibility
5	Medicare	Benefit Exclusion Category	AHCA Program Codes	Exclude Dual Eligibles	Medicare eligibility	Medicare in SP excludes recipients from MEDs-AD Waiver MEG3
6	HCBS	Aid	AHCA Program	Exclude if evidence of	Aid	HCBS in SP excludes

Step	Inclusion-Exclusion Condition Type	Filtering Variable Applied by SP	Filtering Variable Source	Action Description	Domain	Why is Action Taken?
		Category Exclusion	Codes	HCBS waiver enrollment	Category Exclusion	recipients from MEDs-AD Waiver MEG3
7	MCO	Assignment Plan Exclusion	AHCA Program Codes	Exclude if evidence of MCO enrollment (except for Primary Care Case Management)	Assign-ment Plan Exclusion	MCO in SP excludes recipients from MEDs-AD Waiver MEG3
8	LTC & Hospice UTIL	LTC Utilization Indicator	Utilization	Exclude if evidence of LTC in SP	LTC & Hospice POS Codes	LTC in SP excludes recipients from MEDs-AD Waiver MEG3
9	Death	Death Status	Calculated using date of death, SP dates	Exclude if died in SP and for future SPs	Death	Number of deaths is small
10	Previous Intervention	Cohort Study Group Categories	Identified 1st occurrence of MTM-P & excluding from future SPs	Exclude MTM-P recipients if observed in future SPs	Study Design Require-ment	Restrict MTM-P recipients to one PRE and INT SP
11	No MEDs-AD Waiver MEG3 Enrollment	Aid Category Inclusion	No observed enrollment	Exclude if MEDs-AD Waiver MEG3 enrollment in SP 1-4 is zero	Aid Category Inclusion	Utilization but no enrollment

Lenient and strict inclusion-exclusion criteria were also applied to the 19,864 recipients in the pool for CG2. The lenient and strict definitions for the CG2 pool populations are then used to select the CG2 membership by program year for use in the propensity score analysis. Propensity score matching further reduces the size of CG2 by study period based on the matching criteria employed. Nominal, lenient, and strict population definitions for the CG2 pool are presented in Table 4.

Table 4. Nominal, lenient, and strict definitions for the potential CG2 pool by study period for the Florida Medicaid MTM program evaluation, 2010 to 2014

Study Population and Cohort	Nominal CG2 Pool Population Size SP-PRI	Nominal CG2 Pool Population Size SP-INT	Observed CG2 Pool Population Size Lenient Criteria SP-PRI	Observed CG2 Pool Population Size Lenient Criteria SP-INT	Observed CG2 Pool Population Size Strict Criteria SP-PRI	Observed CG2 Pool Population Size Strict Criteria SP-INT
	SP 1	SP 2	SP 1	SP 2	SP 1	SP 2
Cohort 1 CG2	13,648	13,648	3,198	3,198	1,689	1,689
	SP 2	SP 3	SP 2	SP 3	SP 2	SP 3
Cohort 2 CG2	2,919	2,919	800	800	375	375
	SP 3	SP 4	SP 3	SP 4	SP 3	SP 4
Cohort 3 CG2	2,919	2,919	769	769	353	353
	SP-PRI Total	SP-INT Total	SP-PRI Total	SP-INT Total	SP-PRI Total	SP-INT Total
Total CG2	19,486	19,486	4,767	4,767	2,417	2,417

Intervention Processes

Trained staff from the UF COP conducts telephone interviews with willing Medicaid recipients. During the interview, a CMR is conducted as the first step in the intervention. A CMR collects patient specific information on prescription medications, potential medication related problems, and creates an action plan to resolve those problems. Based on findings from the CMR, UF COP staff may 1) send the patient a MAP that includes a medication list and may also include recommendations for behavioral change relevant to their condition and medication; and/or 2) send a facsimile to the recipient's primary care provider (PCP) with recommendations for changes in medication. Any given intervention for the recipient may include a MAP only, PCP FAX only, a MAP and a PCP FAX, or none of the post-CMR actions. Actions initiated are based on the pharmacist's expert opinion regarding over- or under-utilization of medication, medication interactions, or other issues related to the patient's treatment. Recommendations to the PCP may or may not be accepted and implemented by the prescriber. Subsequent to the CMR and post-CMR actions, participants are followed for an additional nine months. UF COP staff conducts reviews of patient medication claims records provided by the Pharmacy Benefit Management vendor for Florida Medicaid to determine if recommendations have been implemented or new problems have appeared. Occasionally, these three quarterly reviews lead to another patient or PCP contact.

Data Collection

Data collected on each participant for FY 2012-2013 and FY 2013-2014 was recorded by UF COP staff on customized Microsoft Excel spreadsheets. During FY 2014-2015, the UF COP introduced proprietary software designed specifically for the management of a population receiving MTM services.

The new system placed some constraints on what data was collected. For example, the Morisky Adherence Scale (MAS)[5] questions were not administered to Cohort 3 recipients. The new system also placed constraints on the content and format of information that could be exported outside the system. Therefore the information provided to the Florida State University College of Medicine (FSU COM) for this evaluation was not as detailed for Cohort 3.

Quantitative Study Evaluation Questions Addressed in this Final Report

Evaluation Questions (EQ) addressed in this report are listed in Table 5. Questions are similar to those posed for previous reports with the exception that the question on Medicaid providers was removed.

Table 5. Evaluation questions addressed in this report, Florida MTM program evaluation, 2010-2014

Evaluation Question Number	Evaluation Question
EQ 1	What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for utilization measures?
EQ 2	What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for expenditure measures?
EQ 3	What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for clinical outcomes?
EQ 4	What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for demographic categories?
EQ 5	What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), comparison group 1 (MTM-NP), and comparison group 2 for mortality and morbidity measures?
EQ 6	What are the differences in the pre-intervention and intervention periods within the intervention group for MTM process measures?

[5] Morisky, D. E., Ang, A., Krousel-Wood, M., & Ward, H. J. (2008). Predictive validity of a medication adherence measure in an outpatient setting. J Clin Hypertens.(Greenwich.), 10(5), 348-354. An 8-item questionnaire administered by pharmacy staff to measure the adherence behaviors of patients.

Study Methods

Overall Study Design

This study used a retrospective observational examination with non-equivalent comparison groups of all Medicaid covered services for the Cohort 1, 2, and 3 study populations for the period June 1, 2010 through May 31, 2014 (48 months). The principal comparisons are for: 1) MTM-P versus MTM-NP (CG1) using lenient or strict inclusion-exclusion criteria that vary by metric and evaluation question. The MTM-NP group is advantageous for CG1 because everyone in the combined MTM-P and MTM-NP populations reached the 2nd stage of the consent process at the UF COP.

A second comparison group (CG2) was constructed for use with the propensity score matching method described below. Propensity score matching was used for EQ 2 measures with total reimbursement as the outcome. Propensity score matching was also used for selected binary outcome measures in EQ 1 to EQ 3 and EQ 5. The propensity score matched CG2 groups were constructed from the pool of potential CG2 recipients in Table 5.

EQ 4 and EQ 6 report only univariate and bivariate comparisons for the nominal MTM-P and MTM-NP populations and MTM process measures, respectively.

Data Sources and Preparation

Source data for this report include AHCA claims and recipient demographic files associated with Medicaid recipients in all three cohorts of the MEDs-AD Waiver MEG3 population. Claims and enrollment files for the years January 1, 2010 through May 31, 2014 were parsed into four time periods representing the pre-intervention year and intervention year for each cohort as depicted in Table 1. Claims were merged with enrollment and recipient demographic files for each time period and identified as MTM-P and MTM-NP as described in the report section above.

Berenson-Eggers Type of Service (BETOS) codes were assigned to procedure codes in the CMS-1500 professional service files http://www.cms.gov/Medicare/Coding/HCPCSReleaseCodeSets/BETOS.html. The BETOS code files include Health Care Procedure Coding System (HCPCS) procedure codes and the BETOS code to which each procedure code is assigned. The BETOS coding system was developed primarily for analyzing the growth in Medicare expenditures. The coding system covers all HCPCS codes; assigns a HCPCS code to only one BETOS code; consists of readily understood clinical categories (as opposed to statistical or financial categories); consists of categories that permit objective assignment; is

stable over time; and is relatively immune to minor changes in technology or practice patterns. Additional data sources utilized include the UF COP MTM participant list for Cohorts 1, 2, and 3, individual patient charts for Cohort 1 and Cohort 2, and quarterly reports for each intervention year provided to AHCA by the UF COP. Patient charts for Cohorts 1 and 2 were provided as individual Excel spreadsheets with 16 tabs for a variety of detailed content. Patient information for Cohort 3 was provided in five Excel files with information for all patients included on each tab. Demographic and process information were extracted from the UF COP files and merged with AHCA recipient demographic information. AHCA administrative claims data were provided to the FSU COM organized by facility (UB-04 standard claim form) and professional services (CMS 1500 standard claim form). The UB-04 facility data included short-term acute care hospital claims (Provider Type Code 01), other facility claims with various Provider Type Codes, and outpatient services provided by these same facilities. Separate CMS-1500 professional services claims were provided for pharmacy drugs dispensed, professional services by physicians and other professionals, and CMS-1500 waiver specific services. A dental services file was also received, but was excluded from these analyses. The CMS-1500 waiver services and UB-04 claims for facilities not labeled as Provider Type 01 were not available for previous reports under this evaluation. Claims were assigned to a study period based on the ending date of service and labeled by study group according to definitions previously described. Enrolled days by study period and study group were calculated using a standardized eligibility and episode reconciliation program available at: http://www.mini-sentinel.org/data_activities/toolkit_library/default.aspx.

The core regression models used to address EQ 1, 2, 3, and 5 for all three cohorts had a similar structure. Each Medicaid recipient was characterized by two records in the analytic data files representing utilization and enrolled days during the pre-intervention and intervention year. Each record summarized utilization, expenditures for inpatient, outpatient, pharmacy, HCPCS procedures, and individual binary indicators for one or more events of interest, e.g., inpatient hospitalization or emergency department (ED) encounters.

Quantitative Methods

Quantitative methods fall into three categories: 1) simple univariate and bivariate comparisons, 2) multivariable regression models using a difference-in-difference (DiD) analysis, and 3) propensity score models with various matching techniques and assumptions.

Univariate and Bivariate Comparisons

The analysis utilized simple univariate and bivariate comparisons for selected utilization, expenditure, and enrollment measures from Medicaid administrative data files with tests for statistical differences between defined groups using Chi-squared and t-tests, as appropriate, to compare proportions and means. EQ 4 and EQ 6, for demographic differences in the nominal population, and the UF COP process measures use only univariate and bivariate comparisons.

Multivariable DiD Models

Multivariable linear regression models with expenditures in dollars as the dependent variable used various linear regression approaches to model differences in reimbursement. Multivariable regression models for total procedures, length of stay, or other count measures used negative binomial models to account for the non-normal distribution of measures that are event counts. Multivariable logistic regression models for discrete binary events as the dependent variable are used to model outcomes such as one or more hospitalizations or other binary events. All multivariable models were adjusted for age, four race categories, gender, intervention versus pre-intervention period, intervention versus comparison study group, Johns' Hopkins University ACG© reference rescaled concurrent rate risk adjustment, death of a recipient, and length of enrolled (LOE) Medicaid days under the MEDs-AD Waiver.

EQ 1, 2, 3, and 5 were all addressed by using DiD analysis and the multivariable method appropriate for the dependent variable. In all cases, the test of the effect size on the intervention versus the comparison group was identified through an interaction term in the model that crosses group membership (MTM versus comparison) with time period (pre-intervention versus intervention periods). The coefficient on the interaction term is, therefore, the net effect of the intervention after accounting for different starting points in the pre-intervention period for the MTM intervention group as compared with designed comparison groups. Comparison groups are called non-equivalent because they were not chosen at random. However, every attempt was made to reduce differences in the characteristics of the MTM-P intervention group and the comparison groups chosen for each model. This was done via the inclusion-exclusion process and through propensity score matching.

Multivariable Propensity Score Models

Propensity score models were conducted for financial outcomes in EQ 2 and for selected binary outcomes in EQ 2 and EQ 3. Propensity score methods are elaborated below.

Measure Transformation: Accounting for zero utilization and expenditures

There are three common interrelated issues with the analysis of health care expenditures. Insured persons have differing lengths of enrollment. This is typically approached by creating expenditure and other utilization data that are normalized as a rate per member per year (PMPY). This is accomplished by entering computed rates into the analysis or by entering the length of enrollment as a parameter in the equation. Persons with enrolled days, but no utilization, have an observed rate of zero expenditures or services utilized. This is sufficient for untransformed expenditures and in count models of service utilization. Service counts are typically analyzed using count models that accommodate zero utilization and make adjustments to the standard errors for persons with fewer than 100 events. As the number of events per person increases, the distribution asymptotically approaches normality and adjustments are not needed. Entering the length of enrollment as a variable constraint set to the value of one (1) yields incidence rate ratios that have attractive properties.

Log transformation is a mathematical technique for changing the scale of a measure by computing the natural logarithm of the value. The transformation does not change inferences made about the measure in multivariable models. It is a desirable approach for modeling expenditures because it shrinks the high expenditure outliers toward a more normal distribution. Persons with high expenditures and service counts typically have a long right side tail in their distribution; i.e., there is a large number of persons with no or moderate utilization and a smaller proportion with extremely large utilization in terms of dollars expended and number of services utilized. Log transformation can improve precision of multivariable estimates by reducing the standard errors and therefore, reducing uncertainty or the margin of error around an estimate.

However, log transformation cannot accommodate persons with zero utilization or expenditures because the log of zero is mathematically undefined. Persons with no utilization were dropped from the model. This tends to inflate the estimated utilization rates because persons with enrolled days are not included. One alternative was to assign an arbitrary level of utilization, e.g., one dollar, to persons with zero utilization so that they were retained in the model and their enrolled days were included.

The evaluation team constructed bivariate and multivariable models for total expenditures and log transformed expenditures in which persons with zero expenditures were assigned an arbitrary value of one dollar so that they were retained in the model and the overestimate of utilization rates were

considered. Finally, when possible, the evaluation team applied robust standard error adjustments to account for remaining heteroscedasticity.

Risk Adjustment with John's Hopkins ACG System Software

The Johns Hopkins Adjusted Clinical Groups System (ACG) is a risk adjustment methodology that measures the morbidity burden of patient populations based on disease patterns, age, and gender. The ACG System is a statistically valid, diagnosis-based, case-mix methodology that allows healthcare providers, healthcare organizations, and public-sector agencies to describe or predict a population's past or future healthcare utilization and costs. It is based on diagnostic and/or pharmaceutical code information found in insurance claims or other computerized medical records.

The first step in the ACG assignment process was to categorize every International Classification of Disease (ICD-9-CM, 10, and 10-CM) diagnosis code given to a patient into unique morbidity groupings known as an "Aggregated Diagnostic Groups" (ADGs). ADGs are the building blocks of the ACG System. Each ADG is a group of ICD diagnosis codes that are similar with respect to specific clinical criteria and their demand on healthcare services. The ADG categories reflect the entire continuum of care. Each ADG is a grouping of diagnosis codes that are similar in terms of severity and likelihood of persistence of the health condition treated over a relevant period of time (such as a year of managed care enrollment). Diagnosis codes within the same ADG are similar in terms of both clinical criteria and expected need for healthcare resources. Just as individuals may have multiple diagnosis codes, they may have multiple ADGs (up to 32). ADGs are distinguished by clinical characteristics (e.g., medical/specialty/pregnancy, physical health/psycho-social), and degree of refinement of the problem (diagnosis or symptom/sign) and are not categorized by organ system or disease. Instead, they are based on clinical dimensions that help explain or predict the need for healthcare resources over time. The need for healthcare resources is primarily determined by the likelihood of the persistence of problems and their level of severity rather than organ system involvement.

ADGs are then mapped into ACG groups (up to 94) which are groups of individuals with similar needs for healthcare resources who also share similar clinical characteristics. ACGs are a series of mutually exclusive health status categories defined by morbidity, age, and gender. They are based on the premise that the level of resources necessary for delivering appropriate healthcare to a population is correlated with the illness burden of that population. ACGs are used to determine the morbidity profile of patient populations to more fairly assess provider performance, to reimburse providers based on the health

needs of their patients, and to allow for more equitable comparisons of utilization or outcomes across two or more patient or enrollee aggregations. Research has shown that the clustering of morbidity for risk adjustment-purposes, the methodology used by the ACG System, is a better predictor of health services resource use than the presence of specific diseases. The result is that individuals within a given ACG have experienced a similar pattern of morbidity and resource consumption over the course of a given year.

While ACGs were designed to represent clinically logical categories for persons expected to require similar levels of healthcare resources, enrollees with similar overall utilization may be assigned different ACGs because they have different epidemiological patterns of morbidity. To simplify the analysis of a population's need for healthcare resources, the ACG System automatically maps ACGs into a six-level (low to high) morbidity category termed Resource Utilization Bands, or RUBs. The six RUBs are formed by combining the ACG mutually exclusive cells that measure overall morbidity burden. RUB designations are: 0 – Non-Users, 1 – Healthy Users, 2 – Low, 3 – Moderate, 4 – High, and 5 – Very High.

The John's Hopkins University ACG System computes three types of risk adjustment weights: local concurrent weights, reference rescaled weight, and reference unscaled weight. The local concurrent weight is assigned to a patient based upon their ACG analysis using local cost data. The local weight for each recipient is calculated as the simple average total cost of all individuals assigned to a study group in a given study period. Local weights are calibrated to reflect the unique properties of the local population and do not make use of national norms. The reference rescaled weight is rescaled so that the mean across the study group is 1.0. Rescaling facilitates internal comparisons of morbidity burden between different study groups based on a national reference population. The reference unscaled weight is an estimate of concurrent resource use associated with a given ACG based on the ACG reference database and is expressed as a relative value. The reference unscaled weight is based on the recipient's ACG score. The reference unscaled weight is useful in drawing external comparisons between the local population's morbidity burden and that of the national reference database. Each recipient is assigned all three weights by the ACG system.

For all weights, scores greater than 1.0 indicate that the recipient's disease burden is higher than the reference population while scores less than 1.0 indicate less disease burden. Regression models included in this evaluation include the ACG reference rescaled weight. All three ACG weights are employed in the propensity score analysis described below.

The ACG System also reports two population based measures of adherence to drug regimens: The Medication Possession Ratio (MPR) is calculated as the total number of days medication is dispensed (excluding final prescription) divided by the total number of days between the first and last prescription. Continuous, Single-interval Measure of Medication Availability (CSA) is calculated as the days medication was supplied divided by days until the next prescription averaged for each prescription. The values for MPR and CSA range from zero (low adherence) to 1.0 (perfect adherence). Values of 0.80 and above are considered optimal levels of adherence. The two ratios are calculated by study period and summarize adherence for up to 17 chronic conditions tracked by the ACG System.

Propensity Score Methods for Comparison Group 2

The fundamental question in evaluating any program is whether the designed intervention has been effective in accomplishing its primary objective. A well-designed program will have an intervention (or "treatment") that clearly articulates the intervention's desired outcome. In many situations, however, the design of the program and the resulting data does not come from a randomized trial, but comes, instead, from a non-randomized or observational study.

Statisticians have long understood that the non-random assignment of subjects into treatment and control groups can cause the estimation of the treatment effect to be biased due to a variety of confounding factors, such as sample bias. Sample bias can arise, for example, when individuals who do respond to requests to be enrolled in the program have different baseline characteristics than those who do not respond.

In a randomized controlled trial, which is considered the gold standard for estimating the effects of treatments, individuals are randomized into treatment and control groups. Randomization ensures that the treatment effects will not be confounded with either measured or unmeasured baseline characteristics of the individuals provided that the number of randomized participants is large enough to minimize random variations. Therefore, an unbiased effect of the treatment can be estimated by comparing outcomes directly between treated and untreated subjects by using standard statistical tests such as t-tests, regression analysis, ANOVA, chi-squared tests, etc.

In observational studies, since treatment allocation is not randomized, treated and non-treated groups may differ considerably in their pre-treatment characteristics and this may seriously hamper the validity of the statistical tests and their conclusions. Consider, for example, a voluntary job re-training program for the unemployed, whose outcome is a measure of the difference in annual earnings between pre-

and post-training intervention. For this type of intervention, voluntary participation is typically solicited from a large pool of the unemployed, but the program is able to accommodate a relatively small number of participants. A problem in the successful evaluation of the effects of the program is to find non-participants in the same or similar labor market who "look like" the program participants in order to match them on baseline characteristics. This phenomenon is known as "the counterfactual" and the goal is to answer the question, "What would have happened to those who, in fact, did receive treatment, if they had not received treatment (or the converse)?" The main challenge of a credible impact evaluation is the construction of the counterfactual outcome, that is, what would have happened to participants in the absence of treatment? Since this counterfactual outcome is never observed, it has to be estimated using statistical methods.

Propensity score analysis (PSA), also known as propensity score matching (PSM), was developed to answer these questions. The propensity score is defined as the probability that an individual in the combined sample of treated (MTM-P) and untreated (MEG3-CG2) individuals is equally likely to have been selected into the selection pool of recipients forwarded to the UF COP. The propensity score is a multivariable model where pre-treatment characteristics and known potential confounders are included in the model as predictors and where the outcome is selection into the treatment group (MTM-P). Therefore, the propensity score is the probability of each person in the MEG3-CG2 included in the MTM-P given the observed pre-treatment characteristics. PSAs can then be used in a number of ways, including matching or stratification. Matching and stratification are generally preferred as they create a quasi-randomized study design whereby two participants, one in each group with similar propensity scores, can be assumed to have been equally likely to have been selected into the comparison or treatment group. PSA does not take into account unmeasured or unobservable characteristics of recipients that might influence their selection into each group.

The PSAs were run using the Stata statistical software package. The evaluation team conducted the PSAs on two important financial outcomes, total cost and total pharmacy costs. A series of PSAs was run on both the MTM-P group's pharmacy and total costs with various combinations of PSA algorithms, two of the three ACG risk adjustment weights and lenient and strict population definitions. The first set of 12 PSAs was performed using pharmacy costs as the outcome variable and included adjustments for gender and age in a base model and then year and length of enrollment and year alone for the lenient and strict population definitions in turn. The second set of 12 PSAs was performed using total costs as the outcome and the same iteration of models as used for pharmacy costs. The evaluation team conducted

24 propensity score estimates of pharmacy and total costs savings for the first three cohorts of the MTM program provided in this analysis in order to test the sensitivity of the estimates to the various assumptions underlying each of the PSA algorithms and ACG weight calculations.

In addition to analysis of pharmaceutical expenditures and total cost expenditures by individuals enrolled in the MEDs-AD Waiver program versus non-enrollees, we also performed an analysis of inpatient admissions and ED visits for MEDs-AD Waiver recipients and non-recipients. The statistical technique used in this analysis was PSA, as this methodology allows a comparison of individuals based on their similarity of age, length of program enrollment, and other relevant factors potentially affecting both inpatient and emergency room usage.

Similar to the pharmaceutical and total cost analyses, three different sets of PSAs, each set containing two models, were run for both inpatient admissions and emergency room visits on both the 'lenient' and 'strict' data which yielded a total of 24 models. The first set of PSAs was performed using inpatient admissions as the outcome variable and with gender, age, and a risk adjusted weight variable derived from the John's Hopkins ACG system. This variable, the local weight, is a concurrent weight assigned to a patient based upon their ACG analysis using local cost data. The local weight for each ACG is calculated as the simple average total pharmacy cost of all individuals assigned to each category. Local weights are calibrated to reflect the unique properties of the local population and do not make use of national norms. The second model in the first set also uses gender and age, but replaces the local weight with the reference rescaled weight, also derived from the ACG analysis, which is a rescaling of the local weight so that the mean across the population is 1.0. Rescaling facilitates internal comparisons of morbidity burden, based on reference population and between different subpopulations. The second set of models employs the same covariates as the first set, but also adds the individual's length of enrollment in the MEDs-AD Waiver program in addition to the year of participation. The final set of models is similar to the second set, but drops the individual's length of enrollment. In addition, each set of models was run separately on the 'lenient' and 'strict' data which were described previously.

Quantitative Findings

This section presents the interpretation of the quantitative findings. Tables for the quantitative findings may be found in the Quantitative Tables Appendix.

Enrolled Days—Application of Inclusion and Exclusion Criteria

Enrolled days are included in all regression models to adjust for differences in the length of enrollment of the MTM-P and MTM-NP comparison groups over time. Coefficients for enrollment in these models are constrained to equal one and are not shown in the regression model tables. Enrolled days are also included as the denominator in descriptive tables for counts of services or events and reimbursed amounts. Enrolled days for each population and time period are shown in these tables.

Enrolled days in Medicaid for the entire universe of recipients considered for inclusion in the evaluation are presented in Table 6. This table includes all 20,696 recipients with any observable enrollment tracked by the evaluation team from January 1, 2010 through May 31, 2014 including the MTM-P and MTM-NP study groups and the entire pool of recipients eligible for selection into the CG2 population before any inclusion or exclusion criteria were applied. A small number of persons tracked (20,707-20,696=11) had no observable enrollment during this time period.

Table 7 presents the enrolled days by study group for the MTM-P and MTM-NP (CG1) population by study period for the four study years that Cohorts 1, 2, and 3 were tracked after application of the lenient (Table 7) inclusion/exclusion criteria. There were 1,265 and 363 persons in the MTM-NP and MTM-P study groups, respectively, during the pre-intervention period, but only 639 (MTM-NP) and 191 (MTM-P) persons remained for the intervention period. Mean enrollment for the lenient population definition was somewhat higher, but not statistically different in the intervention year than the pre-intervention year and the MTM-P enrolled days were higher than the MTM-NP enrollment during pre-intervention periods ($p<.05$), but not during the intervention year period.

Strict population definitions in Table 8 began with 413 and 152 recipients in the MTM-NP and MTM-P study groups, respectively, during the pre-intervention year and 307 (MTM-NP) and 133 (MTM-P) were retained for the intervention year. No statistically significant differences between study groups or periods in enrolled days were identified under the strict population definition. The reduction in persons retained for study in the strict definition resulted in 335,806 total enrolled days of observation as opposed to the 768,561 total enrolled days observed under the lenient definition.

Quantitative findings for EQ1 through EQ6 follow and are organized by consecutive table numbers 9 to 56. Key findings presented as bullets underneath each table name and number.

EQ 1: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG1 (MTM-NP), and CG 2 for utilization measures?

Interpretation of Descriptive Tables EQ 1-BETOS Codes

Descriptive findings for EQ 1 and EQ 2 are summarized together in the EQ 1 section for efficiency in presentation. Table 9 presents outpatient facility procedures and Table 10 professional service procedures. Both tables use the LENIENT population definition. The number of services or events (EQ 1) described in each table are presented along with the reimbursed amount (EQ 2) associated with those services by study group and study period. Professional and outpatient hospital services are summarized by seven BETOS codes. Brief comments about the findings follow:

Table 9. Total and mean service counts and dollars for UB-04 outpatient facility claims by BETOS codes adjusted for enrolled days by claim type and by program period for MTM-P and MTM-NP population groups using LENIENT inclusion/exclusion criteria, Florida MTM program June 1, 2010 - May 31, 2014

- Mean annualized reimbursement amount for all BETOS procedures is lower for the intervention year ($1,961) than the pre-intervention year ($2,288) for both groups. The mean decline between periods was $255 for MTM-P and $271 for MTM-NP. The difference is not statistically significant.
- Overall, mean reimbursement is lower for the MTM-P ($1,956) than the MTM-NP ($2,186). The difference is not statistically significant.
- Many of these records were coded as missing because they included no Current Procedural Terminology (CPT) codes.

Table 10. Total and mean professional services counts and dollars for CMS-1500 professional service claims by BETOS codes adjusted for enrolled days by program period for MTM-P and MTM-NP population groups using LENIENT inclusion/exclusion criteria, Florida MTM program June 1, 2010 - May 31, 2014

- Mean annualized reimbursement amount for all BETOS procedures is lower for the intervention year ($5,659) than for the pre-intervention year ($6,947) for both groups. The mean decline between periods was $2,234 for MTM-P and $1,004 for MTM-NP. The difference is not statistically significant.
- Overall, reimbursement is higher in MTM-NP ($6,650) than MTM-P ($5,946), but the difference is not statically significant.
- BETOS codes for the Tests category were the most numerous in the professional services file. Evaluation and Management codes were associated with the highest total reimbursement amounts.

Table 11. Total inpatient facility discharges and the mean amount reimbursed per discharge adjusted for enrolled days by program period for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The mean annualized amount reimbursed for inpatient care per recipient is higher for the MTM-NP in both the the pre-intervention period ($25,181 vs. $16,614) and intervention period ($14,205 vs. $13,093) with respect to the MTM-P group .
- Overall, the mean reimbursed amount for inpatient care is higher for the MTM-NP ($22,997) than the MTM-P ($15,756).
- The decline in mean reimbursed amount from pre-intervention to intervention period was larger in MTM-NP ($10,975) than in MTM-P ($3,521).
- None of the differences were statistically signficant.

Table 12. Total inpatient facility discharges and the mean amount reimbursed per discharge adjusted for enrolled days by program period for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The mean annualized amount reimbursed for inpatient care per recipient is higher for the MTM-NP in both the the pre-intervention period ($209,842 vs. $122,319, $p<.05$) and intervention period ($57,684 vs. $52,220) with respect to the MTM-P group.
- Overall, the mean reimbursed amount for inpatient care is higher for the MTM-NP than the MTM-P ($139,188 vs. $92,742, $p<.05$).
- The decline in mean reimbursed amount from pre-intervention to intervention period was larger in MTM-NP than in MTM-P ($152,158 vs. $70,099, $p<.05$).

- All differences were statistically significant.

Table 13. Mean inpatient days among recipients with one or more inpatient stays by program period for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- On average, the MTM-NP spent more days in an inpatient facility (12.5 days) than the MTM-P (9.4) but the difference was not statistically significant.
- Average days in an inpatient facility are higher in the pre-intervention period (11.9 days) than the intervention period (9.1 days) for both groups but the difference was not statistically significant.

Table 14. Mean inpatient days among recipients with one or more inpatient stays by program period for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- On average, the MTM-NP spent more days (7.2 days) in an inpatient facility than the MTM-P (6.8 days) but the difference was not statistically significant.
- Average days in an inpatient facility are lower in the pre-intervention period (7.0 days) than the intervention period (7.3 days) for both groups, but the difference was not statistically significant.

Table 15. Total and mean prescription counts and amount reimbursed adjusted for enrolled days by program period for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

Prescription Counts EQ 1 and Pharmacy Reimbursement EQ 2

- The mean number of prescriptions per recipient is greater for the MTM-P (49 pre-intervention) than the MTM-NP (45 pre-intervention) for each program year and overall (MTM-P 52 vs. MTM-NP 48), but the differences were not statistically significant.
- The mean annualized reimbursement rate per recipient was higher in the MTM-P than in MTM-NP during the pre-intervention period ($4,514 vs. $4,005) and was higher in the MTM-P than in MTM-NP during the intervention period ($6,738 vs. $5,373). None of the differences were statistically significant although the mean amount reimbursed during the intervention year was $1,365 higher in MTM-P.

Table 16. Total and mean prescription counts and amount reimbursed adjusted for enrolled days by program period for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

Prescription Counts EQ 1 and Pharmacy Reimbursement EQ 2

- The mean number of prescriptions per recipient was similar for the MTM-NP (61 pre-intervention) and the MTM-P (59 pre-intervention). These numbers were similar to the overall (MTM-NP 62 vs. MTM-P 61). None of the differences were statistically significant.
- The mean annualized reimbursement rate per recipient was lower in MTM-P than in MTM-NP during the pre-intervention period ($5,274 vs. $6,963) and was higher in the MTM-P than in MTM-NP during the intervention period ($5,596 vs. $4,913). None of the differences were statistically significant although the mean amount reimbursed during the intervention year was $683 higher in MTM-P.

Interpretation of Regression Tables EQ 1

Table 17. General Estimating Equation negative binomial model estimates and p-values for total CPT/HCPCS procedure codes in the CMS-1500 professional claims and the UB-04 outpatient claims files for the LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- Gender is significant in both base and DiD models at a 0.05 significance level. The positive coefficient suggests that there are a greater number of claims for females in reference to males.
- Intervention year is significant in the base and DiD models at a 0.05 significance level. The negative coefficient suggests that there are a lower number of claims for in the intervention year in reference to the pre-intervention year.
- Death is significant in the base and DiD models at a 0.05 significance level. The negative coefficient suggests that there are a lower number of claims for those that died in reference to those that did not.
- The coefficients on age and ACG risk weight variables are positive and significant in both base and interaction models at $p< 0.05$ significance level indicating that both are positively associated with higher total procedures. However, the effect of age is small in this model.

Table 18. General Estimating Equation negative binomial model estimates and p-values for total CPT/HCPCS procedure codes in the CMS-1500 professional claims and the UB-04 outpatient claims files for the STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- Gender is significant in both base and DiD models at a 0.05 significance level. The positive coefficient suggests that there are a greater number of claims for females in reference to males.
- The coefficients on age and ACG risk weight variables are positive and significant in both base and interaction models at P< 0.05 significance level indicating that both are positively associated with higher total procedures. However, the effect of age is small in this model.

Table 19. General Estimating Equation negative binomial model estimates and p-values for total inpatient facility and emergency department events for the LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups, gender groups, or race groups.
- Study period is significant in both base and DiD models at a 0.05 significance level. The negative coefficient suggests that there are fewer inpatient facility and ED events during the intervention period in reference to the pre-intervention period.
- Death is significant in both base and DiD models at a 0.05 significance level. The negative coefficient suggests fewer inpatient facility and ED events for those that died in reference to those that did not.
- The coefficient on the ACG risk weight variable is positive and significant in both base and interaction models at P< 0.05 significance level indicating that burden of illness is positively associated with higher total emergency department events.
- The coefficient on the age variable is negative and significant in both base and interaction models at P< 0.05 significance level indicating that age is negatively associated with higher total emergency department events.

Table 20. General Estimating Equation negative binomial model estimates and p-values for total inpatient facility and ED events for the STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups, gender groups, or race groups.
- Study period is significant in both base and DiD models at a 0.05 significance level. The positive coefficient suggests more inpatient facility and ED events during the intervention period in reference to the pre-intervention period.
- The coefficient on the ACG risk weight variable is positive and significant in both base and interaction models at P< 0.05 significance level indicating that burden of illness is positively associated with higher total combined emergency department and inpatient events.
- The coefficient on the age variable is negative and significant in both base and interaction models at P< 0.05 significance level indicating that age is negatively associated with higher total emergency department and inpatient events.

Table 21. General Estimating Equation negative binomial model estimates and p-values for total outpatient prescriptions for the LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups or people who died.
- Gender is significant in both base and DiD models at a 0.05 significance level. The positive coefficient suggests more outpatient prescriptions for females in reference to males.
- The Black or African American group is significant in both base and interaction models at a 0.05 significance level. The negative coefficient suggests fewer outpatient prescriptions in reference to the White or European American group.
- Study period is significant in both base and DiD models at a 0.05 significance level. The positive coefficient suggests more outpatient prescriptions during the intervention period in reference to the pre-intervention period.
- The coefficients on age and ACG risk weight variables are positive and significant in both base and interaction models at a 0.05 significance level indicating that both are positively associated with higher total prescriptions. However, the effect of age is small in this model.

Table 22. General Estimating Equation negative binomial model estimates and p-values for total outpatient prescriptions for the STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups, race groups, or study period.
- Gender is significant in both base and DiD models at a 0.05 significance level. The positive coefficient suggests more outpatient prescriptions for females in reference to males.
- The coefficients on age and ACG risk weight variables are positive and significant in both base and interaction models at a 0.05 significance level indicating that both are positively associated with higher total prescriptions. However, the effect of age is small in this model.

EQ 2: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG1 (MTM-NP), and CG2 for expenditure measures?

Interpretation of Descriptive Tables EQ 2

See description under EQ 1

Interpretation of Regression Tables EQ 2

Total Reimbursement

Table 23. Robust log-level linear regression DiD model estimates and p-values for a model of total recipient expenditures for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model without interaction found no difference between study groups, but both groups had lower average reimbursement during the intervention year as compared to the pre-intervention year.
- The DiD models for total reimbursement suggest no difference between the two groups.
- Intervention year is significant in both base and interaction models at a 0.05 significance level. The negative coefficient suggests that expenditure was lower in the intervention year in reference to the pre-intervention year.
- Death is significant in both base and interaction models at a 0.05 significance level. The positive coefficient suggests that expenditure was higher for those that died in reference to those who did not.
- ACG risk weight variable is significant in both base and interaction models at a 0.05 significance level indicating increased disease burden is associated with higher total expenditures.

Table 24. Robust log-level linear regression DiD model estimates and p-values for a model of total recipient expenditures for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model without interaction found no difference between study groups, but both groups had lower average reimbursement during the intervention year as compared to the pre-intervention year.
- The DiD models for total reimbursement suggest no difference between the two groups.
- ACG risk weight variable is significant in both base and interaction models at a 0.05 significance level indicating increased disease burden is associated with higher total expenditures.

Pharmacy Reimbursement

Table 25. Robust log-level linear regression DiD model estimates and p-values for a model of total recipient pharmacy expenditures for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD models for total reimbursement for pharmacy prescriptions suggest there is a difference between the two study groups. Expenditure is greater for the MTM-P in reference to MTM-NP.
- Gender variable is significant in both base and interaction models at a 0.05 significance level. The positive coefficient suggests that expenditure was higher for females in reference to males.
- Intervention year is significant in both base and interaction models at a 0.05 significance level. The positive coefficient suggests that expenditure was higher in the intervention year in reference to the pre-intervention year.
- ACG risk weight variable is significant in both base and interaction models at a 0.05 significance level indicating increased disease burden is associated with higher total pharmacy expenditures.

Table 26. Robust log-level linear regression DiD model estimates and p-values for a model of total recipient pharmacy expenditures for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model without interaction found no difference between study groups, but both groups had lower average reimbursement during the intervention year as compared to the pre-intervention year.
- The DiD model for total reimbursement suggests no difference between the two groups.

- ACG risk weight variable is significant in both base and interaction models at a 0.05 significance level indicating increased disease burden is associated with higher total pharmacy expenditures.

Propensity Score Models for Total Reimbursement and Pharmacy Reimbursement

Three different sets of PSAs, each set containing two models, were run for both pharmaceutical and total costs on both the 'lenient' and 'strict' data for a total of 24 models. The first set of PSAs was performed using pharmacy costs as the outcome variable and with gender, age, and a risk adjusted weight variable derived from the John's Hopkins ACG system. This variable, the local weight, is a concurrent weight assigned to a patient based upon their ACG analysis using local cost data. The local weight for each ACG is calculated as the simple average total pharmacy cost of all individuals assigned to each category. Local weights are calibrated to reflect the unique properties of the local population and do not make use of national norms. The second model in the first set also uses gender and age, but replaces the local weight with the reference rescaled weight, also derived from the ACG analysis, which is a rescaling of the local weight so that the mean across the population is 1.0. Rescaling facilitates internal comparisons of morbidity burden, based on reference population and between different subpopulations. The second set of models employs the same covariates as the first set, but also adds the individual's length of enrollment in the MEDs-AD Waiver program in addition to the year of participation. The final set of models is similar to the second set, but drops the individual's length of enrollment. In addition, each set of models was run separately on the 'lenient' and 'strict' data which were described previously.

Table 27. Propensity score models for pharmaceutical reimbursements for LENIENT and STRICT MTM-P and CG 2, Florida MTM program June 1, 2010 - May 31, 2014

- The results show that there was no statistically significant difference in pharmacy costs between the MTM-P and the comparison group for any of the PSA models.
- The sign of the average treatment effect suggests lower pharmacy costs for MTM-P in some models and higher pharmacy costs in other models although none reach statistical significance.

Table 28. Propensity score models for total reimbursements for LENIENT and STRICT MTM-P and CG 2, Florida MTM program June 1, 2010 - May 31, 2014

- The results are similar to the pharmacy cost PSA model results in that there was no statistically significant difference in total cost expenditures between the MTM-P group and the comparison group (CG2) for any of the PSA models except for one model using the 'lenient' dataset, the

rescaled weight, and the year of participation as covariates. Average treatment effect in that model suggests the MTM-P group was $5,283 lower than the MTM-NP group.

- This result is likely a statistical anomaly for two reasons:
    - The results for the similar model with the local weight variable were not statistically significant and statistical theory shows that the simple rescaling of a variable, while affecting the magnitude of the variable's association with the outcome, should have no effect on its statistical significance.
    - The lack of association for the model including length of enrollment, which should be, a priori, a factor associated with total cost was not statistically significant.

In conclusion, therefore, the results of the PSA models for both pharmacy and total cost expenditures show no statistically significant difference for those who did, or did not, participate in the MEDs-AD Waiver program. We caution, however, that the number of participants in the program was relatively small and that attrition also occurred over the program's duration. It is highly likely that a MTM program with more participants, and whose participation remains stable over the program period, would show significant benefits not only in pharmaceutical and total healthcare cost reductions, but also an improvement in the health outcomes of the participants.

EQ 3: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG1 (MTM-NP), and CG2 for clinical outcomes?

Interpretation of Descriptive Tables EQ3

Table 29. Mean Continuous Single-Interval Measure of Availability (CSA) medication adherence score for the 17 chronic conditions tracked by the John's Hopkins ACG System applying LENIENT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- CSA values are similar in the MTM-P and MTM-NP groups in all study periods.

Table 30. Mean Continuous Single-Interval Measure of Availability (CSA) medication adherence score for the 17 chronic conditions tracked by the John's Hopkins ACG System applying STRICT inclusion and

exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- CSA values are similar in the MTM-P and MTM-NP groups in all study periods.

Table 31. Mean Medication Possession Ratio (MPR) adherence score the 17 chronic conditions tracked by the John's Hopkins ACG System applying LENIENT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- MPR values are similar in the MTM-P and MTM-NP groups in all study periods.

Table 32. Mean MPR adherence score for the 17 chronic conditions tracked by the John's Hopkins ACG System applying STRICT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- MPR values are similar in the MTM-P and MTM-NP groups in all study periods.

Interpretation of Regression Tables EQ3

Table 33. Logistic regression model estimates and p-values for odds of one or more discharges from an inpatient hospital for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- Intervention year is significant in both base and interaction models at a 0.05 significance level. The negative coefficient suggests that there are lower odds of one or more discharges from an inpatient hospital in the intervention year in reference to the pre-intervention year.
- Death is significant in both base and interaction models at a 0.05 significance level. The negative coefficient suggests that there are lower odds of one or more discharges from an inpatient hospital for those that died in reference to those who did not.
- Age and ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level indicating disease burden is positively associated with increased odds of an inpatient discharge.

Table 34. Logistic regression model estimates and p-values for odds of one or more discharges from an inpatient hospital for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.

- The non-African American/non-Hispanic (i.e., Other) group is significant in both base and interaction models at a 0.05 significance level. The positive coefficient suggests that there are higher odds of one or more discharges from an inpatient hospital for this group in reference to White and European Americans.
- ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level indicating disease burden is positively associated with increased odds of an inpatient discharge.

Table 35. Logistic regression model estimates and p-values for odds of one or more discharges from a hospital ED for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- Gender is significant in both base and interaction models at a 0.05 significance level. The positive coefficient suggests that there are higher odds of one or more discharges from a hospital ED for females in reference to males.
- Age and ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level indicating disease burden is positively associated with increased odds of an emergency depart visit.

Table 36. Logistic regression model estimates and p-values for odds of one or more discharges from a hospital ED for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- Gender is significant in both base and interaction models at a 0.05 significance level. The positive coefficient suggests that there are higher odds of one or more discharges from a hospital ED for females in reference to males.
- Age and ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level indicating disease burden is positively associated with increased odds of an emergency depart visit.

Table 37. Logistic regression model estimates and p-values for odds of one or more U.S. Agency for Healthcare Research and Quality (AHRQ) Ambulatory Care Sensitive Condition (ACSC) discharges from an inpatient hospital for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level indicating disease burden is positively associated with increased odds of a discharge for an ACSC.

Table 38. Logistic regression model estimates and p-values for odds of one or more AHRQ ACSC discharges from an inpatient hospital for STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- There are no significant covariates in either model.

Table 39. Propensity score model for one or more inpatient hospital discharges for LENIENT and STRICT MTM-P and CG2, Florida MTM program June 1, 2010 - May 31, 2014

- The results show that there was no statistically significant difference in inpatient admissions between the MTM-P and CG2 for any of the PSA models.
- However, the coefficients are negative indicating the direction of change was toward fewer inpatient discharges.

Table 40. Propensity score model for one or more emergency department events for LENIENT and STRICT MTM-P and CG2, Florida MTM program June 1, 2010 - May 31, 2014

- The PSA model results suggest there was no statistically significant difference in ED visits between the MTM-P and CG2 for any of the PSA models.

EQ 4: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG1 (MTM-NP), and CG2 for demographic categories?

Interpretation of Descriptive Tables EQ 4 for the Nominal, LENIENT, and STRICT Cohort Definitions

Table 41. Frequency and proportion of patients categorized by age on the last day of the pre-intervention study period in NOMINAL Cohorts 1, 2, and 3 for the MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

MTM-P

- The proportion of people in the 41-50 years age group is significantly lower in Cohort 2 than in Cohort 1.

- The proportion of people in the 61-65 years age group is significantly larger in Cohort 2 and in Cohort 3 than in Cohort 1.
- The proportion of people in the 56-60 years age group is significantly lower in Cohort 3 than in Cohort 1.
- There does not appear to be a significant difference of proportion by age group between Cohorts 2 and 3.

MTM-NP

- The proportion of people in the 61-65 years age group is significantly lower in Cohort 2 and Cohort 3 than in Cohort 1.
- The proportion of people in the 41-50 years age group is significantly lower in Cohort 1 than in Cohort 2.
- The proportion of people in the 51-55 years age group is significantly lower in Cohort 1 and Cohort 2 than in Cohort 3.
- The proportion of people in the 21-40 years age group is significantly lower in Cohort 1 and Cohort 3 than in Cohort 2.
- The proportion of people in the 0-20 years age group is significantly lower in Cohort 3 than in Cohort 2.
- The proportion of people in the 56-60 years age group is significantly lower in Cohort 2 than in Cohort 3.

Table 42. Frequency and proportion of patients categorized by race and ethnicity in NOMINAL Cohorts 1, 2, and 3 initial study population for the MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

MTM-P

- The proportion of the Black or African American race group is significantly lower in Cohort 1 than in Cohort 2.
- The proportion of the White or European American race group is significantly higher in Cohort 1 than in Cohort 2.
- The proportion of the Hispanic race group is significantly lower in Cohort 1 than in Cohort 3.
- There does not appear to be a significant difference in proportion by race between Cohorts 2 and 3.

MTM-NP

- The proportion of the "Other" group is significantly lower in Cohort 1 than in Cohort 3.
- There does not appear to be a significant difference in proportion by race between Cohorts 2 and 3.

Table 43. Frequency and proportion of patients categorized by gender in NOMINAL Cohorts 1, 2, and 3 initial study population for the MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 – May 31, 2014

MTM-P

- There does not appear to be a significant difference in proportion by gender between Cohorts 1, 2, and 3.

MTM-NP

- There are significantly more females and fewer males in Cohort 2 than in Cohort 1.
- There are significantly fewer females and more males in Cohort 3 than in Cohort 1 and 2.

Table 44. Frequency and proportion of patients categorized by language preference in NOMINAL Cohorts 1, 2, and 3 for the nominal MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 – May 31, 2014

MTM-P

- There does not appear to be a significant difference in proportion by preferred language between Cohorts 1, 2, and 3.

MTM-NP

- There does not appear to be a significant difference in proportion by preferred language between Cohorts 1 and 2.
- The proportion of people with English as the preferred language is significantly lower in Cohorts 1 and 2 than in Cohort 3.
- The proportion of people with "Other" as the preferred language is significantly lower in Cohort 3 than in Cohorts 1 and 2.

Summary of Demographic Categories for the LENIENT Population Definition for MTM-P and MTM-NP: Tables not shown.

- Females outnumber males in all study groups, roughly 55% to 45%.
- White or European American race group is the largest group at 46%, followed by Black or African American group at 22%, then Hispanic at 18%.

- The age groups 41-50, 51-55, 56-60, and 61-65 are roughly equally sized. The 21-40 age groups are significantly lower. There was a negligible amount of persons under 21 and over 65.
- Over 85% of people have English as their preferred language and 13% prefer Spanish. Just over 1% has another language preference.

Summary of Demographic Categories for the STRICT Population Definition for MTM-P and MTM-NP Tables not shown.

- Females outnumber males, 61% to 39%.
- White or European American race group is the largest group at 48%, followed by Black or African American group at 20%, then Hispanic at 18%.
- The age groups 41-50 and 61-65 are the same exact size and the two largest groups at 24%. The age groups 51-55 and 56-60 are roughly equally sized around 20%. The 21-40 age groups are significantly lower at 11%.
- Over 83% of people have English as their preferred language and 15% prefer Spanish. Just over 1% has another language preference.
- Nobody died in this criteria group.

EQ 5: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG1 (MTM-NP), and CG2 for mortality and morbidity measures?

Interpretation of Descriptive Tables EQ 5

Table 45. Summary statistics for number of deaths and annualized mortality rate applying LENIENT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- Mortality was somewhat higher in the MTM-NP study group than in the MTM-P study group.

Note: Deaths were excluded by definition from the STRICT population definition.

Table 46. Summary statistics for number of persons with two or more chronic conditions (MCC) as tracked by the John's Hopkins ACG System applying LENIENT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- Binomial test concludes there is no significant difference in the proportion of people with MCC between MTM-P and MTM-NP.

Table 47. Summary statistics for number of persons with two or more MCCs as tracked by the John's Hopkins ACG System applying STRICT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- There is no significant difference in the proportion of people with MCC between MTM-P and MTM-NP.

Table 48. Summary statistics for the mean number of chronic conditions tracked by the John's Hopkins ACG System applying STRICT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- There is no significant difference in the proportion of people with MCC between MTM-P and MTM-NP.

Table 49. Summary statistics for the mean number of chronic conditions per recipient tracked by the John's Hopkins ACG System applying STRICT inclusion and exclusion criteria for the MTM-P and MTM-NP (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

- There is no significant difference in the proportion of people with MCC between MTM-P and MTM-NP.

Interpretation of Regression Tables EQ 5 Mortality and Morbidity

Table 50. Robust logistic regression base and DiD model estimates and p-values for a model of mortality for LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- Age and ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level.
- In the DiD model, the parameter estimates did not converge.

Table 51. Robust logistic regression base and DiD model estimates and p-values for a model of two or more MCCs as tracked by the John's Hopkins ACG System applying LENIENT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- All race groups are significant in both base and interaction models at a 0.05 significance level. The positive coefficient for all groups suggests that there are higher odds of having two or more MCCs in reference to White and European Americans.
- The coefficients for age and ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level indicating that both are positively associated with a recipient having multiple chronic conditions.

Table 52. Robust logistic regression base and DiD model estimates and p-values for a model of two or more MCCs as tracked by the John's Hopkins ACG System applying STRICT MTM-P and MTM-NP population groups, Florida MTM program June 1, 2010 - May 31, 2014

- The base model and the DiD model found no difference between study groups.
- The coefficients for age and ACG risk weight variables are significant in both base and interaction models at a 0.05 significance level indicating that both are positively associated with a recipient having multiple chronic conditions.

EQ 6: What are the differences in the pre-intervention and intervention periods within the intervention group for MTM process measures?

Interpretation of UF COP MTM-P Process Measure Descriptive Tables EQ 6

Table 53. Comparison of total interventions recorded by the UF COP pharmacy staff for all Cohorts 1, 2, and 3 participants, Florida MTM program evaluation June 1, 2011 to May 31, 2014

- There is substantial overlap in the naming conventions for the three Cohorts although some changes are evident due to changes in recording procedures by the UF COP staff.
- Cohort 3 introduced the use of an MTM case management system provided by an external vendor to UF COP. This contrasts with the customized Excel spreadsheets used for Cohorts 1 and 2. UF COP did not continue to use the vendor's software after Cohort 3 was completed.

Table 54. Comparison of identified and resolved medication therapy problems for 20 selected MTM interventions in the MTM evaluation study group for Cohort 1, 2, and 3 participants, Florida MTM program evaluation June 1, 2011 to May 31, 2014

- The Table lists all the problems identified and resolved by UF COP staff for all three cohorts.
- Differences in the manner of data collection placed some limitations on the ability of the evaluation team to verify UF COP quarterly reports for Cohort 3 in the same manner as was done for Cohort 1 and 2.
- However, Cohort 3 data are consistent with Cohort 1 and 2 data both in terms of the type of problems.
- Previous evaluation reports indicated a high concordance between the evaluation team's validation of findings for Cohort 1 and 2 with the UF COP quarterly reports.
- Across all 3 cohorts, 54 clinically significant Level 1 or 2 drug interaction problems were identified.
- Across all 3 cohorts, 43 instances where pill burden could be decreased, opportunities for combination therapy or removal of duplicate therapies were identified.
- Across all 3 cohorts, 235 instances of gaps in therapy, insufficient dosage and insufficient duration of therapy or a lack of therapy were identified.
- The mean number of problems identified per MTM-P group member was 0.7, 1.3, and 0.4 for Cohorts 1, 2, and 3, respectively.

- The mean percentage of identified problems resolved was 28.6%, 40.9%, and 10.2% for Cohorts 1, 2, and 3, respectively.
    - The mean percentage of problems resolved in Cohort 1 and 2 are similar to the level reported in other MTM literature.
- It is not known why the number of problems identified per recipient and the percent that were resolved declined in Cohort 3 relative to Cohorts 1 and 2. Potential explanations might include differences in the MTM population or the UF-COP personnel during the Cohort 3 intervention as compared with Cohorts 1 and 2 or perhaps the use of the new MTM management software employed for Cohort 3 had the unintended consequence of reducing the number of documented problems and resolutions.

Qualitative Findings

An Overview of the Qualitative Evaluation Team Effort

The qualitative component of this mixed methods project lends a much deeper understanding of the underlying processes, providing a more nuanced evaluation of the MEDs-AD Waiver project based on MTM principles. The data for this evaluation emanates from a series of personal interviews conducted by our evaluation team with Medicaid Administrative Personnel (MCAP), UF COP, PCPs, and randomly selected MTM recipients.

The Evaluation Team (ET) associated with the qualitative evaluation effort consists of multidiscipline members representing three academic institutions. The lead analyst, an Associate Professor at the FSU College of Social Work and a Co-PI of the project, is an expert in qualitative methodology and oversaw all interviews conducted by the ET Research Assistants (RAs). In addition, she, along with Florida A&M University (FAMU) pharmacists with an expertise in MTM and geriatrics, constructed the original interview guides, which were used for interviewing participants from the MTM (intervention) years (June 1, 2011 through May 31, 2014).

The pharmacists provided extensive knowledge of patient interactions gained from hands-on clinical experience. The original ET included the Associate Chair of Research in the Department of Medical Humanities and Social Science at the FSU College of Medicine, a clinical psychologist and expert in health behavior, the Associate Dean of Research at the FSU College of Social Work, and an interdisciplinary scholar who brought extensive research experience in health care. Their insights into health behavior were utilized in formulating the evaluation design and measures. Furthermore, key informant interviews (a series of interviews with MTM staff at the UF COP Call Center and MCAP) completed in the first year of the project were instrumental in developing appropriate recruitment materials (e.g., letters, scripts) as well as interview guides and closed-ended questions.

During the past three MTM program (intervention) years, the ET has completed interviews with two MCAP staff and three UF COP Call Center personnel (key informants), 62 MTM program participants, 20 persons who were eligible for but refused to participate in the MTM program, and four primary care physicians (PCPs). With the exception of the MCAP interviews, these interviews were conducted by a staff of graduate RAs at the College of Social Work trained by the lead analyst in all aspects of qualitative research methodology. These RAs conducted, transcribed, and coded interviews with MTM program

participants, those who refused to enroll in the MTM program, and PCPs under the supervision of the lead analyst. Their commitment to the evaluation of the MEDs-AD Waiver MTM program was exemplary.

Data Collection. Interviews were digitally recorded with permission of the participants and transcribed word for word. All tapes and transcriptions were kept on password-protected computers with access limited to the ET.

Data Management. Data were entered into Atlas/ti software for analysis, an established software package that allows for the storage of qualitative codes and serves as an organization tool for studies using multiple interviews. Two members of the ET coded one transcript, with consensus being reached on codes, themes, and domains. A coding scheme was established and used when coding subsequent transcripts.

Analytic Method. Initially, the ET examined each interview for emerging themes and relevant codes were developed utilizing the constant comparative method; however, they were not confined to these codes. This method allowed coders to compare new information to codes identified earlier and develop new codes if none existed for the current data. This process allowed for a structured and systematic data analysis method while optimizing the emergence of new codes to capture new ideas as they developed.

Qualitative Evaluation: MTM Participant Interviews

It is the very essence of this evaluation to hear the opinions of MTM program participants, often in their own words, that provide information not available from any other source. Indeed, the participants are the true experts on the effectiveness and meaning of the MTM program. It was the decision of the ET, in consultation with AHCA, to include the voices of the MTM program participants in this segment of the evaluation.

Evaluation Questions

Interviews with MTM program participants are closely aligned with the following research questions:

EQ 7- What are the most successful aspects of the MTM program based on participant perspectives?

EQ 8 - What are the lessons learned from this program from the perspectives of Florida MCAP, MTM staff, recipients (i.e., participants), and PCPs?

EQ 9 - How does this program impact recipients' (i.e., participants') ability to understand medications, take a more active part in their care, and understand the questions to ask their doctor or when to contact their doctor?

EQ 10 - How do recipients view this program from individual perspectives?

This project used established methods of qualitative research to provide information helpful in understanding the underlying processes while evaluating the MTM program as it is implemented by the call center at the UF COP.

Methods and Processes

Data Sources

Primary data sources for the qualitative evaluation consisted of a series of interviews with MTM program participants and primary care providers of participants.

Study Population (MTM program participants). The RAs conducted interviews with a random sample from the universe of MTM program participants (n = 455) who had completed the program (i.e., had a completed CMR). Throughout the course of the study, 283 potential participants were randomly selected.

Recruitment. The ET mailed a letter explaining the study and invited participation to each potential participant. The letters were written in easily understandable language and, whenever possible, included the name of the UF COP staff member who had conducted the CMR. This method was designed to aid participants in understanding the specific program referenced in the letter and the consequent interview. Furthermore, the letter stated that findings would be kept confidential and that neither participation nor refusal would have any effect on their Medicaid benefits. The letter was followed by a phone call that included additional information, an opportunity for potential participants to ask questions, and informed consent for those participants who wished to participate. A copy of the informed consent was mailed to each interview participant.

Interview Protocol. The ET used a semi-structured interview guide that had been established at the inception of the evaluation with questions and prompts based on a literature review, input from MCAP

and the UF COP Call Center staff, and approved by AHCA personnel. Interviewers used screening questions to determine that the participant was the person identified and an additional question to determine if they remembered the MTM program. There were four overarching, open-ended questions.

1. How would you describe the medication management program in which (CONTACT NAME) asked you about your medicines?

2. What do you see as the best part of the program?

3. If you could change one thing about the program, what would it be?

4. How do recipients view this program from individual perspectives?

In addition, the interviewers followed up on new areas and topics mentioned by the MTM program participants, in accordance with standard interview conduct. Finally, there were five closed-ended (yes/no) questions and one global rating item. The RAs audiotaped each interview with permission of the participants. AHCA and Institutional Review Boards (IRBs) approved all interview protocols, surveys, and scripts prior to implementation. All interviews were conducted by telephone and scheduled for the convenience of the MTM program participants.

Data Management. A tracking database in Microsoft Access was maintained throughout the project to record pertinent information regarding contacts made with participants and enrollment status. Interviews were digitally recorded with permission of the participants and transcribed word for word using Dragon Naturally Speaking software. All tapes and transcriptions were stored on password-protected computers with access limited to the ET.

Data Analysis. The analytic process began with immersion in the data; that is, the ET read the transcripts multiple times to become familiar with the content and flow. Data were entered into Atlas/ti software for analysis, an established software package that allowed for the storage of codes and served as an organizational tool for studies using multiple interviews. Atlas/ti also allowed for "memoing;" that is, the ET was able to record and retain notations related to underlying themes during the coding process. The ET then made notations (codes) for each small bit of data, a process called "open coding." Originally, four RAs coded one transcript, with consensus being reached on codes, themes, and domains under the supervision of the lead analyst. A coding scheme was established and used while coding subsequent transcripts. However, additional codes were allowed to emerge during the coding process.

At the end of the coding process, there were 31 codes identified. These 31 codes were used as the starting point for the analyses; however, new codes were allowed to emerge. These codes were organized into code families (i.e., codes with associated meanings or references) and themes were allowed to emerge.

The data were analyzed for both manifest and latent codes and themes. For example, a manifest code might include what the participant found most helpful (e.g., explaining the use of the medications). However, in addition to the manifest codes that are concrete, there were underlying concepts (latent codes) such as empathy and respect that were also evident to many of the participants. Indeed, pharmacists' empathy, respect, and concern became a theme.

When the overall coding process was completed, the codes became part of a larger code family. For example, one code family was "pharmacist," which comprised those responses that referred to the pharmacist, independent of the program. Because this code family was present in nearly all of the interviews and because it contained information that was not simply concrete, it was identified as a theme. Themes generally represent underlying concepts that are more complex than simple codes.

However, qualitative coding is an iterative process and continued throughout the project. In addition, the responses to the closed-ended questions included in the interview guide were also analyzed and coded.

Strategies for Rigor. A key element in establishing validity in qualitative research is triangulation (i.e., the use of more than one data source or method of data collection). This portion of the study incorporated two methods of triangulation: analytic triangulation and interdisciplinary triangulation. First, during data analysis, coding involved two independent coders. The interdisciplinary nature of the ET supported interdisciplinary triangulation as both a pharmacist and a methodological expert were involved in the initial formulation of the interview guides.

MTM Participant Interviews -- Findings

There were 283 cases randomly selected for recruitment. After removal of ineligible participants (deceased [n = 16]; primary language not English [n = 10]; unable to reach during time frame [n = 10]), letters were sent to 247 potential participants with phone follow-up. Of those, 59 had a telephone no longer connected, 39 refused, 63 were passive refusals (i.e., did not respond to 5 phone calls), 16 did not recall the MTM program, and 8 were pending when the study was completed resulting in 185 potential

participants who were called, but did not participate in the study. Of the 62 completed interviews, 2 were discarded for technical difficulties (i.e., sound quality too poor to understand) and 2 were considered unreliable respondents after completing the interview. Therefore, these qualitative findings are drawn from 58 interviews with MTM participants who indicated they remembered the project and provided information that would substantiate their understanding. The closed-ended responses are also reported (see Tables 55 and 56).

Open-Ended Questions

The overall responses to questions in this category were positive and enthusiastic. When asked about the experience of participating in the MTM program, the participants were overwhelmingly positive in their responses. One earlier participant's response was: "It [MTM program] was great. It was really, really great" and that theme has continued throughout the interviews completed throughout the evaluation. The responses were grouped into four categories, or code families: 1) Evaluation of the pharmacist(s); 2) Evaluation of the MTM program; 3) Best practices; and 4) Recommendations.

Evaluation of the Pharmacist(s). Overall, the participants were very positive in their evaluations of the pharmacists. They were especially appreciative of the concern they felt that the pharmacists demonstrated for them. As one participant stated, "She was very respectful, yes." Another said, "They treated me with respect. I really appreciated how they did the program." Another participant stated, "She always talked with me, and that felt good talking with her." Participants often described the manner of the pharmacist as respectful, helpful, and polite. Perhaps this was best summed up by one participant's statement, "Well, she was nice."

In most cases, the participants described the pharmacists as knowledgeable. One participant stated, "Yes, she answered my questions." Some participants also noted that the pharmacist was a resource such as, "Like I told you, she was very nice and helpful and she also helped me find a psychiatrist."

Evaluation of the MTM program. Overall, participants were favorable in their evaluation of the program. There were three conceptual categories within this code family: 1) problem identification; 2) understanding; and 3) adherence.

<u>Problem Identification</u>

Participants acknowledged that there were medication issues that emerged solely as a result of the MEDs-AD MTM program. The interactive nature of the call was depicted in this quotation "She asked

me some questions and I said well yeah and she said you might want to mention that to your doctor." Another said "And I did follow-up on one of the things (DISCUSSED WITH PHARMACIST) with my doctor." Another participant stated "…she did let me know about some of the medications that were being taken in double fashion, so it was very helpful. There was three medicines that I was taking that were double…my cardiologist and my doctor don't talk to each other, so that's why there were double."

Understanding

Participants found the process especially helpful in understanding their medications and providing information not readily available from other sources. One participant indicated, "…the ones I wasn't taking any more, she took them off the list." Another notable comment was, "Well, I had to ask about a medication substitution they were going to make and she explained what it was." Also, one participant stated, "Well, the medication is alright and the pharmacist that she was very helpful and helped me understand multiple medications."

Adherence

Some participants indicated increased medication adherence following the CMR. For example, one participant indicated, "Yeah, I did care more about it. It helped me a lot." Notably, one participant indicated that increased medication adherence was directly related to having received the phone call "Yeah, keep enforcing, keeping pushing you know, 'cause a lot of the medications I wasn't really taking." Another said "she got me going on them [MEDICATIONS]" and "I used to be real bad with medications, right? Yeah, she did help me with that."

Best practices. When asked about the best part of the program, most participants focused on the increased understanding of their medications. One participant stated, "Pretty good, pretty well. They explained everything."

Recommendations. When asked for recommendations, these participants echoed earlier ones stating that, "I wouldn't change anything. Oh, I wouldn't, it was fine." However, as earlier participants requested longer involvement, these participants wanted extended contact and continuity with the pharmacists saying, "Just the frequency that you would contact me to let me know about my medicines." A small number of participants had more than one year in the MTM program. One stated "It was very good. I did it last year too, about the same time. Both times the same thing happened that made me aware of the medications I was taking. I talked here with my doctor…It's a good system."

However, the most common response to what could be improved about the program was a variation on "Very Good!"

Closed-Ended Questions

Positive experiences of participants were also reflected in their answers to questions under this category. These findings align with those found in the open-ended questions in that participants were satisfied with the program overall, received helpful information, and were positive in describing the treatment they received from the UF COP staff who conducted the CMRs.

Interview Responses

Responses to the five closed-ended (yes/no) questions are summarized in Table 55. These questions were derived from existing measures of quality related to the MTM program.

Participants were also asked to make one global evaluation of the program. These results are indicated in Table 56.

It is clear that MTM-P who participated in qualitative interviews were pleased with the program as administered and found the information about the MTM program provided during the CMR helpful. They provided nuanced (i.e., appreciation for the concern of the UF COP staff; the mailed information was the least helpful) and global support for the MTM program. All participants rated the program good or very good overall. Their recommendation that the program continue provides insight into the needs of participants for support in addressing their complex medical issues and echoes the statements of UF COP staff who wished to keep in touch beyond the CMR. These findings are particularly robust in that they are consistent across multiple cohorts of participants and regardless of whether the full three claims reviews were completed. Those who declined to participate were varied in their reasons for refusal; however, the largest segment suggested that information regarding the program prior to the recruitment call would have been helpful.

Participant Interviews: Refusals

In addition to interviewing participants in the MTM program, the ET contacted potential participants (n=47) who had been contacted by UF COF personnel, but had refused to participate in the program. Of those contacted, twenty (20) provided information regarding their reasons for refusing MTM. Using content analysis, these data were categorized into 9 conceptual areas: 1) never received information; 2) knew enough about medications; 3) was feeling better and did not require more medical advice; 4) was

frustrated with Medicaid in general; 5) received enough information from doctor; 6) was already enrolled in a similar program; 7) did not have enough time to participate; 8) relied only on the doctor for medical advice; and 9) did not remember the phone call. Once again, lack of communication appears to be key, as almost a third (29.6 %) indicated a lack of information prior to the initial call was the primary reason for refusal.

Qualitative Evaluation: Primary Care Physician Interviews

In addition to interviews with participants, the ET conducted interviews with primary care physicians (PCPs). These interviews were conducted by a staff of graduate student RAs at the College of Social Work and College of Medicine who have been trained by the Lead Analyst in all aspects of qualitative research methodology. These RAs conducted, transcribed, and coded interviews under the supervision of the Lead Analyst.

These specific findings are based on interviews with four PCPs who have patients from the MTM-P or MTM-NP groups. These interviews took place after similar, though not equivalent, interviews with four key informants at the UF COP chosen by AHCA as being most knowledgeable about the MTM program and 39 MTM-P interviews. The preliminary findings of key informants and participants were previously reported and were helpful in developing the ET PCP interview process.

Importance of MTM Primary Care Provider (PCP) Perspective

It is difficult to overestimate the importance of the PCP in implementing the MTM process. As the medication prescribers, PCPs are an essential part of effectively implementing any MTM program. Within the MTM program, PCP involvement has been less than optimal. For example, in cases in which medication modifications have been recommended and faxed to the PCP of record, resolution rates ranged from 33-40% in the Cohorts 1 and 2 and declined to 26% in Cohort 3. That is, in less than half the cases have physicians made the recommended adjustments as indicated by subsequent claims reviews, or contacted the UF COP personnel to discuss their recommendations. Furthermore, UF COP personnel indicated they became excited even when the PCP refused to make the adjustment, because they knew that “at least they (the PCP) had read the fax.” Given the integral role of the PCP as prescriber and the less than optimal involvement recorded, it is essential to speak to PCPs to determine their views of the MTM program.

Qualitative Evaluation Methods and Processes

This evaluation used established methods of qualitative research to provide information helpful in understanding the underlying processes while evaluating the MTM program as it is implemented by the call center at the UF COP. The Evaluation Team (ET) from the FSU College of Social Work and College of Medicine conducted these interviews with PCPs.

Primary Care Provider (PCP) Recruitment

In view of the limited involvement noted above, PCP recruitment became a critical issue. Indeed, in the original work plan submitted to AHCA in October 2012, the ET noted that access to PCPs was potentially problematic.

Therefore, the ET used multiple recruitment strategies including: 1) contacting a large initial pool of PCPs; 2) obtaining resources and permission (from AHCA and the FSU Institutional Review Board) to provide participation incentives ($100 gift cards); 3) purchasing recorders for use with cell phones to enhance flexibility and access; and 4) utilizing all the current RAs for PCP recruitment. The ET sent a letter or fax to the PCP and followed with a phone call. The ET conducted interviews with a purposive sample drawn from PCPs who had attended MTM program participants identified by AHCA and UF COP staff. Four interviews were conducted.

Interview Protocol

The ET used a semi-structured interview guide with questions and prompts based on an initial literature review and approved by AHCA personnel. PCPs were asked about what they know about the program, what might be different for patients who participate versus those who do not participate, any positive or negative effects that the program might have on the patient, and how does the patient's participation affect the PCP. In addition, the ET interviewers followed up on new areas and topics mentioned by the PCPs, in accordance with standard interview conduct.

Data Collection

Interviews were digitally recorded with permission of the participants and transcribed word for word. All tapes and transcriptions were kept on password-protected computers with access limited to the ET. AHCA and Institutional Review Boards approved all interview protocols, surveys, and scripts prior to implementation. Recruitment began in early October, 2013. The ET interviewers conducted the interviews via telephone. Due to low response rates, PCP interviews were not sought nor conducted in the third year of the evaluation.

Data Management

A tracking database in Microsoft ACCESS was maintained throughout the project to record pertinent information regarding contacts made with PCPs and enrollment status. Interview transcriptions were entered into Atlas/ti software for analysis, an established software package that allows for the storage of codes and serves as an organization tool for studies using multiple interviews. All tapes and transcriptions were kept on password-protected computers with access limited to the ET.

Analytic Method

Upon completion of the initial three interviews, the ET examined each interview for emerging themes, and relevant codes were developed utilizing the constant comparative method. This method allowed coders to compare new information to codes identified earlier and develop new codes if none existed for the current data. This process allowed for a structured and systematic data analysis method, while optimizing the emergence of new codes to capture new ideas as they developed. Before completing additional interviews, members of the ET met to discuss codes, themes and domains as well recruitment and interview techniques. A code list was established and used in coding subsequent transcripts.

Data Analysis Process

Interviews were digitally recorded with permission of the participants and transcribed word for word using Dragon Naturally Speaking software. The analytic process began with immersion in the data; that is, the ET read the transcripts multiple times to become familiar with the content and flow. The ET then made notations (codes) for each small bit of data, a process called "open coding." These codes were recorded in Atlas/ti as the initial code list. Atlas/ti also allowed for "memoing"; that is, the ET was able to make and retain notations related to underlying themes during the coding process. There were allowances for word-for-word (in vivo) coding during the coding process.

As the coding process is iterative, there is the expectation that the code list will be expanded and amended as the interview process continues. While there were no codes established prior to beginning this process, in the final report findings from these interviews have been triangulated with those from key informant and participant interviews as well as quantitative findings in the integrated findings below to provide a more comprehensive qualitative evaluation of the MTM program.

PCP Interviews—Findings

Despite the small sample size, our initial findings among the completed interviews are consistent in some areas: 1) PCPs are aware of the MTM process overall, usually from experience with other insurance or

funding sources; however, PCPs do not remember individual patients; 2) PCPs give general support, with some reservations, to the idea of MTM for Medicaid patients; and 3) PCPs would welcome an initial contact regarding individual participants of MTM through the MTM program.

MTM as a Process

All the PCPs interviewed had some familiarity with the MTM process; however, they could not remember the individual person nor did they realize that MTM was available to Medicaid patients. That is, they did not know that there was an MTM program being conducted under the auspices of Medicaid. For example, one PCP stated "I mean, I didn't realize they were doing this…I see it with other commercial insurance, but not Medicaid." Or another stated, "(…the MTM program) is something new to me."

Support

PCPs, who were interviewed, provided general support of MTM for Medicaid patients. Their thoughts were that MTM could lead to greater adherence on the part of the patient. When asked about how persons enrolled in the program might differ from those not enrolled, one PCP responded, "What might be different is increased compliance with their medicine. They would understand what it's for and why they take it, and increased refill compliance." Another stated, "I think that the general idea of your program makes sense" and, "Oh, it will definitely increase the patient's medication compliance."

Yet, PCPs also had reservations about the program. One asked about the funding for the program. One PCP stated "some of these patients are non-compliant anyway." Furthermore, they question the cost/benefit of a state-funded program asking "Where's the money going to come from?" Also, "Many physicians stay away from Medicaid because of their reimbursement." Another stated, "I guess it could probably help the cost of healthcare…to prevent hospitalization, to prevent long-term problems from not taking the medicine." But one PCP plainly stated, "It would be a waste of tax payer money." Conversely, another PCP stated, "It's high time some source of organization is actually on the side of the patients; especially Medicaid."

Initial Contact

PCPs stated that "it would have been nice" when probed about notification that patients or a specific patient was enrolled in the MTM program. However, another stated, "I always disregarded the documents because I did not want the insurance company or anyone telling me what to do."

Qualitative Conclusions

The findings from all cohorts of MTM participants indicate that the program is viewed positively by the participants, who value the respect and empathy demonstrated by the pharmacists. Most participants found the program helpful and wished for longer engagement. That was also a theme that emerged when participants were asked for recommendations; however, most indicated that they saw no need for changes to the MTM program. Overall, these findings are robust and consistent in support for the MTM program. PCPs indicated they supported the concept of MTM; however, they needed some initial orientation by fax or letter for a specific person.

Quantitative and Qualitative Evaluation Integrated Findings

In this report, it is important to integrate findings from both the Quantitative and Qualitative Components around common concepts that can lead to a more nuanced understanding of findings when considered separately. This section includes integrated findings related to medication adherence and PCP participation.

Medication Adherence

This section integrates our findings regarding medication adherence (i.e., taking the correct drugs, for the correct indications, at the correct times, at the correct dose, and under the proper conditions for safe and effective use) from the following sources: 1) literature review; 2) quantitative analyses used to answer EQ-3; 3) qualitative participant interviews; and 4) best practices. The theme of adherence is used as an organizing framework as medication adherence is an established predictor of both improved patient outcomes and cost benefits; therefore, an optimal outcome measure for the effectiveness of the MEDs-AD Waiver MTM program as administered by the UF COP.

Our review of the literature found that there were few MTM research studies that focused on clinical outcomes such as adherence. However, in cases in which adherence was measured, there was evidence of greater adherence associated with participation in MTM programs.

In lieu of direct evidence of adherence through patient observation, we used standardized measures, the Medication Possession Ratio (MPR) and the Continuous Single-Interval Measure of Medication Availability (CSA), as surrogates for adherence in the quantitative component of the study. Results from the pharmacy adherence analysis showed that while gaps in prescription coverage did exist in the MTM-P and MTM-NP cohorts, these gaps were not sufficient to create statistically significant difference in

mean MPRs in the pre-intervention and intervention periods and also did not produce a statistically significant difference in the mean CSAs for any study period. MPR and CSA values are similar in the MTM-P and MTM-NP groups in all study periods. Therefore, despite gaps in medication coverage, the MTM-P and MTM-NP populations exhibited good adherence to their medications in all three cohorts.

Despite the lack of statistically significant differences between MTM-P and MTM-NP participants, medication adherence was a reoccurring theme in the MTM program participant interviews. Notably, from the MTM program participants' perspectives, the MTM program clearly increased their adherence. Participants openly stated that they were not adherent prior to the CMR and that increased medication adherence was directly related to MTM participation. Specifically, they noted that pharmacists' encouragement led to their increased adherence. This finding occurred in the most recent interviews as well as those conducted earlier.

In addition, when evaluating best practices, one recommendation, obtaining laboratory results, presents another potential surrogate for adherence. Requesting the laboratory results from the prescriber prior to the CMR and, again, post-CMR has multiple uses. This request will alert the physician that the person is going to participate in the program and will provide the pharmacist with a more detailed report. It is unlikely that this information is available from all participants. However, obtaining laboratory values provides a basis for comparison that may be linked to adherence.

Data indicate that extant literature, although quite limited, supports a positive association of MTM programs with medication adherence. And although the adherence levels of both MTM-P and MTM-NP were good as measured by MPR and CSA, interviewed MTM program participants reported increased medication adherence attributable to MTM participation; specifically, encouragement by UF COP pharmacists. Furthermore, obtaining laboratory values prior to and following the CMR, presents another opportunity to evaluate adherence as well as providing the best practices gold standard for clinical effectiveness of the MTM program as administered by the UF COP.

PCP involvement in the MTM Program MEDs-AD Demonstration Project

This section presents integrated findings regarding primary care physician (PCP) involvement from the following sources: 1) quantitative analyses used to answer EQ-7; 2) qualitative interviews with UF COP, PCPs, and MCAP personnel; 3) interviews with participants; and 4) best practices. PCP involvement discussed here includes responding to faxed recommendations for changes based on the CMR (i.e., refusing to make a recommended change or making a recommended change as noted in claims data

following a faxed request). PCP involvement was used as an organizing concept as PCP involvement is essential in implementing clinical changes that translate MTM concepts from abstract to direct patient outcomes.

Data indicate that the resolution rate (i.e., the indication that recommendations based on the CMR and fax transmission to physicians were made based on subsequent claims data reviews) is low. Of the 104 cases flagged in Cohort 1 only 42 (40%) are noted as resolved. In Cohort 2, there were 214 flagged cases, only 70 (33%) of which are noted as resolved. And in Cohort 3, of the 54 cases flagged, only 14 (26%) are noted as resolved. While these data do not show a statistically significant difference, they do indicate that in the best case, almost two-thirds of cases go unresolved. On the other hand, the reasons for the lack of resolution are unknown. It is possible that the PCP does not agree with the recommendation, has not seen their faxed recommendations, or is resistant to outside intervention with the patient's medical care.

Qualitative interviews with UF COP indicate their excitement over any type of response from PCPs. They do indicate that even refusals are welcome as these refusals confirm that the PCP has at least read the fax. Data are not available to indicate how often they receive this type of information; however, it is notable that direct responses are so infrequent that they are noted as remarkable. Interviews with MTM program participants noted that, on some occasions, they discuss the recommendations provided during the CMR with their PCPs. Even without detailed information on the underlying causes of these low resolution rates, it is notable that best practices recommend assessing the patient on the basis of all relevant clinical information available to the pharmacist, the patients' physical and overall health status, including current and previous diseases or conditions. Based on our review of the UF COP MTM program written protocol, the pharmacists do not contact the PCP prior to faxing with a (potentially unwelcome) recommendation. An area for improvement would be for the UF COP to contact the prescriber prior to the patient phone call and alert the PCP that his patient will be participating in the MEDs-AD Waiver MTM program administered by the UF COP. Physicians who participated in the PCP interviews indicated that they would welcome this approach. Based on the best practices assessment and the limited PCP interviews, it is possible that this preliminary phone call would enhance collaboration between the UF COP pharmacists and the PCP, the prescriber.

Summary and Recommendations - Quantitative

The current literature on MTM suggests that many patients receiving MTM counseling see improved health outcomes that include: 1) better medication adherence, 2) reduced exposure to potential drug-drug or drug-disease interactions, 3) reduced instances of over or under medication, and 3) better control of their conditions as reflected by fewer inpatient hospitalizations and visits to the ED. Payers have reportedly observed lower medical and prescription drug reimbursements for populations that receive an MTM intervention. However, the majority of the published literature evaluating MTM programs was conducted on populations of working age adults covered by private insurance through their employer or within the covered population of private insurance companies providing Medicare Part D coverage to an elderly Medicare population. Typically, these published evaluations included a large number of patients who received MTM counseling and were followed for at least one year.

The object of this evaluation was to examine the effectiveness of an MTM program in the context of a publicly funded Medicaid population of mostly working age adults who are not working due to the impact their disease or condition has on their ability to function in the workplace. Social determinants of health are known to play a larger role in the observed health outcomes of persons covered by Medicaid as compared with private insurance.

A variety of utilization, financial, and clinical outcomes of interest were compared in the current evaluation that controlled for demographic factors, chronic disease burden, and length of enrollment. All utilization, financial, and clinical outcomes were tested with at least two DiD models using different comparison groups to control for baseline differences in the outcome between MTM-P and MTM-NP. Additionally, propensity score matching analysis was conducted for total expenditures, pharmacy expenditures, odds of one or more inpatient discharges, and odds of one or more emergency room visits. Both of these methods are widely used in the comparative effectiveness literature.

The results of our evaluation of the Florida Medicaid MTM program for all three cohorts of MTM-P recipients receiving the MTM intervention between 2011 and 2014 found no statistically significant differences between the intervention group and the various comparison groups constructed from Medicaid recipients from the same eligibility pool who did not receive the MTM intervention. This

contrasts with findings reported in our previous report[6] that found that the Cohort 2 MTM-P group had lower odds of an inpatient discharge and a lower incidence of inpatient discharges as compared with comparison group.

The DiD and propensity score matching approaches are rigorous and therefore it may be harder to achieve statistical significance. There were indications that the MTM-P had positive financial and clinical outcomes that were not large enough to reach statically significant differences as compared with the comparison groups. For example, there were some descriptive findings with statistically significant findings:

- The mean annualized amount reimbursed for inpatient care per recipient is higher for the MTM-NP in both the the pre-intervetion period ($209,842 vs. $122,319 , p<.05) and intervention period ($57,684 vs. $52,220) with respect to the MTM-P group (Table 12).
- Overall, the mean reimbursed amount for inpatient care is higher for the MTM-NP than the MTM-P ($139,188 vs. $92,742, p<.05). The decline in mean reimbursed amount from pre-intervention to intervention period was larger in MTM-NP than in MTM-P ($152,158 vs. $70,099, p<.05). All differences were statistically significant.

There were also some descriptive findings that approached statistical significance using the less rigorous critical value of p greater than .05 but less than 0.10.

- The adjusted odds of one or more inpatient discharges in the base model were lower in the MTM-P group (OR=0.78, p=.066). However, after controlling for different baseline odds in the interaction model the difference in differences interaction term was clearly not significant (p=0,85) (Table 33).

Finally, there were also several examples of non-significant differences between MTM-P and MTM-NP suggesting that the intervention group was "heading in the right direction" over time. For example:

- Mean annualized reimbursement amount for all outpatient facility BETOS procedures (Table 9) is lower for the intervention year ($1,961) than the pre-intervention year ($2,288) for both groups. The mean decline between periods was $255 for MTM-P and $271 for MTM-NP and

[6] MEDs-AD Waiver (MTM) Program Evaluation—Final Report Prepared for Florida Medicaid by the Florida State University College of Medicine, April 18, 2014 (page 52).

mean overall reimbursement is lower for the MTM-P ($1956) than the MTM-NP $2186). None of the differences are statistically significant.

- Mean annualized reimbursement amount for all professional services BETOS procedures (Table 10) is lower for the intervention year ($5,659) than for the pre-intervention year ($6,947) for both groups. The mean decline between periods was $2,234 for MTM-P and $1,004 for MTM-NP. The difference is not statistically significant. Overall, reimbursement is higher in MTM-NP ($6,650) than MTM-P ($5,946), but the difference is not statically significant.
- The mean annualized amount reimbursed for inpatient care per recipient is higher for the MTM-NP in both the the pre-intervetion period ($25,181 vs. $16,614) and intervention period ($14,205 vs. $13,093) with respect to the MTM-P group (Table 11). Overall, the mean reimbursed amount for inpatient care is higher for the MTM-NP ($22,997) than the MTM-P ($15,756). The decline in mean reimbursed amount from pre-intervention to intervention period was larger in MTM-NP ($10,975) than in MTM-P ($3,521). None of the differences were statistically signficant.
- Average treatment effect in the propensity score models for total reimbursements were generally lower in the MTM-P group, but those differences did not reach statistical significance (Table 28).
- The propensity score model for the odds of one or inpatient discharges also suggest lower odds in the MTM-P group but these findings had much higher p-values (Table 29). Using a less rigorous criteria for the critical value of the p-value (i.e., using $p<.10$ rather than $p<.05$ to determine a statistical difference) the adjusted odds of one or more AHRQ ACSC inpatient discharges were lower in the MTM-P group (OR=0.78, p=.066). After controlling for different base line odds the difference was not significant (Table 36).

Although no direct comparison group is available to gauge UF COP MTM services against, UF COP staff identified many problems among the three cohorts of MTM-P (nominal n=455)

- 54 clinically significant Level 1 or 2 drug interaction problems were identified.
- 43 instances where pill burden could be decreased, opportunities for combination therapy or removal of duplicate therapies were identified.
- 235 instances of a gap in therapy, insufficient dosage, insufficient duration of therapy, or a lack of therapy were identified.

- These services on the face of it are beneficial to the recipient and may contribute to financial, clinical, or humanistic outcomes that were too small to measure or in the case of humanistic outcomes like quality of life were not measured.
- The mean number of problems identified per MTM-P group member was 0.7, 1.3, and 0.4 for Cohorts 1, 2, and 3, respectively.
- The mean percentage of identified problems resolved was 28.6%, 40.9%, and 10.2% for Cohorts 1, 2, and 3, respectively.

Physician engagement with the Florida Medicaid MTM process continues to be a problem as has been reported in other MTM evaluations and likely contributes to sub-optimal rates of resolution of the problems identified by the UF COP staff.

Possible explanations for the divergent findings for the outcomes studied between the published findings on MTM programs and the results of this evaluation may be categorized as:

1. Characteristics of the MEG3 Florida Medicaid population that make measurement and evaluation difficult may mask a true benefit that could not be identified,
2. Characteristics of the design and implementation of previously published evaluation studies and their target populations that make them a poor comparison for this study population, and
3. The program simply has not produced any statistically significant results when applying rigorous methods for the metrics included for this evaluation.

Each of these possible explanations is below:

Characteristics of the Florida MEDs-AD MEG3 Population. The MEG3 population studied for this evaluation is dynamic with members exiting and occasionally reentering eligibility over the course of the pre-intervention and intervention year. Very few intervention or comparison group members were followed for two full years. Half or more were followed for 6 months or less during the two year study window for each cohort. Persons become ineligible when they become eligible for Medicare as a result of age or meeting the two-year waiting period for receiving Medicare benefits as a disabled individual younger than age 65. A smaller number become ineligible for the MTM program by entering into long-term care facilities, hospice or HCBS, and still others become covered under a MCO and are therefore ineligible. It was not unusual to see more than one exclusionary criteria met in the same program year for a given person.

There is some evidence to suggest that the recipients who self-selected into the MTM intervention group were somewhat different than the original query list developed by AHCA during Step 1 of recipient recruitment. Some statistically significant differences based on age, race, ethnicity, and AHCA administrative region of residence were observed between the original query list and the group that completed the CMR each year. Ideally, the intervention group should be representative of the larger pool of eligible MEG3 recipients. The differences that arose may have resulted from recipient preferences or recruitment processes. Although suboptimal, it is unclear what impact if any the observed differences between the MEG3 population pool and the final intervention groups had on evaluation findings.

A large body of evidence links what are loosely categorized under the term "social determinants"[7] to poor health outcomes and disparities in health and optimal use of health care services. Social determinants of health can be positive or negative but here we refer to determinants that have a negative impact on health. These social determinants are known to be highly prevalent in the Medicaid population. They appear as deficits in health literacy, problems navigating the health care system, lack of transportation, lack of support from family or friends, and sub-optimal like skills and problem solving ability. Recent changes in reimbursement policy have incentivized hospitals to consider mechanisms for reducing re-hospitalizations that are highly dependent on transition services that address social disparities and are delivered by social workers or other mid-level health professionals. There is some evidence that there is a business case, e.g., a positive return on investment, for offering these services because they reduce downstream costs[1,3,7-9,11,15].

Characteristics of other studies. The other published evaluations of MTM programs are not directly comparable because the privately insured populations in those studies are very different from the MEG3 Medicaid population in Florida. The research designs in many of the published studies are not very strong. They either study MTM program participants without any comparison group or the comparison group is not carefully chosen. Comparative effectiveness studies of this sort are very susceptible to misleading findings when a comparison group is not carefully chosen and differences between the intervention and comparison group are not carefully controlled statistically.

[7] Social determinants can have either a positive or negative impact on health. This paragraph is limited to a discussion of the negative social determinants of health.

No statistically significant differences. No statistically significant differences were found because none existed in the context of this particular program for the outcome measures studied.

Recommendations:

1. Continue to evaluate the Florida MTM program over time to improve population size and choose alternate analytic designs and measures to address program effectiveness.
2. Mitigate the loss of sample size due to recipients aging into Medicare by only selecting persons for the original query list that are less than 63 years old. If the original query used by AHCA staff to obtain consent at the first stage only includes persons age 63 and below then recipients that provide consent and are sent to UF COP will not turn 65 until the post-intervention year.
3. If feasible, exclude recipients receiving Medicare or belonging to an MCO organization from the original query.
4. If a written, step by step protocol for creation of the original query by AHCA staff does not exist, then create one that addresses these issues:
    a. Documents the query terms used to create the original query call list.
    b. Explains how to identify recipients who are already ineligible for the MTM program at the time of original query creation due to Medicare, LTC, HCBS, MCO, or hospice utilization at the time before calls are attempted.
        i. This would be facilitated by creation of a detailed list of codes that indicate exclusion or inclusion as potential MTM program participants using the Aid Category, Benefit Category, and Assignment Plan data elements.
    c. Establishes a method for calling recipients on the original query list in random order to provide an equal probability of contacting recipients with the opportunity.
    d. Ensures Spanish speaking pharmacy staff is available to make calls for consent at stage one of consent to mitigate possible adverse selection probabilities of Spanish speakers.
    e. Use of a check list with recipients called during the first stage to confirm they are not currently receiving Medicare, LTC, HCBS, or hospice service and are not a member of an excluded MCO population.
    f. Develop a method to use existing information in AHCA files to identify persons who are likely to become eligible for Medicare before the intervention year is completed. The actual date of the first receipt of SSI may be useful in this regard.

5. Consider approaches to improving physician engagement with the MTM program to enhance the number of problems identified by UF COP that are resolved.
6. Consider approaches that use UF COP staff to address issues in the MTM-P population that are broadly categorized as social determinants of health and are highly prevalent in Medicaid populations.
    a. Anecdotal reports from UF COP staff and MTM participants suggest this already occurs informally
    b. Efforts at improving health literacy may enhance recipient understanding and self-efficacy at managing their conditions.
    c. Systematically referring recipients to appropriate agencies when problems amenable to social agency interventions are identified.

Other approaches might be developed based on the experience of UF COP pharmacists with MTM participants to date.

Summary and Recommendations - Qualitative

Despite the quantitative findings, the qualitative interviews with recipients indicate positive benefits from the perspectives of program participants. Participants report greater adherence, increased understanding of their medications, and generally positive responses to the pharmacists' interest in their well-being. While quality of life is not an intended or a measured outcome, it can be inferred from participant responses that they would like more direct contact from pharmacists. However, limited PCP engagement, as indicated by the key informant interviews, as well as the quantitative component, hampers the effectiveness of MTM intervention. Therefore, there are three recommendations:

1. Increase the amount of direct contact between the pharmacists and the participants by:
    a. Increasing the number of phone calls required per protocol; and/or
    b. Extending the program for more than the current one-year interval.
2. Increase PCP engagement by notifying physicians that individual patients are enrolled in the program prior to making recommendations.
3. Add medical social service agents (e.g., social workers or case managers) to the UF call center staff to meet the needs that extend beyond the mission of the MTM program.

Appendix Results Tables

Table 6. Summary statistics for length of enrollment for persons with observed enrollment in the entire MEDs-AD study population (MEG-3) before study group assignment or application of inclusion/exclusion criteria, Florida MTM program June 1, 2010 - May 31, 2014

Study Period	No. Recipients	Sum Enrolled Days	Mean Enrolled Days	Std. Dev.	Minimum	Maximum
Year 1 2010-2011	20,696	4,517,885	218	156	0	365
Year 2 2011-2012	20,696	5,623,378	271	135	0	365
Year 3 2012-2013	20,696	5,773,499	278	137	0	366
Year 4 2013-2014	20,696	5,300,302	256	156	0	365
Total	20,696	21,215,064	.	.	.	.

Note: The 20,696 unique persons represent all tracked recipients that formed the pool of perspective intervention and comparison group members identified on one or more study periods. Not all recipients are observed in each study period. However, they are nonetheless accounted for in each period with zero or more enrolled days.

Table 7. Summary statistics for length of enrollment for persons applying LENIENT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recipients	Sum Enrolled Days	Mean Enrolled Days	Std. Dev.	Minimum	Maximum	Median	Mean 95% LCL	Mean 95% UCL	Test P vs. NP
MTM-NP	SP-PRI	1,265	378,932	300	92	31	366	365	294	305	.
MTM-P	SP-PRI	363	114,883	316	79	61	366	365	308	325	.
Sub-Total	SP-PRI	1,628	493,815	303	90	31	366	365	299	308	.
MTM-NP	SP-INT	639	211,325	331	81	9	366	365	324	337	.
MTM-P	SP-INT	191	63,421	332	74	30	366	365	321	343	n.d.
Sub-Total	SP-INT	830	274,46	331	79	9	366	365	326	336	.
MTM-NP	All Periods	1,904	590,257	310	90	9	366	365	306	314	.
MTM-P	All Periods	554	178,304	322	78	30	366	365	315	328	.
Total	All Periods	2,458	768,561	313	87	9	366	365	309	316	.

Table 8. Summary statistics for length of enrollment for persons applying STRICT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Evaluation Group	Study Period	No. Recipients	Sum Enrolled Days	Mean Enrolled Days	Std. Dev.	Minimum	Maximum	Median	95% LCL	95% UCL	Test P vs. NP
MTM-NP	SP-PRI	413	138,946	336	66	30	365	365	330	343	.
MTM-P	SP-PRI	152	51,096	336	68	61	365	365	325	347	n.d.
Sub-Total	SP-PRI	565	190,042	336	67	30	365	365	331	342	.
MTM-NP	SP-INT	307	101,852	332	75	30	366	366	323	340	.
MTM-P	SP-INT	133	43,912	330	76	30	366	366	317	343	n.d.
Sub-Total	SP-INT	440	145,764	331	75	30	366	366	324	338	.
MTM-NP	All Periods	720	240,798	334	70	30	366	365	329	340	.
MTM-P	All Periods	285	95,008	333	72	30	366	365	325	342	n.d.
Total	All Periods	1005	335,806	334	71	30	366	365	330	339	.

Tables for Evaluation Question 1: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG 1 (MTM-NP), and CG 2 for utilization measures?

Descriptive Tables EQ 1 (procedure counts) and EQ 2 (reimbursement) are combined in Tables 9 and 10.

Table 9. Total and mean service counts and dollars for UB-04 outpatient facility claims by BETOS codes adjusted for enrolled days by claim type and by program period for MTM participant and MTM non-participant population groups using LENIENT inclusion/exclusion criteria, Florida MTM program June 1, 2010 - May 31, 2014

Outpatient Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count UB-4	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Evaluation and Management	MTM-P	SP-PRI	114,883	18	750	42	12	154	2	-55	60
Evaluation and Management	MTM-NP	SP-PRI	378,932	19	1,305	69	35	108	1	-41	43
Evaluation and Management	Sub-Total	SP-PRI	493,815	37	2,054	56	12	154	2	-45	48
Evaluation and Management	MTM-P	SP-INT	63,421	13	875	67	12	202	5	-79	89
Evaluation and Management	MTM-NP	SP-INT	211,325	66	8,643	131	0	4,663	15	-130	160
Evaluation and Management	Sub-Total	SP-INT	274,746	79	9,518	120	0	4,663	13	-121	146

Outpatient Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count UB-4	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Evaluation and Management	MTM-P	ALL	178,304	31	1,624	52	12	202	3	-65	72
Evaluation and Management	MTM-NP	ALL	590,257	85	9,947	117	0	4,663	6	-87	99
Evaluation and Management	Total	ALL	768,561	116	11,572	100	0	4,663	6	-82	93
Procedures	MTM-P	SP-PRI	114,883	50	4,955	99	95	100	16	-133	164
Procedures	MTM-NP	SP-PRI	378,932	261	69,353	266	54	1,661	67	-239	373
Procedures	Sub-Total	SP-PRI	493,815	311	74,308	239	54	1,661	55	-223	332
Procedures	MTM-NP	SP-INT	211,325	56	34,400	614	100	1,400	59	-229	348
Procedures	Sub-Total	SP-INT	274,746	56	34,400	614	100	1,400	46	-207	299
Procedures	MTM-P	ALL	178,304	50	4,955	99	95	100	10	-109	129
Procedures	MTM-NP	ALL	590,257	317	103,753	327	54	1,661	64	-236	364
Procedures	Total	ALL	768,561	367	108,708	296	54	1,661	52	-217	321
Other	MTM-P	SP-PRI	114,883	315	15,882	50	6	303	50	-216	316
Other	MTM-NP	SP-PRI	378,932	550	68,407	124	3	2,511	66	-238	370
Other	Sub-Total	SP-PRI	493,815	865	84,289	97	3	2,511	62	-233	358

Outpatient Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count UB-4	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Other	MTM-NP	SP-INT	211,325	61	32,005	525	4	2,171	55	-223	334
Other	Sub-Total	SP-INT	274,746	61	32,005	525	4	2,171	43	-202	287
Other	MTM-P	ALL	178,304	315	15,882	50	6	303	33	-181	246
Other	MTM-NP	ALL	590,257	611	100,413	164	3	2,511	62	-233	357
Other	Total	ALL	768,561	926	116,295	126	3	2,511	55	-223	334
Exceptions/ Unclassified	MTM-NP	SP-PRI	378,932	14	10,628	759	155	901	10	-110	130
Exceptions/ Unclassified	Sub-Total	SP-PRI	493,815	14	10,628	759	155	901	8	-97	113
Exceptions/ Unclassified	MTM-NP	SP-INT	211,325	19	25,327	1,333	380	5,611	44	-204	291
Exceptions/ Unclassified	Sub-Total	SP-INT	274,746	19	25,327	1,333	380	5,611	34	-184	251
Exceptions/ Unclassified	MTM-NP	ALL	590,257	33	35,955	1,090	155	5,611	22	-154	199
Exceptions/ Unclassified	Total	ALL	768,561	33	35,955	1,090	155	5,611	17	-138	172
MISSING	MTM-P	SP-PRI	114,883	7,043	622,624	88	0	4,780	1,978	313	3,644
MISSING	MTM-NP	SP-PRI	378,932	25,191	2,220,382	88	0	5,876	2,139	407	3,870
MISSING	Sub-Total	SP-PRI	493,815	32,234	2,843,006	88	0	5,876	2,101	385	3,818
MISSING	MTM-P	SP-INT	63,421	2,794	310,470	111	0	7,727	1,787	204	3,370

Outpatient Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count UB-4	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
MISSING	MTM-NP	SP-INT	211,325	10,880	1,064,549	98	0	12,780	1,839	233	3,444
MISSING	Sub-Total	SP-INT	274,746	13,674	1,375,019	101	0	12,780	1,827	226	3,427
MISSING	MTM-P	ALL	178,304	9,837	933,095	95	0	7,727	1,910	274	3,547
MISSING	MTM-NP	ALL	590,257	36,071	3,284,931	91	0	12,780	2,031	344	3,719
MISSING	Total	ALL	768,561	45,908	4,218,026	92	0	12,780	2,003	327	3,679
All BETOS Codes	MTM-P	SP-PRI	114,883	7,426	644,211	87	0	4,780	2,047	353	3,741
All BETOS Codes	MTM-NP	SP-PRI	378,932	26,035	2,370,074	91	0	5,876	2,283	494	4,072
All BETOS Codes	Sub-Total	SP-PRI	493,815	33,461	3,014,286	90	0	5,876	2,228	460	3,995
All BETOS Codes	MTM-P	SP-INT	63,421	2,807	311,345	111	0	7,727	1,792	207	3,377
All BETOS Codes	MTM-NP	SP-INT	211,325	11,082	1,164,924	105	0	12,780	2,012	332	3,692
All BETOS Codes	Sub-Total	SP-INT	274,746	13,889	1,476,270	106	0	12,780	1,961	303	3,620
All BETOS Codes	MTM-P	ALL	178,304	10,233	955,556	93	0	7,727	1,956	300	3,612
All BETOS Codes	MTM-NP	ALL	590,257	37,117	3,534,999	95	0	12,780	2,186	435	3,937
All BETOS Codes	Total	ALL	768,561	47,350	4,490,555	95	0	12,780	2,133	403	3,862

Table 10. Total and mean professional services counts and dollars for CMS-1500 professional service claims by BETOS codes adjusted for enrolled days by program period for MTM participant and MTM non-participant population groups using LENIENT inclusion/exclusion criteria, Florida MTM program June 1, 2010 - May 31, 2014

Professional Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Evaluation and Management	MTM-P	SP-PRI	114,883	7,424	470,301	63	0	545	1,494	47	2,942
Evaluation and Management	MTM-NP	SP-PRI	378,932	24,694	1,668,073	68	0	814	1,607	106	3,108
Evaluation and Management	Sub-Total	SP-PRI	493,815	32,118	2,138,374	67	0	814	1,581	92	3,069
Evaluation and Management	MTM-P	SP-INT	63,421	2,717	182,149	67	0	403	1,048	-164	2,261
Evaluation and Management	MTM-NP	SP-INT	211,325	10,337	726,450	70	0	4,663	1,255	-72	2,581
Evaluation and Management	Sub-Total	SP-INT	274,746	13,054	908,598	70	0	4,663	1,207	-94	2,508
Evaluation and Management	MTM-P	ALL	178,304	10,141	652,449	64	0	545	1,336	-33	2,704
Evaluation and Management	MTM-NP	ALL	590,257	35,031	2,394,523	68	0	4,663	1,481	40	2,922
Evaluation and Management	Total	ALL	768,561	45,172	3,046,972	67	0	4,663	1,447	23	2,871

Professional Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Procedures	MTM-P	SP-PRI	114,883	3,110	378,586	122	0	2,252	1,203	-96	2,502
Procedures	MTM-NP	SP-PRI	378,932	11,046	1,356,114	123	0	1,661	1,306	-47	2,660
Procedures	Sub-Total	SP-PRI	493,815	14,156	1,734,700	123	0	2,252	1,282	-59	2,623
Procedures	MTM-P	SP-INT	63,421	872	105,096	121	0	995	605	-316	1,526
Procedures	MTM-NP	SP-INT	211,325	4,538	534,483	118	0	1,400	923	-215	2,061
Procedures	Sub-Total	SP-INT	274,746	5,410	639,579	118	0	1,400	850	-242	1,941
Procedures	MTM-P	ALL	178,304	3,982	483,682	121	0	2,252	990	-188	2,168
Procedures	MTM-NP	ALL	590,257	15,584	1,890,597	121	0	1,661	1,169	-111	2,449
Procedures	Total	ALL	768,561	19,566	2,374,279	121	0	2,252	1,128	-130	2,385
Imaging	MTM-P	SP-PRI	114,883	3,324	201,300	61	0	1,152	640	-307	1,587
Imaging	MTM-NP	SP-PRI	378,932	11,059	681,997	62	0	1,152	657	-303	1,617
Imaging	Sub-Total	SP-PRI	493,815	14,383	883,296	61	0	1,152	653	-304	1,610
Imaging	MTM-P	SP-INT	63,421	1,033	60,810	59	0	1,150	350	-351	1,051

Professional Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Imaging	MTM-NP	SP-INT	211,325	4,351	285,771	66	0	1,152	494	-338	1,326
Imaging	Sub-Total	SP-INT	274,746	5,384	346,582	64	0	1,152	460	-343	1,264
Imaging	MTM-P	ALL	178,304	4,357	262,110	60	0	1,152	537	-331	1,404
Imaging	MTM-NP	ALL	590,257	15,410	967,768	63	0	1,152	598	-318	1,514
Imaging	Total	ALL	768,561	19,767	1,229,878	62	0	1,152	584	-321	1,489
Tests	MTM-P	SP-PRI	114,883	16,308	152,799	9	0	455	485	-340	1,311
Tests	MTM-NP	SP-PRI	378,932	57,720	524,821	9	0	1,694	506	-336	1,347
Tests	Sub-Total	SP-PRI	493,815	74,028	677,619	9	0	1,694	501	-337	1,339
Tests	MTM-P	SP-INT	63,421	5,485	51,871	9	0	463	299	-348	946
Tests	MTM-NP	SP-INT	211,325	23,195	239,850	10	0	1,694	414	-348	1,176
Tests	Sub-Total	SP-INT	274,746	28,680	291,721	10	0	1,694	388	-350	1,125
Tests	MTM-P	ALL	178,304	21,793	204,670	9	0	463	419	-348	1,185
Tests	MTM-NP	ALL	590,257	80,915	764,670	9	0	1,694	473	-341	1,287
Tests	Total	ALL	768,561	102,708	969,340	9	0	1,694	460	-343	1,264
Durable Medical Equipment	MTM-P	SP-PRI	114,883	1,356	88,560	65	0	16,081	281	-347	909

Professional Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Durable Medical Equipment	MTM-NP	SP-PRI	378,932	4,701	322,475	69	0	23,923	311	-349	971
Durable Medical Equipment	Sub-Total	SP-PRI	493,815	6,057	411,036	68	0	23,923	304	-349	957
Durable Medical Equipment	MTM-P	SP-INT	63,421	612	36,541	60	1	370	210	-333	753
Durable Medical Equipment	MTM-NP	SP-INT	211,325	2,857	204,476	72	0	13,933	353	-351	1,057
Durable Medical Equipment	Sub-Total	SP-INT	274,746	3,469	241,018	69	0	13,933	320	-350	990
Durable Medical Equipment	MTM-P	ALL	178,304	1,968	125,102	64	0	16,081	256	-343	855
Durable Medical Equipment	MTM-NP	ALL	590,257	7,558	526,952	70	0	23,923	326	-350	1,002
Durable Medical Equipment	Total	ALL	768,561	9,526	652,053	68	0	23,923	310	-349	969
Other	MTM-P	SP-PRI	114,883	1,266	463,169	366	0	7,613	1,472	35	2,908
Other	MTM-NP	SP-PRI	378,932	4,752	1,472,838	310	0	13,702	1,419	8	2,829
Other	Sub-Total	SP-PRI	493,815	6,018	1,936,007	322	0	13,702	1,431	14	2,848

Professional Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
Other	MTM-P	SP-INT	63,421	453	149,697	330	0	5,286	862	-238	1,961
Other	MTM-NP	SP-INT	211,325	2,167	771,439	356	0	13,702	1,332	-34	2,699
Other	Sub-Total	SP-INT	274,746	2,620	921,135	352	0	13,702	1,224	-86	2,534
Other	MTM-P	ALL	178,304	1,719	612,866	357	0	7,613	1,255	-72	2,581
Other	MTM-NP	ALL	590,257	6,919	2,244,276	324	0	13,702	1,388	-7	2,783
Other	Total	ALL	768,561	8,638	2,857,142	331	0	13,702	1,357	-22	2,736
Exceptions/ Unclassified	MTM-P	SP-PRI	114,883	1,342	56,323	42	7	350	179	-322	680
Exceptions/ Unclassified	MTM-NP	SP-PRI	378,932	2,931	264,385	90	0	3,294	255	-343	852
Exceptions/ Unclassified	Sub-Total	SP-PRI	493,815	4,273	320,708	75	0	3,294	237	-339	814
Exceptions/ Unclassified	MTM-P	SP-INT	63,421	230	14,436	63	8	262	83	-258	424
Exceptions/ Unclassified	MTM-NP	SP-INT	211,325	2,146	190,662	89	0	5,611	329	-350	1,009
Exceptions/ Unclassified	Sub-Total	SP-INT	274,746	2,376	205,098	86	0	5,611	272	-346	891
Exceptions/ Unclassified	MTM-P	ALL	178,304	1,572	70,759	45	7	350	145	-306	596
Exceptions/ Unclassified	MTM-NP	ALL	590,257	5,077	455,047	90	0	5,611	281	-347	910
Exceptions/ Unclassified	Total	ALL	768,561	6,649	525,806	79	0	5,611	250	-342	841

Professional Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
MISSING	MTM-P	SP-PRI	114,883	1,806	310,444	172	0	4,780	986	-190	2,162
MISSING	MTM-NP	SP-PRI	378,932	5,975	986,223	165	0	5,876	950	-204	2,104
MISSING	Sub-Total	SP-PRI	493,815	7,781	1,296,667	167	0	5,876	958	-201	2,118
MISSING	MTM-P	SP-INT	63,421	718	182,338	254	0	7,727	1,049	-164	2,262
MISSING	MTM-NP	SP-INT	211,325	2,566	523,837	204	0	12,780	905	-222	2,031
MISSING	Sub-Total	SP-INT	274,746	3,284	706,175	215	0	12,780	938	-209	2,085
MISSING	MTM-P	ALL	178,304	2,524	492,781	195	0	7,727	1,009	-181	2,198
MISSING	MTM-NP	ALL	590,257	8,541	1,510,060	177	0	12,780	934	-210	2,078
MISSING	Total	ALL	768,561	11,065	2,002,841	181	0	12,780	951	-204	2,106
All BETOS Codes	MTM-P	SP-PRI	114,883	35,936	2,121,482	59	0	16,081	6,740	3666	9,815
All BETOS Codes	MTM-NP	SP-PRI	378,932	122,878	7,276,926	59	0	23,923	7,009	3874	10,144
All BETOS Codes	Sub-Total	SP-PRI	493,815	158,814	9,398,407	59	0	23,923	6,947	3826	10,068
All BETOS Codes	MTM-P	SP-INT	63,421	12,120	782,938	65	0	7,727	4,506	1992	7,020
All BETOS Codes	MTM-NP	SP-INT	211,325	52,157	3,476,968	67	0	13,933	6,005	3104	8,907
All BETOS Codes	Sub-Total	SP-INT	274,746	64,277	4,259,905	66	0	13,933	5,659	2842	8,476

Professional Ambulatory BETOS Category Name	Study Group	Study Period	Enrolled Days	BETOS Code Count	Total Reimbursed Amount for BETOS Category ($)	Mean Reimbursed Amount for BETOS Category ($)	Min Reimbursed Amount ($)	Max Reimbursed Amount ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
All BETOS Codes	MTM-P	ALL	178,304	48,056	2,904,419	60	0	16,081	5,946	3058	8,833
All BETOS Codes	MTM-NP	ALL	590,257	175,035	10,753,893	61	0	23,923	6,650	3596	9,704
All BETOS Codes	Total	ALL	768,561	223,091	13,658,312	61	0	23,923	6,487	3471	9,502

Table 11. Total inpatient facility discharges and the mean amount reimbursed per discharge adjusted for enrolled days by program period for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. of Recipients with a Discharge	No. of Inpatient Discharges	Enrolled Days in the Inpatient Population	Total Reimbursed Amount for all Discharges ($)	Mean Reimbursed Amount per Discharge ($)	Min Amount per Discharge ($)	Max Amount per Discharge ($)	Mean Annualized Reimbursed Amount for Inpatient Discharges per Member-Year ($)	LCL 95% Annualized Rate ($)	Upper 95% Annualized Rate ($)
MTM-P	SP-PRI	109	111	33,989	1,547,146	13,938	691	116,481	16,614	16,362	16,867
MTM-NP	SP-PRI	434	436	119,393	8,339,041	19,126	0	238,234	25,494	25,181	25,806
Sub-Total	SP-PRI	543	547	153,382	9,886,187	18,073	0	238,234	23,526	23,225	23,827
MTM-P	SP-INT	32	32	10,958	393,076	12,284	1,514	43,521	13,093	12,869	13,317
MTM-NP	SP-INT	108	108	34,837	1,378,282	12,762	1,023	111,902	14,441	14,205	14,676
Sub-Total	SP-INT	140	140	45,795	1,771,358	12,653	1,023	111,902	14,118	13,885	14,351
MTM-P	All	123	143	44,947	1,940,222	13,568	691	116,481	15,756	15,510	16,002
MTM-NP	All	488	544	154,230	9,717,323	17,863	0	238,234	22,997	22,700	23,294
Total	All	611	687	199,177	11,657,546	16,969	0	238,234	21,363	21,076	21,649

Table 12. Total inpatient facility discharges and the mean amount reimbursed per discharge adjusted for enrolled days by program period for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. of Recip-ients with a Discharge	No. of Inpatient Discharges	Enrolled Days in the Inpatient Population	Total Reimbursed Amount for all Discharges	Mean Reimbursed Amount per Discharge	Min Amount per Discharge	Max Amount per Discharge	Mean Annualized Reimbursed Amount for Inpatient Discharges per Member-Year	LCL 95% Annualized Rate	Upper 95% Annualized Rate
MTM-P	SP-PRI	21	26	10,738	3,598,539	32,419	4,051	135,969	122,320	109,223	135,416
MTM-NP	SP-PRI	93	127	27,068	15,561,660	35,692	74	285,685	209,842	192,689	226,995
Sub-Total	SP-PRI	114	203	37,806	19,160,199	35,028	74	285,685	184,983	168,878	201,088
MTM-P	SP-INT	32	50	7,838	1,121,374	35,043	5,273	95,752	52,220	43,663	60,777
MTM-NP	SP-INT	56	76	23,465	3,708,376	34,337	3,875	144,243	57,684	48,691	66,678
Sub-Total	SP-INT	88	126	31,303	4,829,750	34,498	3,875	144,243	56,316	47,430	65,202
MTM-P	All	46	76	18,576	4,719,913	33,006	4,051	135,969	92,742	81,338	104,145
MTM-NP	All	137	253	50,533	19,270,036	35,423	74	285,685	139,188	125,217	153,158
Total	All	180	329	69,109	23,989,949	34,920	74	285,685	126,703	113,374	140,032

Table 13. Mean inpatient days among recipients with one or more inpatient stays by program period for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Intervention Year	Mean days in facility	Min. days in facility	Max. days in facility	95% LCL days in facility	95% UCL days in facility
MTM-P	SP-PRI	9.4	1	69	7.4	11.5
MTM-NP	SP-PRI	12.5	1	145	11.1	13.8
Sub-Total	SP-PRI	11.9	1	145	10.7	13.0
MTM-P	SP-INT	7.8	1	35	5.1	10.6
MTM-NP	SP-INT	9.4	1	71	7.4	11.5
Sub-Total	SP-INT	9.1	1	71	7.4	10.8
MTM-P	ALL	9.0	1	69	7.4	10.7
MTM-NP	ALL	11.9	1	145	10.7	13.0
Total	ALL	11.3	1	145	10.3	12.3

Table 14. Mean inpatient days among recipients with one or more inpatient stays by program period for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	Mean days in facility	Min. days in facility	Max. days in facility	95% LCL days in facility	95% UCL days in facility
MTM-P	SP-PRI	6.0	1	16	4.3	7.7
MTM-NP	SP-PRI	7.3	1	45	5.8	8.8
Sub-Total	SP-PRI	7.0	1	45	5.8	8.2
MTM-P	SP-INT	7.4	2	19	5.6	9.3
MTM-NP	SP-INT	7.1	1	29	5.3	8.9
Sub-Total	SP-INT	7.3	1	29	5.9	8.6
MTM-P	ALL	6.8	1	19	5.5	8.1
MTM-NP	ALL	7.2	1	45	6.1	8.4
Total	ALL	7.1	1	45	6.2	8.0

Table 15. Total and mean prescription counts and dollars adjusted for enrolled days by program period for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recip-ients	Enrolled Days	Total Prescrip-tion Count	Mean Prescrip-tion Count per Recipient	Min. Prescrip-tion Count	Max. Prescrip-tion Count	Total Amount Reimbursed ($)	Total Reimburse-ment Rate Per Day ($)	Mean Annualized Reimbursed Rate per Member-Year ($)	Lower Annual Reim-bursed Rate ($)	Upper Annual Reim-bursed Rate ($)
MTM-P	SP-PRI	363	114,883	17,680	48.7	1	270	1,638,409	14	5,205	2,504	7,907
MTM-NP	SP-PRI	1265	378,932	56,228	44.6	1	265	5,048,819	13	4,863	2,252	7,475
Sub-Total	SP-PRI	1628	493,815	73,908	45.5	1	270	6,687,228	14	4,943	2,310	7,575
MTM-P	SP-INT	191	63,421	10,874	57.8	2	196	1,266,822	20	7,291	4,093	10,488
MTM-NP	SP-INT	639	211,325	34,178	54.8	1	289	3,352,877	16	5,791	2,941	8,641
Sub-Total	SP-INT	830	274,746	45,052	55.5	1	289	4,619,700	17	6,137	3,204	9,071
MTM-P	ALL	554	178,304	28,554	51.8	1	270	2,905,231	16	5,947	3,059	8,835
MTM-NP	ALL	1904	590,257	90,406	48	1	289	8,401,696	14	5,195	2,496	7,894
Total	ALL	2458	768,561	118,960	48.8	1	289	11,306,927	15	5,370	2,626	8,114

Table 16. Total and mean prescription counts and dollars adjusted for enrolled days by program period for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recip-ients	Enrolled Days	Total Prescrip-tion Count	Mean Prescription Count per Recipient	Min. Prescrip-tion Count	Max. Prescrip-tion Count	Total Amount Reim-bursed ($)	Total Reimburse-ment Rate Per Day ($)	Mean Annualized Reim-bursed Rate per Member-Year ($)	Lower Annual Reim-bursed Rate ($)	Upper Annual Reim-bursed Rate ($)
MTM-P	SP-PRI	152	51,096	8,976	59.1	2	201	738,266	14	5,274	2,554	7,993
MTM-NP	SP-PRI	413	138,946	25,160	61.1	1	249	2,650,536	19	6,963	3,838	10,087
Sub-Total	SP-PRI	565	190,042	34,136	60.5	1	249	3,388,803	18	6,509	3,488	9,530
MTM-P	SP-INT	133	43,912	8,235	62.4	2	270	673,270	15	5,596	2,795	8,398
MTM-NP	SP-INT	307	101,852	19,325	62.9	1	265	1,370,973	13	4,913	2,288	7,538
Sub-Total	SP-INT	440	145,764	27,560	62.8	1	270	2,044,243	14	5,119	2,440	7,798
MTM-P	ALL	285	95,008	17,211	60.6	2	270	1,411,536	15	5,423	2,665	8,180
MTM-NP	ALL	720	240,798	44,485	61.9	1	265	4,021,509	17	6,096	3,172	9,019
Total	ALL	1005	335,806	61,696	61.5	1	270	5,433,045	16	5,905	3,028	8,783

Table 17. General Estimating Equation negative binomial model estimates and p-values for total CPT/HCPCS procedure codes in the CMS-1500 professional claims and the UB-04 outpatient claims files for the LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (Interaction) Model					
Parameter	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > Chi-Sq	EST	SE	95% LCL	95% UCL	Z	Pr > |Z|
Intercept	-1.420	0.150	-1.710	-1.130	-9.550	<.0001	-1.425	0.148	-1.715	-1.135	-9.620	<.0001
MTM-P	0.050	0.040	-0.020	0.120	1.440	0.149	0.056	0.042	-0.026	0.139	1.330	0.182
MTM-NP	.	.	.	.	.	.	.	.	.	.	.	.
Female	0.090	0.030	0.030	0.150	2.890	0.0039	0.091	0.032	0.030	0.153	2.900	0.0038
Male	.	.	.	.	.	.	.	.	.	.	.	.
Black or African American	-0.010	0.040	-0.100	0.080	-0.190	0.8517	-0.008	0.044	-0.095	0.079	-0.180	0.8539
Hispanic	0.030	0.040	-0.050	0.110	0.620	0.5326	0.026	0.041	-0.055	0.106	0.620	0.5337
Other	0.000	0.040	-0.080	0.090	0.090	0.9315	0.003	0.042	-0.078	0.085	0.080	0.936
White or European American	.	.	.	.	.	.	.	.	.	.	.	.
Age	0.000	0.000	0.000	0.010	2.930	0.0034	0.004	0.002	0.001	0.007	2.930	0.0034
Intervention	-0.060	0.020	-0.110	-0.010	-2.480	0.013	-0.055	0.025	-0.103	-0.007	-2.250	0.0243
Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
Died	-0.510	0.120	-0.740	-0.270	-4.240	<.0001	-0.505	0.119	-0.739	-0.271	-4.230	<.0001
Alive	.	.	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.310	0.010	0.280	0.340	22.220	<.0001	0.310	0.014	0.283	0.337	22.350	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.015	0.066	-0.144	0.114	-0.230	0.8186
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.

Table 18. General Estimating Equation negative binomial model estimates and p-values for total CPT/HCPCS procedure codes in the CMS-1500 professional claims and the UB-04 outpatient claims files for the STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (Interaction) Model					
Parameter	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > Chi-Sq	EST	SE	95% LCL	95% UCL	Z	Pr > |Z|
Intercept	-1.879	0.131	-2.136	-1.621	-14.300	<.0001	-1.893	0.132	-2.152	-1.634	-14.310	<.0001
MTM-P	-0.041	0.042	-0.122	0.041	-0.980	0.3289	0.004	0.054	-0.102	0.109	0.070	0.9461
MTM-NP												
Female	0.103	0.043	0.018	0.187	2.380	0.0175	0.103	0.043	0.018	0.188	2.380	0.0172
Male	.	.	.	.	.	.	.	.	.	.	.	.
Black or African American	-0.008	0.060	-0.126	0.111	-0.120	0.9008	-0.006	0.060	-0.125	0.112	-0.100	0.9193
Hispanic	-0.024	0.059	-0.140	0.093	-0.400	0.6921	-0.026	0.060	-0.143	0.091	-0.430	0.6677
Other	-0.008	0.060	-0.125	0.108	-0.140	0.8884	-0.009	0.060	-0.126	0.108	-0.150	0.884
White or European American	.	.	.	.	.	.	.	.	.	.	.	.
Age	0.006	0.002	0.002	0.011	2.710	0.0068	0.006	0.002	0.002	0.011	2.690	0.0072
Intervention	0.015	0.027	-0.038	0.068	0.550	0.5817	0.046	0.028	-0.009	0.102	1.630	0.1032
Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.226	0.017	0.192	0.260	13.130	<.0001	0.229	0.017	0.196	0.261	13.830	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.103	0.063	-0.226	0.020	-1.640	0.1006
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.

Table 19. General Estimating Equation negative binomial model estimates and p-values for total inpatient facility and ED events for the LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (Interaction) Model					
Parameter	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > Chi-Sq	EST	SE	95% LCL	95% UCL	Z	Pr > |Z|
Intercept	-4.307	0.252	-4.800	-3.813	-17.110	<.0001	-4.312	0.250	-4.802	-3.821	-17.230	<.0001
MTM-P	-0.034	0.086	-0.202	0.134	-0.400	0.6928	-0.023	0.093	-0.206	0.159	-0.250	0.8025
MTM-NP	.	.	.	.	.	.	.	.	.	.	.	.
Female	0.084	0.066	-0.047	0.214	1.260	0.208	0.084	0.066	-0.046	0.214	1.260	0.2068
Male	.	.	.	.	.	.	.	.	.	.	.	.
Black or African American	0.096	0.091	-0.081	0.274	1.070	0.2867	0.097	0.091	-0.081	0.274	1.070	0.2868
Hispanic	-0.022	0.090	-0.199	0.155	-0.240	0.8101	-0.022	0.091	-0.200	0.156	-0.240	0.8104
Other	0.122	0.104	-0.082	0.325	1.170	0.2427	0.121	0.104	-0.083	0.325	1.160	0.2441
White or European American	.	.	.	.	.	.	.	.	.	.	.	.
Age	-0.016	0.003	-0.023	-0.009	-4.670	<.0001	-0.016	0.003	-0.023	-0.009	-4.670	<.0001
Intervention	-0.345	0.063	-0.469	-0.221	-5.440	<.0001	-0.337	0.071	-0.476	-0.197	-4.730	<.0001
Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
Died	-0.813	0.143	-1.093	-0.534	-5.700	<.0001	-0.812	0.143	-1.091	-0.533	-5.700	<.0001
Alive	.	.	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.541	0.024	0.495	0.587	23.010	<.0001	0.541	0.023	0.495	0.587	23.090	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.036	0.154	-0.338	0.267	-0.230	0.817
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.

Table 20. General Estimating Equation negative binomial model estimates and p-values for total inpatient facility and ED events for the STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (Interaction) Model					
Parameter	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > Chi-Sq	EST	SE	95% LCL	95% UCL	Z	Pr > |Z|
Intercept	-4.7444	0.345	-5.420	-4.069	-13.770	<.0001	-4.724	0.345	-5.400	-4.047	-13.680	<.0001
MTM-P	-0.0642	0.141	-0.340	0.212	-0.460	0.6488	-0.131	0.160	-0.445	0.183	-0.820	0.4141
MTM-NP	.	.	.	.	.	.	.	.	.	.	.	.
Female	0.2977	0.123	0.057	0.538	2.420	0.0153	0.298	0.123	0.057	0.540	2.420	0.0154
Male	.	.	.	.	.	.	.	.	.	.	.	.
Black or African American	-0.0124	0.164	-0.335	0.310	-0.080	0.9399	-0.015	0.164	-0.337	0.307	-0.090	0.9267
Hispanic	-0.1569	0.156	-0.462	0.148	-1.010	0.3136	-0.158	0.156	-0.464	0.148	-1.010	0.312
Other	-0.0815	0.207	-0.487	0.324	-0.390	0.6936	-0.087	0.205	-0.489	0.315	-0.420	0.6727
White or European American	.	.	.	.	.	.	.	.	.	.	.	.
Age	-0.032	0.006	-0.044	-0.020	-5.110	<.0001	-0.032	0.006	-0.044	-0.020	-5.110	<.0001
Intervention	0.2607	0.092	0.081	0.440	2.840	0.0045	0.224	0.102	0.023	0.424	2.190	0.0288
Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.5465	0.038	0.473	0.620	14.510	<.0001	0.545	0.038	0.471	0.618	14.460	<.0001
MTM-P by Intervention	.	.	.	.	.	.	0.134	0.221	-0.299	0.566	0.610	0.5443
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.

Table 21. General Estimating Equation negative binomial model estimates and p-values for total outpatient prescriptions for the LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (Interaction) Model					
Parameter	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > Chi-Sq	EST	SE	95% LCL	95% UCL	Z	Pr > |Z|
Intercept	-2.758	0.129	-3.011	-2.505	-21.360	<.0001	-2.767	0.129	-3.019	-2.514	-21.480	<.0001
MTM-P	0.038	0.039	-0.038	0.114	0.980	0.327	0.052	0.041	-0.029	0.133	1.260	0.2087
MTM-NP	.	.	.	.	.	.	.	.	.	.	.	.
Female	0.253	0.037	0.180	0.326	6.810	<.0001	0.254	0.037	0.181	0.326	6.820	<.0001
Male	.	.	.	.	.	.	.	.	.	.	.	.
Black or African American	-0.113	0.049	-0.209	-0.017	-2.300	0.0215	-0.112	0.049	-0.208	-0.016	-2.290	0.022
Hispanic	-0.025	0.053	-0.128	0.078	-0.480	0.6317	-0.025	0.053	-0.128	0.078	-0.480	0.6309
Other	-0.054	0.055	-0.162	0.054	-0.990	0.3242	-0.055	0.055	-0.163	0.053	-1.000	0.318
White or European American	.	.	.	.	.	.	.	.	.	.	.	.
Age	0.009	0.002	0.006	0.012	5.380	<.0001	0.009	0.002	0.006	0.012	5.380	<.0001
Intervention	0.092	0.022	0.050	0.135	4.260	<.0001	0.103	0.025	0.055	0.152	4.160	<.0001
Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
Died	-0.006	0.089	-0.181	0.169	-0.070	0.9477	-0.001	0.089	-0.176	0.173	-0.020	0.9873
Alive	.	.	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.161	0.012	0.137	0.186	12.950	<.0001	0.162	0.012	0.137	0.186	13.040	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.046	0.050	-0.143	0.051	-0.920	0.3561
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.

Table 22. General Estimating Equation negative binomial model estimates and p-values for total outpatient prescriptions for the STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (Interaction) Model					
Parameter	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > Chi-Sq	EST	SE	95% LCL	95% UCL	Z	Pr > |Z|
Intercept	-2.7024	0.132	-2.960	-2.445	-20.540	<.0001	-2.712	0.132	-2.970	-2.454	-20.590	<.0001
MTM-P	-0.0623	0.044	-0.149	0.025	-1.410	0.1597	-0.033	0.050	-0.131	0.065	-0.660	0.5091
MTM-NP	.	.	.	.	.	.	.	.	.	.	.	.
Female	0.1427	0.051	0.043	0.242	2.810	0.005	0.144	0.051	0.044	0.243	2.830	0.0046
Male	.	.	.	.	.	.	.	.	.	.	.	.
Black or African American	-0.0481	0.069	-0.184	0.088	-0.690	0.4876	-0.047	0.069	-0.183	0.089	-0.670	0.5016
Hispanic	-0.0886	0.069	-0.224	0.047	-1.280	0.2014	-0.091	0.069	-0.226	0.045	-1.310	0.1903
Other	0.0135	0.070	-0.123	0.150	0.190	0.8464	0.013	0.070	-0.124	0.149	0.180	0.8533
White or European American	.	.	.	.	.	.	.	.	.	.	.	.
Age	0.0142	0.002	0.010	0.019	6.080	<.0001	0.014	0.002	0.010	0.019	6.070	<.0001
Intervention	0.0349	0.025	-0.015	0.084	1.380	0.1662	0.057	0.030	-0.001	0.115	1.920	0.0551
Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.1206	0.015	0.092	0.150	8.110	<.0001	0.123	0.014	0.095	0.152	8.540	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.071	0.054	-0.177	0.035	-1.320	0.1864
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.

Tables for Evaluation Question 2: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG 1 (MTM-NP), and CG 2 for expenditure measures?

Descriptive Tables See tables for EQ1

Regression Models

Table 23. Robust log-level linear regression difference in difference model estimates and p-values for a model of total recipient expenditures for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (interaction) model					
Label	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq
Intercept	2.65	0.14	2.38	2.91	374.63	<.0001	2.65	0.14	2.38	2.91	371.38	<.0001
MTM-P	-0.01	0.06	-0.13	0.11	0.04	0.8475	-0.01	0.07	-0.15	0.14	0.01	0.9313
MTM-NP	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Female	-0.06	0.05	-0.16	0.04	1.38	0.2397	-0.06	0.05	-0.16	0.04	1.38	0.2396
Male	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Black or African American	0.09	0.07	-0.04	0.21	1.67	0.1961	0.09	0.07	-0.04	0.22	1.67	0.1963
Hispanic	0.10	0.07	-0.04	0.23	2.02	0.1553	0.10	0.07	-0.04	0.23	2.01	0.1565
Other	0.13	0.07	-0.01	0.28	3.21	0.0731	0.13	0.07	-0.01	0.28	3.2	0.0736
White or European American	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Age	0.00	0.00	-0.01	0.00	0.98	0.3215	0.00	0.00	-0.01	0.00	0.98	0.3223
Intervention	-0.25	0.05	-0.35	-0.14	21.75	<.0001	-0.24	0.06	-0.36	-0.13	16.35	<.0001
Pre-Intervention	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Died	1.50	0.17	1.16	1.83	76.52	<.0001	1.50	0.17	1.16	1.83	76.4	<.0001
Alive	0.00	.	.	.	.	.	0.00	.	.	.	.	.
ACG Risk Weight	0.66	0.02	0.62	0.71	846.97	<.0001	0.66	0.02	0.62	0.71	846.01	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.02	0.12	-0.26	0.23	0.02	0.9023
MTM-P by Pre-Intervention	.	.	.	.	.	.	0.00	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	0.00	.	.	.		.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	0.00	.	.	.	.	.

Table 24. Robust log-level linear regression difference in difference model estimates and p-values for a model of total recipient expenditures for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (interaction) model					
Label	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq
Intercept	2.78	0.20	2.39	3.16	201.59	<.0001	2.80	0.20	2.41	3.18	201.73	<.0001
MTM-P	-0.09	0.08	-0.24	0.06	1.51	0.2196	-0.15	0.10	-0.34	0.05	2.11	0.1463
MTM-NP												
Female	-0.01	0.07	-0.15	0.12	0.03	0.8603	-0.02	0.07	-0.15	0.12	0.05	0.8174
Male	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Black or African American	-0.01	0.09	-0.18	0.16	0.01	0.9094	-0.01	0.09	-0.19	0.16	0.02	0.8919
Hispanic	0.06	0.09	-0.12	0.24	0.46	0.4993	0.06	0.09	-0.12	0.24	0.48	0.4863
Other	0.02	0.10	-0.18	0.21	0.04	0.8435	0.02	0.10	-0.17	0.22	0.05	0.8232
White or European American	.	.	.	.	.	.	.			.	.	.
Age	-0.01	0.00	-0.01	0.00	2.32	0.1279	-0.01	0.00	-0.01	0.00	2.31	0.1283
Intervention	0.06	0.07	-0.07	0.19	0.82	0.3646	0.03	0.08	-0.13	0.18	0.12	0.7253
Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.53	0.03	0.47	0.58	336.14	<.0001	0.53	0.03	0.47	0.58	332.03	<.0001
MTM-P by Intervention	.	.	.	.	.	.	0.12	0.15	-0.17	0.41	0.64	0.4223
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.	.	.

Table 25. Robust log-level linear regression difference in difference model estimates and p-values for a model of total recipient pharmacy expenditures for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (interaction) model					
Label	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq
	0.60	0.20	0.22	0.99	9.37	0.0022	0.60	0.20	0.21	0.99	9.17	0.0025
MTM-P	0.22	0.09	0.05	0.39	6.53	0.0106	0.24	0.11	0.03	0.45	5.13	0.0235
MTM-NP	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Female	0.32	0.07	0.18	0.46	19.47	<.0001	0.32	0.07	0.18	0.46	19.49	<.0001
Male	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Black or African American	-0.09	0.10	-0.27	0.10	0.84	0.3590	-0.09	0.10	-0.27	0.10	0.84	0.3592
Hispanic	0.01	0.10	-0.19	0.20	0.00	0.9437	0.01	0.10	-0.19	0.20	0	0.9483
Other	-0.08	0.11	-0.29	0.13	0.56	0.4527	-0.08	0.11	-0.29	0.13	0.58	0.4466
White or European American	0.00	.	.	.	.	.	0.00	.	.	.	.	.
	0.00	0.00	-0.01	0.01	0.13	0.7221	0.00	0.00	-0.01	0.01	0.13	0.7222
Intervention	0.35	0.08	0.20	0.50	20.68	<.0001	0.36	0.09	0.19	0.53	17.2	<.0001
Pre Intervention	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Died	-0.42	0.25	-0.91	0.06	2.97	0.0851	-0.43	0.25	-0.91	0.06	3.01	0.0826
Alive	0.00	.	.	.	.	.	0.00	.	.	.	.	.
	0.42	0.03	0.36	0.49	163.42	<.0001	0.42	0.03	0.36	0.49	163.52	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.05	0.18	-0.41	0.30	0.09	0.7642
MTM-P by Pre-Intervention	.	.		.	.	.	0	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	0	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	0	.	.	.	.	.

Table 26. Robust log-level linear regression difference in difference model estimates and p-values for a model of total recipient pharmacy expenditures for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model						Difference in Difference (interaction) model					
Label	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq	EST	SE	95% LCL	95% UCL	Chi-Square	Pr > ChiSq
	1.19	0.30	0.60	1.77	15.92	<.0001	1.16	0.30	0.58	1.75	15.1	0.0001
MTM-P	-0.11	0.11	-0.33	0.12	0.89	0.3447	-0.04	0.15	-0.34	0.26	0.07	0.7914
MTM-NP	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Female	0.13	0.10	-0.07	0.34	1.59	0.2075	0.13	0.10	-0.07	0.34	1.63	0.2021
Male	0.00	.	.	.	.	.	0.00	.	.	.	.	.
Black or African American	0.06	0.14	-0.20	0.33	0.20	0.6554	0.06	0.14	-0.20	0.33	0.22	0.6376
Hispanic	-0.03	0.14	-0.31	0.24	0.05	0.8149	-0.04	0.14	-0.31	0.24	0.07	0.798
Other	0.20	0.15	-0.09	0.50	1.77	0.1828	0.20	0.15	-0.10	0.49	1.74	0.1868
White or European American	0.00	.	.	.	.	.	0.00	.	.	.	.	.
	0.00	0.01	-0.01	0.01	0.06	0.8025	0.00	0.01	-0.01	0.01	0.06	0.7994
Intervention	0.04	0.10	-0.16	0.23	0.12	0.7268	0.08	0.12	-0.16	0.31	0.43	0.5129
Pre Intervention	0.00	.	.	.	.	.	0.00	.	.	.	.	.
ACG score	0.33	0.04	0.25	0.42	57.25	<.0001	0.33	0.04	0.25	0.42	57.87	<.0001
MTM-P by Intervention	.	.	.	.	.	.	-0.15	0.22	-0.58	0.29	0.43	0.5104
MTM-P by Pre-Intervention	.	.	.	.	.	.	0	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	0	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	0	.	.	.	.	.

Propensity Score Models for Total Reimbursement and Pharmacy Reimbursement

Table 27. Propensity score models for pharmaceutical reimbursements for LENIENT and STRICT MTM participant and CG 2, Florida MTM program June 1, 2010 - May 31, 2014

I. Pharmacy Reimbursements - Lenient			
Match Criteria[1]			
	Average Treatment Effect	Std. Err.	t-statistic
Base Model			
Local Weight	-841.41	986.61	-0.85*
Rescaled Weight	-1,475.96	826.47	-1.79*
Year[2], LOE[3]			
Local Weight	76.23	1251.45	0.06*
Rescaled Weight	1064.37	1113.59	0.96*
Year			
Local Weight	-791.15	727.68	-1.09*
Rescaled Weight	-785.93	643.84	-1.22*
II. Pharmacy Reimbursements - Strict			
Match Criteria			
	Average Treatment Effect	Std. Err.	t-statistic
Base Model			
Local Weight	-875.20	1187.29	-0.74*
Rescaled Weight	-852.51	1108.00	-0.77*
Year, LOE			
Local Weight	833.02	1025.04	0.81*
Rescaled Weight	865.59	1262.92	0.69*
Year			
Local Weight	152.06	1433.03	0.11*
Rescaled Weight	-486.04	1247.36	-0.39*

[1]The 'Base Model' analysis used gender and age as the matching criteria and either the local or rescaled weight as noted. Other results in the table include matching on those variables listed in addition to the Base Model covariates.
[2]Year = the year of participation in the MEDs-AD Waiver program.
[3]LOE = Differences in the length of enrollment in the MEDs-AD Waiver program by year.
* Not statistically significant

Table 28. Propensity score models for total reimbursements for LENIENT and STRICT MTM participant and CG 2, Florida MTM program June 1, 2010 - May 31, 2014

I. Total Reimbursements - Lenient			
Match Criteria[1]			
	Average Treatment Effect	Std. Err.	t-statistic
Base Model			
Local Weight	-3208.83	2286.81	-1.40*
Rescaled Weight	-6617.29	3716.20	-1.78*
Year[2], LOE[3]			
Local Weight	-3660.91	3167.41	-1.16*
Rescaled Weight	-1879.06	3230.69	-0.58*
Year			
Local Weight	-4938.88	2818.72	-1.75*
Rescaled Weight	-5282.91	2166.12	-2.50
II. Total Reimbursements - Strict			
Match Criteria			
	Average Treatment Effect	Std. Err.	t-statistic
Base Model			
Local Weight	-3153.22	3140.14	-1.00*
Rescaled Weight	-4572.49	2847.36	-1.61*
Year, LOE			
Local Weight	-5651.55	4522.70	-1.25*
Rescaled Weight	427.44	2004.80	0.21*
Year			
Local Weight	-1642.55	3118.59	-0.53*
Rescaled Weight	-4206.87	3826.48	-1.10*

[1]The 'Base Model' analysis used gender and age as the matching criteria and either the local or rescaled weight as noted. Other results in the table include matching on those variables listed in addition to the Base Model covariates.
[2]Year = the year of participation in the MEDs-AD Waiver program.
[3]LOE = Differences in the length of enrollment in the MEDs-AD Waiver program by year.
* Not statistically significant

Tables for Evaluation Question 3: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG 1 (MTM-NP), and CG 2 for clinical outcomes?

Descriptive Tables EQ 3

Table 29. Mean Continuous Single-Interval Measure of Availability (CSA) medication adherence score for the 17 chronic conditions tracked by the John's Hopkins ACG System applying LENIENT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recipients	Mean CSA	Min CSA	Max CSA	Lower 95% CSA	Upper 95% CSA
MTM-P	SP-PRI	196	1.05	0.40	7.47	0.96	1.13
MTM-NP	SP-PRI	567	1.05	0.37	5.70	1.01	1.10
Sub-Total	SP-PRI	763	1.05	0.37	7.47	1.01	1.09
MTM-P	SP-INT	117	1.00	0.60	3.36	0.94	1.07
MTM-NP	SP-INT	344	1.03	0.53	8.35	0.97	1.09
Sub-Total	SP-INT	461	1.02	0.53	8.35	0.98	1.07
MTM-P	ALL	313	1.03	0.40	7.47	0.97	1.09
MTM-NP	ALL	911	1.05	0.37	8.35	1.01	1.08
Total	ALL	1224	1.04	0.37	8.35	1.01	1.07

Table 30. Mean Continuous Single-Interval Measure of Availability (CSA) medication adherence score for the 17 chronic conditions tracked by the John's Hopkins ACG System applying STRICT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recipients	Mean CSA	Min CSA	Max CSA	Lower 95% CSA	Upper 95% CSA
MTM-P	SP-PRI	105	1.05	0.44	7.47	0.91	1.18
MTM-NP	SP-PRI	269	1.01	0.37	4.37	0.96	1.06
Sub-Total	SP-PRI	374	1.02	0.37	7.47	0.97	1.07
MTM-P	SP-INT	88	1.05	0.65	4.00	0.96	1.15
MTM-NP	SP-INT	197	1.03	0.46	8.35	0.95	1.12
Sub-Total	SP-INT	285	1.04	0.46	8.35	0.97	1.11
MTM-P	ALL	193	1.05	0.44	7.47	0.97	1.14
MTM-NP	ALL	466	1.02	0.37	8.35	0.97	1.07
Total	ALL	659	1.03	0.37	8.35	0.99	1.07

Table 31. Mean Medication Possession Ratio (MPR) adherence score the 17 chronic conditions tracked by the John's Hopkins ACG System applying LENIENT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recipients	Mean MPR	Min MPR	Max MPR	Lower 95% MPR	Upper 95% MPR
MTM-P	SP-PRI	196	0.89	0.40	2.00	0.86	0.91
MTM-NP	SP-PRI	567	0.89	0.35	2.55	0.87	0.90
Sub-Total	SP-PRI	763	0.89	0.35	2.55	0.87	0.90
MTM-P	SP-INT	117	0.88	0.41	1.55	0.84	0.91
MTM-NP	SP-INT	344	0.87	0.41	1.82	0.85	0.89
Sub-Total	SP-INT	461	0.87	0.41	1.82	0.86	0.89
MTM-P	ALL	313	0.88	0.40	2.00	0.86	0.90
MTM-NP	ALL	911	0.88	0.35	2.55	0.87	0.89
Total	ALL	1224	0.88	0.35	2.55	0.87	0.89

Table 32. Mean Medication Possession Ratio (MPR) adherence score for the 17 chronic conditions tracked by the John's Hopkins ACG System applying STRICT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recipients	Mean MPR	Min MPR	Max MPR	Lower 95% MPR	Upper 95% MPR
MTM-P	SP-PRI	105	0.87	0.41	1.72	0.83	0.90
MTM-NP	SP-PRI	269	0.88	0.35	2.55	0.85	0.90
Sub-Total	SP-PRI	374	0.88	0.35	2.55	0.85	0.90
MTM-P	SP-INT	88	0.89	0.56	1.36	0.87	0.92
MTM-NP	SP-INT	197	0.87	0.44	1.43	0.85	0.89
Sub-Total	SP-INT	285	0.88	0.44	1.43	0.86	0.89
MTM-P	ALL	193	0.88	0.41	1.72	0.86	0.90
MTM-NP	ALL	466	0.87	0.35	2.55	0.86	0.89
Total	ALL	659	0.88	0.35	2.55	0.86	0.89

Regression Models EQ 3

Table 33. Logistic regression model estimates and p-values for odds of one or more discharges from an inpatient hospital for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-5.63	0.51	122.39	<.0001	0	-5.62	0.51	122.3	<.0001	0
MTM-P	-0.25	0.13	3.37	0.0663	0.78	-0.26	0.15	2.89	0.09	0.77
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	-0.2	0.11	3.36	0.0667	0.82	-0.2	0.11	3.36	0.07	0.82
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	0.25	0.14	3.17	0.0749	1.29	0.25	0.14	3.18	0.07	1.29
Hispanic	-0.15	0.16	0.95	0.3308	0.86	-0.15	0.16	0.93	0.33	0.86
Other	0.05	0.16	0.1	0.7515	1.05	0.05	0.16	0.1	0.75	1.05
White or European American	.	.	.	.	.	.	.	.	.	.
Age	0.01	0.01	3.9	0.0483	1.01	0.01	0.01	3.91	0.05	1.01
Intervention	-1.32	0.13	97.11	<.0001	0.27	-1.33	0.15	77.69	<.0001	0.26
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
Died	-2.47	0.4	37.9	<.0001	0.08	-2.47	0.4	37.92	<.0001	0.08
Alive	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	1.05	0.05	445.12	<.0001	2.84	1.04	0.05	444.51	<.0001	2.84
MTM-P by Intervention	.	.	.	.	.	0.06	0.31	0.03	**0.85**	1.06
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.

Table 34. Logistic regression model estimates and p-values for odds of one or more discharges from an inpatient hospital for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-8.29	0.55	226.39	<.0001	0.00	-8.08	0.57	199.03	<.0001	0.00
MTM-P	-0.24	0.21	1.26	0.2614	0.79	-0.53	0.29	3.24	0.0718	0.59
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	0.14	0.19	0.51	0.474	1.15	-0.13	0.19	0.45	0.5041	0.88
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	0.03	0.25	0.01	0.9131	1.03	0.03	0.25	0.01	0.91	1.03
Hispanic	0.01	0.24	0.00	0.9794	1.01	0.02	0.24	0.01	0.9404	1.02
Other	-0.64	0.29	4.71	0.03	0.53	-0.64	0.30	4.67	0.0307	0.53
White or European American	.	.	.	.	.	.	.	.	.	.
Age	0.00	0.01	0.01	0.9183	1.00	0.00	0.01	0.01	0.903	1.00
Intervention	-0.10	0.18	0.28	0.5956	0.91	-0.27	0.22	1.50	0.2199	0.77
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.95	0.07	172.89	<.0001	2.58	0.94	0.07	170.93	<.0001	2.57
MTM-P by Intervention	.	.	.	.	.	0.62	0.42	2.23	0.1351	1.86
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.

Table 35. Logistic regression model estimates and p-values for odds of one or more discharges from a hospital ED for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-5.30	0.40	176.03	<.0001	0.01	-5.31	0.40	176.29	<.0001	0.00
MTM-P	-0.15	0.11	2.05	0.1522	0.86	-0.10	0.13	0.62	0.4327	0.90
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	0.40	0.09	19.40	<.0001	1.48	0.40	0.09	19.50	<.0001	1.49
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	0.04	0.12	0.10	0.7542	1.04	0.04	0.12	0.10	0.7535	1.04
Hispanic	-0.02	0.12	0.02	0.8759	0.98	-0.02	0.12	0.03	0.8672	0.98
Other	-0.10	0.13	0.57	0.452	0.91	-0.10	0.13	0.58	0.4455	0.90
White or European American	.	.	.	.	.	.	.	.	.	.
Age	-0.02	0.00	29.13	<.0001	0.98	-0.02	0.00	29.08	<.0001	0.98
Intervention	-0.21	0.09	4.92	0.0266	0.81	-0.17	0.11	2.66	0.103	0.84
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
Died	-0.17	0.31	0.29	0.5913	0.85	-0.17	0.31	0.29	0.5918	0.85
Alive	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.53	0.04	159.74	<.0001	1.70	0.53	0.04	160.07	<.0001	1.70
MTM-P by Intervention	.	.	.	.	.	-0.15	0.22	0.48	0.4907	0.86
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.

Table 36. Logistic regression model estimates and p-values for odds of one or more discharges from a hospital ED for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-5.35	0.40	179.03	<.0001	0.00	-4.75	0.42	129.73	<.0001	0.01
MTM-P	-0.15	0.16	0.93	0.3348	0.86	-0.22	0.21	1.04	0.3085	0.81
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	0.59	0.15	15.85	<.0001	1.79	-0.58	0.15	15.76	<.0001	0.56
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	-0.10	0.19	0.26	0.608	0.91	-0.10	0.19	0.27	0.6021	0.91
Hispanic	-0.38	0.19	3.81	0.051	0.69	-0.37	0.19	3.77	0.0522	0.69
Other	-0.17	0.21	0.69	0.4061	0.84	-0.17	0.21	0.69	0.407	0.84
White or European American	.	.	.	.	.	.	.	.	.	.
Age	-0.03	0.01	18.50	<.0001	0.97	-0.03	0.01	18.54	<.0001	0.97
Intervention	0.20	0.14	2.13	0.1441	1.22	0.16	0.16	1.00	0.3176	1.18
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.54	0.06	71.23	<.0001	1.72	0.54	0.06	70.71	<.0001	1.72
MTM-P by Intervention	.	.	.	.	.	0.14	0.31	0.21	0.6506	1.15
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.

Table 37. Logistic regression model estimates and p-values for odds of one or more AHRQ ACSC discharges from an inpatient hospital for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-5.63	0.51	122.39	<.0001	0	-5.62	0.51	122.3	<.0001	0
MTM-P	-0.25	0.13	3.37	0.0663	0.78	-0.26	0.15	2.89	0.09	0.77
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	-0.2	0.11	3.36	0.0667	0.82	-0.2	0.11	3.36	0.07	0.82
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	0.25	0.14	3.17	0.0749	1.29	0.25	0.14	3.18	0.07	1.29
Hispanic	-0.15	0.16	0.95	0.3308	0.86	-0.15	0.16	0.93	0.33	0.86
Other	0.05	0.16	0.1	0.7515	1.05	0.05	0.16	0.1	0.75	1.05
White or European American	.	.	.	.	.	.	.	.	.	.
Age	0.01	0.01	3.9	0.0483	1.01	0.01	0.01	3.91	0.05	1.01
Intervention	-1.32	0.13	97.11	<.0001	0.27	-1.33	0.15	77.69	<.0001	0.26
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
Died	-2.47	0.4	37.9	<.0001	0.08	-2.47	0.4	37.92	<.0001	0.08
Alive	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	1.05	0.05	445.12	<.0001	2.84	1.04	0.05	444.51	<.0001	2.84
MTM-P by Intervention	.	.	.	.	.	0.06	0.31	0.03	**0.85**	1.06
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.

Table 38. Logistic regression model estimates and p-values for odds of one or more AHRQ ACSC discharges from an inpatient hospital for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-8.29	0.55	226.39	<.0001	0.00	-8.08	0.57	199.03	<.0001	0.00
MTM-P	-0.24	0.21	1.26	0.2614	0.79	-0.53	0.29	3.24	0.0718	0.59
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	0.14	0.19	0.51	0.474	1.15	-0.13	0.19	0.45	0.5041	0.88
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	0.03	0.25	0.01	0.9131	1.03	0.03	0.25	0.01	0.91	1.03
Hispanic	0.01	0.24	0.00	0.9794	1.01	0.02	0.24	0.01	0.9404	1.02
Other	-0.64	0.29	4.71	0.03	0.53	-0.64	0.30	4.67	0.0307	0.53
White or European American	.	.	.	.	.	.	.	.	.	.
Age	0.00	0.01	0.01	0.9183	1.00	0.00	0.01	0.01	0.903	1.00
Intervention	-0.10	0.18	0.28	0.5956	0.91	-0.27	0.22	1.50	0.2199	0.77
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	0.95	0.07	172.89	<.0001	2.58	0.94	0.07	170.93	<.0001	2.57
MTM-P by Intervention	.	.	.	.	.	0.62	0.42	2.23	0.1351	1.86
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.

Table 39. Propensity score model for one or more inpatient hospital discharges for LENIENT and STRICT MTM participant and CG 2, Florida MTM program June 1, 2010 - May 31, 2014

I. Inpatient Visits – Lenient			
Match Criteria[1]			
	Average Treatment Effect	Std. Err.	P > |t|
Base Model			
Local Weight	-0.896	0.058	0.08*
Rescaled Weight	-0.106	0.051	0.07*
Year[2], LOE[3]			
Local Weight	-0.763	0.611	0.21*
Rescaled Weight	-0.891	0.614	0.15*
Year			
Local Weight	-0.175	0.651	0.27*
Rescaled Weight	-0.152	0.689	0.22*
II. Inpatient Visits – Strict			
Match Criteria			
	Average Treatment Effect	Std. Err.	P > |t|
Base Model			
Local Weight	-0.125	0.071	1.76*
Rescaled Weight	-0.118	0.102	1.15*
Year, LOE			
Local Weight	-0.656	0.092	0.47*
Rescaled Weight	-0.337	0.079	0.67*
Year			
Local Weight	-0.148	0.105	1.41*
Rescaled Weight	-0.103	0.112	0.92*

Table 40. Propensity score model for one or more ED events for LENIENT and STRICT MTM participant and CG 2, Florida MTM program June 1, 2010 - May 31, 2014

I. Emergency Room Visits - Lenient			
Match Criteria[1]			
	Average Treatment Effect	Std. Err.	P > |t|
Base Model			
Local Weight	0.061	0.062	0.98*
Rescaled Weight	0.056	0.053	0.29*
Year[2], LOE[3]			
Local Weight	0.057	0.085	0.50*
Rescaled Weight	0.102	0.077	0.19*
Year			
Local Weight	0.027	0.051	0.59*
Rescaled Weight	0.028	0.054	0.60*
II. Emergency Room Visits - Strict			
Match Criteria			
	Average Treatment Effect	Std. Err.	P > |t|
Base Model			
Local Weight	0.045	0.067	0.50*
Rescaled Weight	0.062	0.057	0.28*
Year, LOE			
Local Weight	0.089	0.086	0.30*
Rescaled Weight	0.105	0.079	1.32*
Year			
Local Weight	0.151	0.090	0.09*
Rescaled Weight	0.124	0.064	0.06*

Tables for Evaluation Question 4: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG 1 (MTM-NP), and CG 2 for demographic categories?

Age

Table 41. Frequency and proportion of patients categorized by age on the last day of the pre-intervention study period in NOMINAL Cohorts 1, 2, and 3 for the MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Age Categories	Frequency Cohort 1	Pct. Cohort 1	Frequency Cohort 2	Pct. Cohort 2	Frequency Cohort 3	Pct. Cohort 3	Total All 3 Cohorts	Pct. All 3 Cohorts	P-value, Binomial (Two-sided) Cohort 1 vs. 2	P-value Binomial (Two-sided) Cohort 1 vs. 3	P-value Binomial (Two-sided) Cohort 2 vs. 3
MTM-P	< 20	1	0.7	0	0	2	1.5	3	0.7	0.267	0.267	-
MTM-P	21 - 40	13	8.8	17	9.9	16	11.7	46	10.1	0.613	0.242	0.497
MTM-P	41 - 50	32	21.8	26	15.2	28	20.4	86	18.9	0.038	0.706	0.088
MTM-P	51 - 55	38	25.9	50	29.2	33	24.1	121	26.6	0.311	0.637	0.185
MTM-P	56 - 60	38	25.9	39	22.8	24	17.5	101	22.2	0.363	0.026	0.140
MTM-P	61 - 65	25	17.0	39	22.8	33	24.1	97	21.3	0.044	0.027	0.721
MTM-P	> 65	0	0.0	0	0.0	1	0.7	1	0.2	.	.	.
MTM-P	Group Sub-total	147	100.0	171	100.0	137	100.0	455	100.0	.	.	.
MTM-NP	< 20	1	0.2	8	2.5	2	0.3	11	0.7	0.000	0.617	0.000
MTM-NP	21 - 40	66	13.1	60	18.5	95	13.4	221	14.4	0.004	0.810	0.000
MTM-NP	41 - 50	109	21.6	87	26.9	168	23.7	364	23.7	0.022	0.181	0.058
MTM-NP	51 - 55	92	18.3	52	16.0	152	21.4	296	19.3	0.304	0.028	0.000
MTM-NP	56 - 60	111	22.0	59	18.2	164	23.1	334	21.7	0.098	0.477	0.001
MTM-NP	61 - 65	124	24.6	58	17.9	120	16.9	302	19.6	0.005	.	0.498
MTM-NP	> 65	1	0.2	0	0.0	8	1.1	9	0.6	0.000	.	.
MTM-NP	Group Sub-total	504	100.0	324	100.0	709	100.0	1,537	100.0	.	.	.
	Grand Total	651	.	495	.	846	.	1,992	.	.	.	.

Race and Ethnicity

Table 42. Frequency and proportion of patients categorized by race and ethnicity in NOMINAL Cohorts 1, 2 and 3 initial study population for the MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 – May 31, 2014

Study Group	Age Categories	Frequency Cohort 1	Pct. Cohort 1	Frequency Cohort 2	Pct. Cohort 2	Frequency Cohort 3	Pct. Cohort 3	Total All 3 Cohorts	Pct. All 3 Cohorts	P-value, Binomial (Two-sided) Cohort 1 vs. 2	P-value Binomial (Two-sided) Cohort 1 vs. 3	P-value Binomial (Two-sided) Cohort 2 vs. 3
MTM-P	Black or African American	32	21.8	58	33.9	37	27.0	127	27.9	0.000	0.137	0.088
MTM-P	Hispanic	7	4.8	12	7.0	13	9.5	32	7.0	0.166	0.009	0.257
MTM-P	Other*	17	11.6	17	9.9	13	9.5	47	10.3	0.507	0.447	0.860
MTM-P	White or European American	91	61.9	84	49.1	74	54.0	249	54.7	0.001	0.057	0.252
MTM-P	Group Sub-total	147	.	171	.	137	.	455	.	.	.	.
MTM-NP	Black or African American	110	21.8	81	25.0	158	22.3	349	22.7	0.167	0.767	0.095
MTM-NP	Hispanic	101	20.0	68	21.0	132	18.6	301	19.6	0.670	0.344	0.121
MTM-NP	Other*	69	13.7	47	14.5	120	16.9	236	15.4	0.669	0.012	0.067
MTM-NP	White or European American	224	44.4	128	39.5	299	42.2	651	42.3	0.074	0.223	0.146
MTM-NP	Group Sub-total	504	.	324	.	709	.	1537	.	.	.	.
	Grand Total	651	.	495	.	846	.	1992	.	.	.	.

*Asian, Alaskan Native, Other Race and Undetermined Race are combined in the Other Race category

Gender

Table 43. Frequency and proportion of patients categorized by gender in NOMINAL Cohorts 1, 2 and 3 initial study population for the MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 – May 31, 2014

Study Group	Gender	Frequency Cohort 1	Pct. Cohort 1	Frequency Cohort 2	Pct. Cohort 2	Frequency Cohort 3	Pct. Cohort 3	Total All 3 Cohorts	Pct. All 3 Cohorts	P-value, Binomial (Two-sided) Cohort 1 vs. 2	P-value Binomial (Two-sided) Cohort 1 vs. 3	P-value Binomial (Two-sided) Cohort 2 vs. 3
MTM-P	Female	83	56.5	93	54.4	74	54.0	250	0.55	0.584	0.563	0.930
MTM-P	Male	64	43.5	78	45.6	63	46.0	205	0.45	0.584	0.563	0.930
MTM-P	Group Sub-total	147	.	171	.	137	.	455	.	.	.	.
MTM-NP	Female	298	59.1	212	65.4	352	49.6	862	0.56	0.021	0.000	0.000
MTM-NP	Male	206	40.9	112	34.6	355	50.1	673	0.44	0.021	0.000	0.000
MTM-NP	Unknown	0	.	0	.	2	0.3	2	0.00	.	.	.
MTM-NP	Group Sub-total	504	.	324	.	709	.	1537	.	.	.	.
	Grand Total	651	.	495	.	846	.	1992	.	.	.	.

Language

Table 44. Frequency and proportion of patients categorized by language preference in NOMINAL Cohorts 1, 2 and 3 for the initial MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 – May 31, 2014

Study Group	Language Preference	Frequency Cohort 1	Pct. Cohort 1	Frequency Cohort 2	Pct. Cohort 2	Frequency Cohort 3	Pct. Cohort 3	Total All 3 Cohorts	Pct. All 3 Cohorts	P-value, Binomial (Two-sided) Cohort 1 vs. 2	P-value Binomial (Two-sided) Cohort 1 vs. 3	P-value Binomial (Two-sided) Cohort 2 vs. 3
MTM-P	English	138	93.9	158	92.4	129	94.2	425	93.4	0.420	0.890	0.436
MTM-P	Spanish	7	4.8	10	5.8	7	5.1	24	5.3	0.505	0.848	0.361
MTM-P	Other Language	2	1.4	3	1.8	1	0.7	6	1.3	0.657	0.524	0.713
MTM-P	Group Sub-total	147	.	171	.	137	.	455	.	.	.	.
MTM-NP	English	420	83.3	260	80.2	611	86.2	1291	84.0	0.136	0.042	0.000
MTM-NP	Spanish	76	15.1	58	17.9	89	12.6	223	14.5	0.156	0.060	0.250
MTM-NP	Other Language	8	1.6	6	1.9	9	1.3	23	1.5	0.703	0.498	0.000
MTM-NP	Group Sub-total	504	.	324	.	709	.	1537	.	.	.	.
	Grand Total	651	.	495	.	846	.	1992	.	.	.	.

Tables for Evaluation Question 5: What are the differences in the pre-intervention and intervention periods between the intervention group (MTM-P), CG 1 (MTM-NP), and CG 2 for mortality and morbidity measures?

DESCRIPTIVE TABLES EQ5

Table 45. Summary statistics for number of deaths and annualized mortality rate applying LENIENT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study Group	Study Period	No. Recipients	Number of Deaths	Sum Enrolled Days	Death Rate Per Year	95% LCL	95% UCL
MTM-NP	SP-PRI	1,265	16	378,932	0.015	0.015	0.016
MTM-P	SP-PRI	363	0	114,883	0.000	.	.
Sub-Total	SP-PRI	1,628	16	493,815	0.012	0.011	0.013
MTM-NP	SP-INT	639	32	211,325	0.055	0.054	0.057
MTM-P	SP-INT	191	7	63,421	0.040	0.037	0.045
Sub-Total	SP-INT	830	39	274,746	0.052	0.051	0.053
MTM-NP	All Periods	1,904	48	590,257	0.030	0.029	0.030
MTM-P	All Periods	554	7	178,304	0.014	0.013	0.016
Total	All Periods	2,458	55	768,561	0.026	0.026	0.027

Table 46. Summary statistics for number of persons with two or more chronic conditions (MCC) as tracked by the John's Hopkins ACG System applying LENIENT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study	Study Period	No. Recipients	Number of Persons with MCC	Percent of Persons with MCC	Binomial Test of Proportion MTM-P vs. MTM-NP	
					z	Pr < Z
MTM-NP	SP-PRI	1,265	1,040	82.0	-0.0012	0.4995
MTM-P	SP-PRI	363	299	82.0	.	.
Sub-Total	SP-PRI	1,628	1,339	82.0	.	.
MTM-NP	SP-INT	639	495	77.0	-0.021	0.4916
MTM-P	SP-INT	191	153	80.0	.	.
Sub-Total	SP-INT	830	648	78.0	.	.
MTM-NP	All Periods	1,904	1,535	81.0	-0.0076	0.497
MTM-P	All Periods	554	554	82.0	.	.
Total	All Periods	2,458	1,987	81.0	.	.

Table 47. Summary statistics for number of persons with two or more chronic conditions (MCC) as tracked by the John's Hopkins ACG System applying STICT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study	Study Period	No. Recipients	Number of Persons with MCC	Percent of Persons with MCC	Binomial Test of Proportion MTM-P vs. MTM-NP	
					z	Pr < Z
MTM-NP	SP-PRI	413	338	82	-0.0031	0.4988
MTM-P	SP-PRI	152	125	82	.	.
Sub-Total	SP-PRI	565	463	83	.	.
MTM-NP	SP-INT	307	253	82	-0.0081	0.4968
MTM-P	SP-INT	133	111	83	.	.
Sub-Total	SP-INT	440	364	83	.	.
MTM-NP	All Periods	720	591	82	-0.0056	0.4978
MTM-P	All Periods	285	236	82	.	.
Total	All Periods	1005	827	82	.	.

Table 48. Summary statistics for the mean number of chronic conditions per recipient tracked by the John's Hopkins ACG System applying LENIENT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study	Study Period	No. Recipients	Mean Number of Chronic Conditions	Minimum	Maximum	Mean 95% LCL	Mean 95% UCL	Binomial Test of Proportion MTM-P vs. MTM-NP	
								z	Pr < Z
MTM-NP	SP-PRI	1,265	4.26	0	17	4.10	4.42	-0.0853	0.466
MTM-P	SP-PRI	363	4.52	0	17	4.19	4.84	.	.
Sub-Total	SP-PRI	1,628	4.32	0	17	4.17	4.46	.	.
MTM-NP	SP-INT	639	4.13	0	17	3.88	4.38	0.0117	0.4953
MTM-P	SP-INT	191	4.10	0	12	3.68	4.52	.	.
Sub-Total	SP-INT	830	4.13	0	17	3.91	4.34	.	.
MTM-NP	All Periods	1,904	4.22	0	17	4.08	4.35	-0.0521	0.4792
MTM-P	All Periods	554	4.37	0	17	4.11	4.63	.	.
Total	All Periods	2,458	4.25	0	17	4.13	4.37	.	.

Table 49. Summary statistics for the mean number of chronic conditions per recipient tracked by the John's Hopkins ACG System applying STRICT inclusion and exclusion criteria for the MTM participant and MTM non-participant (CG1) study groups, Florida MTM program June 1, 2010 - May 31, 2014

Study	Study Period	No. Recipients	Mean Number of Chronic Conditions	Minimum	Maximum	Mean 95% LCL	Mean95% UCL	Binomial Test of Proportion MTM-P vs. MTM-NP	
								z	Pr < Z
MTM-NP	SP-PRI	413	4.47	0	16	3.99	4.96	-0.0478	0.4809
MTM-P	SP-PRI	152	4.33	0	16	4.04	4.63	.	.
Sub-Total	SP-PRI	565	4.37	0	16	4.12	4.62	.	.
MTM-NP	SP-INT	307	4.51	0	17	4.15	4.88	-0.0949	0.4622
MTM-P	SP-INT	133	4.80	0	17	4.20	5.41	.	.
Sub-Total	SP-INT	440	4.60	0	17	4.29	4.91	.	.
MTM-NP	All Periods	720	4.41	0	17	4.18	4.64	-0.0726	0.4711
MTM-P	All Periods	285	4.63	0	17	4.25	5.01	.	.
Total	All Periods	1005	4.47	0	17	4.28	4.67	.	.

REGRESSION MODELS EQ5

Table 50. Robust logistic regression base and difference in difference model estimates and p-values for a model of Mortality for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	1.24	0.96	1.67	0.1964	3.47	1.14	0.96	1.41	0.2345	3.13
MTM-P	0.80	0.43	3.48	0.0621	2.22	12.43	235.50	0.00	0.9579	250,779.97
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	0.39	0.29	1.77	0.183	1.48	0.39	0.29	1.74	0.1874	1.47
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	-0.47	0.37	1.66	0.198	0.62	-0.47	0.37	1.61	0.2039	0.63
Hispanic	0.01	0.38	0.00	0.9723	1.01	0.00	0.38	0.00	0.9919	1.00
Other	1.16	0.62	3.45	0.0631	3.19	1.16	0.62	3.43	0.064	3.18
White or European American	.	.	.	.	.	.	.	.	.	.
Age	-0.02	0.02	2.03	0.1541	0.98	-0.02	0.02	2.10	0.1469	0.98
Intervention	-1.89	0.31	36.22	<.0001	0.15	-1.69	0.33	27.16	<.0001	0.18
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	-0.75	0.11	48.76	<.0001	0.47	-0.75	0.11	48.60	<.0001	0.47
MTM-P by Intervention	.	.	.	.	.	-12.02	235.50	0.00	**0.9593**	0.00
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Pre-Intervention	.	.	.	.	.	.	.	.	.	.

Table 51. Robust logistic regression base and difference in difference model estimates and p-values for a model MCC for LENIENT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-9.14	0.72	161.70	<.0001	0.00	-9.13	0.72	160.63	<.0001	0.00
MTM-P	-0.04	0.16	0.06	0.8073	0.96	-0.07	0.20	0.13	0.7224	0.93
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	-0.17	0.13	1.65	0.1992	0.84	-0.17	0.13	1.67	0.1968	0.84
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	0.40	0.17	5.73	0.0167	1.49	0.40	0.17	5.72	0.0168	1.49
Hispanic	0.43	0.19	5.48	0.0193	1.54	0.44	0.19	5.49	0.0191	1.55
Other	0.52	0.21	6.30	0.0121	1.68	0.52	0.21	6.31	0.012	1.68
White or European American	.	.	.	.	.	.	.	.	.	.
Age	0.05	0.01	70.37	<.0001	1.05	0.05	0.01	70.09	<.0001	1.05
Intervention	-0.11	0.14	0.61	0.4359	0.90	-0.13	0.15	0.66	0.4155	0.88
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
Died	0.07	0.63	0.01	0.9119	1.07	0.07	0.63	0.01	0.9133	1.07
Alive	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	4.68	0.29	254.41	<.0001	107.73	4.68	0.29	254.36	<.0001	107.72
MTM-P by Intervention	.	.	.	.	.	0.09	0.32	0.07	0.789	1.09
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.

Table 52. Robust logistic regression base and difference in difference model estimates and p-values for a model of MCC for STRICT MTM participant and MTM non-participant population groups, Florida MTM program June 1, 2010 - May 31, 2014

	Base Model					Difference-in-Difference (Interaction) Model				
Parameter	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR	EST	SE	Wald Chi-Square	Pr > Chi-Sq	OR
Intercept	-10.67	0.65	268.39	<.0001	0.00	-10.96	0.67	266.32	<.0001	0.00
MTM-P	0.03	0.25	0.01	0.9035	1.03	0.19	0.32	0.33	0.5637	1.21
MTM-NP	.	.	.	.	.	.	.	.	.	.
Female	-0.22	0.22	0.95	0.3297	0.80	0.22	0.22	0.92	0.3376	1.24
Male	.	.	.	.	.	.	.	.	.	.
Black or African American	0.39	0.28	2.01	0.1567	1.48	0.40	0.28	2.05	0.1519	1.49
Hispanic	-0.01	0.32	0.00	0.9812	0.99	-0.01	0.32	0.00	0.9727	0.99
Other	0.22	0.36	0.37	0.5425	1.24	0.22	0.36	0.36	0.5492	1.24
White or European American	.	.	.	.	.	.	.	.	.	.
Age	0.07	0.01	44.06	<.0001	1.08	0.07	0.01	44.34	<.0001	1.08
Intervention	0.31	0.22	1.97	0.1601	1.37	0.42	0.26	2.55	0.1102	1.52
Pre-Intervention	.	.	.	.	.	.	.	.	.	.
ACG Risk Weight	5.40	0.51	110.87	<.0001	222.26	5.43	0.52	110.89	<.0001	227.30
MTM-P by Intervention	.	.	.	.	.	-0.38	0.49	0.60	**0.4391**	0.68
MTM-P by Pre-Intervention	.	.	.	.	.	.	.	.	.	.
MTM-NP by Intervention	.	.	.	.	.	.	.	.	.	.

Tables for Evaluation Question 6: What are the differences in the pre-intervention and intervention periods within the intervention group for MTM process measures?

MTM-P Process Measures

Table 53. Table Comparison of total interventions recorded by the UF COP pharmacy staff for all Cohort 1, 2, and 3 participants, Florida MTM program evaluation June 1, 2011 to May 31, 2014

List of All Possible Interventions from the UF COP	Intervention in Cohort 1	Intervention in Cohort 2	Intervention in Cohort 3
30-60 day CMR Follow-Up, Unable to Reach	0	1	0
Contraindication (Drug - Disease) RESOLVED	0	1	0
Contraindication (Drug - Drug) RESOLVED	0	1	0
Counseled on Use of Multiple Pharmacies	1	0	0
Counseled on Utilization of Multiple Primary Physicians	1	0	0
Disconnected Phone Number	0	1	0
Generic Alternative Recommendation ACCEPTED	0	1	0
Lack of Efficacy RESOLVED	0	1	1
Lack of Therapy (Indication) RESOLVED	0	1	0
OTC Therapy Recommendation ACCEPTED	0	1	0
Patient Interaction (Non-MTM Service Inquiry)	0	1	0
Patient Interaction (Non-MTM Service Request/Inquiry)	1	0	0
Patient Medication List Faxed to Prescriber	1	0	0
Patient No Longer Active with Medicaid	0	1	0
Prescriber Interaction/Response	0	1	0
Recommended Preferred Drug List Alternative ACCEPTED	0	1	1
Unnecessary Therapy (Lack of Indication) RESOLVED	0	1	0
Wrong Phone Number	0	1	0
30 to 60-day CMR Check-Up	1	1	0
Adverse Drug Event Identified	1	1	1
Adverse Drug Event RESOLVED	1	1	1
Alternative Dosage Form ACCEPTED	1	1	0
Alternative Dosage Form Recommended	1	1	0
CMR Completed	1	1	1

List of All Possible Interventions from the UF COP	Intervention in Cohort 1	Intervention in Cohort 2	Intervention in Cohort 3
CMR Scheduled	1	1	1
CMR- NOTHING CLINICALLY SIGNIFICANT TO ADDRESS	1	1	0
Combination Therapy Recommendation ACCEPTED (decreased pill burden)	1	1	1
Combination Therapy Recommended (decreased pill burden)	1	1	1
Contacted Ancillary Healthcare Resource	1	1	0
Contacted Prescriber by Fax	1	1	0
Contacted Prescriber by Mail	1	1	0
Contacted Prescriber by Phone	1	1	0
Contraindication Identified (Drug - Disease)	1	1	0
Contraindication Identified (Drug - Drug)	1	1	0
Counseled on Diet/Exercise	1	1	1
Counseled on Lifestyle Modifications	1	1	1
Counseled on Medication (general, side effects, indication, etc.)	1	1	1
Counseled on Medication Adherence/Compliance	1	1	1
Counseled on Medication Administration/Technique	1	1	1
Counseled on Preventative Screenings/Vaccinations	1	1	1
Counseled on Smoking Cessation	1	1	1
Counseled on Weight Loss	1	1	1
Crisis Situation Encountered	1	1	0
Dietary Change/Exercise Recommendations IMPLEMENTED	1	1	0
Drug-Age Interaction Identified (Beers List)	1	1	1
Drug-Age Interaction RESOLVED	1	1	1
Drug-Allergy Interaction IDENTIFIED	1	1	1
Drug-Allergy Interaction RESOLVED	1	1	
Drug-Disease Interaction Identified	1	1	1
Drug-Disease Interaction RESOLVED	1	1	1
Drug-Food Interaction Identified	1	1	1
Drug-Food Interaction RESOLVED	1	1	1
Drug-Pregnancy Interaction Identified	1	1	0
Drug-Pregnancy Interaction RESOLVED	1	1	0
Duplicate Therapy Identified	1	1	1

List of All Possible Interventions from the UF COP	Intervention in Cohort 1	Intervention in Cohort 2	Intervention in Cohort 3
Duplicate Therapy RESOLVED	1	1	1
Educated on Asthma/COPD	1	1	1
Educated on Coverage Gap	1	1	0
Educated on Diabetes	1	1	1
Educated on Disease State (other)	1	1	1
Educated on Dyslipidemia	1	1	1
Educated on GERD	1	1	1
Educated on Heart Failure	1	1	1
Educated on Hypertension	1	1	1
Excessive Dosage Identified	1	1	1
Excessive Dosage RESOLVED	1	1	0
Excessive Duration of Therapy Identified	1	1	0
Excessive Duration of Therapy RESOLVED	1	1	0
Excessive Pill Burden Identified (multiple tablets of lower strength)	1	1	1
Explained MTM Program to Patient	1	1	1
Gap in Therapy - Diabetic without a Statin	1	1	1
Gap in Therapy - Diabetic without an ACE-I or ARB	1	1	1
Gap in Therapy - Heart Failure without a Beta-Blocker	1	1	0
Gap in Therapy - Heart Failure without an ACE-I or ARB	1	1	0
Gap in Therapy - Lack of Controller Medication/Beta-Agonist Overuse Asthma	1	1	1
Gap in Therapy - Lack of Rescue Medication in Asthma	1	1	0
Gap in Therapy - Long-Term Steroid without Antiresorptive Agent	1	1	1
Gap in Therapy – Potentially Inappropriate Beta-Blocker Selection in Heart Failure	1	1	0
Gap in Therapy RESOLVED - Diabetic without a Statin	1	1	1
Gap in Therapy RESOLVED - Diabetic without an ACE-I or ARB	1	1	1
Gap in Therapy RESOLVED - Heart Failure without a Beta-Blocker	1	1	0
Gap in Therapy RESOLVED - Heart Failure without an ACE-I or ARB	1	1	0
Gap in Therapy RESOLVED - Lack of Controller Medication/Beta-Agonist Overuse in Asthma	1	1	1
Gap in Therapy RESOLVED - Lack of Rescue Medication in Asthma	1	1	0
Gap in Therapy RESOLVED - Long-Term Steroid without Antiresorptive Agent	1	1	1
Gap in Therapy RESOLVED - Potentially Inappropriate Beta-Blocker Selection in Heart Failure	1	1	0

List of All Possible Interventions from the UF COP	Intervention in Cohort 1	Intervention in Cohort 2	Intervention in Cohort 3
Generic Alternative Recommended	1	1	0
Insufficient Dosage Identified	1	1	1
Insufficient Dosage RESOLVED	1	1	1
Insufficient Duration of Therapy Identified	1	1	1
Insufficient Duration of Therapy RESOLVED	1	1	1
Lack of Efficacy Identified	1	1	1
Lack of Therapy (Indication) Identified	1	1	0
Level 1 Clinically Significant Drug-Drug Interaction Identified	1	1	0
Level 1 Clinically Significant Drug-Drug Interaction RESOLVED	1	1	0
Level 2 Clinically Significant Drug-Drug Interaction Identified	1	1	1
Level 2 Clinically Significant Drug-Drug Interaction RESOLVED	1	1	0
Level 3 Clinically Significant Drug-Drug Interaction Identified	1	1	1
Level 3 Clinically Significant Drug-Drug Interaction RESOLVED	1	1	0
Level 4 Clinically Significant Drug-Drug Interaction Identified	1	1	0
Level 4 Clinically Significant Drug-Drug Interaction RESOLVED	1	1	0
Lifestyle Modifications ACCEPTED/IMPLEMENTED	1	1	0
Medication Action Plan (MAP) Mailed to Patient	1	1	0
Medication Action Plan (MAP) Refused by Patient	1	1	0
Medication Adherence/Compliance IMPROVED	1	1	0
Medication Administration/Technique IMPROVED	1	1	0
Multiple Pharmacies IMPROVED/RESOLVED	1	1	0
Multiple Pharmacies Identified	1	1	0
Multiple Prescribers IMPROVED/RESOLVED	1	1	0
Multiple Prescribers Identified	1	1	0
Needs Preventative Screening/Immunizations	1	1	0
OTC Therapy Recommended	1	1	0
Patient Deceased	1	1	0
Patient Refused Consultation (during CMR scheduling or CMR call)	1	1	1
Pill Burden REDUCED	1	1	0
Polypharmacy IMPROVED/RESOLVED	1	1	0
Polypharmacy Identified	1	1	0

List of All Possible Interventions from the UF COP	Intervention in Cohort 1	Intervention in Cohort 2	Intervention in Cohort 3
Preventative Screening/Immunizations ACQUIRED	1	1	0
QFUR - NOTHING CLINICALLY SIGNIFICANT TO ADDRESS	1	1	1
QFUR 3-month - Quarterly Follow-up WITHOUT Encounter	1	1	1
QFUR 3-month - Quarterly Follow-up with Encounter	1	1	1
QFUR 6-month - Quarterly Follow-up WITHOUT Encounter	1	1	1
QFUR 6-month - Quarterly Follow-up with Encounter	1	1	1
QFUR 9-month - Quarterly Follow-up WITHOUT Encounter	1	1	1
QFUR 9-month - Quarterly Follow-up with Encounter	1	1	1
Questionable Narcotic Use Identified	1	1	0
Questionable Narcotic Use RESOLVED	1	1	0
Recommended Preferred Drug List Alternative	1	1	1
Renal Dosing Recommendation ACCEPTED	1	1	0
Renal Dosing Recommended	1	1	0
Smoking Cessation ACHIEVED	1	1	0
Unable to Reach (appointment scheduling) - 1st Attempt	1	1	1
Unable to Reach (appointment scheduling) - 2nd Attempt	1	1	1
Unable to Reach (appointment scheduling) - 3rd Attempt	1	1	1
Unable to Reach (CMR)	1	1	1
Unable to Reach Prescriber	1	1	0
Undeliverable Address Recognized (NCOA)	1	1	0
Unnecessary Therapy (lack of indication) Identified	1	1	0
Utilized Caregiver	1	1	0
Utilized Translator	1	1	0
Weight Loss ACHIEVED	1	1	0
Total Possible Interventions by Cohort	127	137	63

Table 54. Comparison of identified and resolved medication therapy problems for 20 selected MTM interventions in the MTM evaluation study group for Cohort 1, 2, and 3 participants, Florida MTM program evaluation June 1, 2011 to May 31, 2014

Drug Related Problems Identified	Cohort 1 (Nominal n=147)			Cohort 2 (Nominal n=171)			Cohort 3 (Nominal n=137)		
	Identified	Resolved	Pct. Resolved	Identified	Resolved	Pct. Resolved	Identified	Resolved	Pct. Resolved
Drug-Age Interaction Identified (Beers List)	0	0	.	0	0	-	1	1	100.0
Drug-Disease Interaction Identified	8	6	75.0	1	1	100.0	0	0	.
Drug-Pregnancy Interaction Identified	0	0	.	0	0	.	.	.	.
Level 1 Clinically Significant Drug-Drug Interaction Identified	8	4	50.0	6	2	33.3	0	0	.
Level 2 Clinically Significant Drug-Drug Interaction Identified	15	7	46.7	24	7	29.2	1	0	0.00
Level 3 Clinically Significant Drug-Drug Interaction Identified	0	0	.	1	1	100.0	2	0	0.0
Level 4 Clinically Significant Drug-Drug Interaction Identified	0	0	.	0	0	.	.	.	.
Combination Therapy Recommended (decreased pill burden)	13	3	23.1	7	1	14.3	2	0	0.0
Duplicate Therapy Identified	4	2	50.0	16	8	50.0	1	1	100.0
Gap in Therapy - Diabetic without an ACE-I or ARB	4	1	25.0	11	3	27.3	2	0	0.0
Gap in Therapy - Diabetic without a Statin	9	1	11.1	22	5	22.7	4	2	50.0
Gap in Therapy - Heart Failure without a Beta-Blocker	1	0	0.0	1	0	0.0	0	0	.
Gap in Therapy - Potentially Inappropriate Beta-Blocker Selection in Heart Failure	1	0	0.0	4	1	25.0	0	0	.
Gap in Therapy - Heart Failure without an ACE-I or ARB	2	0	0.0	5	0	0.0	0	0	.
Gap in Therapy - Long-Term Steroid without Antiresorptive Agent	2	0	0.0	9	2	22.2	2	1	50.0
Gap in Therapy - Lack of Rescue Medication in Asthma	0	0	.	4	3	75.0	0	0	.

Drug Related Problems Identified	Cohort 1 (Nominal n=147)			Cohort 2 (Nominal n=171)			Cohort 3 (Nominal n=137)		
	Identified	Resolved	Pct. Resolved	Identified	Resolved	Pct. Resolved	Identified	Resolved	Pct. Resolved
Gap in Therapy - Lack of Controller Medication/Beta-Agonist Overuse in Asthma	3	3	100.0	7	5	71.4	8	1	12.5
Insufficient Dosage Identified	11	13	.	15	6	40.0	2	2	100.0
Insufficient Duration of Therapy Identified	2	2	100.0	16	6	37.5	1	1	100.0
Lack of Therapy (indication) Identified	21	0	0.0	65	19	29.2	1	0	0.0
Total	104	42	40.4	214	70	32.7	54	14	25.9
Mean number of problems identified and resolved per Medicaid recipient in the MTM program	0.7	0.3	.	1.3	0.4	.	0.4	0.1	.

Table 55. Answers to Closed-ended Questions

Question	Yes N(%)	No N(%)	NA[1] (N%)
1. Was the CONTACT NAME [2]*(or use pharmacist)* from the University of Florida who talked to you about your medicines respectful?	57 (98.3)	0 (0)	1 (1.7)
2. Did CONTACT NAME[2] *(or use the pharmacist)* go through your medications and provide helpful information about your medications?	55 (94.8)	2 (3.5)	1 (1.7)
3. Where you happy with the assistance CONTACT NAME[2] *(or use the pharmacist)* provided?	58 (100)	0(0)	0(0)
4. Did you feel that you had a better understanding of your medications after your Medication Therapy call?	53 (91.4)	5 (8.6)	0(0)
5. Did you find the information that CONTACT NAME[2] *(or use the pharmacist)* sent you in the mail helpful?	46 (79.3)	9 (15.5)	3 (5.2)

[1] Not answered.

[2] In order to enhance recognition of the program, whenever possible, interviewers used the name(s) of the pharmacist(s) who had conducted the CMR.

Table 56. Global Evaluation of the MEDs-AD Waiver Project

Question	Very Poor N(%)	Poor N(%)	Fair N(%)	Good N(%)	Very Good N(%)
How would you rate the overall care that you experienced with the medication program?	0(0)	0(0)	0(0)	14 (24.1)	44 (75.9)

References

1. Williams DR, Costa MV, Odunlami AO, Mohammed SA. Moving upstream: how interventions that address the social determinants of health can improve health and reduce disparities. *J Public Health Manag Pract.* 2008;14 Suppl:S8-17.
2. Williams DR, Jackson PB. Social sources of racial disparities in health. *Health affairs (Project Hope).* 2005;24(2):325-334.
3. Centers for Disease Control and Prevention. Social Determinants of Health. 2015; http://www.cdc.gov/socialdeterminants/. Accessed 3/11/2015.
4. U.S. Department of Health and Human Services. Social Determinants of Health. 2015; http://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health?topicid=39. Accessed 3/11/2015.
5. CMS Chronic Conditions Data Warehouse. Medicaid Charts. https://www.ccwdata.org/web/guest/medicaid-charts. Accessed 3/12/2015.
6. Weiss BD, Blanchard JS, McGee DL, et al. Illiteracy among Medicaid recipients and its relationship to health care costs. *Journal of health care for the poor and underserved.* 1994;5(2):99-111.
7. Egerter S, Braveman P, Sadegh-Nobari T, Grossman-Kahn R, Dekker M. Education and Health. *Exploring the Social Determinants of Health* 2011; Issue Brief #5:http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70447. Accessed 3/12/2015.
8. Braveman P, Egerter S, Barclay C. Income, Wealth and Health. *Exploring the Social Determinants of Health* 2011; Issue Brief #4:http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70448. Accessed 3/12/2015.
9. Olshansky SJ, Antonucci T, Berkman L, et al. Differences in life expectancy due to race and educational differences are widening, and many may not catch up. *Health Aff (Millwood).* 2012;31(8):1803-1813.
10. Feldstein J. Increasing Access to Education and Improving Health Care Outcomes. http://www.mhpa.org/_upload/21.%20Increasing%20Access%20to%20Education%20and%20Improving%20Health%20Care%20Outcomes%20%28Jay%20Feldstein%29.pdf. Accessed 3/12/2015.
11. Agency for Health Care Research and Quality. Literacy and Health Outcomes. *Evidence Report/Technology Assessment Number 87.* 2004;AHRQ Pub. No. 04-E007-1.
12. Services USDoHaH. Quick Guide to Health Literacy. http://www.health.gov/communication/literacy/quickguide/Quickguide.pdf. Accessed 3/12/2015.
13. Jackson CT, Trygstad TK, DeWalt DA, DuBard CA. Transitional care cut hospital readmissions for North Carolina Medicaid patients with complex chronic conditions. *Health Aff (Millwood).* 2013;32(8):1407-1415.
14. *Tallahassee Memorial HealthCare--2013 Annual Report for Fiscal Year 2012.* Tallahassee, FL: Tallahassee Memorial HealthCare;2013.
15. Neal Halfon KL, Shirley R. Why Social Determinants? *Healthcare Quarterly.* 2010;14(Sp):8-20.