

**CMS Transformation Grant:  
State Final Report**

**State:** Kansas

**Name of Project:** Health Promotion for Kansans with Disabilities

**Name of Medicaid Agency:** Kansas Health Policy Authority

**Contact Person:** Becky Ross, Program Improvement

**Contact Person Phone and Fax:** 785-296-7773 785-296-4813 (FAX)

**Contact Person Email:** rebecca.ross@khp.a.ks.gov

## OVERVIEW & BACKGROUND

### *Purpose*

The purpose of this project was to test the effectiveness of deploying a claims-based querying tool (ImpactPro by Ingenix) and clinically targeted educational materials provided by KUMC faculty to case managers and independent living counselors in order to improve preventive health care and chronic disease management services for persons with disabilities. Case managers/independent living counselors who served Medicaid clients in selected Independent Living Centers (ILCs) and Community Developmental Disability Organizations (CDDOs) were eligible. The Kansas Health Policy Authority (KHPA) through a subcontract with Ingenix provided selected agencies with the ImpactPro tool. KHPA also contracted with the University of Kansas Medical Center (KUMC) to: (1) to provide case managers with educational information about the preventive care indicators in the ImpactPro program to achieve its maximum potential; (2) survey case managers pre- and post-implementation to assess their subjective evaluation of the tool and impact on job activities and conduct focus groups after the study to collect feedback on using Impact Pro; and (3) analyze the Medicaid claims database for program effectiveness, defined as changes in preventive care and disease management indicators.

### *Background, Significance, and Scientific Merit*

In a proof of concept, Ingenix used State Fiscal Year 2004 to demonstrate that there were over 19,000 women in the Kansas Medicaid population enrolled in either the aged or disabled population who failed to receive appropriate cervical cancer screening. In addition, more than 10,000 women had no evidence of breast cancer screening, and over 11,000 aged or disabled Kansas Medicaid beneficiaries showed no evidence of colorectal screenings.

Persons with disabilities have higher rates of chronic medical co-morbidities than their peers, fare poorly when it comes to management of chronic conditions, and are generally less likely to receive age- and gender- appropriate preventive health services such as cancer screenings and dental care. As a measure of the quality of diabetes care, for example, hemoglobin A1C tests were only performed in approximately 41% of the Kansas Medicaid enrolled beneficiaries with disabilities who have diabetes, compared to rates between 70-85% for non-disabled populations. Reasons for these disparities may include inability to effectively communicate needs, lack of awareness of the need for prevention, acute care needs that surpass prevention, poor physical access to preventive care, and poor coordination across multiple clinicians. Instituting and maintaining appropriate preventive health care services may avert chronic conditions or avert severe negative events associated with poor disease management.

For the Kansas Medicaid's disabled population, case managers and independent living counselors coordinate vocational and social services through **targeted case management**. We hypothesized that case managers/independent living counselors would be in a reasonable position to improve quality of preventive health care and chronic disease management among Medicaid beneficiaries because of their close, often daily interactions with the individuals they serve. In this project, we provided case managers and independent living counselors with a computerized claims-based system (ImpactPro by Ingenix) that could help identify the need for preventive care and disease management. However, we

also felt that case managers and independent living counselors would need additional training and ongoing support to maximize the effectiveness of ImpactPro. Therefore, KUMC provided educational information on basic preventive care and disease/medication management issues and Ingenix trained the case managers and independent living counselors on how to use ImpactPro.

At the beginning of the project, there were 26 Community Developmentally Disability Organizations (CDDOs) and 13 Centers for Independent Living (CILs) located across the state of Kansas. The total number of Kansas beneficiaries receiving targeted case management (TCM) for persons with disabilities was 6,476. Based on the projected pilot sites, it was estimated that 3,000 beneficiaries would receive services from case managers and independent living counselors from seven participating agencies who were trained to use ImpactPro. If the desired outcomes of the intervention were achieved, replication of the project could be accomplished by introduction of the assessment tool to the remaining CDDOs and CILs across the state. The potential for further replication existed by offering the assessment tool to the case managers of over a dozen different types of targeted and HCBS waiver case management services offered in the State of Kansas.

The goal of this project was to improve the provision of quality preventive health care services and the quality of monitoring for chronic conditions. Quality preventive health care measures included: age- and gender-appropriate cancer screening (cervical, breast, and colon) and cholesterol screening. Monitoring of chronic conditions included measures for diabetes, asthma, hypertension, depression, and psychiatric medication monitoring. Collaborators from the University of Kansas Medical Center (KUMC) Schools of Medicine and Pharmacy assisted with selection of appropriate screening and monitoring criteria. These collaborators had substantial experience working with the Medicaid population on medication and health quality improvement projects.

## RESEARCH METHODOLOGY

The research team consisted of collaborators from KHPA and KUMC. KHPA selected CDDOs and ILCs willing to participate. To participate in the ImpactPro training, persons must have been employed as a case manager/independent living counselor or supervisor at a participating agency. The contract between KHPA and Ingenix allowed for up to 50 simultaneous ImpactPro users. We therefore, limited the number of agencies (CILs and CDDOs) who could participate in the project. Seventy-eight case managers were enrolled from 7 agencies located throughout the state of Kansas. The intervention essentially ran from December 2007-December 2008.

Each month, the participating CDDOs and ILCs provided KHPA with a roster of beneficiaries they were including in their use of the ImpactPro tool. KHPA passed the rosters along to Ingenix so that the appropriate claims histories for each participating agency would be available on-line. Agencies were only granted access to the profiles for consumers from their client base. These rosters were subsequently used to determine remuneration for agencies' participation in the project. Only beneficiaries 18 years or older were included in the project: beneficiaries could age into the project upon their 18<sup>th</sup> birthday.

The one year intervention was built around the Ingenix ImpactPro tool in an effort to advance health promotion using information technology. The tool was used by case managers and independent living counselors to identify gaps in care and opportunities for care for consumers with physical and/or developmental disabilities. Opportunities for care included increased use of age and gender appropriate preventive health care services, improved compliance with chronic medication uses, and increased receipt of chronic disease monitoring services. Evaluation of project success was built around surveyed changes in case managers'/counselors' perceptions of knowledge and confidence with health promotion activities, focus group discussions of the intervention, and analyses of claims data for changes in health care resource use.

### *IMPACT PRO*

The Ingenix predictive modeling solution, ImpactPro, is a multi-dimensional, episode-based predictive modeling and care management analytics solution. Impact Pro provided the foundation necessary for the State of Kansas to use clinical, risk, and administrative profile information to target health care services to beneficiaries in the disabled population. KHPA provided Ingenix initially with two years of paid fee-for-services (FFS) Medicaid claims and eligibility files for the Aged, Blind and Disabled (ABD) programs in July 2007. These claims were processed through the ImpactPro tool and the results made available to end users (KHPA, KUMC, and potential case managers and counselors) in time for the fall training programs. However, end users were only able to access the most recent 12 months of claims loaded in ImpactPro at any time. Throughout the intervention period and a few months beyond, KHPA provided monthly updates to all claims and eligibility files to Ingenix to refresh the information in

#### Major Project Dates

*Pre- Intervention Period:  
Sept2006 – August 2007*

*Training Sessions:  
October and November 2007*

*Intervention Period:  
December 2007-December 2008*

*Focus Groups:  
October 2008*

*Post-Intervention Survey:  
December 2008*

ImpactPro. KHPA also provided the same claims and eligibility files to KUMC for their use in project evaluation. The Impact Pro tool was generally designed to generate risk information for covered lives. The tool reviewed the most recent 12 months of claims and demographics, summarized health care resources used, and predicted future resource use out 3 and 12 months. ImpactPro also summarized major diagnostic categories for each enrollee and identified care opportunities and care alerts.

In our deployment of this tool, we encouraged case managers and counselors to focus on care opportunities and to review the claims histories (prescriptions filled, hospital stays, and doctor visits) for information that would assist them in helping their consumers. Care opportunities were drawn from evidence-based medicine and clinically accepted best practices and standards to identify gaps in care and intervention opportunities. Case managers were expected to access to this information to effectively support the health of beneficiaries in their caseloads and identify intervention opportunities that supported the State's goal to improve health care outcomes and reduce future program cost. We discouraged from focusing on the cost-based estimates as they were not normed to Medicaid populations and we did not want them to worry about the cost of care for the consumers. Impact Pro included 110 care opportunities "out of the box." Based upon discussions among the KUMC faculty (Drs. Shireman, Greiner, and Backes), several care opportunities were modified or de-activated. The 23 care opportunities that were deactivated did not reflect current practice standards, were redundant, were outside the likely realm of care for the study population, or could be combined with other care opportunities to reduce the number of flags care managers/counselors would see. The KUMC team then added 16 care opportunities to track gaps in care not monitored by ImpactPro or to produce combined care opportunities. In the end, there were 103 care opportunities deployed.

## **Educational Training Session and Newsletters**

### Training

In October and November 2007, four training sessions were held for case managers and independent living counselors. Two each were held in Topeka and Salina to minimize travel time for case managers and counselors. One part of the training covered how to use ImpactPro and was conducted by the Ingenix representatives during a 2-3 hour session. The second part of the educational session involved KUMC faculty reviewing basics of chronic disease management and health promotion activities and case studies based upon actual ImpactPro patient profiles to identify care opportunities and discuss potential approaches to improving care. The training was intended to

---

### **NEWSLETTER TOPICS**

*November 2007 – Cancer Screening*

*December 2007 – Focus on Diabetes*

*January 2008 -Focus on Healthy Lifestyles*

*February 2008 -Healthy Heart and Blood Pressure Management*

*March 2008 -Healthy Eyes & Ears*

*April 2008–Healthy Lungs*

*May 2008–Bone Health and Pain Management*

*June 2008 - Medication Adherence*

*July 2008- Mental Health*

*August 2008–Dental Health*

*September 2008–Men's Health*

*October 2008– Immunization Update*

*November 2008 – Cancer Prevention*

*December 2008 – Women's Health*

*January 2009– Weight Management*

*February 2009- Health Care Management for Individuals with DD*

*March 2009– End of Life Issues*

*April 2009– Assistive Technology*

*May 2009 – Behavior Management*

*June 2009- Preventive Screening for Adults with ID*

*August 2009 – Results (Case Manager)*

*October 2009 – H1N1*

---

familiarize participants with the necessary skills and information to adequately use the ImpactPro tool once they returned to their clients. A brief, anonymous, training evaluation provided feedback to the presenters on the quality and utility of the training sessions.

#### Newsletters

Throughout the intervention, the KUMC team sent monthly electronic newsletters to the case managers and independent living counselors at the participating agencies to reinforce information covered in the sessions as well as cover new topics. Topics were selected to address the issues that would most likely be encountered by clients and case managers; in some cases, topics came from the case managers and counselors themselves (see side bar for list of topics). When appropriate, case managers and independent living counselors shared the newsletters with family, friends or other care givers.

#### Team leader calls

Throughout the project, we conducted monthly team leader calls with participating agencies to report successes and ongoing challenges with the project. Each CDDO or CIL selected an internal team leader to serve as a liaison between their organization and KHPA and KUMC. Clinical faculty from KUMC participated in some calls to try to encourage more active participation at the agency level and to discuss potential medication or health promotion issues. These discussions led to additional newsletter topics and other training opportunities during the course of the intervention. The project manager also reviewed the most recent monthly newsletter during the team lead calls.

#### Executive director calls

KHPA conducted telephone interviews with executive directors for each of the agencies during March 2008. The purpose of the calls was to discuss the project with each director and answer any questions they had.

#### Gift card program

We discovered that case managers/counselors were slow to initiate use of the tool. Aside from technical issues, rolling the project out during the winter holiday season undermined early use of ImpactPro. In addition, changes to rules for targeted case management diverted attention away from the project. Therefore, we initiated a reward system in March 2008 to encourage case managers/counselors to use the tool: the top three users monthly received a \$50 Visa gift card and had their names posted on the project web site.

#### Website

KHPA worked with KUMC to develop and maintain a project website as a tool to further communicate with agencies involved in the project. The monthly newsletters were hosted on this website, as well as training materials and helpful health promotion links.

#### Contact KUMC

The research team offered an email and triage for questions asked to a pharmacist or a medical provider. Case managers and independent living counselors never used this function despite reminders

of its availability and its access through the project website.

### Tele-trainings

Based on feedback received during team leader calls and during the focus groups, we organized two tele-trainings held after the end of the intervention period. One topic specifically asked for was dementia in individuals with developmental disabilities. On January 27, 2009, a geriatrician and a social worker from KU presented an hour long tele-training on this topic. We offered two identical trainings, one in the morning and one in the afternoon to facilitate maximum participation. Approximately 60 individuals from CILs and CDDOs across the state of Kansas took part in this training.

During the fall of 2008, we identified and provided to the agencies checklists for managing antipsychotic medication side effects. The need for information on this topic had come up on several of the team leader calls. As a follow-up, on February 25, 2009, Jim Backes, PharmD and Karen Moeller, PharmD, clinical assistant professors at the KU Pharmacy School, presented the topic and how to utilize the checklists previously provided. As with the January training, two identical training calls were offered and approximately 65 individuals took part in this training.

### Remuneration

At the beginning of the project, KHPA agreed to pay participating agencies \$20 for each beneficiary enrolled in the project for a minimum six consecutive months. This amount was increased from the original budget due to savings in the project, which fell below the 10% threshold, allowing KHPA to move money to the bonus payments. KHPA ultimately was able to pay \$70.85 per consumer for a total of \$117,186 representing 1,654 beneficiaries.

### Evaluation

The impact of the project was assessed through surveys and focus groups of the participating case managers and independent living counselors as well as analyses of claims data pre- and post-intervention. These processes are outlined below.

#### *Case Manager Surveys*

As part of evaluation, we surveyed the case managers at the training sessions and upon conclusion of the intervention. The primary objective of the survey was to assess knowledge of preventive care activities, and change in practice and attitudes toward preventive care counseling at post intervention. At the beginning of the training sessions (October and November 2007), a trained research assistant asked attendees if they would be interested in participating in a survey about their work activities and duties related to preventive care utilization. The self-reported surveys included measures of work history, caseload, and other work-related variables. Surveys were short, taking approximately 10 minutes to complete. Participation in the survey was voluntary, and involvement in the training was not contingent upon completion of the surveys. Seventy-nine surveys were completed.

At the conclusion of the project, our project manager, Brad Clark, conducted site visits to participating project agencies to administer a post intervention survey. Participants completed the same survey as was administered at baseline. Brad spent one and half weeks in mid December 2008, traveling over

1300 miles across Kansas visiting six of the project agencies. Brad mailed the seventh agency the surveys due to a scheduling conflict, which prevented a site visit. Fifty surveys were ultimately completed.

Pre and post-intervention survey data was entered into an SPSS data base and analyzed with appropriate descriptive statistics. The distributions of key variables from baseline and follow-up were compared using Chi-square tests. We compared pre-intervention and post-intervention responses on key variables to assess program effectiveness in increasing case managers' and independent living counselors' knowledge and confidence in assisting their consumers with health related matters. We did not link pre-intervention surveys with post-intervention surveys at the counselor level. Given personnel turnover, there were probably a number of case managers completing the post-intervention survey that did not complete the pre-intervention instrument. This limited our ability to draw solid conclusions from the survey.

### *Focus Groups*

At the conclusion of the intervention period, KUMC worked with KHPA to recruit case managers and independent living counselors to participate in one of four focus groups. The focus groups were conducted in Salina and Topeka as had been done for the training to minimize travel time for participants during October 2008. Participants were purposively selected based on the amount of time they had spent logged into the intervention tool (see time on tool section below). One group had limited use and two groups were considered moderate/high users. The fourth group consisted of team leaders, who had been the project's liaisons with the field sites. Potential participants were contacted by the research team and asked if they were interested in participating, with approval from their employers.

Upon arrival, case managers completed an informed consent form for the focus group. Each focus group lasted approximately 90 to 120 minutes. Groups were audio-taped and transcribed verbatim. Participants received \$25 for participation, though some participants were required by their agency to "turn over" their checks. If participants had to travel, KHPA paid for hotel and meals. All participants also received lunch either before or after their group.

Focus groups were led by a trained and experienced moderator. An assistant moderator was also present to help organize the groups, obtain consent, take notes, and monitor the recording equipment. Groups followed a semi-structured format. The moderator's guide contained key questions about the tool, and other facets of the intervention. Participants were also asked about their suggestions for future projects. Questions were developed by the research team in collaboration with KHPA. Questions were the same in each group, though they were phrased slightly different in the low versus high users. Team leaders were also asked about their role in the project.

To analyze the focus group recordings, we used standard text analysis. Most themes were developed deductively by the purpose of the study (benefits of the tool, challenges of the tool, future suggestions). Some codes emerged inductively based on participant responses. Focus group transcripts were

reviewed first for accuracy. Dr. James and Mr. Clark reviewed transcripts to identify major themes from the data and developed a code list. Once the code list was developed, three raters (James, Clark, and Shireman) coded the transcripts and identified prevalent themes.

*Time on Tool*

Case managers and independent living counselors accessed Impact Pro through an internet portal. This allowed us to track the length of time each individual was logged into the tool. We summed the time on tool at the agency level and tracked usage monthly throughout the intervention period.

*Claims Data Analyses*

The KUMC research team reviewed paid Medicaid claims for pharmacy, inpatient, and outpatient to identify baseline and intervention-period opportunities to improve the quality of care for beneficiaries from participating agencies. Quality of care measures were also computed for Medicaid enrollees not including in the client rosters from the participating agencies. In addition, we developed two separate pools of consumers: those with developmental disabilities (DD) and those with physical disabilities (PD). As outlined in Table 1, for adults with DD, we used the rosters from the participating CDDOs to identify the MTG (Medicaid Transformation Grant) beneficiaries. In Kansas, every person with a developmental disability enrolled in Medicaid is subject to an annual assessment (BASIS) performed and submitted by their case manager to the Social and Rehabilitation Services (SRS) Division. SRS provided KUMC with BASIS data concurrent with the project dates. This served as a master list of adults with DD across the state. Those with DD and not listed in the MTG rosters constituted the non-MTG group. Combined, the MTG and non-MTG groups constituted the Statewide cohort.

**Table1. Comparison Groups and Time Periods for Evaluating Intervention Effectiveness**

<b>Comparison Groups/Time Period</b>	<b>MTG</b>	<b>Non-MTG</b>	<b>Statewide</b>
<i>Adults with Developmental Disabilities (DD)</i>			
Source of Member IDs	CDDO Rosters	BASIS Data	BASIS data + Rosters
Pre-Intervention Period	September 1, 2006-August 31, 2007		
Intervention Period	November 1, 2007-October 31, 2008		
Post-Intervention Period	November 1, 2008-October 31, 2009		
<i>Adults with Physical Disabilities</i>			
Source of Member IDs	CIL Rosters	HCBS PD Waiver	HCBS PD Waiver + Rosters
Pre-Intervention Period	September 1, 2006-August 31, 2007		
Intervention Period	November 1, 2007-October 31, 2008		
Post-Intervention Period	November 1, 2008-October 31, 2009		

Similarly, for adults with physical disabilities, we used the MTG rosters from the participating CILs for the intervention group. In this case, we obtained a list of adults who had received HCBS PD services from a colleague working on research related to this population. Their list constituted a master list of adults with PD. Those not in the MTG rosters were allocated to the non-MTG cohort: MTG combined with non-MTG PD lists constituted the Statewide PD group.

By segmenting the populations this way, we were able to compare quality of care measures for each person from a participating agency to their own historical data as well as against their peers from across the state. In addition, we could compare the relative rates of care opportunities across the PD and DD populations, excluding older adults and persons with severe mental illness who were included in the paid Medicaid claims data that were extracted for KUMC.

While ImpactPro included over 100 care opportunities that could have served as points of comparison, we included only a limited selection for evaluation. For preventive screening and chronic disease management, we searched for appropriate outpatient procedure codes or medication national drug codes in pharmacy claims. To identify persons with a particular disease, e.g., diabetes, we required either one inpatient diagnosis code or two outpatient diagnosis codes as confirmatory for the presence of the condition. In some cases, we could examine medications to verify or establish diseases, e.g., diabetes when insulin prescriptions were present.

We included age- and gender-appropriate cancer screening for breast, cervical and colorectal cancer. Prostate cancer was excluded as its screening criteria are less clearly defined in national guidelines. Cervical cancer screening included women 18-64 years and breast cancer screening included women 40 years and older. Colorectal cancer screening rates were examined for men and women 50 years and older. We included fecal occult blood tests (FOBT), colonoscopy and flexible sigmoidoscopy as appropriate screening tests. It is important to note that we evaluated these cancer screening tests during 12 month periods: in actuality, some of these measures are suggested on a less frequent basis. For example, colonoscopy is only suggested every 10 years and cervical cancer screening frequency can drop to every 3 years if three serial tests are negative. When comparing our results to other sources of data on screening rates, we must be mindful of potential differences in the reporting period. Within our study, however, we used consistent time periods so any changes are directly interpretable. Other general preventive measures included cholesterol (lipid) testing for adults 40 years and older, osteoporosis screening tests for women over 50 years, and influenza vaccinations for all adults with DD and PD (assuming all are at higher risk). In addition, we examined lipid testing for persons using second generation antipsychotics (SGAs).

Diabetes served as the primary condition to evaluate quality of care changes. For persons with diabetes, we examined the occurrence of HbA1c or other glucose tests, cholesterol (lipid) testing, eye exams, tests for microalbuminuria, and primary care physician (PCP) visits during the 12 month period. Results were prepared using simple descriptive statistics rather than multivariable modeling. Further analyses have been or will be conducted as we examine particular conditions and attempt to disseminate findings in the medical literature. For example, a more complete analysis of the rates of diabetes monitoring among adults with DD has been accepted for publication in *Disability and Health Journal*, though it is only based upon the pre-intervention period.

## RESULTS

### *Remuneration for Participation*

Upon completion of the intervention period (Nov 2008), we calculated the appropriate payment for each agency for their participation in the project. First, we determined how many beneficiaries were enrolled for a minimum of six consecutive months during the project. KUMC reviewed roster files from December 2007 – November 2008 and tabulated six consecutive month enrollment. We then merged separate monthly rosters into a single database for December 2007-November 2008. Discrepancies in names (first and/or last) were corrected on the basis of matched Medicaid ID numbers: most duplicate entries were caused by misspellings, extra spaces or in all caps. Only adults over 18 years of age were included.

KUMC created a flag for each month for each eligible beneficiary and then, totaled the number of months during the year that each person was enrolled. In addition, we looked across records to assure that a minimum of six months of eligibility was consecutive for each person. The total roster was sorted by agency and saved as separate agency level files in both SPSS and MS EXCEL formats. Duplicate Medicaid IDs with different agency codes were saved in a separate file also in SPSS and MS EXCEL formats. KUMC provided KHPA with the XLS files to generate final payments to the agencies for their participation. The final counts by agency are shown in Table 2.

**Table 2. Counts by agency of number of beneficiaries included in rosters and with minimum six months continuous project enrollment**

Agency	(a) Number of beneficiaries on rosters	(b) Number of beneficiaries with 6 or more contiguous months	Percent eligible (100*(a/b))
<b><u>CDDOs</u></b>			
DPOK	590	394	67%
DSNWK	325	293	90%
Nemaha	44	38	86%
CLASS Inc.	268	230	86%
<b><u>CILs</u></b>			
Three Rivers	545	356	65%
CILSWK	331	175	53%
Prairie	241	168	70%
Total	2344	1654	71%

### **Survey Results**

For both the pre-intervention (n=72) and post-intervention (n=50) surveys, respondents were primarily Caucasian women with at least a college degree (Table 3). The clients they served were primarily Medicaid recipients, though there were some slight differences in the relative proportions for the two

time periods. In the pre-intervention group, the case managers/counselors indicated that 73% of their agencies had >90% of their clients receiving Medicaid. This dropped to 58% in the post-intervention survey. Overall, in the post-intervention survey, there appeared to be fewer of the agencies' consumers on Medicaid.

**Table 3. Demographic characteristics of the case managers & independent living counselors completing surveys**

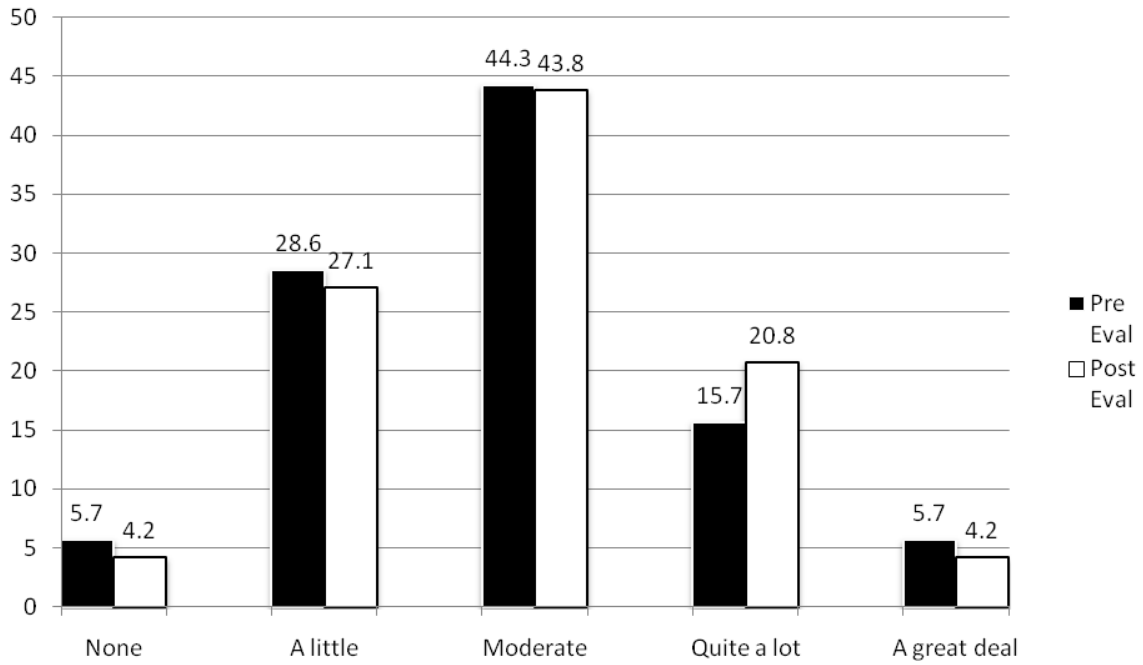
	Pre-Intervention (n=72)	Post-Intervention (n=50)
<b>Age</b> (mean years)	44.0	43.5
<b>Female</b>	89%	86%
<b>Caucasian</b>	97%	98%
<b>Education</b>		
HS grad/GED	10%	8%
Some college	20%	24%
4-year grad/post grad	70%	68%
<b>Percent of clients are on Medicaid at agency</b>		
100%	28%	38%
90-99%	45%	20%
50-89%	23%	34%
<50%	3%	8%

*Job activities: Social and Medical Care Services*

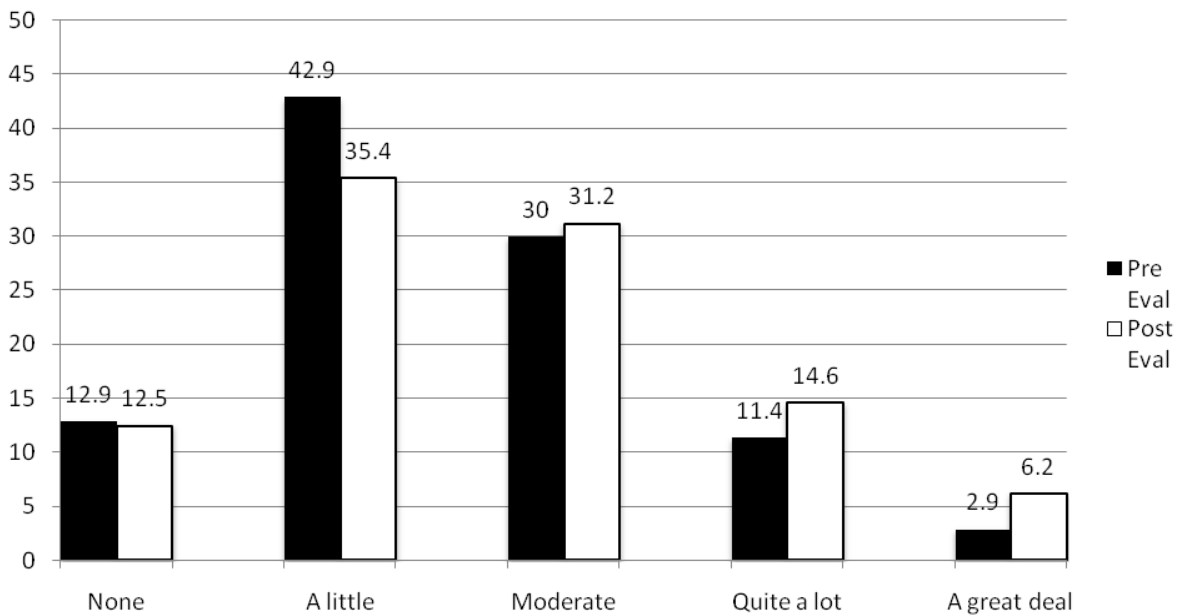
We requested information on the relative amounts of time case managers and independent living counselors spent assessing, planning and coordinating social services and medical care as separate sets of duties. In the following set of figures, we compare relative responses between pre-intervention and post-intervention surveys to see if there were any substantial changes.

In general, case managers/counselors spent more time assessing consumers with respect to social services as compared to medical care services. In Figures 1 and 2, we generally see less time devoted to medical care assessment as compared to social service assessment. For example, a higher proportion (44%) spent a moderate amount of time on social services assessment (Figure 1) as compared to 30% spending a moderate amount of time on medical care assessment (Figure 2). After the intervention, however, there were some modest gains in time spent on medical care assessment: those spending quite a lot or a great deal of time on medical care assessments increased from 14.3% to 20.8%, while the proportion spending a little time declined from 42.9% to 35.4%.

**Figure 1. Time Spent in Assessment (Social Services)**

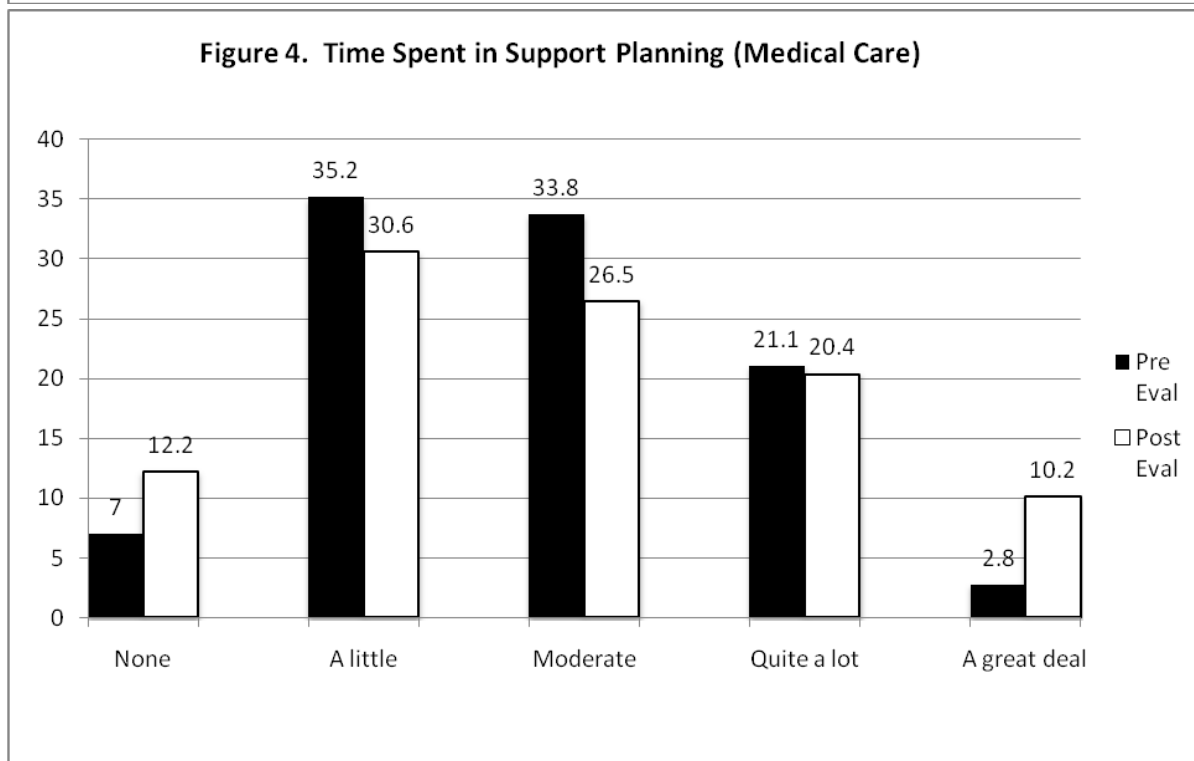
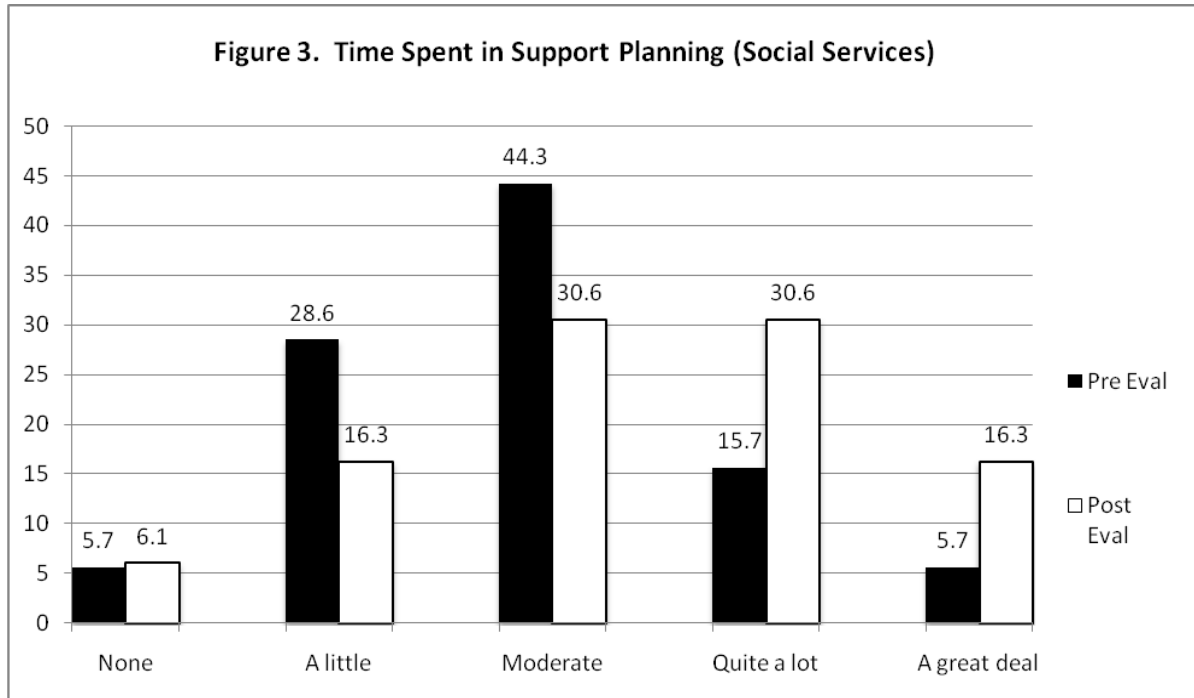


**Figure 2. Time Spent in Assessment (Medical Care)**

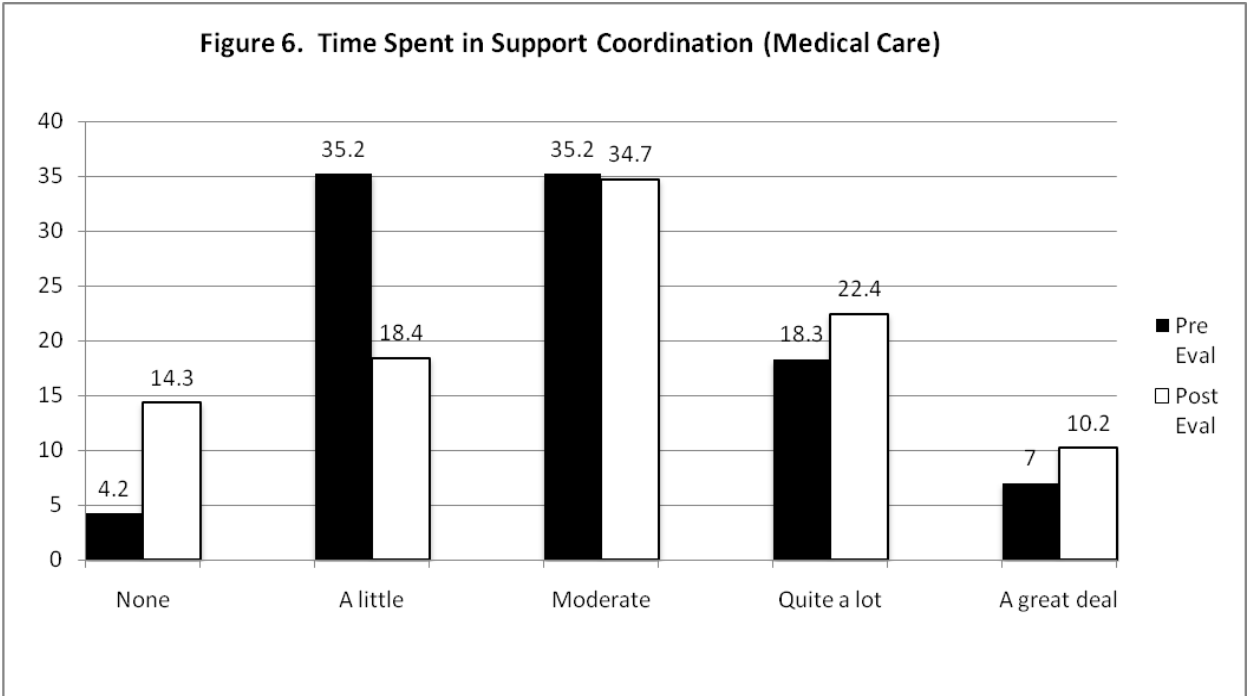
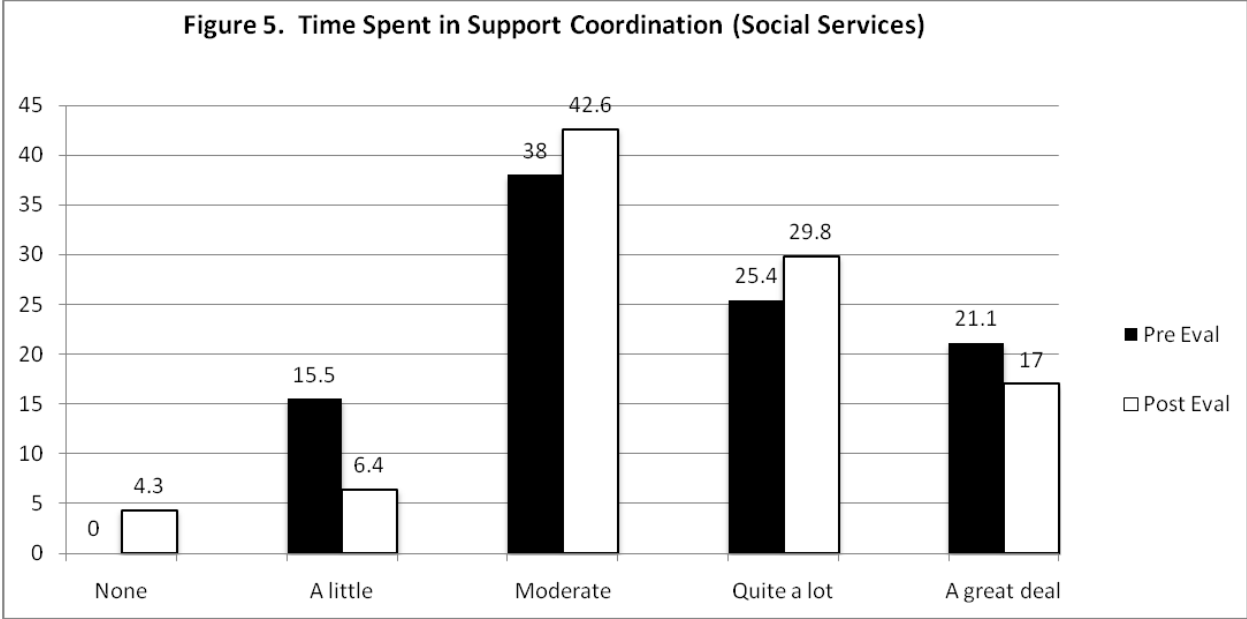


As for support planning, there was a substantial increase in time devoted to social support planning during the intervention (Figure 3), with quite a lot and a great deal increasing from 21.4% to 46.9%. The

gains at the upper end of time were much smaller for medical care support planning: 23.9% to 30.6% (Figure 4).

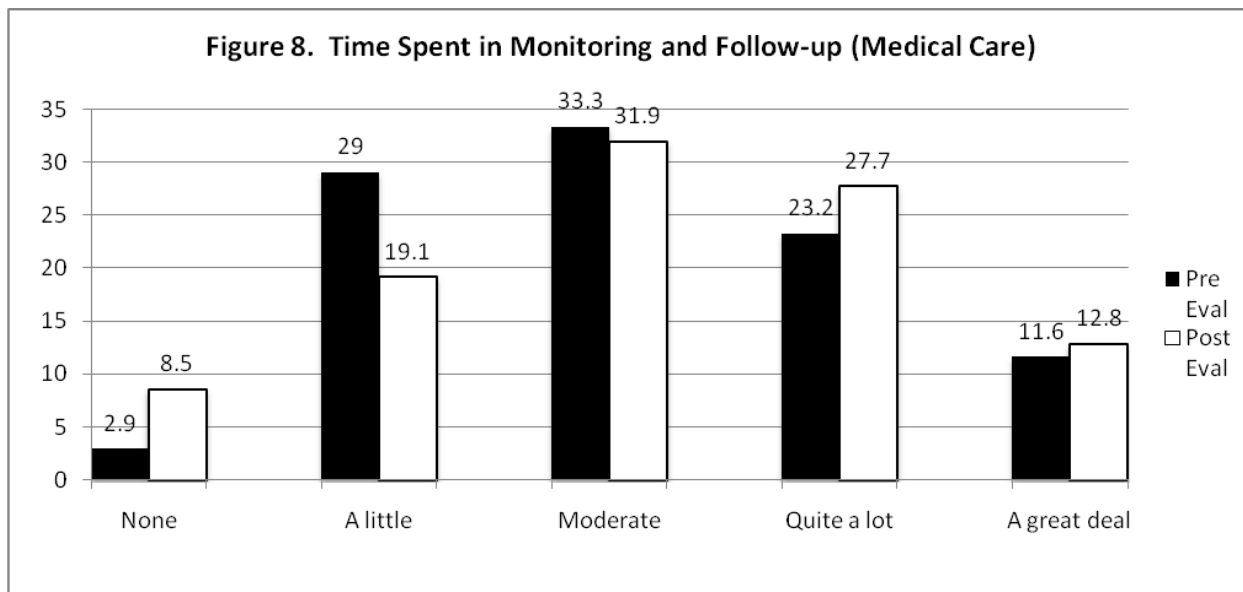
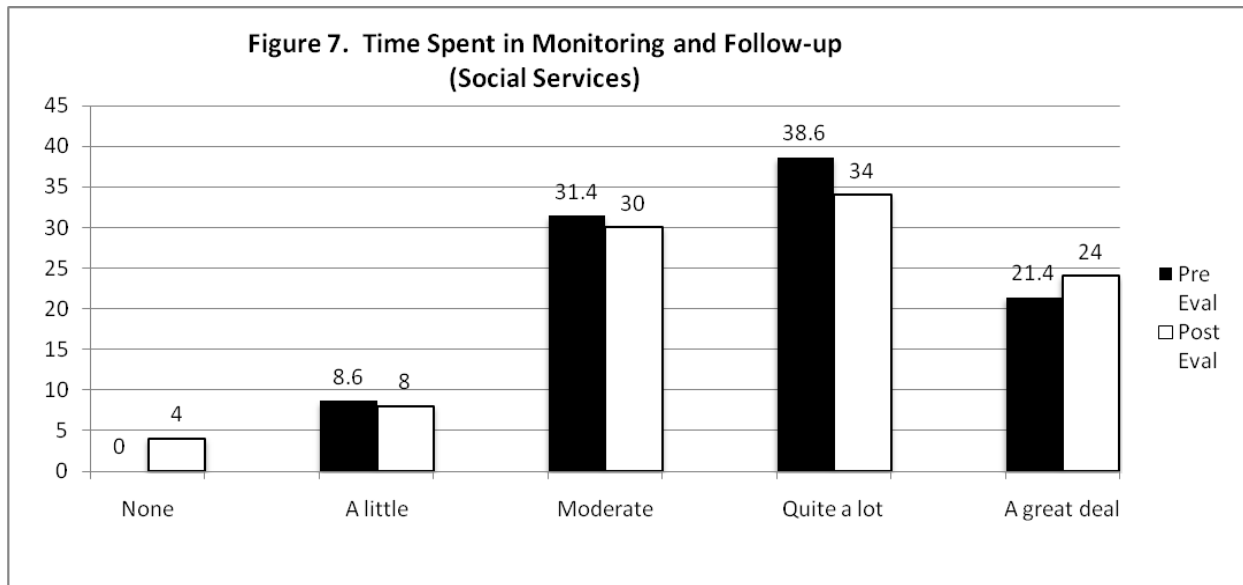


In terms of support coordination (Figures 5 & 6), there was a minor increase for social services (quite a lot/a great deal, 46.5% to 46.8%), but stronger increase for medical care services (25.3% to 32.6%).

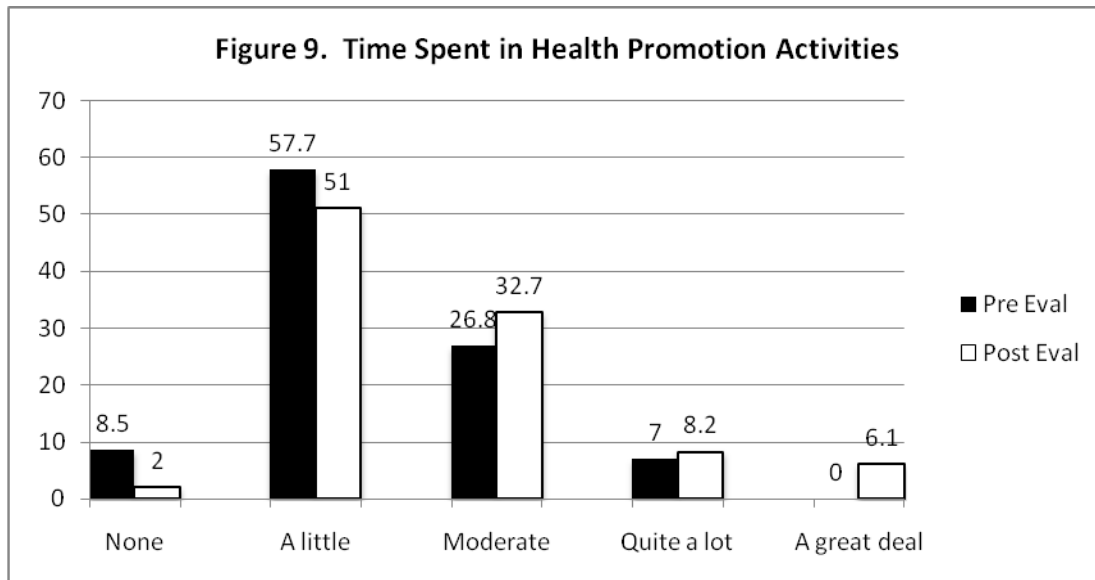


Time spent in monitoring and follow-up had similar changes (Figures 7 & 8). At the quite a lot and great deal levels, time spent in monitoring and follow-up for social services changed very little (58% to 60%) and increased more for medical care (34.8% to 40.5%). Although social services still dominated case

managers and independent living counselors' time, they did increase their relative amounts of time on medical care management.



There was a gain in time spent on health promotion activities (Figure 9). At the upper end of time (quite a lot and a great deal), time spent doubled from 7% to 14.3%.

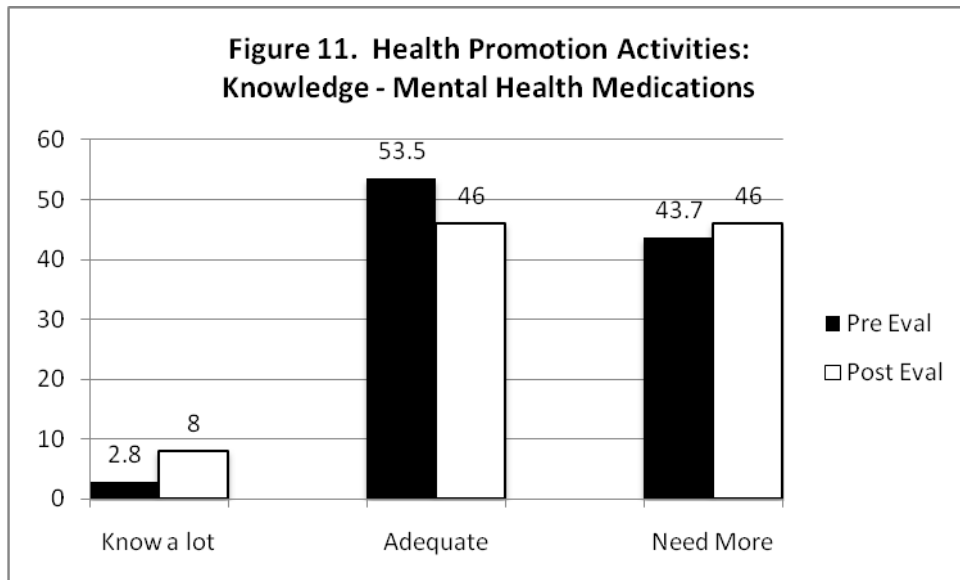
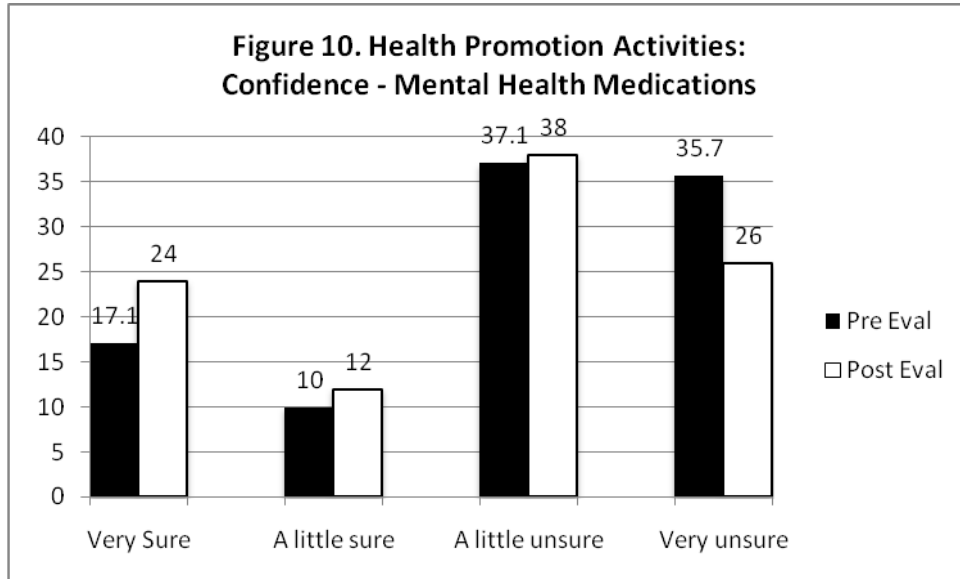


*Health Promotion and Disease Management Activities: Knowledge and Confidence*

We provided separate response categories for level of knowledge and level of confidence in assisting clients for several health matters: mental health medications, medications for medical problems, diabetes, mammography, cervical cancer screening (pap smear testing), colorectal cancer (CRC) screening, chronic disease management, tracking medication compliance, and dental screening. Case managers' and independent living counselors' responses for each set (knowledge & confidence) by topic are shown and discussed in the following section. A priori, we hoped that the intervention and support (e.g., newsletters) would increase knowledge and improve confidence in these matters. We applied statistical tests to determine if changes were statistically significant (Chi-square analysis): none of the results were statistically significant. There were some minor shifts as are noted below.

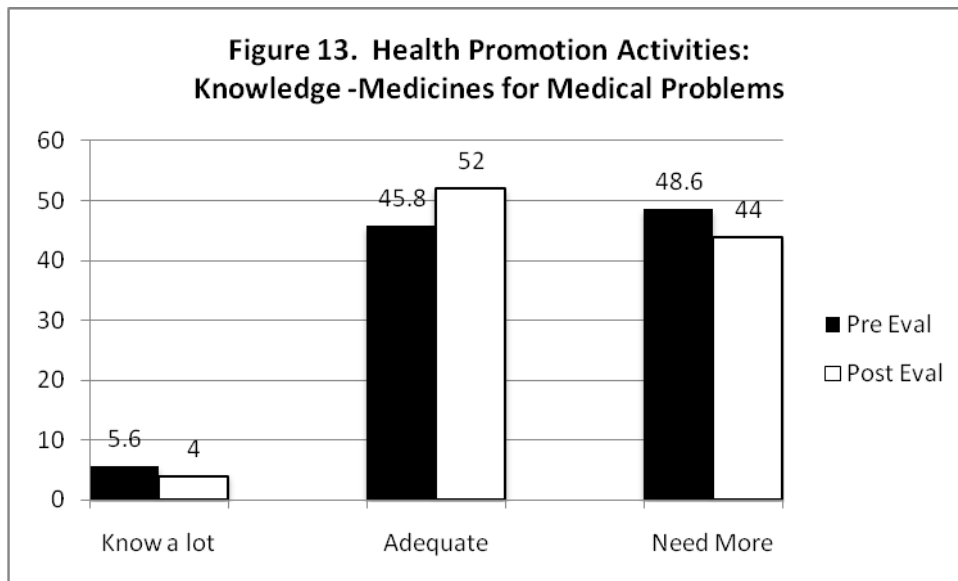
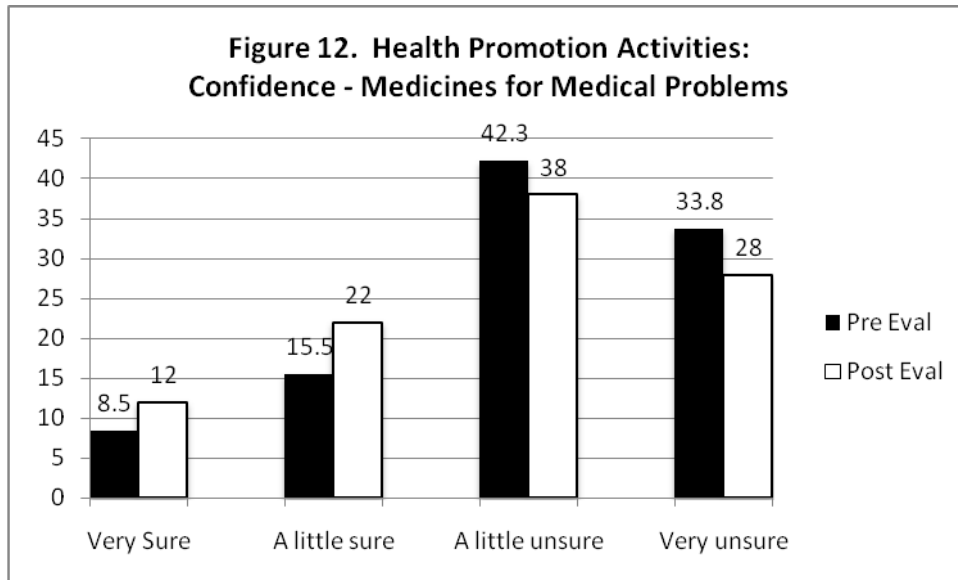
**Mental Health Medications (Figures 10 & 11):**

- *Confidence* improved for case managers'/counselors' ability to assist their clients with mental health medications. This was seen principally as a gain in the very sure category (17% to 24%) and a decline in the very unsure category (35.7% to 26%).
- *Knowledge* increased from 2.8% to 8% for the know a lot category, offsetting a drop in the adequate category (53.5% to 46%).



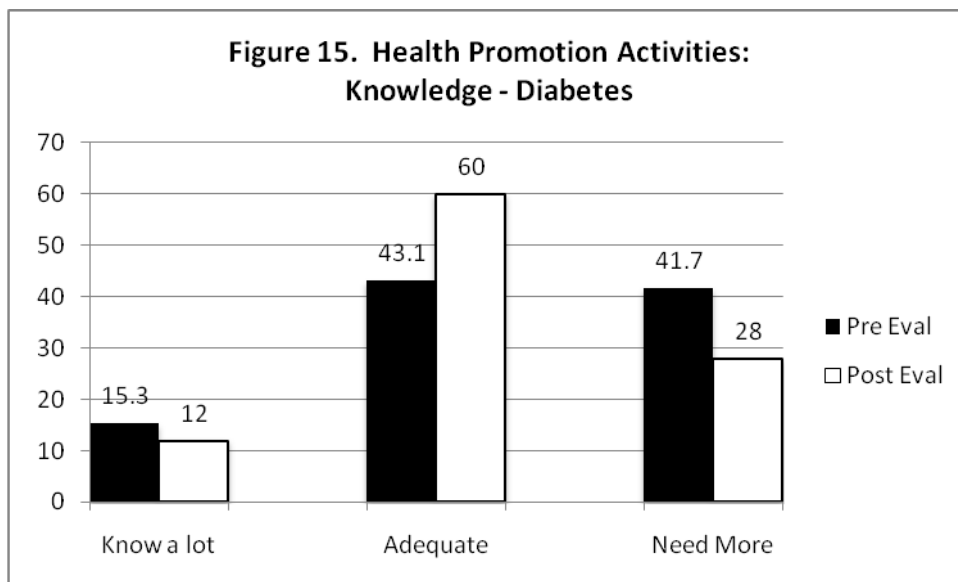
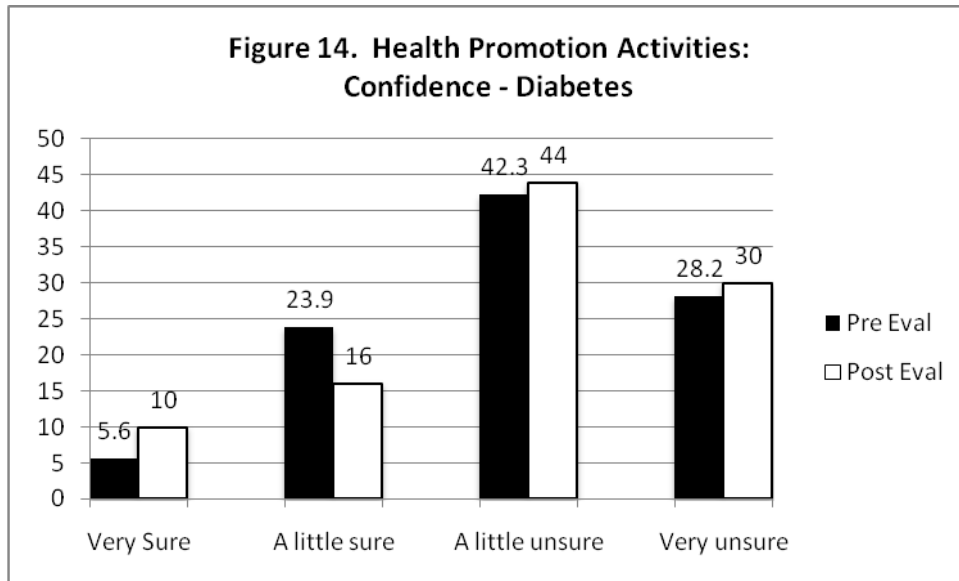
**Medicines for Medical Problems (Figures 12 & 13):**

- *Confidence* improved for case managers'/counselors' ability to assist their clients with medicines for medical problems. This was seen principally as gains in the very sure and a little sure categories (24% to 34%).
- *Knowledge* improved in the adequate group from 46% to 52% with a nearly 5% drop in the need more category.



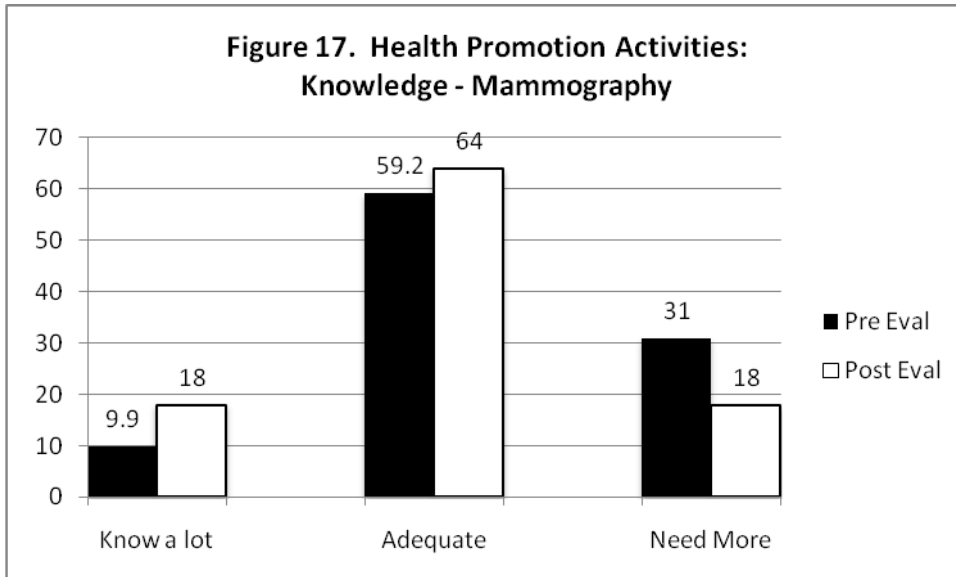
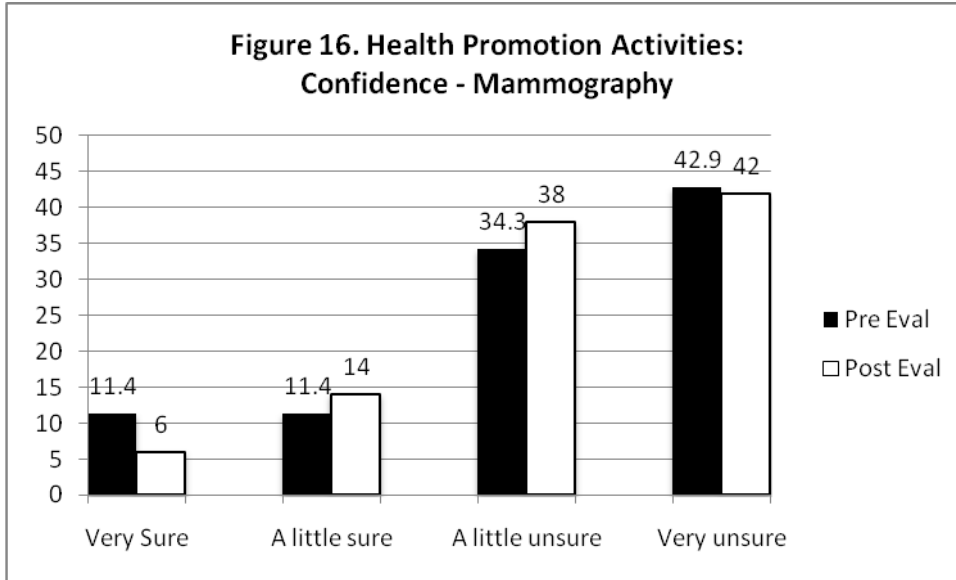
**Diabetes (Figures 14 & 15):**

- *Confidence* did not change much for diabetes. There was a slight gain in the very sure category, but the other categories seemed to worsen.
- *Knowledge* was improved in the adequate category (43% to 60%) and declined in the need more category (41.7% to 28%). However, know a lot fell slightly.



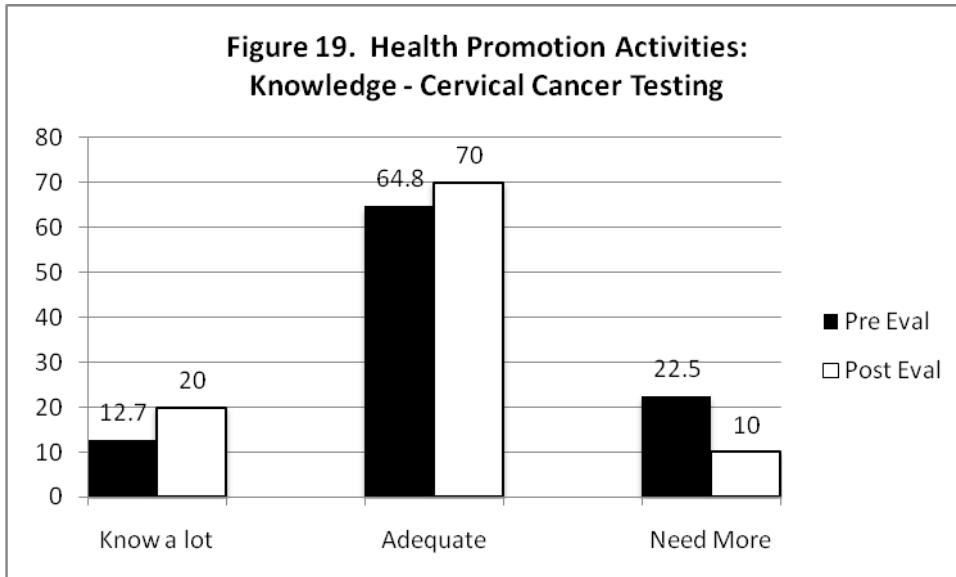
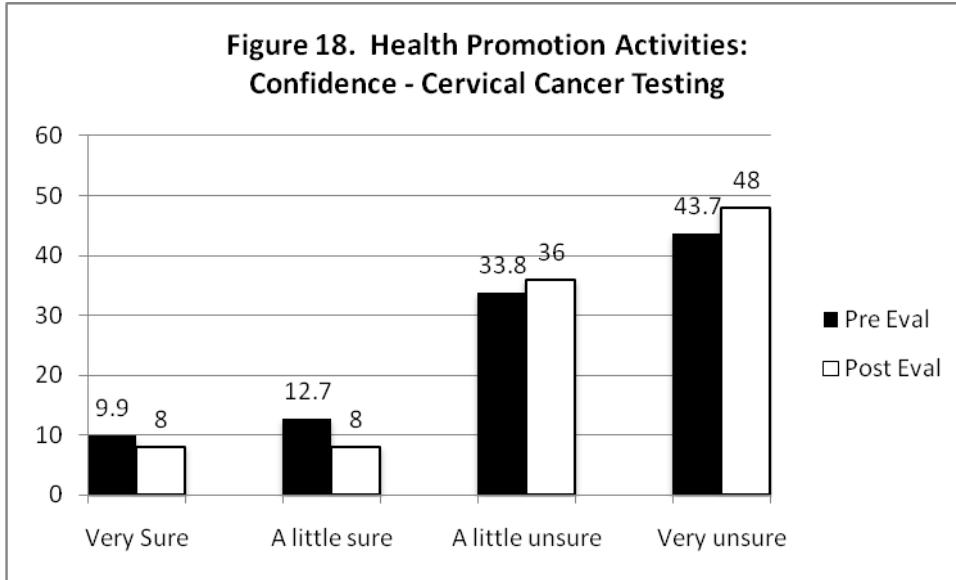
**Mammography (Figures 16 & 17):**

- *Confidence* generally declined for breast cancer screening.
- *Knowledge* improved with more knowing a lot (9.9% to 18%) and adequate (59.2% to 64%) accompanied by a decline in need more (31% to 18%).



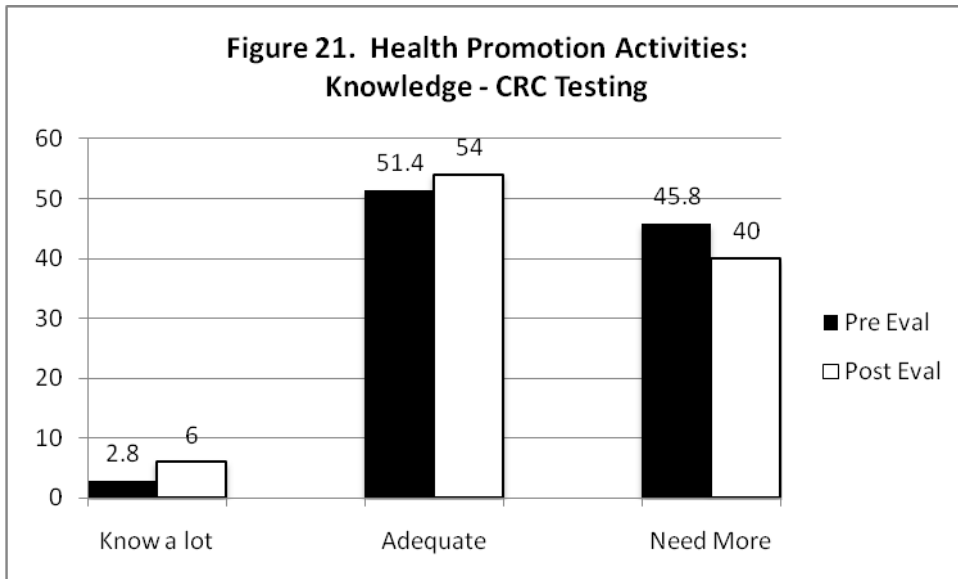
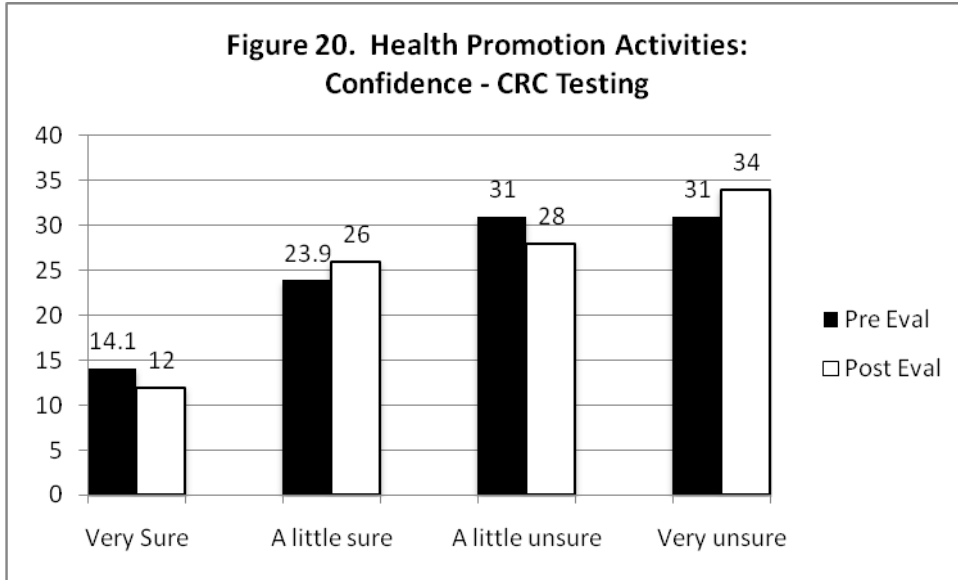
**Cervical Cancer Screening (Pap Smears) (Figures 18 & 19):**

- *Confidence* also declined slightly for cervical cancer screening.
- *Knowledge* improved slightly with know a lot (12.7% to 20%) and adequate (64.8% to 70%) showing gains.



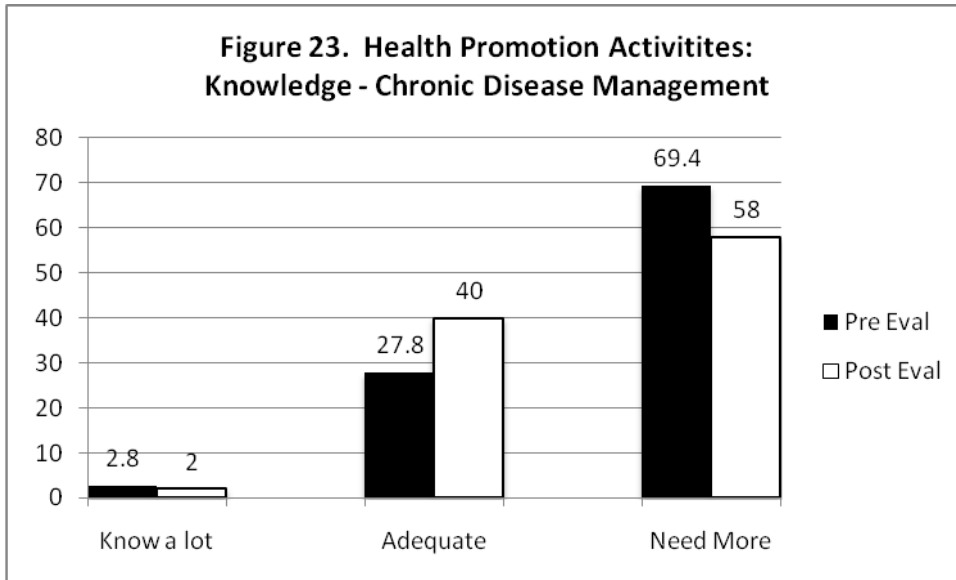
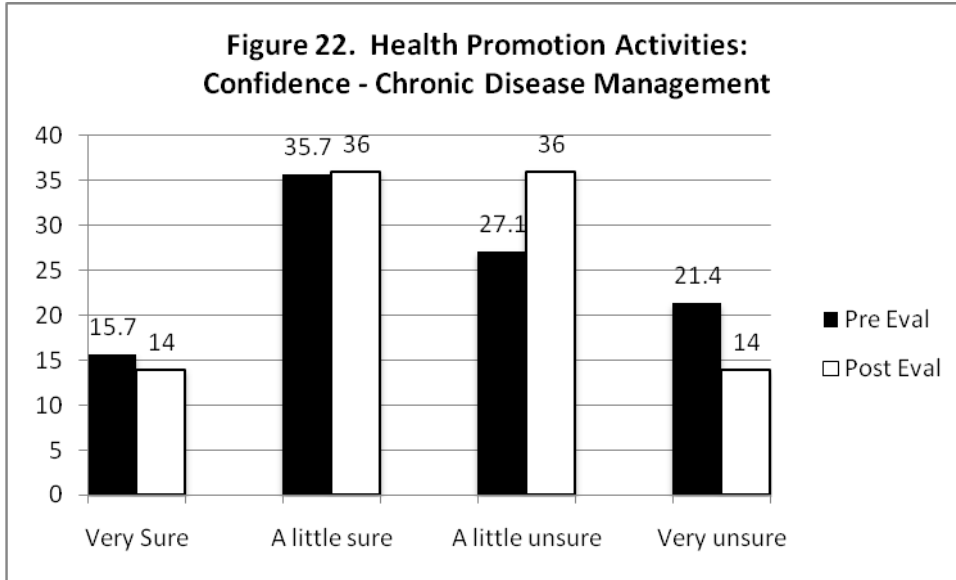
**Colorectal Cancer Screening (Figures 20 & 21):**

- *Confidence* shifted slightly for colorectal cancer screening but not in a consistent pattern.
- *Knowledge* improved slightly with know a lot (2.8% to 6%) and adequate (51.4% to 54%) showing gains.



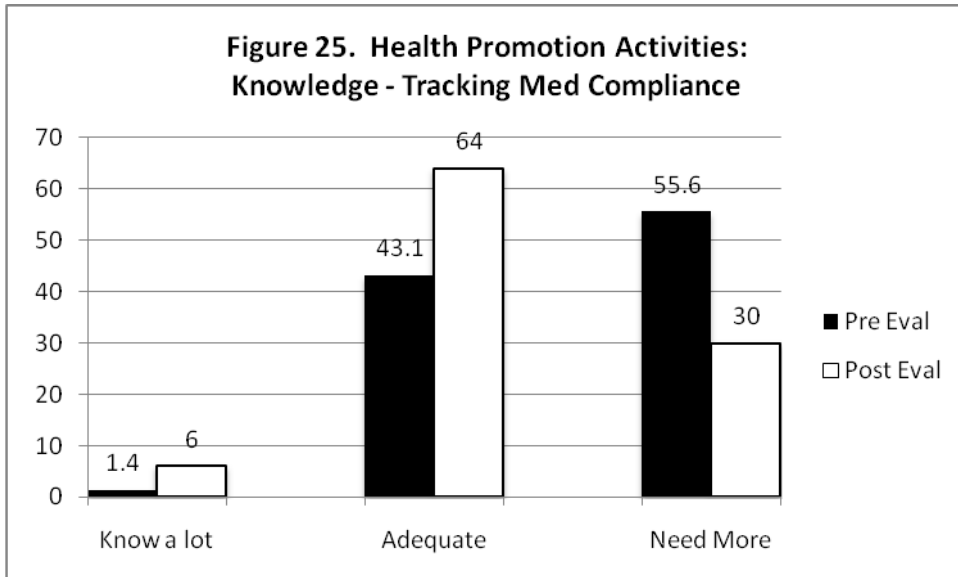
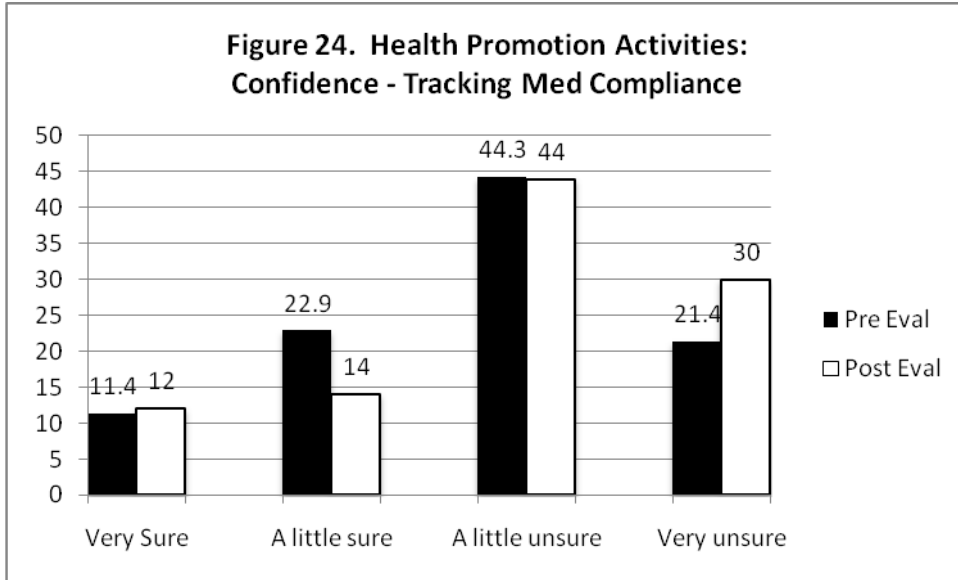
**Chronic Disease Management (Figures 22 & 23):**

- *Confidence* shifted slightly for chronic disease management but not in a consistent pattern.
- *Knowledge* improved slightly for the adequate category (27.8% to 40%).



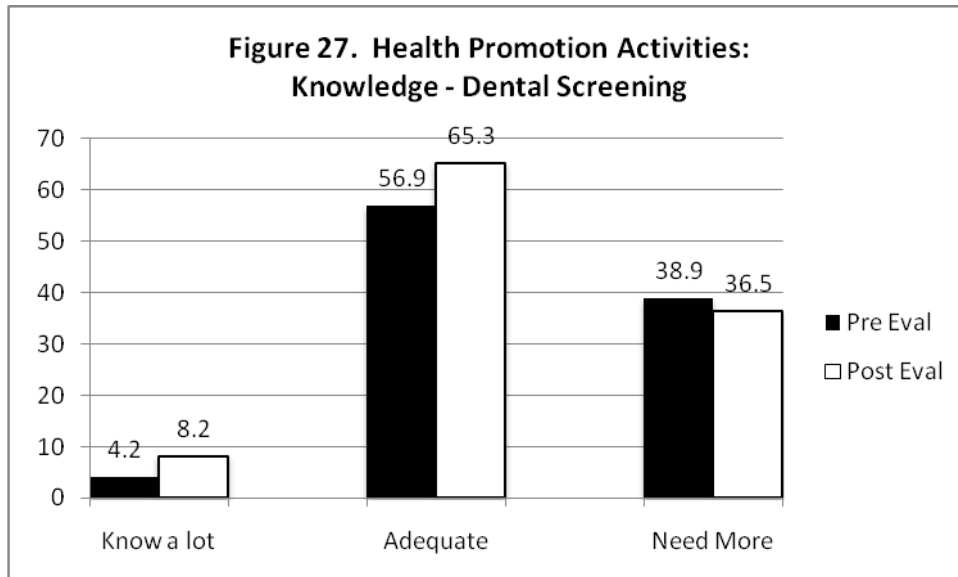
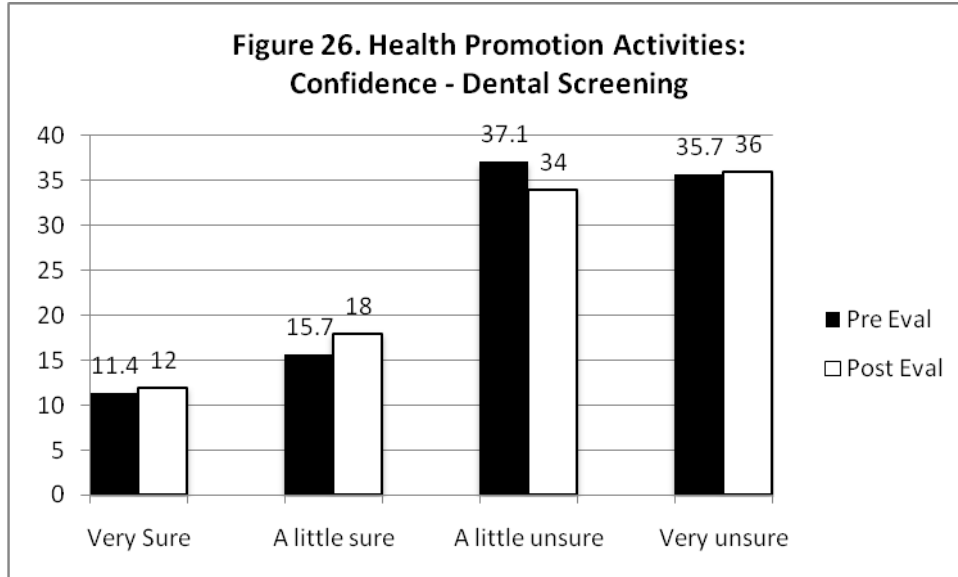
**Tracking Medication Compliance (Figures 24 & 25):**

- *Confidence* shifted slightly for tracking medication compliance but not in a consistent pattern.
- *Knowledge* improved for the know a lot category (1.4% to 6%) and the adequate category (43.1% to 64%) with a decline in the need more category (55.6% to 30%).



**Dental Screening (Figures 26 & 27):**

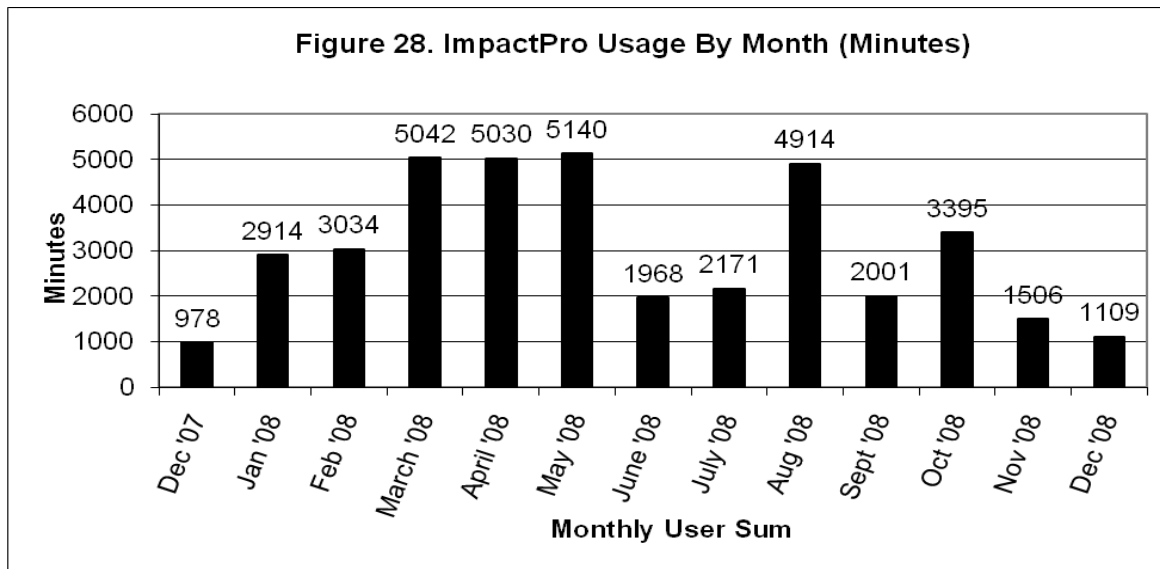
- Confidence shifted slightly for dental screening but not in a consistent pattern.
- Knowledge improved slightly for the know a lot category (4.2% to 8.2%) and the adequate category (56.9% to 65.3%).



In general, these results indicate that the intervention did not substantially increase knowledge of or confidence in managing several facets of health promotion and chronic disease management. There were some gains, e.g., diabetes and tracking medication compliance, but these were not statistically significant. There was a general increase in the amount of time case managers and independent living counselors spent on assessing, planning, coordination, and monitoring and follow-up of medical care services as well as health promotion activities.

**Time on Tool**

While Case managers had relatively ready access to detailed claims histories and care opportunity screens for the individuals they served, their actual adoption of the tool was quite limited and varied. The average time spent using the tool came to 22 minutes per beneficiary. Time per month ranged from a low of 978 minutes (16 hours) in the first month of the program (December 2007) to highs in excess of 5,000 minutes (83 hours) in March and August 2008. The increase in time logged during March 2008 was associated with implementation of a gift card program for the three highest monthly users. Usage also increased in early fall after talking with executive directors and around the time we scheduled focus groups for program evaluation. Usage was lowest in June and July due to staff vacations and changes in state rules for other service activities and in November and December probably due to the completion of the project. Barriers to use included the need for static IP addresses, login/password recall, concerns over privacy, and inability to discern important medical information relevant to their consumers.



## Focus Groups

A total of four focus groups with 34 participants were conducted. We categorized codes into two themes: benefits of the intervention and barriers (or negatives) to its use.

### Benefits of the intervention.

*General.* Much of the discussion about the intervention and about providing health promotion support to clients was positive. Participants seemed to like being able to see client information and identify ways to help clients improve their health. One benefit was that case managers saw the tool as a “prompter” and used that to communicate with clients or guardians. They reported feeling that they were looking out for the welfare of clients.

*...It really provided a couple of our family members that comfortability [sic] of feelings that someone’s really keeping an eye out on that healthcare and being sure that that’s getting met. Anything proactive versus being reactive is a positive, especially for these men and women who can’t say I hurt or show me...point where you hurt.*

*How the ImpactPro tool was used.* Several participants thought the tool would be useful when they were in the field with clients rather than just at their desk in the agency office. Other participants used it for client assessment and team meetings or interactions with new clients.

*I would think it would be a good tool to use when you’re setting up a goal plan meeting just to be able to touch base when you’re doing that...*

*Oh yeah. Yeah, I think it’s been wonderful, but it’s just a matter of time and maybe, you know, things take time to kind of...to actually use it. But it’s been helpful and like I said with a couple of things. Like for basis meetings too when I go into a basis, sometimes I have no other source of information. I may not have anything really concrete, so I’ve looked at that to know whether or not there are things going on.*

*Specific examples of benefit.* Participants used the tool in a variety of ways, such as seeing whether preventive care needs were met, whether participants had been to the physicians or emergency department. Many case managers describe using the pharmacy information to see whether clients’ prescriptions were getting refilled at appropriate intervals. For example, one case manager describe a client who disease was not under good control,

*....and we were trying to figure out if she was taking meds the way she was supposed to be taking. And it was pretty obvious from the billing that she wasn’t and so she now has one of the little beeper things that tell her when she’s supposed to take them. Gives her so many minutes to take them.... And she’s been so much more healthier, so it really was very good for her...*

### Barriers to Tool Use

There were three sub-themes in barriers to the intervention: 1) technical aspects of the tool, 2) information content in the tool, and 3) billing concerns.

Three technical issues emerged in the discussions about the tool. First, some participants reported difficulty accessing the tool because of technical difficulties between servers, IP address, passwords, and internet access.

A second aspect of the technical barrier was that data were not immediately available in the intervention tool. The database was updated every 90 days, but billing delays could potentially increase the delay in time to when services appeared in the tool. The lack of complete data made identifying care opportunities and health promotion needs much more difficult. This was mostly an issue if a case manager identified a need but the client said it had already been done. Participants expressed frustration when they spent the time to go into the tool and find information, only to find out from the client that the service had been completed but was not yet in the database:

*I know it's not your guy's fault because I know it's the time the claims are processed and that stuff, but even on new consumers and stuff it's still hard for us to use time and energy.*

Also, clients who were dual-eligible (e.g., Medicare/ Medicaid) did not have all their information in the system, as it is not linked to Medicare claims.

*Well I think a lot of them our customers are dual beneficiaries, so now they're on Part D programs for medication. So there's lots of things that we weren't seeing from their from their plans or from their medication...*

Third, some participants reported that the tool was difficult to navigate because it contained a lot of information that the case manager might not access. However, there was no consensus on the amount of information in the tool, rather it seemed to vary based on use, ease with computers, and comfort with the tool's information.

*...a lot of information to wade through. You know, information that you weren't educated enough to understand it or just too much information  
..the more you use it the easier it is to get around in it... So it was just not having a chance to use it as much is why I think it is so overwhelming to us yet*

There was lack of consensus on the amount of information contained in the tool. A seeming minority of participants reported that they felt the amount of medical information in the tool exceeded the case managers' comfort level in what they knew about their clients and what they felt they could discuss with some degree of comfort. As one participant expressed, "*Maybe privacy isn't so much the word I was looking for, it might have been intrusive.*" Another participant said, "*..I mean you have information in that tool and it's pretty invasive to a person's privacy. It's.... we had access to all of that information and it was very intrusive to the person.*" While this was not a majority opinion, it was very significant and important to the case managers who felt this way.

Other times, case managers agreed that they were not used to having such information, but feel it improved their services. One case manager said, "*It does seem to be more information than I'm used to having, you know, and it's been nice...*"

Another concern expressed by a minority of case managers was using the "medical model" and telling clients what they should do. One participant summed up the concerns about getting into medical information by saying, "*...I didn't get into the medical field. I didn't go into case management to be a medical provider.*" Putting the case manager in the role of "expert", to some, detracted from the goal

of having clients feel empowered. One participant described how she initially felt this way, but came upon a way to use the information in a manner that was consistent with her role:

*I remember thinking when I first came to the training, gosh, this is really a medical model. And I as sitting there thinking...listening to the doctors and thinking, well this isn't what I want to being my customers. I don't want to be telling them, you need to get these things done because I wanted to be bringing it to them and saying, these are treatment options you might want to discuss with your doctor.*

One concern that emerged in all groups was how to bill for time spent using the tool. Case managers acknowledged that they project had given instruction on how they could bill for time spend, but not all of them expressed confidence that the practice would not raise flags during an audit. This caused substantial worry for some case managers.

*We used the example that they gave us to, you know, we've logged that example now. We won't know if it's sufficient until we're audited, honestly. And who the auditor is...*

Participants were enthusiastic about the overall aims of the project and about thinking about ways to improve the health and independence of the people they work with. They reported that they liked the newsletters (though some said if they did not have access to color printers, the newsletters were hard to print and read). Participants were especially enthusiastic suggesting topics for future newsletters, suggesting that they have real information needs to be met. Suggestions for making the existing tool more user friendly included having a timer for each record to make billing easier and more accurate, more training on how to print and navigate the records (or making it easier). A popular suggestion was a pop-up or email reminder that a client was due for a preventive service that would prompt the case manager to look into their record.

## Claims Data

As noted above, the agency rosters included 1,654 beneficiaries with at least six months of enrollment in the project. In total, though, the rosters included slightly more persons at 1,681. The following data analyses were conducted without respect to the duration of project enrollment, e.g., the sample size was 1,681 for persons with developmental and physical disabilities. Characteristics of the study population and comparison populations are shown in Tables 4 & 5.

Those with developmental disabilities included more males than females and mostly Caucasians. Their mean age was ~34 years. All had at least 10 months of Medicaid eligibility during the pre-intervention and intervention periods and roughly 50% were dually eligible for Medicare. The intervention cohort (MTG DD) included more Caucasians and therefore fewer African-Americans and Hispanics. This racial difference likely reflects that fact that we included agencies in rural areas around the state.

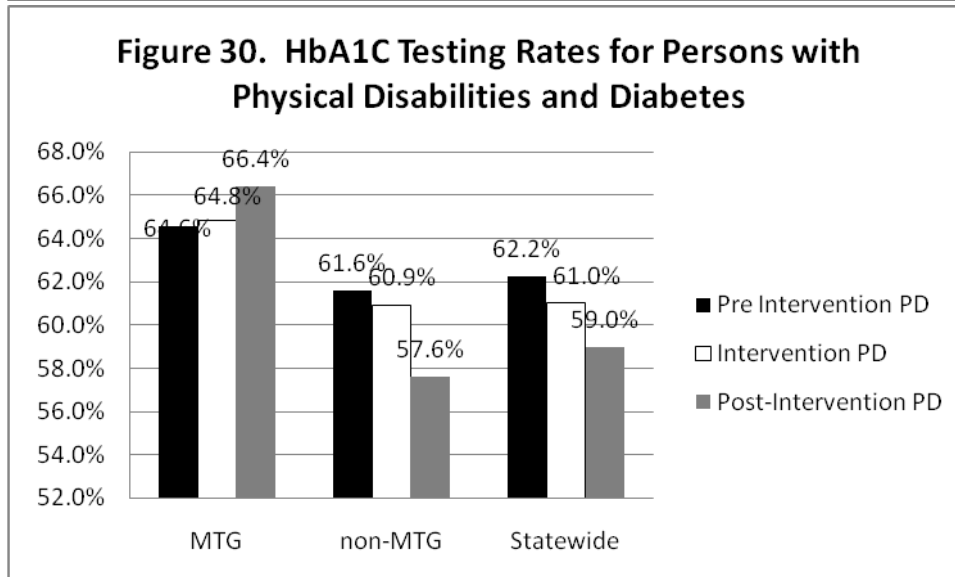
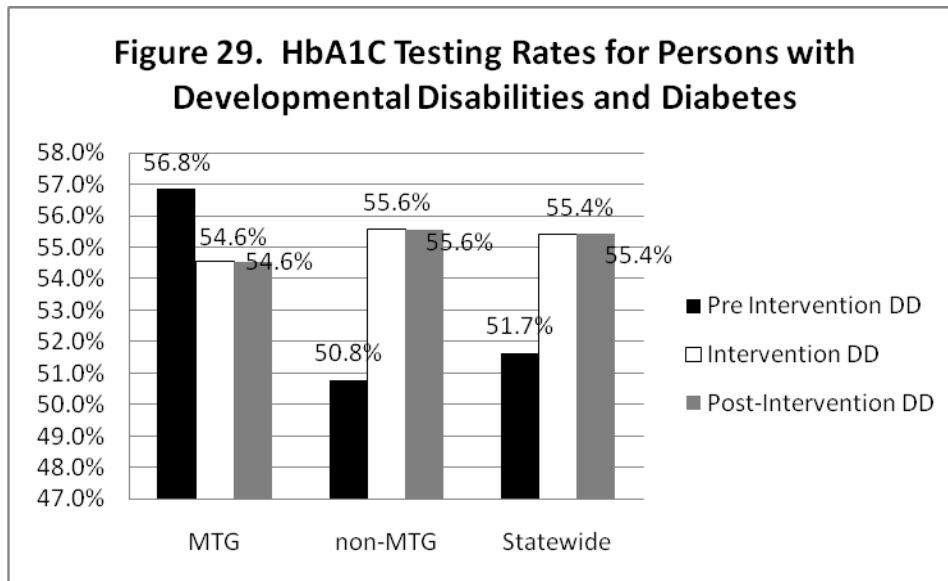
	MTG DD	Non-MTG DD	Statewide DD
	N=944	N=5640	N=6584
Female	423 (44.8%)	2520 (44.7%)	2943 (44.7%)
Caucasian	915 (96.9%)	4776 (84.7%)	5691 (86.4%)
African-American	22 (2.3%)	550 (9.8%)	572 (8.7%)
Hispanic	8 (0.8%)	183 (3.2%)	191 (2.9%)
Age(mean, years)	34.8yr (13.1)	34.5yr (13.1)	34.5yr (13.1)
Eligibility months, 10+	948 (100%)	5684 (101%)	6632 (101%)
Program eligibility:			
Medicare dually eligible	497 (52.6%)	2699 (47.9%)	3196 (48.5%)

Among those with physical disabilities, the majority were females (~2/3rds). The groups were predominantly Caucasian, but less so than persons with developmental disabilities. On average, they were 49 years of age. Nearly all had at least 10 months of Medicaid eligibility during the pre-intervention and intervention periods and over 50% were dually eligible for Medicare. The intervention cohort (MTG PD) included more Caucasians and Hispanics. This racial difference likely reflects that fact that we included agencies in rural areas around the state, and at least one agency was located in an area with a large Hispanic population.

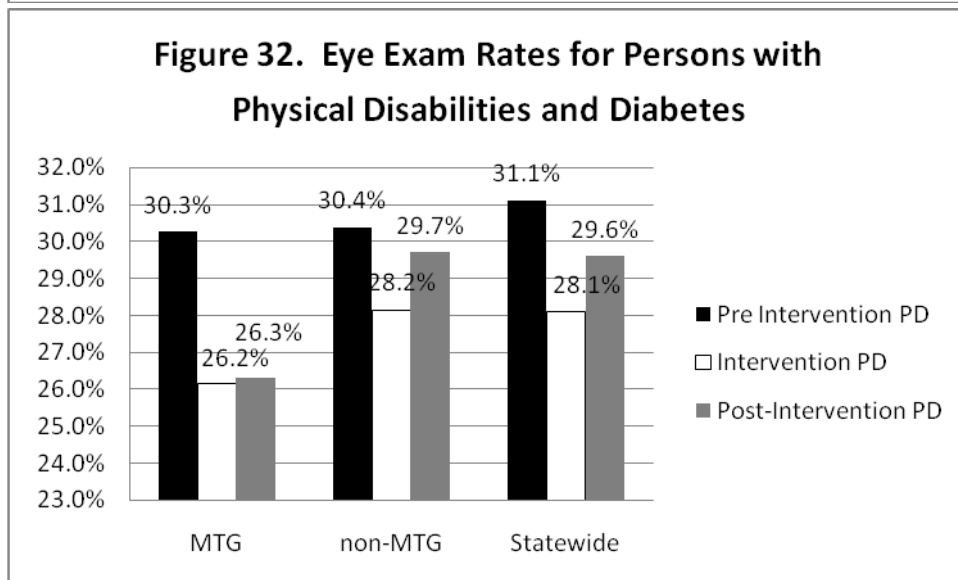
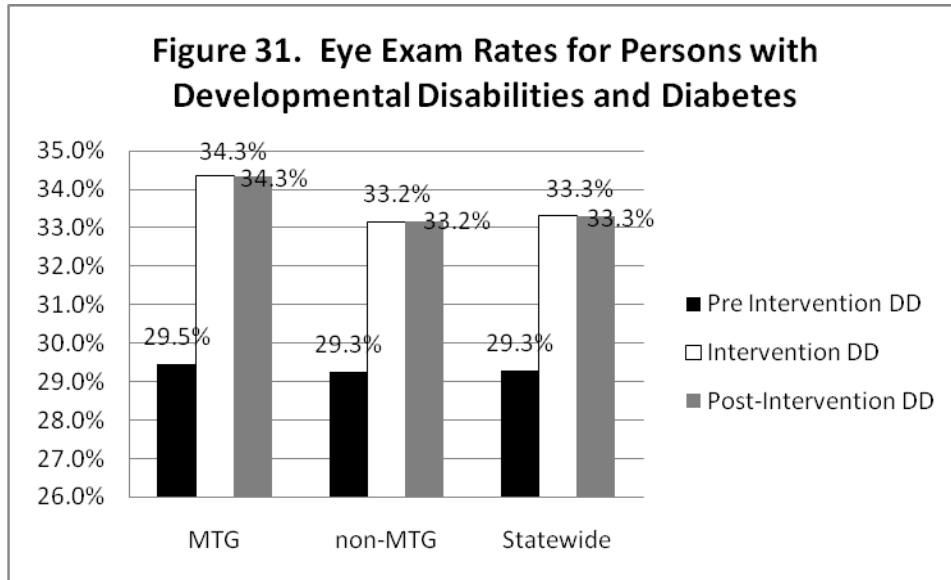
Table 5. Descriptive characteristics of persons with physical disabilities (PD), project participants (MTG) and their peers (Non-MTG)			
	MTG PD	Non-MTG PD	Statewide PD
	N=737	N=8048	N=8785
Female	523 (71%)	5415 (67.3%)	5938 (67.6%)
Caucasian	642 (87.1%)	6383 (79.3%)	7025 (80%)
African-American	52 (7.1%)	1592 (19.8%)	1644 (18.7%)
Hispanic	62 (8.4%)	192 (2.4%)	254 (2.9%)
Age(mean, years)	49.0yr (10.1)	49.2yr (10.0)	49.1yr (10.0)
Eligibility months, 10+	747 (101.4%)	7800 (96.9%)	8547 (97.3%)
Program eligibility:			
Medicare dually eligible	405 (55%)	4532 (56.3%)	4937 (56.2%)

## Diabetes

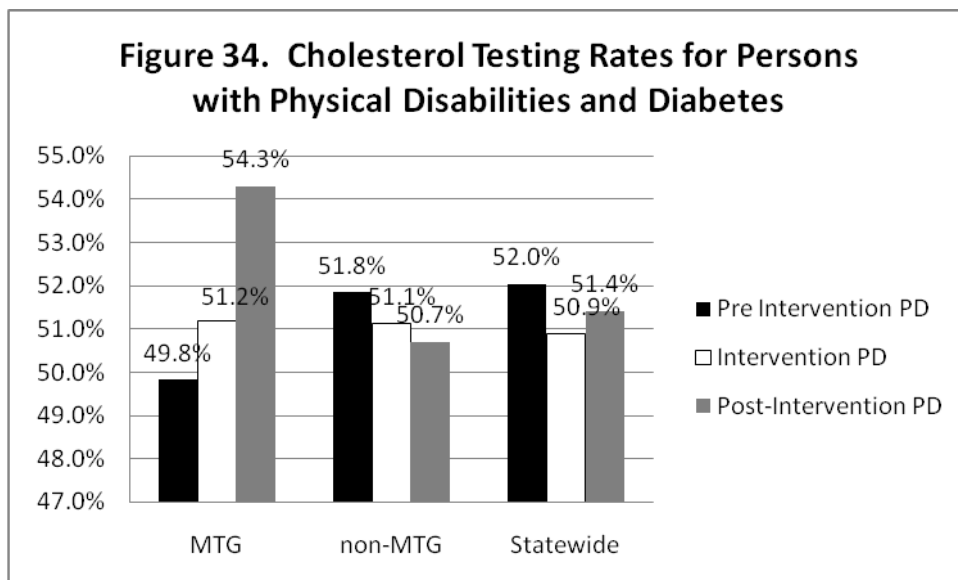
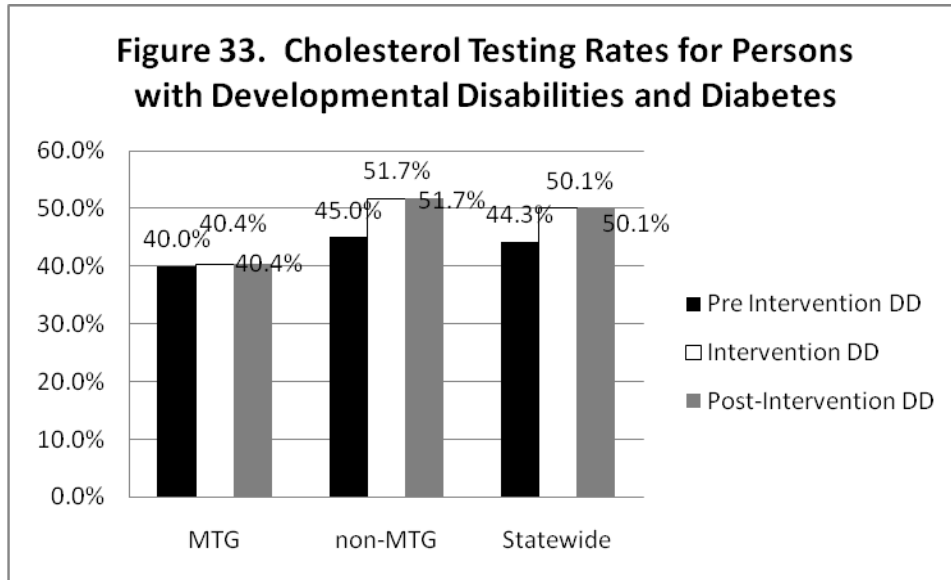
There were substantial deficiencies in the quality of care provided to persons with diabetes. For persons with diabetes and developmental disabilities, only 50-56% had their hemoglobin A1c (HbA1c) or glucose level checked during the course of each one-year period (Figure 29). The ideal target is 100%. In our MTG cohort, the rate declined between the pre-intervention and intervention period but remained steady in the post-intervention year. The rates increased for their statewide peers from the baseline period. The margins of difference, however, were small. As to those with physical disabilities and diabetes, their overall rates of HbA1c monitoring were almost 10% higher. The screening rate improved slightly for those in the MTG project while declining for their peers across the state (Figure 30).



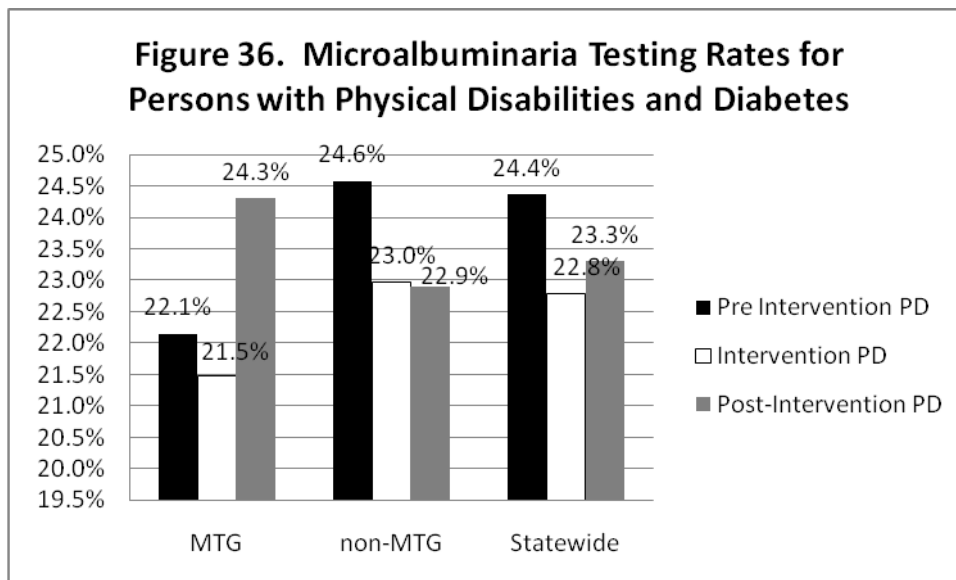
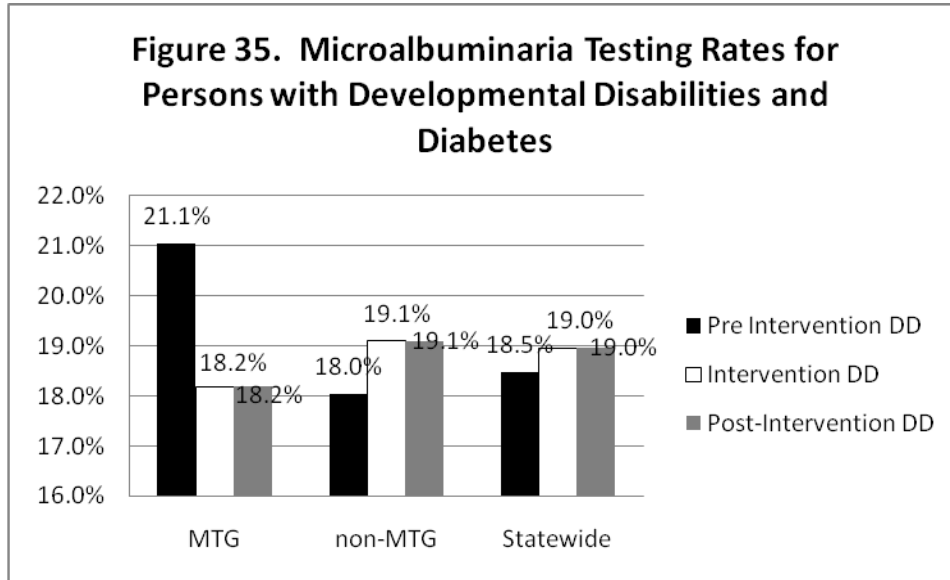
Eye exams were conducted in less than one-third of the diabetics with developmental or physical disabilities. The rates of eye exams increased ~4% for the peer groups (MTG, non-MTG, and statewide) of persons with developmental disabilities from baseline to the subsequent two years (Figure 31). In contrast, rates declined for persons with physical disabilities in the first year after baseline but recovered in the following year except for the MTG cohort (Figure 32).



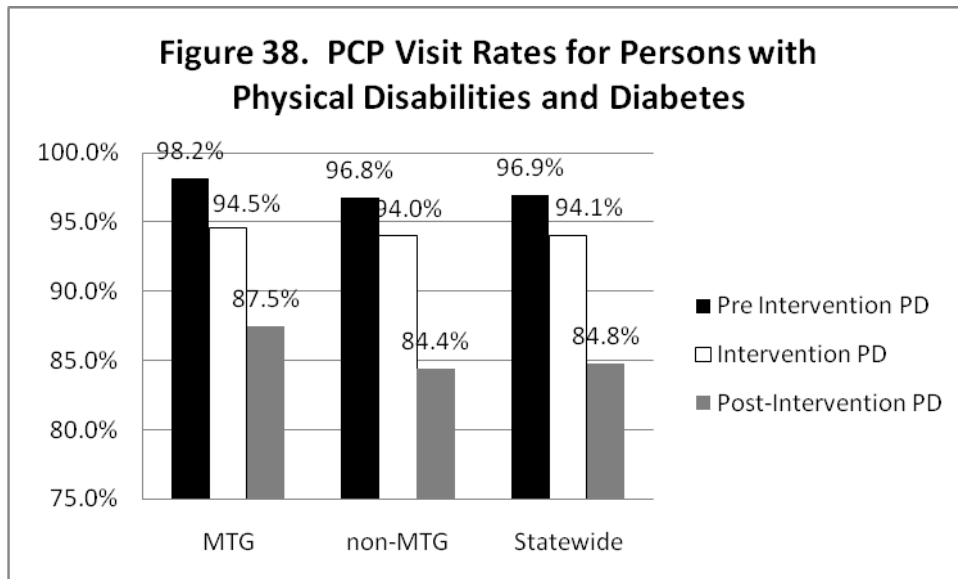
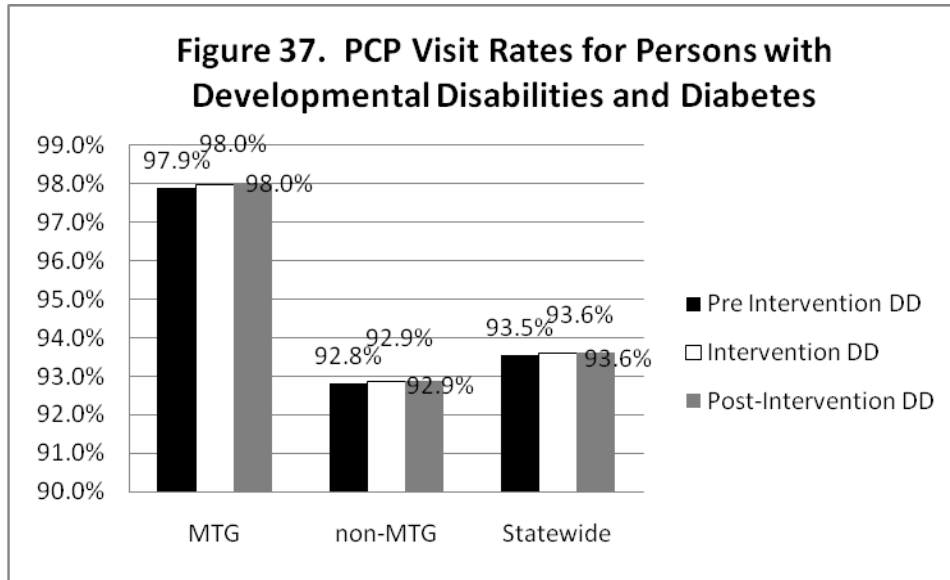
As with HbA1c and eye exams, persons with diabetes should have their cholesterol levels checked at least annually. Among our study population with developmental disabilities, the rate of cholesterol testing was lowest for the MTG cohort (~40%) and did not change with time (Figure 33). For their statewide peers, however, cholesterol testing improved by 5-6% during the same time period. Persons with physical disabilities at the MTG sites had better rates of cholesterol testing than individuals with developmental disabilities and their rate actually improved in the post-intervention period (Figure 34). Non-MTG peers' rates of cholesterol testing did not change over time for persons with physical disabilities.



While not required of all persons with diabetes, microalbuminuria tests should be conducted in persons with advanced diabetes. Microalbuminuria testing was slightly more prevalent among persons with physical disabilities than those with developmental disabilities (Figures 35 & 36). Rates did not vary substantially over time for either group of persons with disabilities.

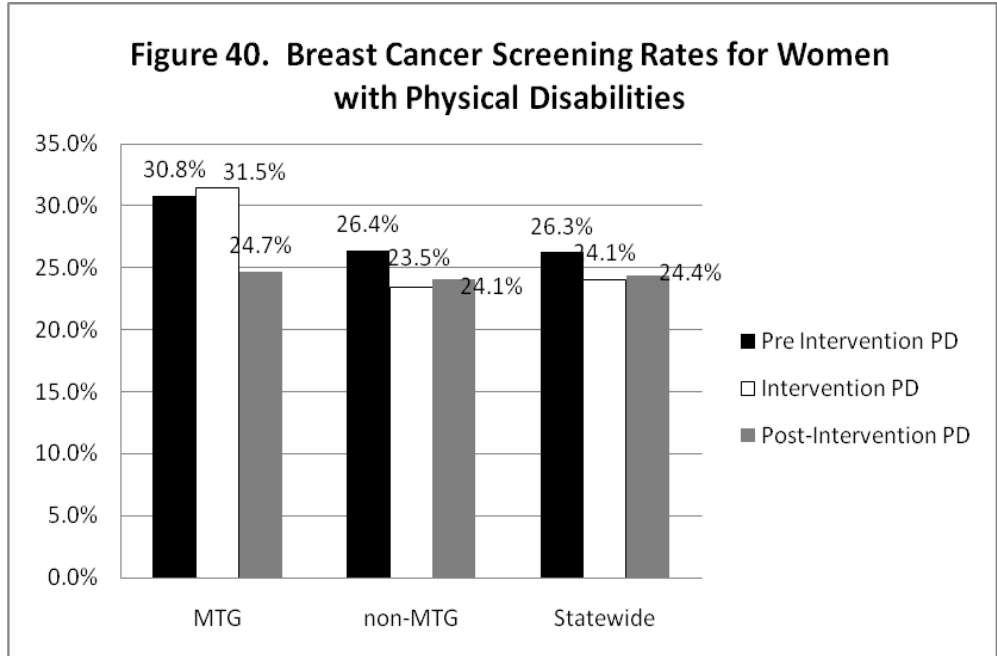
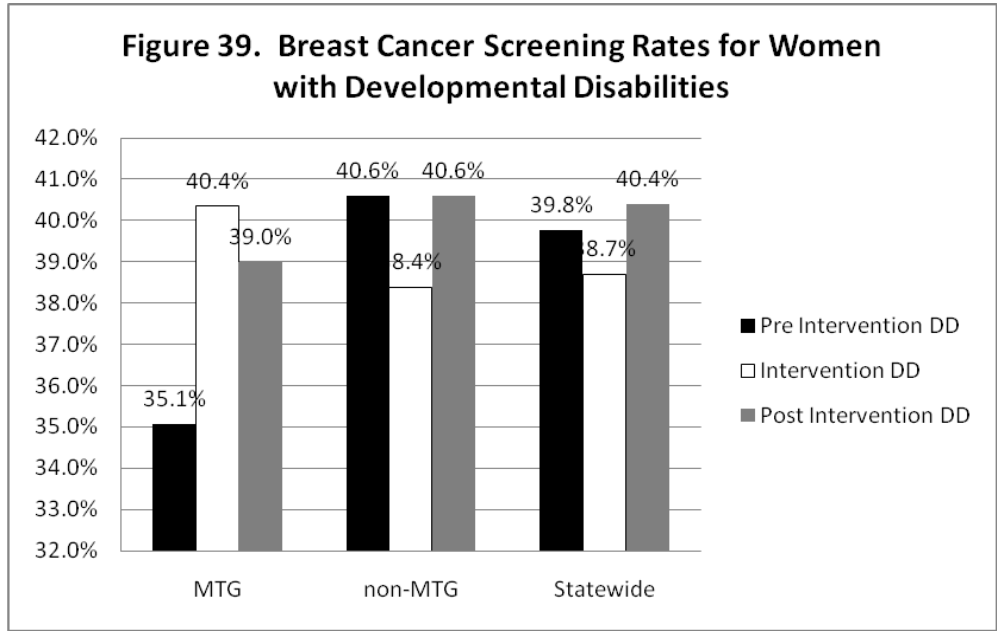


Finally, despite these poor rates of diabetes monitoring, nearly everyone had contact with a primary care provider (PCP) during the relevant time periods. PCP visit rates exceeded 92% for persons with developmental disabilities in each period and were actually highest in the MTG cohort (Figures 37). PCP visit rates actually fell across the three years reaching the mid80s percentage in the post-intervention period (Figure 38).

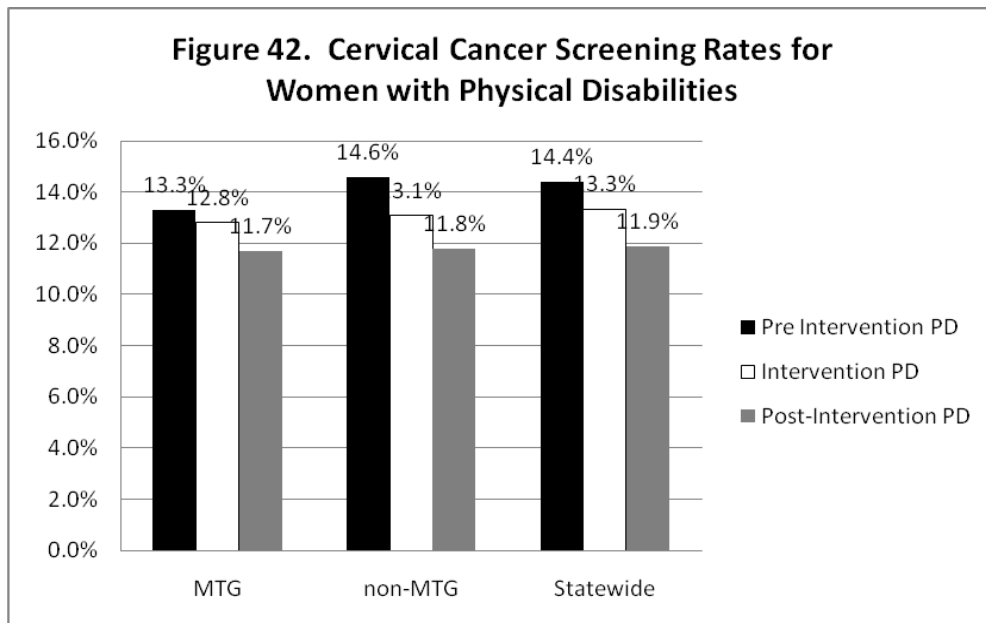
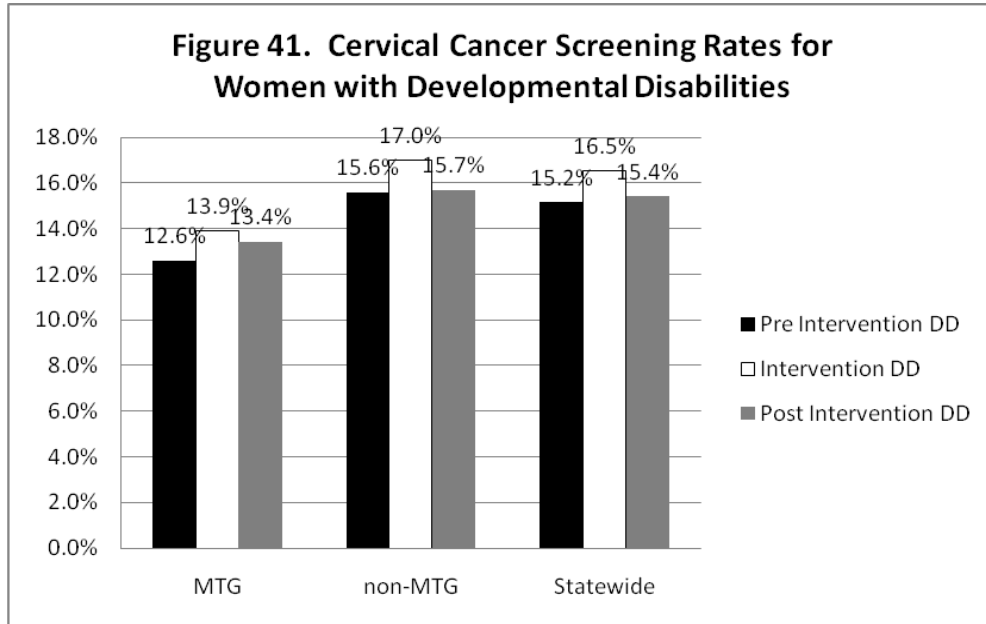


**Cancer screening**

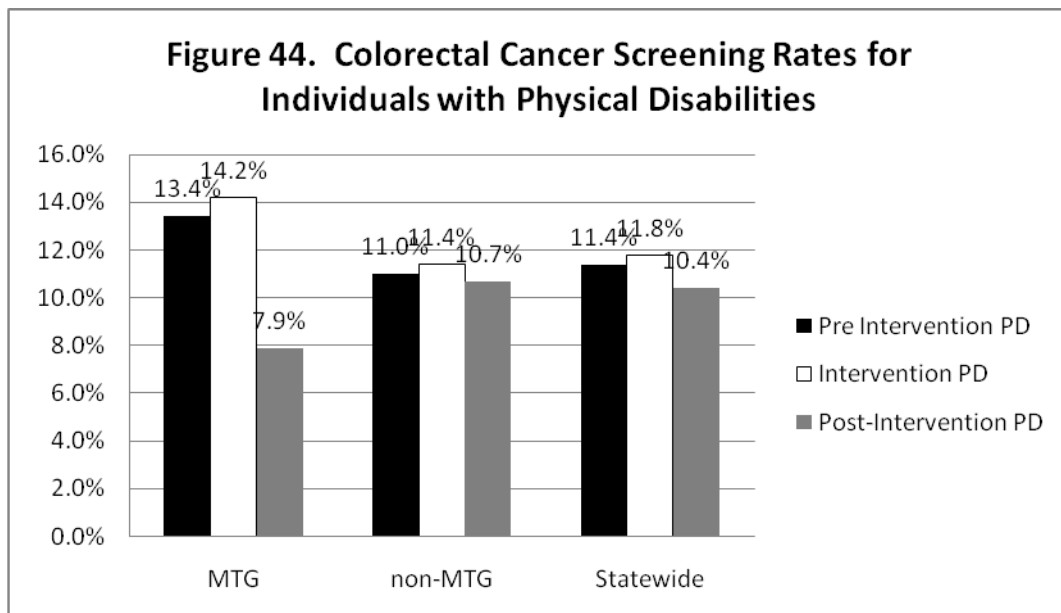
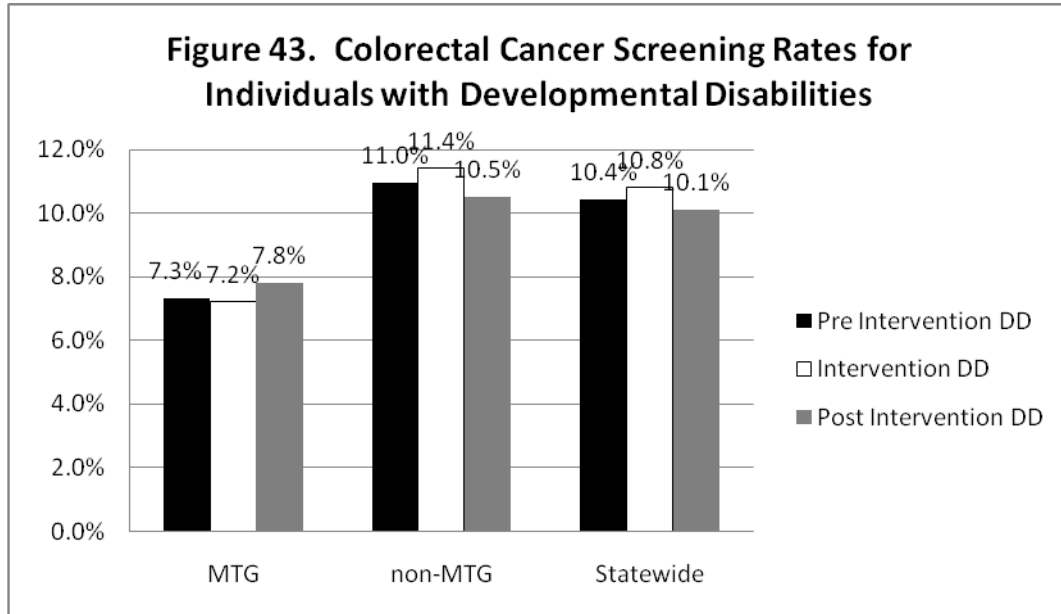
Breast cancer screening rates were higher for women with developmental disabilities (~40%) compared to those with physical disabilities (< 30%) in all three periods (Figures 39 & 40). In the MTG cohort, the rate of mammography increased 5% from baseline to intervention periods while the rates for the non-MTG and Statewide comparison groups declined slightly. In the post-intervention period, the rate dropped 1%. These mammography rates for the MTG cohort were consistent (~40%) with the other two groups. Among women with physical disabilities, breast cancer screening was highest for the MTG cohort but the rates dropped for all in the post-intervention period to roughly 24%.



For women 18-64 years, cervical cancer screening rates were low across the board. Rates for women with developmental and physical disabilities remained generally in the 13-17% range during the first two periods with little apparent differences across disability or study group (Figures 41 & 42). For women with physical disabilities, rates actually dropped slightly in the post-intervention period.



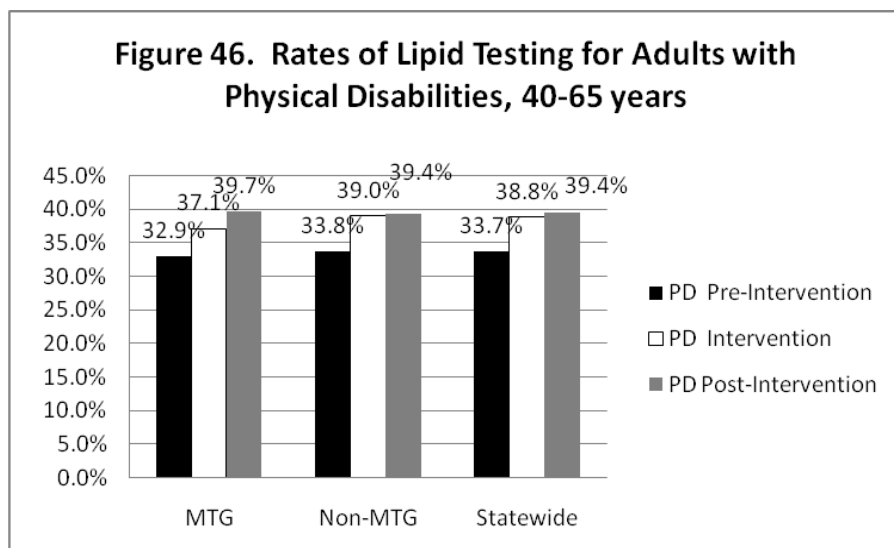
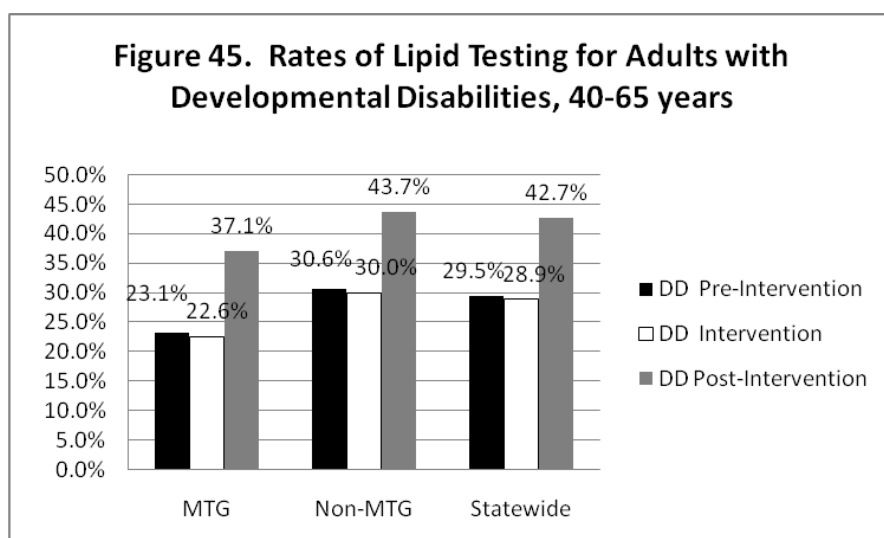
Colorectal cancer screening rates were also very low. In the MTG cohort including persons with developmental disabilities, only about 7% were screened for CRC compared to 10-11% of their peers across the state (Figure 43). This rate did not change in the intervention or post-intervention periods. Among persons with physical disabilities, MTG participants started at higher rates than their peers (13% vs. 11%), and rates did not change appreciably over time, except for dropping by nearly 50% for the MTG cohort in the post-intervention period (Figure 44).



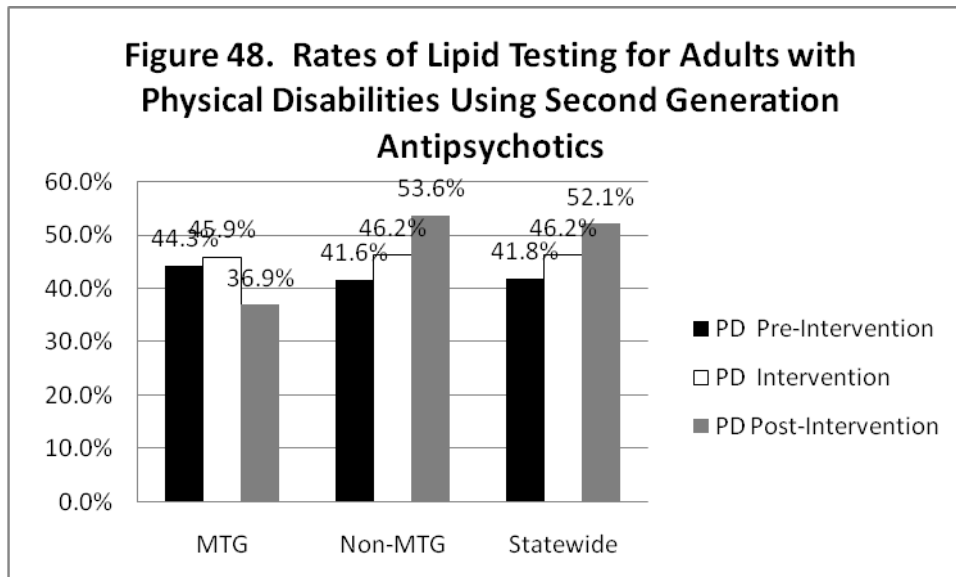
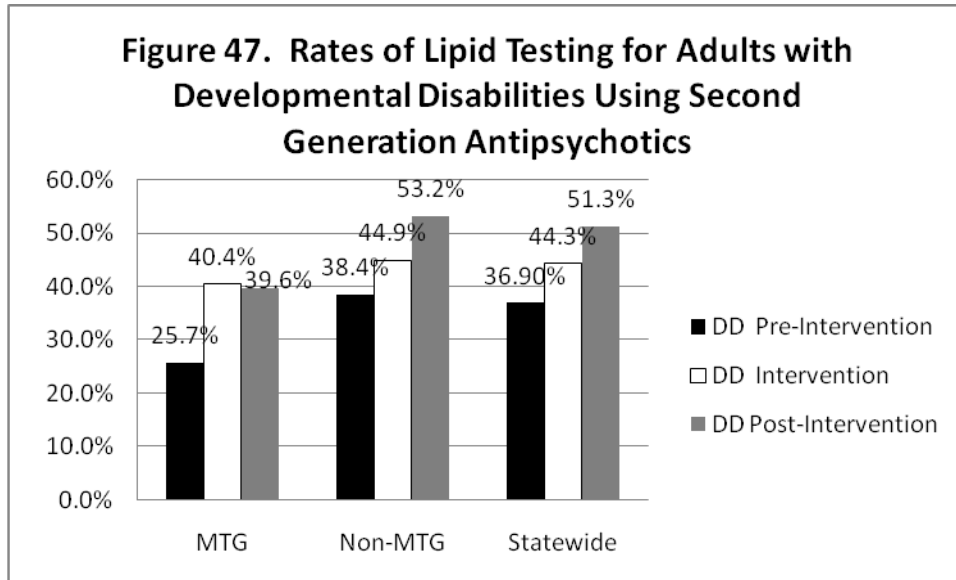
## Other Preventive Care Opportunities

### Lipid Management

We investigated two markers of lipid management not included in the original ImpactPro tool. First, we examined whether men and women over the age of 40 (up to 65 years) had their cholesterol level checked annually. This general monitoring for the potential for cardiac events, such as heart attacks and strokes, was done in fewer than ~23% of persons with developmental disabilities in the MTG group in the baseline year but increased to 37.1% in the post-intervention period (Figure 45). Rates increased more substantially for the non-MTG comparison group and consequently for the states rising to 42.7%. For adults with physical disabilities, their rates of lipid testing were slightly higher than their peers with developmental disabilities, with modest increases from the pre-intervention to intervention period (Figure 46). The increases were not different between the MTG and non-MTG subgroups.

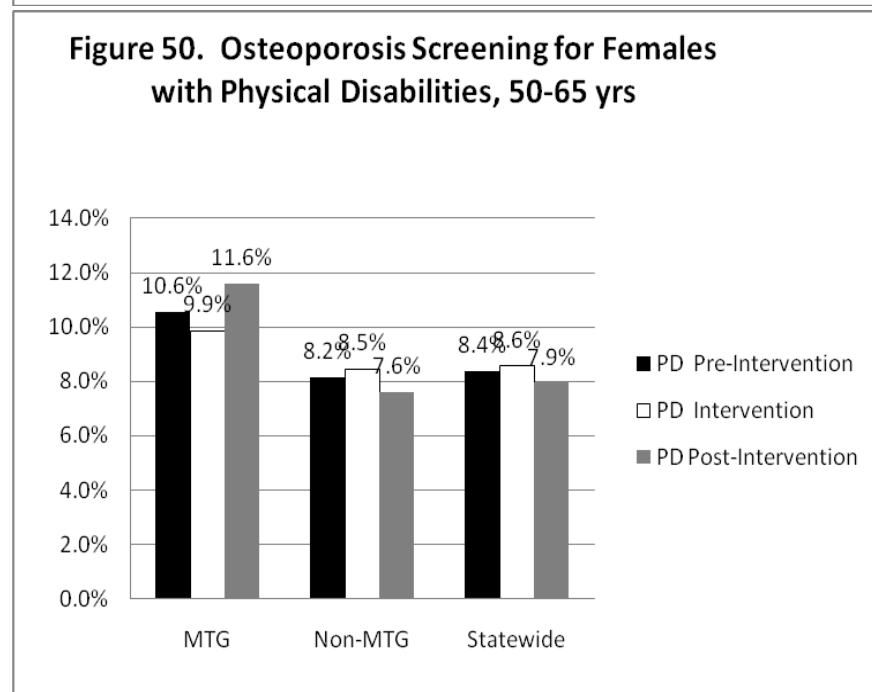
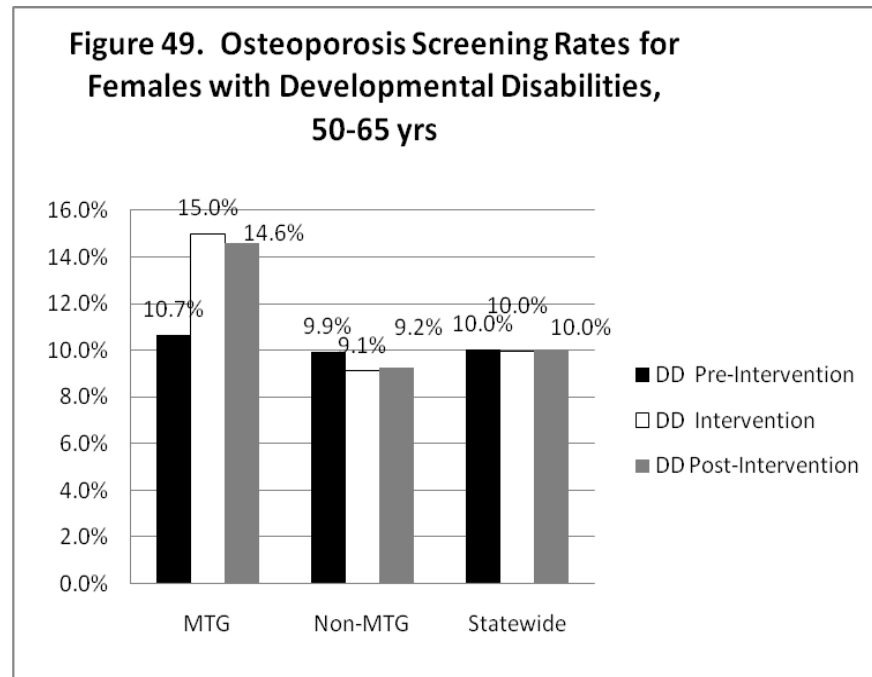


Recent guidelines also recommend that individuals receiving atypical antipsychotics should have their lipid levels monitored at least annually. The rate of monitoring among persons with developmental disabilities taking an atypical antipsychotic was lowest (27.5%) in the pre-intervention period for the MTG group (Figure 47). This increased to 40% in the intervention and post-intervention periods. Rates were higher for their statewide peers with improvements to >50% monitored. Among those with physical disabilities, lipid monitoring rates actually fell in the MTG group, though they increased to over 50% for their statewide peers (Figure 48).



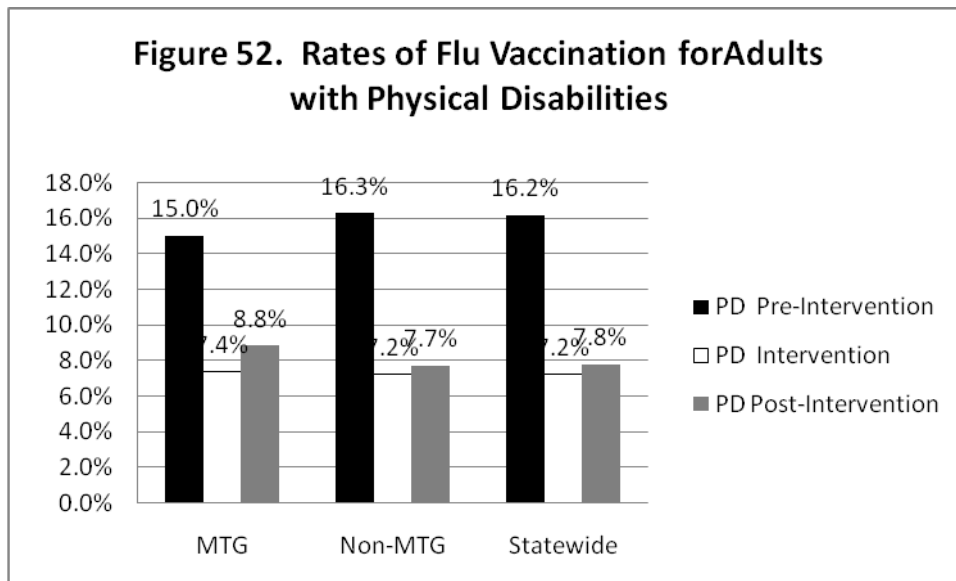
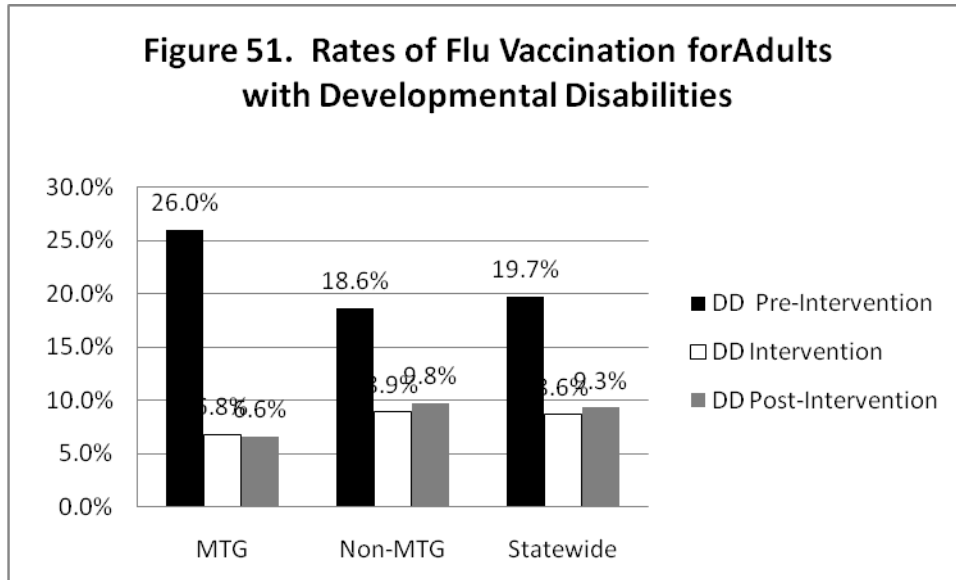
### Osteoporosis screening

Another general health recommendation is that women over the age of 50 years (up to 65 years) should be checked for osteoporosis. Among women with developmental disabilities in the MTG cohort, their screening rates increased from 10.7% to 14.6% from baseline through the post-intervention period. For their statewide peers, however, only ~10% were screened for osteoporosis, and the rate did not change over time (Figure 49). For women with physical disabilities (Figure 50), rates were higher for women in the MTG cohort but did not change over time.



*Flu vaccination*

Finally, we assumed that most individuals with developmental or physical disabilities would be at risk for adverse consequences for influenza due to co-occurring diseases or living situations. Flu vaccination rates dropped substantially after the baseline period and remained below 10% for adults with developmental disabilities, regardless of the subgroup (Figure 51). Likewise, there was a decline in flu vaccination rates for persons with physical disabilities, and the rates were quite low (<10%) (Figure 52).



## DISCUSSION & CONCLUSIONS

The purpose of this project was to test the effectiveness of deploying a claims-based querying tool (ImpactPro by Ingenix) and clinically targeted educational materials provided by KUMC faculty to case managers and independent living counselors in order to improve preventive health care and chronic disease management services for persons with disabilities. There were 1,654 adults with developmental or physical disabilities incorporated in the project across seven rurally based agencies. We evaluated the results of this program through assessments of case managers' and independent living counselors' relative gains in knowledge and confidence, their time spent actually using the tool, their beliefs about the positive and negative aspects of the project (focus groups), and actual impact on practice through claims analyses.

### *Case manager surveys*

One of the contributions of this project is a better understanding of how case managers in the field view joint responsibilities for social and medical services (James & Shireman, In press). Prior focus groups with social workers and clients with mobility impairments indicated that health promotion activities were not being carried out for their clients with disabilities due to lack of formal training on special needs and contact with persons with disabilities during educational programs, a focus on the medical model defining people by their disability and precluding full and comprehensive evaluations, and paternalism on the part of social workers leading to poor information flow to clients about potential health promoting activities (Kim & Canda, 2007). Despite the barriers and low rates of action, all the social workers in that study endorsed the importance of including mental and physical health promotion as a critical component of independence (Kim & Canda, 2007) as did those surveyed in this project (James & Shireman, In press).

While agencies recognize that health promotion is important for persons with disabilities (James & Shireman, In press), health promotion needs are often inadequately addressed. The reasons for this are complex and the wide range of "disabilities" and heterogeneous subgroups makes it difficult to characterize reasons for lack of preventive care and high quality disease management. For many people with disabilities, acute care needs may overshadow preventive care, and having multiple providers may lead to poor coordination of care. Some persons may have difficulty communicating their needs or wishes to clinicians. For persons with physical limitations, physical access to preventive care may be limited by poor wheelchair access, ill-equipped exam rooms and diagnostic technology, and other structural impediments (Barr, Giannotti, Van Hoof, Mongoven, & Curry, 2008; Kroll, Jones, Kehn, & Neri, 2006; Lawthers, Pransky, Peterson, & Himmelstein, 2003). These barriers contribute to the under-use of preventive and active care services by persons with disabilities (Coyle & Santiago, 2002; Diab & Johnston, 2004; Haverkamp, Scandlin, & Roth, 2004; Iezzoni, McCarthy, Davis, & Siebens, 2000; Lewis, Lewis, Leake, King, & Lindemann, 2002; Turk, Geremski, Rosenbaum, & Weber, 1997). This lack of attention to health promotion could have a significant impact and be valuable for case managers because improved medical status through health promotion has been shown to facilitate independent living efforts (Goldberg, et al., 2008).

Our assessment of case managers' and independent living counselors' perceptions contributes to this body of knowledge (James & Shireman, In press). We used the baseline survey to assess CMs/ILCs' perspectives and readiness to include health promotion activities as part of their targeted case management practices for individuals with developmental and physical disabilities. This pool of survey respondents viewed health promotion as an essential element of maximizing the independence and quality of life for individuals with disabilities and appeared enthusiastic about such offerings. However, CMs/ILCs reporting spending far less time on assessment, support planning and coordination, and monitoring/follow-up of *medical services* as compared to *social services*.

Despite policy changes that encourage integration of health promotion and disease management into support services, and CM/ILCs' own attitudes that providing health promotion guidance would improve clients' well-being, many respondents self-reported infrequently providing this service and low levels of knowledge and confidence regarding discussing preventive services with the persons they serve. More than half felt they needed additional education about management of common chronic diseases and tracking people's medication compliance. While knowledge of cervical cancer screening and breast cancer screening was felt to be adequate by respondents (most likely reflecting that most respondents were adult women), knowledge for other cancer screening areas was lower. Confidence with respect to assisting the individuals they serve with health promotion and disease management activities was demonstrably weaker than their reported knowledge. In particular, despite the level of knowledge, over three-quarters of respondents said that they were unsure about how to assist the individuals they serve with obtaining cervical and breast cancer screening. One could hypothesize that challenges in accessing those services may add to this apparent disconnect between knowledge and confidence.

This low confidence may also relate to why CMs/ILCs spent more time on social services than medical services generally. The one area where medical care services did appear consume quite a lot of time was in respect to planning: perhaps again this reflects difficulty in finding health care providers who would serve their consumers or in the complicated procedures to accessing care in these areas. Over the course of the project, however, their time spent in assessing, planning, coordinating, and monitoring medical care increased. It is unknown whether these gains were secondary to the project or simply temporal trends in the field.

Our findings are consistent with those reported by Kim and Canda (2007) to an extent. We found that CM/ILCs endorsed *the idea* of offering health promotion but did not engage in these activities with the people they serve. Lack of specific training on health promotion seems to be an issue for CM/ILCs in our study, as indicated by the desire for more knowledge and low confidence for assisting clients in these areas. Our data do not allow us to address whether medical model approaches interfere with providing health promotion.

However, our study does shed light on possible strategies for increased health promotion counseling including: provision of education about common health promotion and disease management topics and assisting CM/ILCs with assessing health promotion needs for the people they serve. Furthermore, it is clear that support for health promotion activities needs to be clearly stated by agency administrators.

CM/ILCs may need reassurance that they can appropriately bill for time spent providing these services. This survey was part of a larger intervention trial in which we provided CM/ILCs with educational materials through in-person training and newsletters and access to Medicaid billing records that would reflect preventive care and medication histories. The intervention was administered at the agency level and agency administrators were supportive of the efforts.

This was a relatively small study of CMs/ILCs from a single, Midwestern state. Many were from rural locales and they represented six agencies. The nature of the study required that our survey be brief and anonymous, therefore limiting the amount of information we could obtain. Agencies were selected by the Kansas Health Policy Authority, thus the non-random sample may not be representative of all possible participants. CMs/ILCs who attended the training expressed interest in the project, thus we could be over-representing interest in health promotion and disease management activities (alternately, we could be over-representing CMs/ILCs who felt their current level of training in health promotion was inadequate). The follow-up survey indicated nominal changes in knowledge of or confidence in managing several key health promotion and chronic disease management activities. There were gains, though, in understanding diabetes and medication compliance. However, all of the CMs/ILCs participating in the training program completed a survey and the agencies represented serve a broad base of clients across the mostly rural areas of our state. We expect that self-reports of wanting more knowledge and the relatively low confidence in addressing these medical/preventive issues with clients, is likely reflective of attitudes and behaviors of a wide range of CM/ILCs from different geographic areas. The challenges in obtaining medical care for clients reflect barriers to healthcare across the country, and may be exacerbated in rural areas that are medically underserved.

#### *Focus groups*

CMs/ILCs expressed positive views of supporting health promotion for their clients. The project encouraged and enabled communication with clients and caregivers about health-related topics. In addition, they found themselves better able to track medication compliance. On the downside, there were several technical problems with the tool (e.g., need for a static IP address), limited currency of the data included in the tool (lag between visits and billing claim and uploading of data into tool), and concerns about billing for time spent using the tool, although we attempted to address this issues throughout the project.

Our take on the focus group results, in summary, was that while the CMs/ILCs were willing to engage in health promotion and chronic disease management activities, they needed more guidance and direction from others, e.g., nurses within their organizations, as opposed to finding and acting on the details themselves.

#### *Claims data evaluation*

Our results from examining claims data pre-, during- and post-intervention demonstrate that the quality of chronic disease management and preventive health care services for persons with developmental and physical disabilities fails to meet national standards for cancer screening, cholesterol monitoring,

osteoporosis screening, influenza vaccination, and diabetes care. Disappointingly, there were very few gains in these benchmarks during the course of the project.

Key findings are summarized below:

- Diabetes care
  - 55% of adults with developmental disabilities and 59% of adults with physical disabilities had their HbA1C measured in any 12-month period
  - Annual eye exams were only conducted in <33% of either disability group
  - Cholesterol levels were checked in only one-half of those with either disability in any given year
  - These rates were discouragingly low even in the face of broad access to primary care: 93% of persons with developmental disabilities and ~90% of persons with physical disabilities had at least one visit with a primary care provider during each one year period.

These findings are particularly troubling as national HbA1c rates in 2006 for Medicaid, Medicare, and commercial plans were 72%, 86%, and 81%, respectively (NCQA, 2008; Shireman, Reichard, Nazir, Backes, & Greiner, 2010). Cholesterol screening rates for persons with developmental disabilities and diabetes also fell far below national standards: 67% (Medicaid), 86% (Medicare) and 81% (commercial plans)(NCQA, 2008; Shireman, et al., 2010).

- Cancer screening
  - Women with developmental disabilities actually had higher rates of breast cancer screening than women with physical disabilities (roughly 40% versus 25%) during the one year periods
  - Rates varied slightly from year to year suggesting little effect from the project

As a point of comparison for other health promotion activities, we have included a table summarizing the limited data available from previous research studies (Table 6). It is important to note that most studies report breast cancer screening rates across a two year period and cervical cancer screening rates across a three year period. Colonoscopy or sigmoidoscopy rates for colorectal cancer are typically reported for five year periods but FOBT is reported in the last 12 months. Our results are for 1 year periods, and therefore not directly comparable. For example, among women with developmental disabilities in our study, roughly 40% had a mammography in the last 12 months. If you sum across two years, e.g., intervention and post-intervention, and assuming no overlapping cases, the rate is 79.1% for women with developmental disabilities and 48.5% for women with physical disabilities. The former rate is actually quite comparable to other data sources and across population subgroups (Table 6), but the rate for women with physical disabilities in Kansas is substantially lower than previously reported with the exception of Iezzoni's work from 1994 data (Iezzoni, et al., 2000). One must also bear in mind that we limited the upper end of the age range to 64 years where most studies include older women. Turning to cervical cancer, if we sum the one-year rates across all three years, the total is 47.1% for women with developmental disabilities and 39.6% for women with physical disabilities. Again in

comparison to previous studies, these rates are substantially lower than those reported across a wide range of disability definitions. The rates for women with disabilities are close to those reported for women with developmental disabilities in Los Angeles (Lewis, et al., 2002). They also examined rates according to the severity of developmental disability, an analysis we will be conducting in the near future. Finally, with respect to colorectal cancer screening, if we assume that most of the screenings were through colonoscopy (which they were) and we adjust our annual rate to a 5-year rate, we come close to 50% for each subgroup. This rate may actually be a bit better than those reported previously.

Table 6. Overview of studies reporting selected preventive health screenings/interventions for persons with disabilities

Source/Data	Disability & Subgroups	Pap Smears (3 yrs unless noted)	Mammography (2 yrs unless noted)	Colorectal Cancer (5 yrs for colonoscopy; 1 yr for FOBT)	Influenza Vaccination (last 12 months)
(Wei, Findley, & Sambamoorthi, 2006) MEPS 2002	Ages 51-64 yrs: any ADL limitation	77.0%	76.6%	40.8% (ever)	50.1%
(Reichard, Stolze, & Fox, In press) MEPS 2006	18+ years: No disability Cognitive limitations Physical disability	<u>Ever</u> 75.0% 62.6% 64.6%	<u>Ever</u> 76% 63% 69.8%		32.7% 64.7% 65.0%
(Ramirez, Farmer, Grant, & Papachristou, 2005) California Health Insurance Survey 2000-2001	Cognitively or physically disabled	80.5%	72.1%	41.9% colonoscopy; 22.5% FOBT	
(Diab & Johnston, 2004) BRFSS 2000	Cognitive or physical: Mild Moderate Severe	80.7% 77.5% 81.9%	80.0% 78.4% 81.7%	<u>Colonosc.</u> 31.2% 37.0% 42.3% <u>FOBT</u> 13.0% 19.0% 19.0%	71.1% 72.3% 58.4%
(Iezzoni, et al., 2000) NHIS 1994	Mobility impairment: None Minor Moderate Major	81.4% 79.4% 79.6% 63.3%	63.5% 58.3% 51.5% 45.3%	<u>FOBT</u> 34.5% 34.0% 32.3% 32.0%	53.2% 60.8% 55.6% 52.7%
(Lewis, et al., 2002) 1997 data— Los Angeles	Developmentally delayed: At home ± assist Live w/family or friends Community care facility Overall	64.0% 25.3% <u>44.9%</u> 39.1%			34.0% 27.7% <u>71.1%</u> 45.5%
(Havercamp, et al., 2004) North Carolina NCI indicators & BRFSS 2001	No disability Disability (not DD) Developmental disability	<u>Ever</u> 97.8% 95.3% 88.5%	<u>Ever</u> 87.0% 85.5% 73.2%		

- Lipid Management
  - There were vast improvements in general lipid monitoring for adults with developmental disabilities across the state, increasing from 29.5% to 42.7%. These increases were seen across both subgroups, however, and therefore cannot be attributed to the intervention.
  - There was a smaller rate increase in lipid monitoring for adults with physical disabilities, again seen across the MTG and non-MTG cohorts and apparently not driven by the intervention project.
  - Among both disability groups, there were statewide increases in lipid monitoring for those who were taking second generation antipsychotics, though the increases could not be attributed to the intervention.

These apparent secular trends are promising for the overall health of persons with disabilities as the management of cardiovascular risk factors is extremely important. The overall rates, however, are still only ~50% suggesting significant opportunity for improvement.

- Osteoporosis screening
  - Osteoporosis screening was generally low and stayed low across time, ~10% of either disability group screening statewide. The rates were highest for the MTG cohort with developmental disabilities (10.7-14.6%, over time) and may have been a result of the project.
- Flu vaccination
  - Influenza vaccination rates were highest in the baseline year for both groups and declined substantially over time.

These last two observations on osteoporosis screening and flu vaccination warrant further analyses to determine if these adults with disabilities are failing to receive appropriate preventive care measures through examination of fracture and hospitalization outcomes.

Our approach to improving the quality of care for these vulnerable Medicaid enrollees met some success in raising health promotion awareness among case managers and independent living counselors. The tool provided, ImpactPro, met with some resistance among case managers and independent living counselors and its adoption averaged 20 minutes per targeted case over the course of a year. While the targeted intervention we conducted with funds from the Medicaid Transformation Grant did not yield vast improvements in the quality of care for Kansas Medicaid enrollees, the project has contributed substantially to our understanding of the health care needs of two of our most vulnerable and underserved covered populations, persons with developmental and physical disabilities. We will continue our work to understand why these health disparities exist.

## References

- Barr, J. K., Giannotti, T. E., Van Hoof, T. J., Mongoven, J., & Curry, M. (2008). Understanding barriers to participation in mammography by women with disabilities. *Am J Health Promot*, 22(6), 381-385.
- Coyle, C. P., & Santiago, M. C. (2002). Healthcare utilization among women with physical disabilities. *Medscape Womens Health*, 7(4), 2.
- Diab, M. E., & Johnston, M. V. (2004). Relationships between level of disability and receipt of preventive health services. *Arch Phys Med Rehabil*, 85(5), 749-757.
- Goldberg, R. W., Hackman, A., Medoff, D. R., Brown, C., Fang, L. J., Dickerson, F., et al. (2008). Physical wellness and employment status among adults with serious mental illness. *Community Ment Health J*, 44(4), 245-251.
- Havercamp, S. M., Scandlin, D., & Roth, M. (2004). Health disparities among adults with developmental disabilities, adults with other disabilities, and adults not reporting disability in North Carolina. *Public Health Rep*, 119(4), 418-426.
- Iezzoni, L. I., McCarthy, E. P., Davis, R. B., & Siebens, H. (2000). Mobility impairments and use of screening and preventive services. *Am J Public Health*, 90(6), 955-961.
- James, A. S., & Shireman, T. I. (In press). Case managers' and independent living counselors' perspectives on health promotion activities for individuals with physical and developmental disabilities. *Journal of Social Work in Disability & Rehabilitation*.
- Kim, K. M., & Canda, E. R. (2007). Supporting the well-being of people with mobility disabilities through social work practice. *J Soc Work Disabil Rehabil*, 6(4), 31-51.
- Kroll, T., Jones, G. C., Kehn, M., & Neri, M. T. (2006). Barriers and strategies affecting the utilisation of primary preventive services for people with physical disabilities: a qualitative inquiry. *Health Soc Care Community*, 14(4), 284-293.
- Lawthers, A. G., Pransky, G. S., Peterson, L. E., & Himmelstein, J. H. (2003). Rethinking quality in the context of persons with disability. *Int J Qual Health Care*, 15(4), 287-299.
- Lewis, M. A., Lewis, C. E., Leake, B., King, B. H., & Lindemann, R. (2002). The quality of health care for adults with developmental disabilities. *Public Health Rep*, 117(2), 174-184.
- NCQA (2008). The State of Health Care Quality 2008. Retrieved from <http://www.ncqa.org/tabid/836/Default.aspx>
- Ramirez, A., Farmer, G. C., Grant, D., & Papachristou, T. (2005). Disability and preventive cancer screening: results from the 2001 California Health Interview Survey. *Am J Public Health*, 95(11), 2057-2064.
- Reichard, A., Stolze, H., & Fox, M. (In press). Health disparities among adults with physical disabilities or cognitive limitations compared to individuals with no disabilities in the United States. *Disabil Health J*.
- Shireman, T. I., Reichard, A., Nazir, N., Backes, J. M., & Greiner, K. A. (2010). Quality of diabetes care for adults with developmental disabilities. *Disabil Health J*, In press.
- Turk, M. A., Geremski, C. A., Rosenbaum, P. F., & Weber, R. J. (1997). The health status of women with cerebral palsy. *Arch Phys Med Rehabil*, 78(12 Suppl 5), S10-17.
- Wei, W., Findley, P. A., & Sambamoorthi, U. (2006). Disability and receipt of clinical preventive services among women. *Womens Health Issues*, 16(6), 286-296.