MNCAMH
Clinical Training, Research, and Innovation

Minnesota Center for Chemical and Mental Health

Minnesota Mental Health Quality Improvement Project for ACT

PUBLIC SUMMARY REPORT

Prepared for Minnesota Department of Human Services

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Consultant's Report

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Summary of ACT Quality Improvement Project

Purpose

As part of the Minnesota Mental Health Quality Improvement Project, the Assertive Community Treatment (ACT) Project involved the training of ten Minnesota ACT Teams in Integrated Illness Management and Recovery (I-IMR). The aim of this project was to pilot I-IMR, an illness self-management intervention that utilizes an integrated treatment model aimed at improving the outcomes for both mental and physical health outcomes for consumers served by ACT teams. This pilot project supported the Minnesota 10 x 10 initiative to reduce morbidity and mortality in those living with serious mental illness (SMI). This report provides a comprehensive summary of the project goals and objectives.

Background

The Minnesota Mental Health Quality Improvement Project was in support of the Minnesota 10 X 10 project that focused on improving the monitoring of health issues for consumers on ACT teams. ACT is a service delivery model that uses a team-based multidisciplinary approach providing intensive treatment to persons with severe mental illness. ACT uses intensive outreach to provide comprehensive, client-centered, integrated, and community-based psychiatric treatment. These services are available to consumers 24 hours per day, 365 days a year. The philosophy behind the ACT model is to provide the assistance necessary to help consumers to continue to live in the community and work towards recovery and a better quality of life. The consumer-to-staff ratio cannot exceed 10:1 on an ACT team, which is lower than other mental health service models, allowing consumers to receive more comprehensive and focused care. ACT teams were selected as the target for the I-IMR intervention given the inter-professional make-up of teams, which includes nurses and various mental health professionals and because consumers served by ACT teams include people with more complex and severe mental illnesses who are at a higher risk for relapse. This report will provide results from the training and evaluation of consumers participating in I-IMR and practitioners trained in I-IMR with 10 ACT Teams across Minnesota.

Pilot Project Objectives

Supporting the 10 x 10 initiative, this project aimed to meet the following objectives:

- Develop an adapted training for Integrated Illness Management and Recovery (I-IMR) that could be used with ACT team staff
- Train ACT team practitioners from ten Minnesota ACT Teams in Integrated Illness Management and Recovery (I-IMR)
- Develop an I-IMR Supervision Model and Manual to monitor implementation of I-IMR and provide opportunities for clinical problem-solving and practice of I-IMR strategies

- Improve practitioner recovery knowledge and confidence in integrating the treatment of mental and physical health conditions.
- Improve consumer outcomes by improving illness self-management of psychiatric and physical health symptoms, increasing self-efficacy in managing chronic physical health conditions, and improving progress towards individual recovery goals.
- Provide technical assistance during the course of the study through consultations led by an IMR trainer and nurse educator to assist in implementation of I-IMR.
- Share the lessons learned from the pilot projects with the other ACT teams to help improve their work with consumers in improving their health.

Project Interventions

Adapted Integrated Illness Management and Recovery (I-IMR)

Integrated Illness Management and Recovery (I-IMR) was developed in response to the high rates of comorbid physical illnesses in people who have SMI. The purpose of the program is to empower consumers with knowledge and skills to better manage their mental and physical health so they can work on meaningful life goals. The approach and curriculum was modeled after the evidenced-based Illness Management and Recovery Program (IMR). At the onset of the program, the concept of recovery is introduced and consumers begin developing personally meaningful goals to work toward during the program. These goals are the foundation of the program.

We adapted I-IMR for this study to fit the needs of ACT teams. The adapted version of I-IMR was developed using a pilot version of I-IMR that was originally piloted with persons with SMI who were older and had an identified SMI and physical health diagnosis. In order to address the needs of consumers and practitioners on an ACT team, we adapted I-IMR by targeting the educational and illness self-management topics to focus on priorities for managing both mental and physical health. The original IMR intervention includes eleven modules and the adapted I-IMR version includes ten topic areas that exclusively focus on managing both mental and physical health problems. In addition, the consumer handouts were formatted to improve readability such as offering material in smaller chunks and including more pictures for examples.

I-IMR Supervision Model & Manual

Clinical supervision is an integral and necessary part of successful implementation of all evidence-based practices (EBPs). An I-IMR Supervision Model and Manual was developed for this pilot project. The purpose of the I-IMR Supervision Model was to:

- Monitor the delivery of I-IMR to clients and enhance client outcomes
- Provide feedback about implementation of I-IMR
- Provide knowledge and practice on using integrated teaching strategies
- Provide opportunities for clinical problem-solving
- Increase practitioner competence and quality of services provided

Components of the I-IMR Supervision Model include the following:

- Weekly check-ins to assess level of implementation of I-IMR materials and teaching strategies
- Integrated skills development for practitioners to reinforce I-IMR skills
- Case presentations and case studies to address specific questions and/or challenging cases
- Role-plays in supervision to foster practitioner learning and problem-solving
- Training and follow-up with consultation by I-IMR experts to address specific physical and mental health content and skills

I-IMR supervision includes 1-hour weekly group meetings with I-IMR clinicians. I-IMR content consultants (IMR trainer and nursing educator) join these meetings 1-2 times per month either on-site or via phone. The nurse consultant provides additional support to medical staff on a quarterly basis, with added support as needed. Additionally, nurse consultants conduct two 1-hour training sessions with ACT team nurses to provide training on integrating mental and physical health needs and liaising with health professionals.

The initial focus of I-IMR supervision revolves around start-up issues: educating clients about I-IMR, educating staff about their role in I-IMR, prepping to run first orientation and first group sessions, assessing for stage of change, and utilizing integrated teaching strategies. I-IMR supervision continues to focus on skills teaching and practice with staff, specific illness knowledge, information about treatment review, and case presentations from staff. Meetings including I-IMR nurse consultants utilize short, integrated health scenarios to teach and practice skills and identify specific areas for additional knowledge and skills building.

Lessons Learned ACT Conference

In February 2015, MNCAMH hosted *The Role of ACT Teams in Addressing Physical Health: Lessons Learned About Integrating Care* conference. All Minnesota ACT teams were invited to attend this conference. The conference included a full spectrum of perspectives regarding the integration of care. Specifically, this conference included perspectives from a national expert, a nurse, trainer, practitioner, team lead, and consumer- all who participated in the I-IMR project. Outcomes of this conference will be discussed at the conclusion of this report.

Public Summary Report Objectives

The Project Evaluation Report for ACT QIP will discuss strengths and weaknesses of this project in depth. This report will provide an overview of the pilot project and discuss practitioner and consumer outcomes, lessons learned, and recommendations for future directions.

Description of Sample

Consumers

A total of 153 consumers were enrolled in the pilot project. Consumers participated in six months of I-IMR intervention. We were able to assess 123 consumers at follow-up for post-intervention measures. Thirty consumers dropped out of the study. Reported reasons for dropping out included: hospitalization, disinterest, and gaining employment. Table 1 represents the demographics of all consumers (N=153) enrolled in the pilot project.

Table 1. Consumer Demographics

CONSUMER DEMOGRAPHICS (N=153)		
	Mean	**% of Total Sample**
Age	47.20	
Total Number of Hospitalizations (self-report)	9.83	
Gender		
Female		59.5 %
Male		40.5 %
Race (N=152)		
White		82.9 %
Black/African American		7.9 %
Other		9.2 %
Highest Level of Education		
Some high school		8 %
GED / High school diploma		43 %
Some college		37 %
College degree		12 %

Table 2 represents the frequencies of mental health diagnoses in the study sample. Schizophrenia spectrum, bipolar disorder, and major depressive disorder were considered primary diagnoses. These categories were not exclusive, so consumers could have two primary diagnoses if listed.

Table 2. Consumer Mental Health Diagnoses

MENTAL HEALTH DIAGNOSES			
	N	Frequency	% of Total Sample
Schizophrenia Spectrum	153	93	60.8 %
Bipolar Disorder	153	38	24.8 %
Major Depressive Disorder	153	27	17.6 %

Table 3 represents the frequency of the total number of physical illnesses reported. Physical illnesses of focus in this study were: diabetes, hypertension, obesity, hyperlipidemia, thyroid disorders, respiratory disorders, and arthritis. The other category in the table captures the frequency of conditions reported that did not fit into the seven physical illnesses previously listed. Note: Obesity was only listed as a diagnosis if it was reported as a diagnosis.

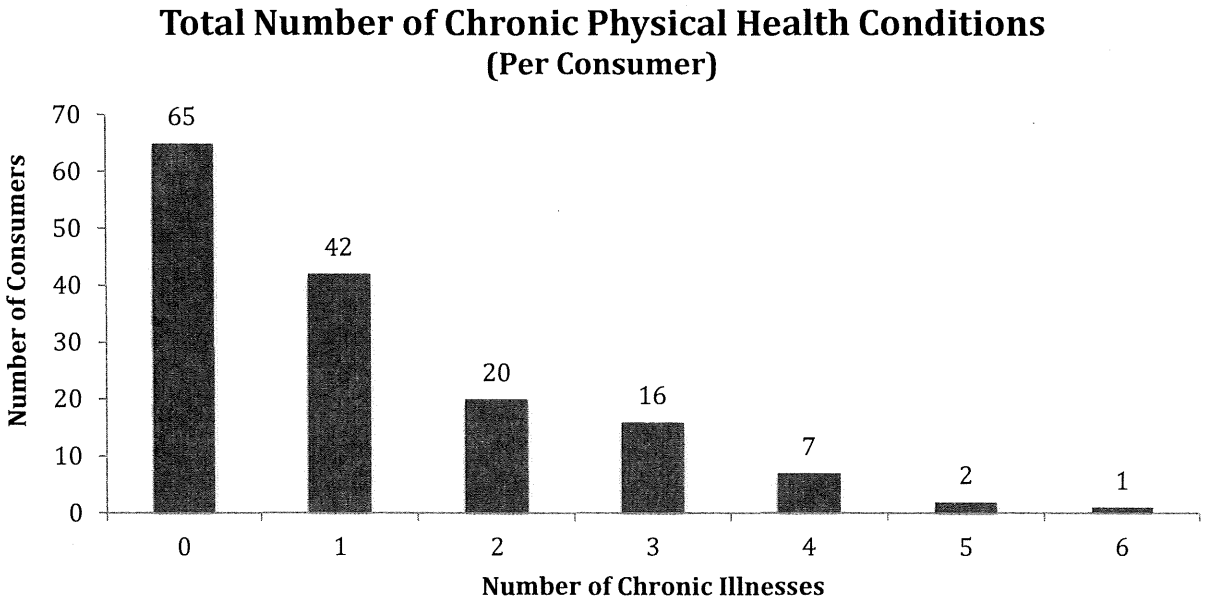
Table 3. Consumer Physical Health Diagnoses

PHYSICAL HEALTH DIAGNOSES			
	N	Frequency	% of Total Sample
Diabetes	153	38	24.8 %
Hypertension	153	23	15.0 %
Obesity	153	19	12.4 %
Hyperlipidemia	153	29	19.0 %
Thyroid Disorders	153	17	11.1 %
Respiratory Disorders	153	22	14.4 %
Arthritis	153	7	4.6 %
Other	153	119	–

Physical Health Diagnoses Note: Percentage of total sample is not included for the "other" category because some consumers reported multiple physical health diagnoses fitting into this category.

Figure 1 below indicates the total number of chronic physical health conditions reported by each consumer. The graph shows that the majority of the sample reported no chronic physical health conditions. However, over half (58%) of the sample reported at least one or more chronic physical health conditions.

Figure 1. Total Number of Chronic Physical Health Conditions Per Consumer



Practitioners

A total of 10 ACT teams participated in the pilot project. There were 5 ACT teams located in Minneapolis/St. Paul and 5 ACT teams located in greater Minnesota (Monticello, Worthington, Brainerd, Owatonna, and Duluth). A total of 42 practitioners participated in the pilot project. Table 4 represents selected practitioner demographics. The following information represents the key demographics of the practitioners participating in this pilot project.

- The mean age of practitioners (N=42) was 42.48 years. Practitioners ranged from 25 to 61 years old.
- 71.4% of the practitioners identified as female. 97.6% of the practitioners identified as white.
- Practitioners (N=42) varied on the number of consumers they had enrolled in the study. On average, each practitioner had 3.64 consumers engaged in individual or group sessions. The number of consumers enrolled ranged from 0 to 20. Many of the ACT team nurses functioned as consultants and did not conduct individual or group sessions with consumers. Four practitioners left their jobs with the enrolled agencies during the course of the study.

Table 4. Practitioner Demographics

PRACTITIONER DEMOGRAPHICS (N=42)		
	Mean	**% of Total Sample**
Years of Experience in Mental Health	13.53	
Years in Current Position (N=41)	4.57	
Highest Level of Education		
Some college/ Associate degree		26.2 %
Bachelor degree / some graduate coursework		35.7 %
Graduate degree		38.1 %
Discipline		
Social Work / Psychology		40.5 %
Nursing		31.0 %
Other		28.5 %
Current ACT Team Role		
Nurse		31.0 %
Mental Health Practitioner / Case Manager		26.2 %
Team Leader		23.8 %
Other		19.0 %

Outcomes

The ACT quality improvement pilot project had positive outcomes for both practitioners and consumers. Consumers experienced significant improvement in progress towards IMR goals while practitioners experienced a significant improvement in confidence for implementing I-IMR. These significant results are discussed in detail below. Measures assessing recovery knowledge for practitioners, mental health symptoms for consumers, and chronic disease self-efficacy for consumers did not show significant improvements between baseline and post-intervention. Discussion of insignificant results is also included in the following sections.

Consumer Outcomes

Consumers showed improvements in both psychiatric and physical health outcomes. Consumers showed significant improvement towards psychiatric illness self-management (Illness Management and Recovery Scale) on both self-rating and practitioner ratings of

consumer progress. There was no change in mental health symptoms, but pre- and post-means of the Symptom Index showed a trend towards decreasing symptoms. Consumer self-efficacy for the management of physical health symptoms showed no significant overall differences; however, for consumers that participated in twelve or more I-IMR sessions, they reported significant improvements associated with their physical health self-management.

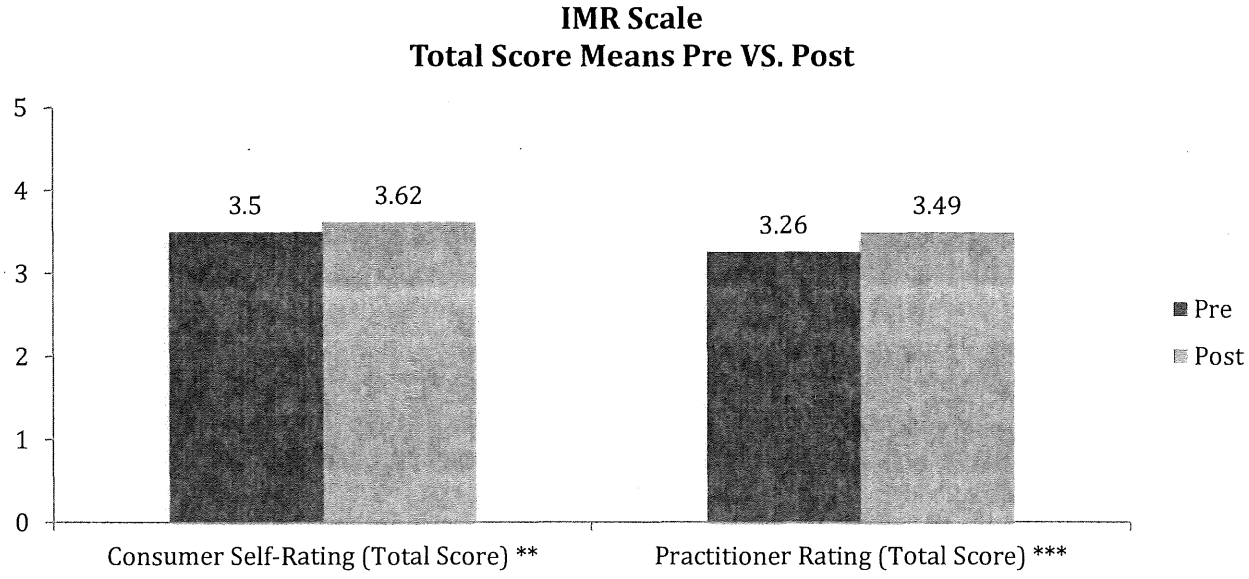
Illness Management and Recovery Scale

The IMR Scale was used to assess the extent to which consumers made progress towards recovery and psychiatric illness self-management. The scale includes 15 items that measure progress towards personal goals, knowledge about illness, symptom severity, use of coping skills, engagement in self-help activities, adherence to medication regimen, and substance use. Each consumer completed this scale at baseline and post-intervention. We calculated a total score to assess overall progress. The practitioner for each consumer also completed the scale, assessing the consumer's progress in each of the 15 items.

Consumer total score for the IMR Scale improved significantly between baseline and post-intervention. The practitioner version of this scale, which practitioners completed for each consumer to assess progress, also indicated significant improvement over the course of the intervention. Both consumers and practitioners reported significant improvements in knowledge about illness, symptom distress, functioning, relapse prevention planning, and the ability to cope with symptoms. In addition, consumers reported significant improvements in improving taking medication effectively while practitioners reported improvements in progress towards goals, relapse of symptoms and involvement in self-help activities. Consumer and practitioner versions of the IMR Scale showed similar improvements, which suggests that both practitioners and consumers enrolled in this study were similar in assessing progress towards IMR goals and illness self-management skills.

Figure 2 shows the mean scores of the total score on the original scale of 1-5, with 5 indicating better outcomes. Asterisks denote statistical significance.

Figure 2. IMR Scale Total Score Means (Practitioner and Consumer Versions) Pre VS Post



Note: * denotes significance at $p \leq 0.05$ level, ** denotes significance at $p \leq 0.01$ level, *** denotes significance at $p < 0.00$

Table 5 and Table 6 show the pre- and post-means for each item on the consumer and practitioner versions of the IMR scale, respectively. Asterisks denote significance. Additionally, a column is included to indicate whether the change between pre and post is positive or negative.

Table 5. IMR Scale Consumer Version Pre- and Post Means

	N	pre-mean	post-mean	change pos/neg
#1 – Progress toward personal goals	123	3.24	3.33	
#2 – Knowledge	123	3.56	3.78	*pos +
#3 – Involvement of family and friends in mental health treatment	123	2.99	3.21	
#4 – Contact with people outside of family	122	3.12	3.08	
#5 – Time in structured roles	122	2.20	2.29	
#6 – Symptom distress	121	2.72	2.98	*pos +
#7 – Impairment of functioning	122	2.80	3.06	*pos +
#8 – Relapse prevention planning	122	3.56	3.83	*pos +
#9 – Relapse of symptoms	121	3.33	3.25	
#10 – Psychiatric hospitalizations	121	4.40	4.59	
#11 – Coping	121	3.37	3.57	*pos +
#12 – Involvement with self-help activities	123	3.15	3.37	
#13 – Using medication effectively	121	4.64	4.75	*pos +
#14 – Functioning affected by alcohol use	121	4.68	4.70	
#15 – Functioning affected by drug use	120	4.79	4.83	

Note: * denotes significance at $p \leq 0.05$ level

Table 6. IMR Scale Practitioner Version Pre- and Post Means

	N	pre-mean	post-mean	change pos/neg
#1 – Progress toward personal goals	122	3.14	3.36	*pos +
#2 – Knowledge	123	3.21	3.55	***pos +
#3 – Involvement of family and friends in mental health treatment	123	2.90	3.14	
#4 – Contact with people outside of family	123	3.12	3.26	
#5 – Time in structured roles	123	2.00	2.07	
#6 – Symptom distress	123	2.26	2.56	***pos +
#7 – Impairment of functioning	123	2.21	2.46	***pos +
#8 – Relapse prevention planning	122	3.22	3.63	**pos +
#9 – Relapse of symptoms	122	3.20	3.51	*pos +
#10 – Psychiatric hospitalizations	122	4.49	4.69	
#11 – Coping	123	2.88	3.23	***pos +
#12 – Involvement with self-help activities	122	2.94	3.35	**pos +
#13 – Using medication effectively	121	4.28	4.43	
#14 – Functioning affected by alcohol use	120	4.49	4.61	
#15 – Functioning affected by drug use	120	4.60	4.65	

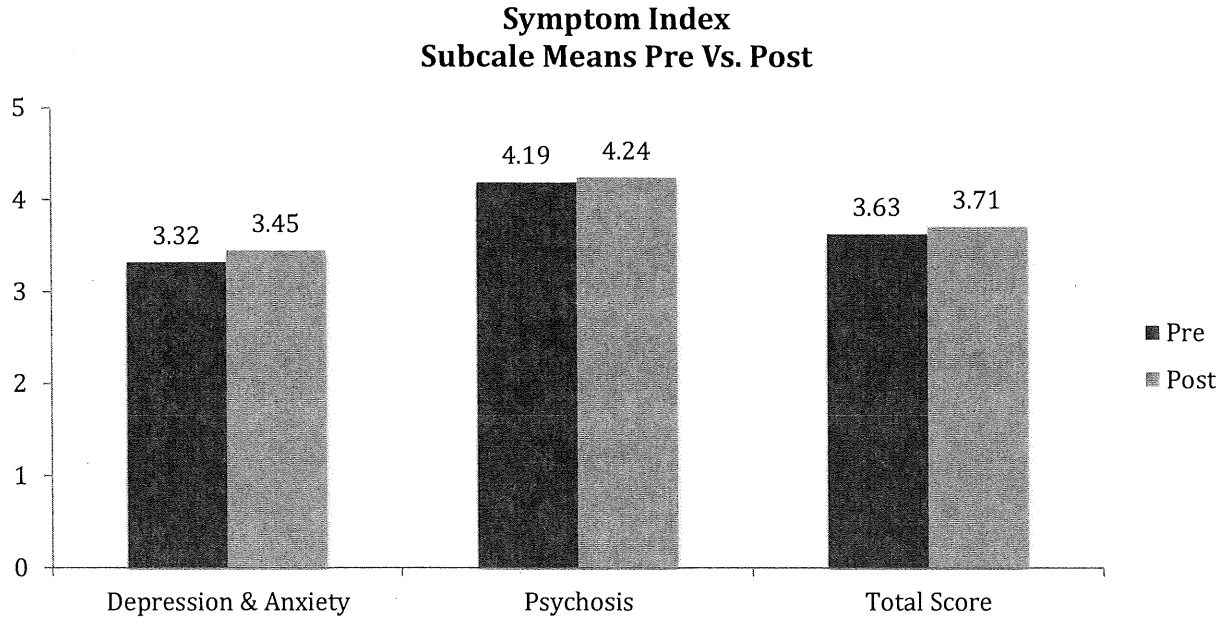
Note: * denotes significance at $p \leq 0.05$ level, ** denotes significance at $p \leq 0.01$ level, *** denotes significance at $p < 0.00$

Symptom Index

The Symptom Index was used to assess the frequency of psychiatric symptoms. The Symptom Index contains 14 items that are scored on a scale of 1-5, with 5 indicating a lower frequency of symptoms. The Symptom Index is divided into 2 subscales that measure symptoms of depression/anxiety and psychosis. We also calculated a total score to assess for overall symptoms.

There was no significant change in self-reported symptoms for consumers between baseline and post-intervention. Figure 3 depicts the pre- and post-means of both subscales and total score on the original scale of 1-5, with 5 indicating a lower frequency of symptoms.

Figure 3. Symptom Index Subscale Means Pre VS. Post



Chronic Disease Self-Efficacy

The Chronic Disease Self-Efficacy (CDSE) scale assessed the consumer's perceived ability to manage physical health conditions. The measure consisted of 27 items that were divided into 9 subscales. The subscales measured consumer confidence in exercising regularly, getting information about disease, obtaining help from family and friends, communicating with a physician, managing disease in general, completing chores, engaging in social and recreational activities, managing symptoms, and managing shortness of breath.

There were no significant differences for any of the subscales or total scores for the Chronic Disease Self-Efficacy scale between baseline and post-intervention. We anticipated that consumers participating in I-IMR would benefit more if they attended more I-IMR sessions so we examined the outcomes for consumers who attended at least twelve sessions (approximately three months); this analysis is represented in Table 7. For consumers who attended twelve or more sessions, the General Self-Efficacy subscale showed significant improvement. Pre- and post-means of this analysis showed a trend upward on 5 of the 9 subscales.

We also considered whether consumers diagnosed with at least one physical health condition would benefit more from the I-IMR intervention. For persons with at least one health condition, we examined physical health self-management but no significant changes were noted.

Table 7. Chronic Disease Self-Efficacy Pre VS. Post (equal or greater than 12 sessions)

CHRONIC DISEASE SELF-EFFICACY PRE VS. POST

≥ 12 sessions

	N	pre-mean	post-mean	p-value
Completing Chores	64	6.96	6.93	0.92
Exercising Regularly	64	6.64	6.37	0.31
General Self-Efficacy	64	6.89	7.36	0.03*
Obtain Information About Disease	64	7.62	8.09	0.20
Obtain Help from Friends and Family	63	6.71	6.74	0.93
Communicating with Physicians	63	7.96	8.11	0.59
Managing Shortness of Breath	63	6.97	7.29	0.33
Engage in Social and Recreational Activities	63	6.73	6.52	0.38
Managing Symptoms	63	6.41	6.71	0.25
Total Score	61	6.87	7.06	0.50

Note: * denotes significance at $p \leq 0.05$ level

Practitioner

Practitioners participating in the pilot study reported improvements in their use of I-IMR skills and strategies. Practitioners reported a significant increase in confidence between baseline (prior to training) and post-intervention (6 months after training). Practitioners did not report significant changes in their beliefs about recovery. However, practitioner recovery knowledge at baseline was relatively high, indicating that most practitioners already possessed positive attitudes and beliefs about recovery.

Practitioner Confidence

The Practitioner Confidence scale assessed how confident practitioners felt in implementing I-IMR. This measure consisted of 31 items, which were divided into 3 subscales. These subscales assessed practitioner confidence in working with different types of consumers (i.e. consumers with mental illness, consumers with physical illness, and consumers with both mental and physical illnesses), confidence in implementing the skills of I-IMR, and confidence in providing integrated treatment for physical and mental health.

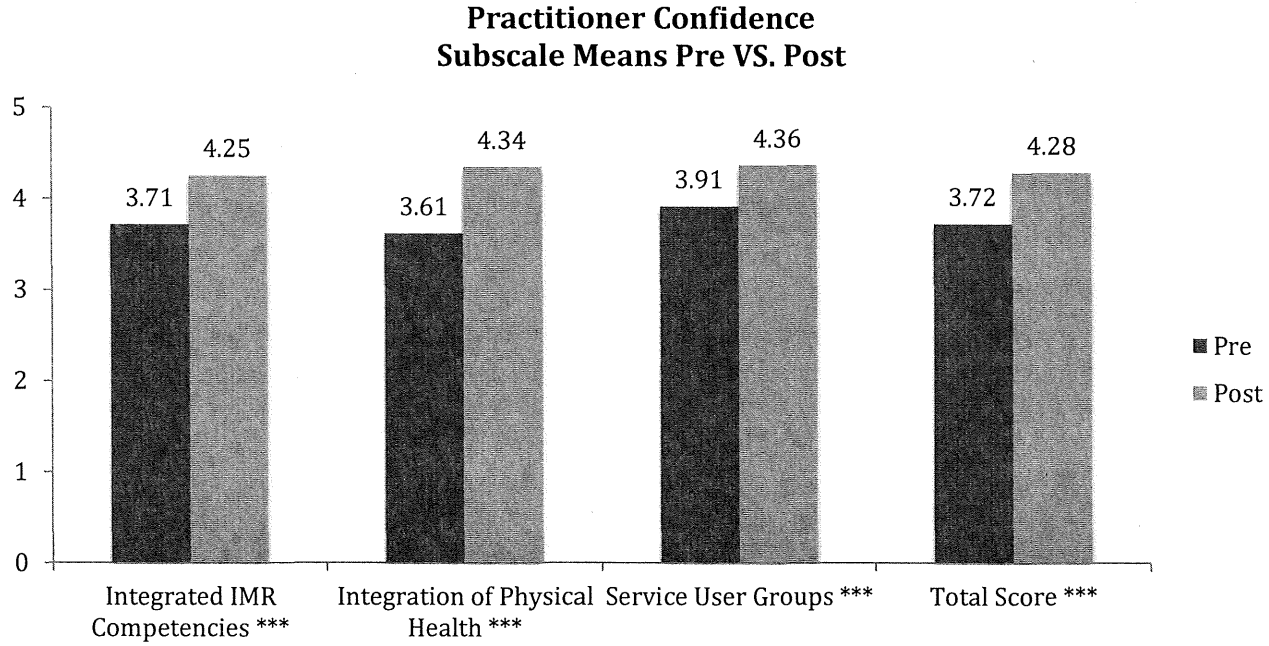
Practitioner confidence increased significantly between baseline and the end of the study. Practitioners completed this measure prior to training in I-IMR and at the conclusion of the 6-month intervention. In addition to statistical significance, results indicated clinical significance on three items. Clinical significance occurs when there is an increase of at least

one point between baseline and post-intervention on the scale (1-5). A score of 5 indicated complete confidence.

- Practitioners went from feeling a little confident (2.93) to mostly confident (4.32) in their ability to successfully **make comprehensive use of the I-IMR curriculum.**
- Practitioners went from feeling somewhat confident (3.02) to mostly confident (4.24) in their ability to successfully **apply knowledge of I-IMR modules.**
- Practitioners went from feeling somewhat confident (3.31) to mostly confident (4.37) in their ability to successfully **integrate mental health and physical health concerns into each I-IMR session.**

Figure 4 represents the means of each subscale on the original scale of 1-5. Asterisks denote statistical significance.

Figure 4. Practitioner Confidence Subscale Means Pre VS. Post



Note: *** denotes significance at $p < 0.00$

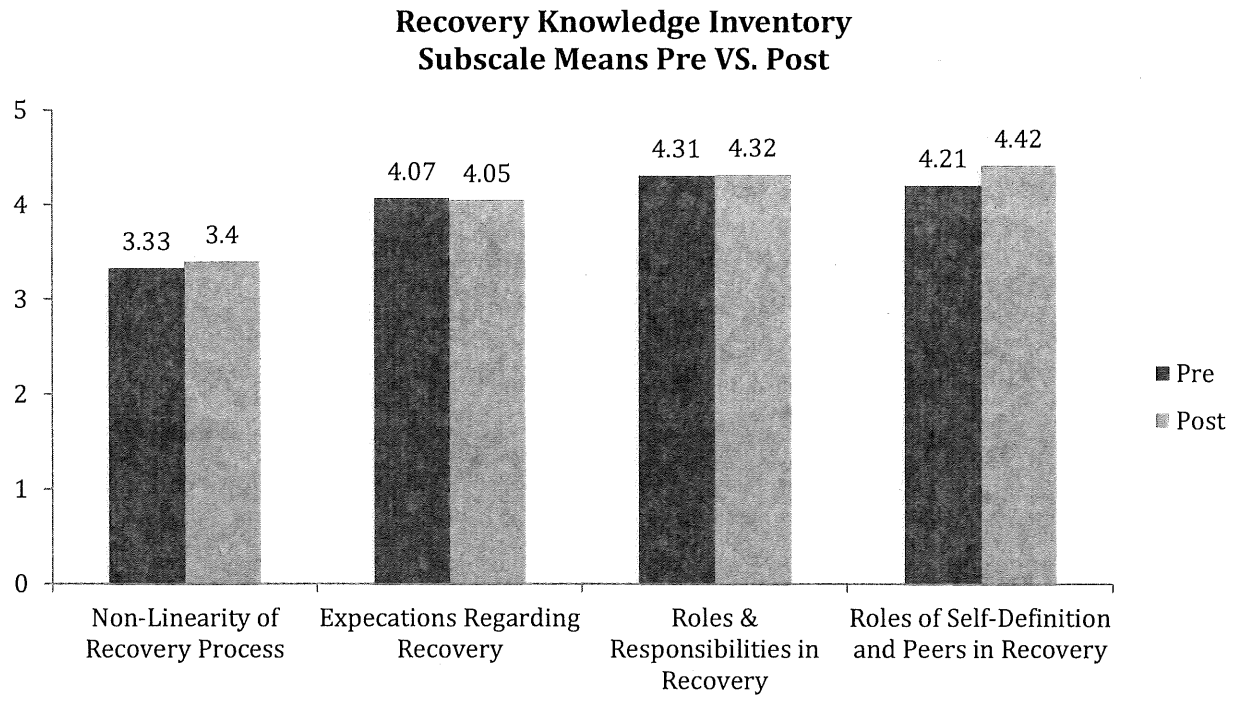
Recovery Knowledge Inventory

The Recovery Knowledge Inventory assessed practitioner beliefs and attitudes regarding recovery. Recovery is defined as a process of change guided by personally meaningful goals to improve quality of life. This measure consisted of 20 items, which were divided into 4 subscales. These subscales assessed practitioner beliefs about roles and responsibilities in

recovery, the non-linearity of the recovery process, the roles of self-definition and peers in recovery, and expectations regarding recovery.

Overall, results of the Recovery Knowledge Inventory trended upward or remained the same for practitioners during the course of the intervention. Figure 5 shows the mean scores of each subscale on the original scale of 1-5, with 5 indicating a higher level of understanding of recovery. At baseline, practitioners reported high ratings on this scale, which may explain why this scale did not reach significance.

Figure 5. Recovery Knowledge Inventory Subscale Means Pre VS. Post



Implementation of I-IMR

Practitioners received training in I-IMR in June 2014, prior to implementation of the intervention with consumers. Throughout the six-month intervention, practitioners met with consultants Matthew Lindberg, MA, LPCC (IMR Trainer) and Maria Tice, MS, RN (Nursing Educator) for support during the implementation of the I-IMR intervention. At the end of the six month intervention, both consultants rated each agency and practitioner on fidelity to the I-IMR model based on the consultations over the intervention period. These ratings reflected the effectiveness of one of the pilot project's objectives to train practitioners in I-IMR.

Both consultants rated agencies and practitioners independently. Consultant ratings were averaged for a final score. The ratings were based on a 1-5 scale, with 1 indicating not at all implemented and 5 indicating very well implemented. A score of a 3 indicated satisfactory implementation.

Satisfactory implementation was defined as the following:

Agency

- Over half of the trained practitioners used the I-IMR materials with their consumers.
- At least half of the eligible ACT team consumers (co-occurring mental health and medical disorder) at the agency are participating in I-IMR.
- Practitioners regularly discussed I-IMR teaching strategies in consultation but still missed opportunities to fully integrated strategies for mental health and medical disorders.
- Practitioners have increased knowledge of the stage of change for mental illness and physical health but could be more consistent in using integrated teaching strategies in sessions.

Practitioner

- Practitioner worked with at least 2-3 consumers with co-occurring mental health and medical disorders, using I-IMR materials.
- Practitioner regularly discussed I-IMR teachings strategies in sessions but still missed opportunities to fully integrated strategies for mental health and medical disorders.
- Practitioner used stages of change assessment correctly to inform the use of integrated teaching strategies but could do so more consistently.

Practitioner and Agency Differences

Practitioner fidelity to I-IMR ranged from 1 to 5, with an average rating of 2.96 for all practitioners. These results show that practitioners varied widely in how well they implemented I-IMR. However, the average indicates overall satisfactory implementation. Agency fidelity ranged from 1.5 to 5, with an average rating of 3.35 for all agencies. Agency fidelity results also indicate a wide range of adherence to the I-IMR model with overall satisfactory implementation.

Impact on Medicaid Population

Consumer Hospitalizations

DHS provided hospitalization data for all consumers enrolled in the ACT I-IMR study. The data analysis plan was to determine if participation in I-IMR reduced the frequency of

hospitalization for consumers. The data below only represents consumers enrolled in the ACT I-IMR study. There was no control group for consumers who did not receive ACT I-IMR. Although the data analysis shows that consumers who participated in the ACT I-IMR study decreased in frequency of hospitalizations, we do not know if this was an effect of the I-IMR treatment or other factors due to lack of a control group. Future analyses would benefit from a control group. Despite this, we can conclude that participation in the ACT I-IMR study did not result in more hospitalizations for these consumers.

Hospitalizations were distinguished as either psychiatric or medical. We also looked at total hospitalizations by combining both psychiatric and medical hospitalizations. Table 8 represents the total number of hospitalizations during three different timeframes. The timeframes are as follows:

- Pre-Intervention: January 2014 – June 2014
- During-Intervention: July 2014 – December 2014
- Post-Intervention: January 2015 – Current (most recent data was from March 2015)

Table 8. Total Number of Hospitalizations Pre VS. During VS. Post

	PRE	DURING	POST
Total # of Hospitalizations Reported	35	19	10
MH Inpatient # of Hospitalizations	21	9	6
Medical # of Hospitalizations	14	10	4

Table 9 shows the total number of consumers hospitalized during the three timeframes. These numbers are different than the table above because some consumers had multiple hospitalizations during each timeframe. Note: Medical and psychiatric hospitalizations do not sum to the total/combined hospitalizations during pre and during because some consumers had both medical and psychiatric hospitalizations during these timeframes.

Table 9. Total Number of Consumers Hospitalized Pre VS. During VS. Post

	PRE	DURING	POST
# of Clients Hospitalized (Medical)	12	8	4
# of Clients Hospitalized (MH Inpatient)	13	8	5
# of Clients Hospitalized (Combined/Total)	23	15	9

Statistical analysis using the Wilcoxon signed-rank test for hospitalization data revealed the following significant findings:

- The total number of psychiatric hospitalizations during the intervention was **significantly lower** than the total number of psychiatric hospitalizations during the pre-intervention timeframe (W = 41.0, p = 0.05).
- The total number of hospitalizations (combined psychiatric and medical) during the intervention timeframe was **significantly lower** than the total number of hospitalizations during the pre-intervention time frame (W = 114, p = 0.04).
- The total number of medical hospitalizations during the intervention time frame was not significantly different from the pre-intervention timeframe (W = 49.5, p = 0.54). However, the total number of medical hospitalizations post-intervention was **significantly lower** than the total number of medical hospitalizations pre-intervention (W = 5.0. p = 0.02). It should be noted, however, that the data we received for the post-intervention timeframe covered a shorter timeframe (3 months) than the pre-intervention timeframe (6 months).

Lessons Learned

I-IMR Supervision and Consultation

Consultation was provided to ACT teams for the duration of the project to provide support and answer any questions practitioners had about implementing I-IMR. Consultations were part of the I-IMR Supervision Model created for this pilot project. Consultations were facilitated by Matthew Lindberg, MA, LPCC (IMR Trainer) and Maria Tice, MS, RN (Nursing Educator).

The following contains a list of quantitative data collected regarding consultations:

- A total of 74 consultation sessions took place
- An average of 7 consultations per site
- The range of consultations per site was 5 to 11 consultation sessions
- Approximately 62% (46/74) consultations were performed in person
- Approximately 38% (28/74) were performed over the phone
- Consultation sessions ranged from 15 to 120 minutes
- The average session lasted approximately 58 minutes (mode = 60 minutes)
- An average of 4 people each session
- The number of participants attending a session ranged from 2 to 9 participants.

The initial consultations involved implementation coaching with the 10 ACT Teams. I-IMR

may be delivered individually or in a group environment. A hybrid of group and individual is ideal, with a focus on goal-setting and progress, as well as individualized education for medical disorders. Both consultants emphasized the importance of integrating mental and physical health in each individual or group session. Recovery strategies were modeled and role-played with ACT practitioners and involved integrating both mental and physical conditions when eliciting clients' personal definition of recovery.

ACT consultation and technical assistance focused not only on the implementation of I-IMR but all participating ACT teams received additional technical assistance on addressing medical problems from the nurse consultant. When the nurse consultant provided consultation, she utilized a case study for discussion about engaging in physical health interventions and education. Topics for these consultations focused on common medical problems that ACT teams reported encountering with their clients. The following includes some examples:

- What is normal blood pressure?
- What determines high or low blood pressure?
- What is hemoglobin A1C and what are the reasons it is important when you are working with clients with diabetes?
- What is normal hemoglobin?
- What is high hemoglobin?
- What is a lipid profile; HDL, LDL, and triglycerides?

Adherence to the recommended order of the I-IMR modules was reinforced for the duration of consultations, unless there was a strong rationale for altering the sequence of topics. It is recommended that *Recovery Strategies* be completed first, moving on to the topic of the *Stress-Vulnerability Model*, next. Together, the two topics form the theoretical approach supporting the remaining topics.

Each consultation, either with the I-IMR focus or the nurse/medical focus, included key elements. These included reviewing ongoing I-IMR clients and progress towards their goals, reviewing upcoming teaching strategies for I-IMR modules and demonstrating and practicing skills to enhance I-IMR implementation. Practitioners were expected to participate in role-plays as well as practice presenting topics in an individual or group session, such as, using a visual diagram to convey information.

In addition to the team consultations on the I-IMR model, the nurse consultant led phone consultations with the nurses on the ACT teams that focused more specifically on their role in implementation. Key items discussed during these calls were engaging primary care, inconsistent communication with primary care, and the lack of education regarding ACT services in the primary care setting. Some of the nurses on the conference call had a "wish-list" that involved having a primary care physician on the ACT team. The rural ACT teams reported better relationships with their clients' primary care physicians than the metro

teams. For example, metro teams seemed to have more barriers to linking to primary care, such as setting up a physical examination.

A significant amount of consultation time was utilized to present and discuss the topics: *Practical Facts about Mental Illness, and Practical Facts about Health Issues.* This time included coaching practitioners how to elicit information and experiences associated with both mental and physical health diagnoses. Further, practitioners practiced strategies to reinforce client self-efficacy in recovery and empowering techniques for engagement.

Lessons Learned ACT Conference

Overall, the conference was a great success. A total of 95 people from ACT teams across Minnesota attended this conference. Conference evaluations by attendees revealed strong, positive reviews for plenary speakers, especially Dr. Vanderlip, the national expert. Additionally, 96.5% of conference participants felt that this conference would positively impact the care they give to their clients and 98.5% reported interest in learning more about integrating physical health care and mental health services.

Take-Aways

In this pilot study of I-IMR in Minnesota, we trained 42 practitioners to implement I-IMR on ACT teams. Practitioners reported positive beliefs and attitudes about recovery for consumers that were consistent across the pilot study. In addition, practitioners increased their confidence in the skills and strategies associated with implementing I-IMR and integrating self-management strategies for mental and physical health. The I-IMR training had good penetration across sites as each practitioner implemented I-IMR with a mean of two consumers. In addition, forty-two percent of the consumers that participated in I-IMR completed twelve or more I-IMR sessions over the course of six months. These results suggest that the I-IMR strategies to integrate illness self-management for mental and physical health were helpful to practitioners in treatment settings and practitioners were able to engage consumers in the I-IMR intervention.

The focus of this pilot study also was to begin to understand how an integrated illness self-management intervention could improve consumer psychiatric and physical health outcomes. The consumer outcomes collected as part of this pilot study strongly suggest that consumers are experiencing positive changes towards better illness management. Specifically, consumers and practitioners both reported that consumers significantly improved in areas of knowledge, symptom distress, impairment of functioning, relapse prevention planning, and coping. Over the course of the pilot study, consumers showed great progress in psychiatric illness self-management and trends towards better physical health illness self-management. The trends for improvements in physical health self-efficacy showed promise for consumers who received twelve or more sessions but will need some further exploration including expanding the assessment to examine progress in physical health illness self-management. These results suggest that consumers benefit

from I-IMR in learning illness self-management strategies. There could be an added benefit in longer exposure to treatment especially in address physical health self-management.

One important limitation of this study is the length that consumers were followed as part of the intervention. Consumers were enrolled in the I-IMR intervention for the first two months of the pilot and then followed for six months. The I-IMR intervention is individualized and engagement in treatment is often longer than six months. A longer follow-up period may have provided additional opportunities for consumers to practice and integrate illness self-management strategies into their daily routine. Longer exposure to the intervention also may have led to additional improvements in physical health management and physical outcomes.

Results from this pilot study suggest that I-IMR is feasible to be implemented on an ACT team. A range of providers from different backgrounds (nursing, mental health, vocational rehabilitation) was trained as part of this pilot project. ACT team members were able to engage practitioners in I-IMR and the practitioner's confidence in providing I-IMR improved over the course of the pilot. Agency and practitioner fidelity to the I-IMR model as rated by the I-IMR consultants varied widely. Future studies could benefit from monitoring the fidelity to the model more carefully across agencies or ACT teams and providing feedback to leadership about strategies to improve fidelity. While model fidelity was not a significant predictor of consumer outcomes in this pilot project, proper adherence to the intervention model is essential moving forward with establishing evidence-based integration treatment.

Key Points and Next Steps

This pilot project found that I-IMR is feasible for implementation on ACT teams. This project successfully trained 42 ACT practitioners in I-IMR, reaching a total of 123 consumers with the intervention through the course of the study. Results from this study indicate that I-IMR is associated with significant improvements in illness self-management. Practitioners in this study demonstrated ability to implement I-IMR and to learn strategies to improve integration of care. The I-IMR Supervision Model was well-received by practitioners and noted to be helpful in assisting with implementation. Next steps include comparing I-IMR to standard treatment models. Additionally, future studies should explore how I-IMR impacts physical health outcomes and physical health illness self-management.