



VIREC Clinical Informatics Seminar

Using Patient-Facing Kiosks to Support Quality Improvement at Mental Health Clinics

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Matthew J. Chinman, PhD

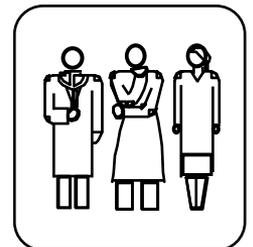
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September 17, 2013

VA HSR&D Center for the
Study of Healthcare
Provider Behavior



Key Questions for today

- How can we work in a partnered way?
- Can care in specialty mental health be improved?
- What is the role of data in quality improvement?
- How do we get those data and from whom?

Poll Question

- In which of the following areas do you have experience (answer as many as are applicable):
 - Mental Health
 - Quality Improvement
 - Health Information Technology (development or implementation)
 - None of the above

When we began....



Matt, Alex, Amy, Alison



Greater Los Angeles VA

Schizophrenia

- Most common serious mental illness
- Chronic disorder of thought
- Cognitive deficits: attention, memory, information processing, executive functioning

- 10% of all permanently disabled people
- 100,000 Veterans with schizophrenia treated annually

- Evidence-based practices exist
 - ▣ often not available or used; outcomes poorer than expected

Improving Specialty Mental Health Care

- Efforts to improve care have often had limited or no success
 - research has lacked data on implementation process
- Challenges
 - patients: cognitive deficits, limited literacy, poor advocates
 - providers: often lack key competencies
 - medical records: no data on patient preferences, specific psychosocial services, outcomes
 - policy makers: cannot identify unmet patient needs or evaluate the effectiveness of care
 - system: limited time in clinical encounter, limited dollars

The Feasibility of Computerized Patient Self-assessment at Mental Health Clinics

Matthew Chinman · Joseph Hassell ·
Jennifer Magnabosco · Nancy Nowlin ·
Susan Marusak · Alexander S. Young

The Accuracy of Medical Record Documentation in Schizophrenia

Julie Cradock, PhD
Alexander S. Young, MD, MSHS
Greer Sullivan, MD, MSPH

The Journal of Behavioral Health Services & Research 28:4 November 2001

Information Technology to Support Improved Care For Chronic Illness

Application of Information Technology ■

A Network-Based System to Improve Care for Schizophrenia: The Medical Informatics Network Tool (MINT)

ALEXANDER S. YOUNG, MD, MSHS, JIM MINTZ, PhD, AMY N. COHEN, PhD, MATTHEW J. CHINMAN, PhD

■ J Am Med Inform Assoc. 2004;11:358–367.

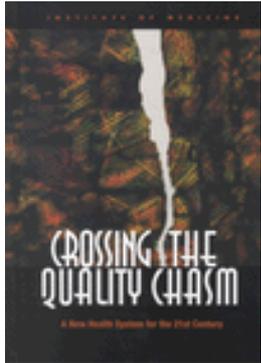
W¹,

1A¹³

Angeles, CA,
enter, Seattle,
Indianapolis,
ice University,
SA; ¹⁰Stanford
ource Center

2001

Institute of Medicine: **Crossing the Quality Chasm**
Health Information Technology (HIT)



2003

President's New Freedom
Commission
VHA Strategic Plan

Recovery Movement in Mental
Health + Patient Centered Care



Recovery Values

- hope
- individuality
- self-awareness
- self-determination
- meaningful life
- respect
- peer support
- community focus
- advocacy

2006

Implementation Science Journal

Methods in Quality Improvement Research



IMPLEMENTATION SCIENCE

**EQUIP2:
ENHANCING QUALITY OF
CARE IN PSYCHOSIS**

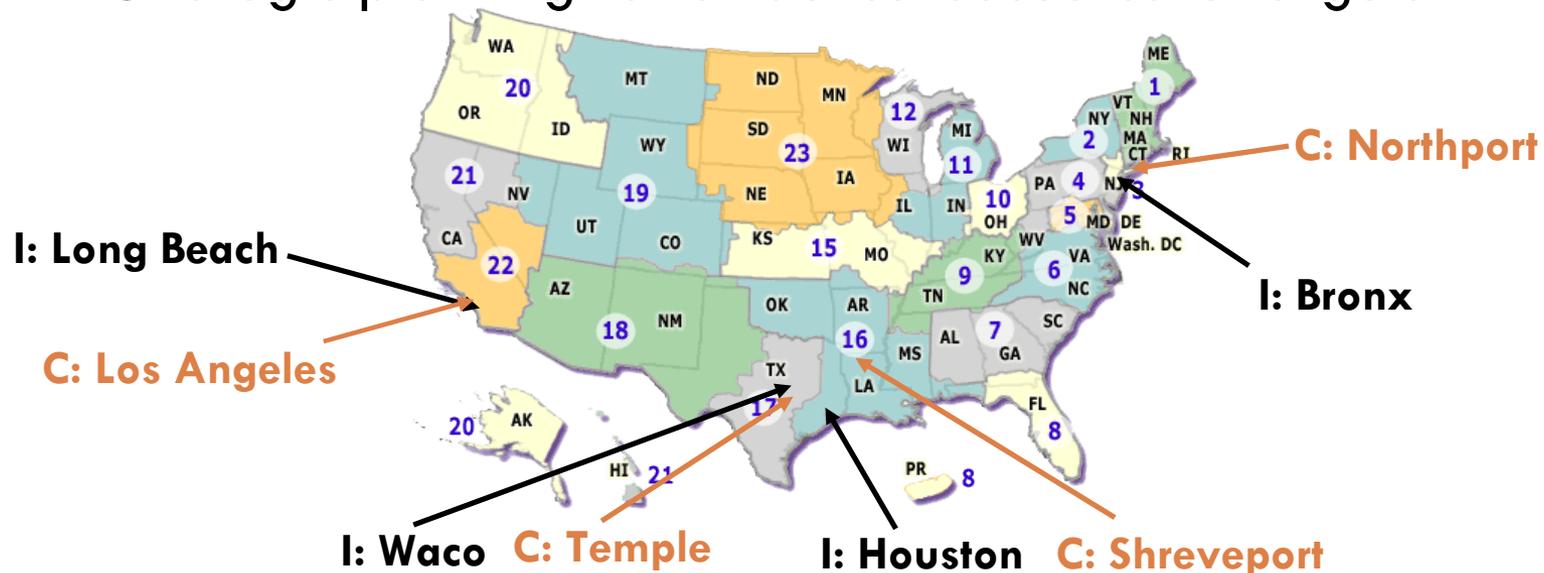
Funded by VA HSR&D QUERI (MNT 03-213)

EQUIP Specific Aims

- Assist 4 medical centers to implement and sustain evidence-based care for schizophrenia
- Evaluate the effect (relative to usual care) of care model implementation on service utilization and patient outcomes.
- Using mixed methods, evaluate processes of and variations in care model implementation and effectiveness.

EQUIP Design

- Clinic-level controlled trial
 - ▣ 801 patients with schizophrenia; 201 providers
- Research-Network partnership in 4 VISNs
 - ▣ 1 intervention, 1 control site in each VISN (8 medical centers)
 - ▣ Strategic planning for evidence-based care targets



EQUIP Team

VISN 3

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Bruce Levine, MD
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Amy Look

VISN 16

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Kathy Henderson, MD
Vance Hamilton, MD
Deborah Mullins, PhD
Avila Steele, PhD
Christy Gamez-Galka, PhD
Ethel Williams, RN

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VISN 17

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Wendell Jones, MD, MBA
Paul Hicks, MD
Staley Justice, MSW
Sherry Fairchild, PhD
Kathryn McNair, RN

Los Angeles MIRECC (Coordinating Site)

Alexander S. Young, MD, MSHS (PI)
Fiona Whelan, MS
Youlim Choi

Amy N. Cohen, PhD (co-PI)
Alison Hamilton, PhD, MPH
Paul Jung

EQUIP Design (continued)

- Intervention: implement chronic illness care model to increase use of evidence-based practices for individuals with schizophrenia; use evidence-based quality improvement to support moving research into practice
 - Weight services ✓
 - Supported Employment
- Control: usual care

- Quantitative Assessments:
 - Patients and Providers: 0, 7, 15 months
- Qualitative Assessments:
 - Patients: 15 months only
 - Providers: 0, 7, 15 months

Obesity is a Serious Problem in People with Schizophrenia

- Weight gain is the most common medication side-effect; up to 10 lbs/month
- People with schizophrenia
 - ▣ die 11-17 years prematurely
 - ▣ mostly due to cardiovascular disease and cancer
 - ▣ have not benefitted from improvements seen in general population over past decades
- Potential interventions
 - ▣ change to different antipsychotic medication
 - ▣ augment with a weight loss medication
 - ▣ provide a psychosocial intervention for weight

Evidence for Psychosocial Weight Management

- Reviews and meta-analyses indicate there are effective psychosocial interventions specifically designed for individuals with schizophrenia
- 7 RCTs indicated:
 - ▣ intervention > control
 - ▣ individual or group format
 - ▣ 3-6 months
 - ▣ modest weight loss; mean = 6 pounds
 - ▣ modest weight loss has been associated with health benefits

Alvarez-Jimenez M, Hetrick SE, Gonzalez-Blanch C, et al., (2008). Non-pharmacological management of antipsychotic-induced weight gain: Systematic review and meta-analysis of randomised controlled trials. *British Journal of Psychiatry*, 193: 101-107.

Schizophrenia PORT Guidelines 2009



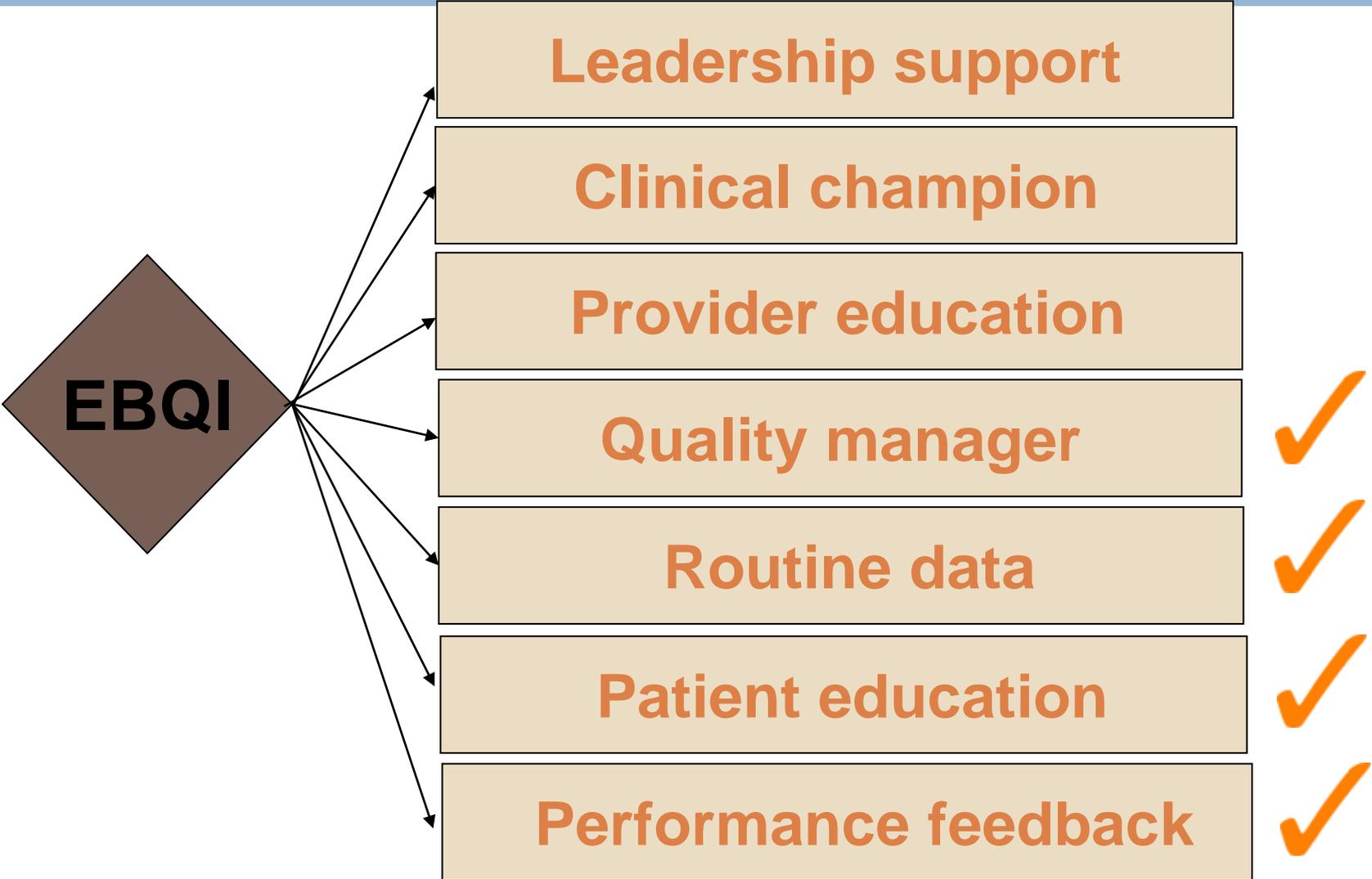
Individuals with schizophrenia who are overweight or obese should be offered a psychosocial intervention for weight

Evidence-Based Quality Improvement (EBQI)

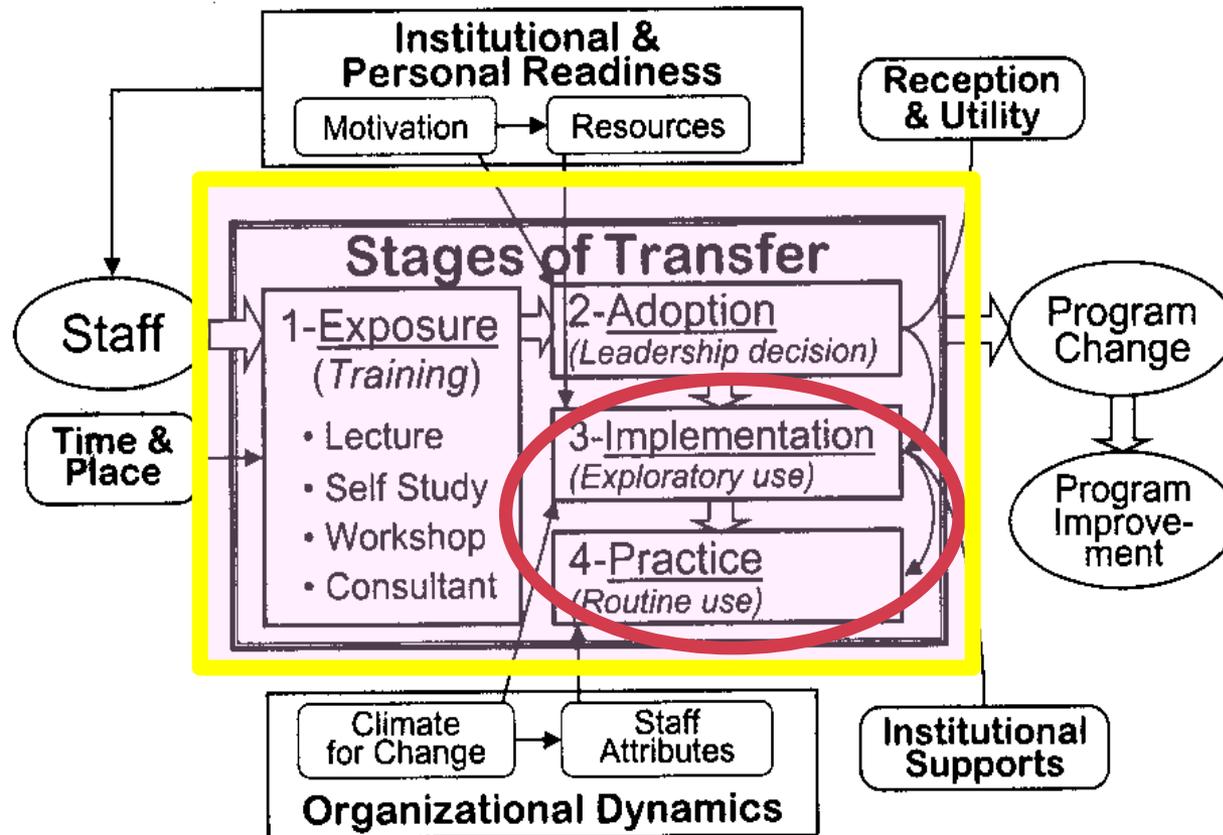
- Structured form of Continuous Quality Improvement that,
 - 1) incorporates a research/clinical partnership
 - 2) uses top-down and bottom-up features to engage organizational senior leaders and quality improvement teams in adapting and implementing improvements
 - 3) focuses on prior research evidence regarding clinical guidelines for treatment, previously validated care models, and provider behavior change methods that promote adherence to appropriate treatment

GOAL: translation of research on care delivery models into routine practice

Evidence-Based Quality Improvement (EBQI)



Simpson Transfer Model



Implementation Phase Strategies and Tools

- Routine assessment of patients
- Education (Patient and Provider)

- Quality manager (Nurse)
- Care Management software

- Routine provider feedback (patient-level data); Clinical Champions for support/education
- Routine manager/administrator feedback (clinic-level data)
- Local EBQI teams (led by Local Recovery Coordinator)

Routine Assessment of Patient Needs and Preferences

Patient Assessment System (PAS)



- ❑ Kiosk in waiting room for patients' use at every visit
- ❑ Touchscreen, headphones, color printer, scale



Patient Assessment System (PAS)

Patient Assessment System

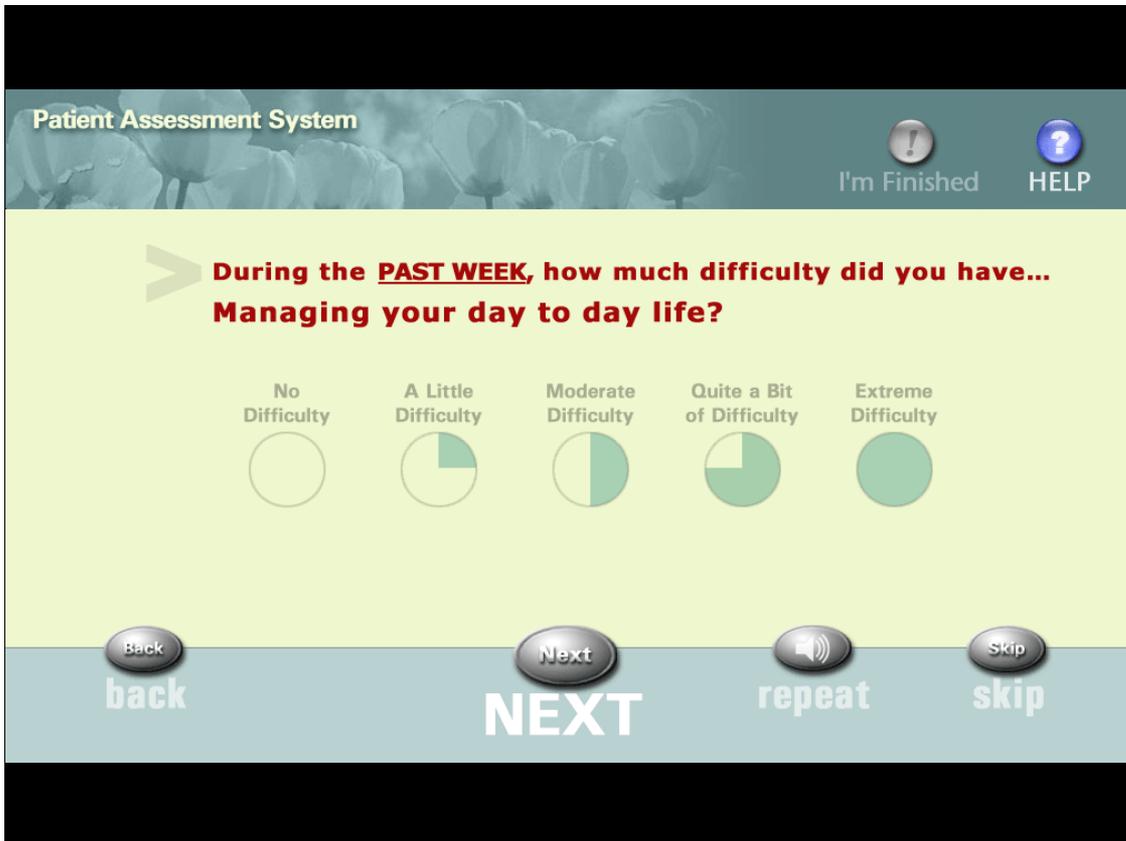
I'm Finished HELP

> During the **PAST WEEK**, how much difficulty did you have...
Managing your day to day life?

No Difficulty A Little Difficulty Moderate Difficulty Quite a Bit of Difficulty Extreme Difficulty

back Next repeat skip

NEXT



- Audio, computer assisted self-interviewing

Kiosk Summary Report

Patient Assessment System Summary Report

Results from today's assessment for M.C. (4/11/2007)



Taking your medications.

You have reported that you take your medications half the time or less.

What you can do

- Talk with your doctor about the reasons you are missing your doses
- Ask your doctor about strategies that could help you take all of your medications
- Talk with other veterans with a similar illness about medication treatment
- Talk with a family member about medication treatment

Your weight

Your Body Mass Index (BMI) is 27.62. That means, for your height, you are overweight. Medications you are taking for your illness could be making this worse.

What you can do

- Talk to your doctor about switching to medications that don't have weight gain side effects.
- Talk to your doctor about a referral to your local wellness program. That program can help you lower your BMI by helping you to eat a balanced diet and get enough exercise.

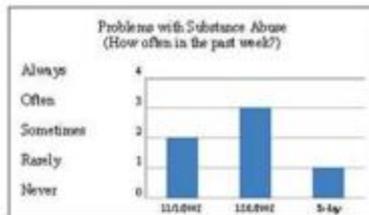
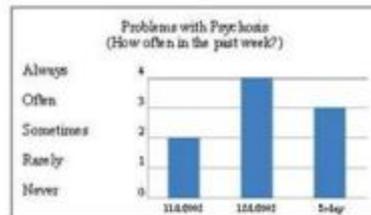
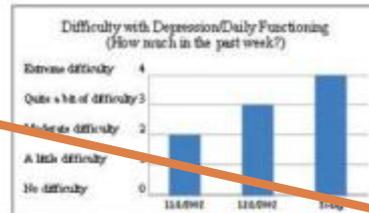
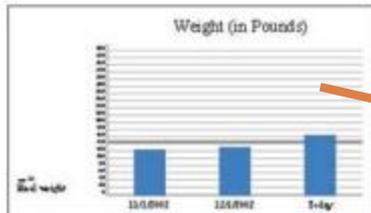
Working for pay

You have reported that you are getting help with looking for a job from the VA, called supported employment.

Supported employment attendance

You may be missing some supported employment sessions that could help you get a job. Talk to your doctor about what might help you attend more supported employment sessions.

How you are doing with.....



Weight Status (education)

Overweight, and describes risks due to this

What you can do (advocacy)

You should discuss with your doctor about changing medication and/or referral to wellness program

Weight tracking (self-monitoring)

Weight now and at last 2 appointments + ideal weight indicated

Routine Education of Patients

Fast Facts
FOR PATIENTS & FAMILIES

WEIGHT MATTERS: Helping you control weight gain

How can I tell if I'm overweight?

☑ Determine your Body Mass Index (BMI).



Use the BMI table on the next page. Follow the instructions, using your height and

weight to figure your BMI. People with a BMI between 19 and 22 live the longest.

☑ Measure your waist.

A woman whose waist is more than 35 inches is considered overweight.



A man whose waist is more than 40 inches is considered overweight.

A BMI of...	is considered...
Less than 25	Normal Weight
25 to 29.9	Overweight
More than 30	Obese

Why should I be concerned about weight gain?

Weight gain is a side effect of certain antipsychotic medications. Being overweight increases your risk for other medical conditions:

- ☑ Poor sleep
- ☑ High blood pressure
- ☑ Diabetes
- ☑ Heart Attack
- ☑ Stroke
- ☑ Arthritis
- ☑ Cancer

What can I do if I'm overweight?

- ☑ Talk to your clinician about your weight.
- ☑ Weigh yourself once a week.
- ☑ Ask your doctor if your medications are affecting your weight.
- ☑ Change your diet.
- ☑ Eat smaller food portions.
- ☑ Ask your clinician for a referral to our Wellness Program.



WEIGHT MATTERS: Helping you control weight gain

Body Mass Index Table

Body Mass Index (BMI) is a number calculated from a person's weight and height. The higher a person's BMI, the higher the percentage of fat in his/her body. BMI is used to screen for weight categories that may lead to health problems.

To figure out your BMI, in the left column labeled "Height (Feet & Inches)," find the row with your height. Then move to the right in that row until you find your "Weight (Pounds)." The number at the top of that column, in the top-most row labeled "BMI," is your Body Mass Index. For example, if you are 5'6" and weigh 192 pounds, you would find 5'6" in the left column, move to the right across the table to the column with "192." Moving up that column in the red area to the top row, you will find a BMI of 31.

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	BMI
4'10"	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196
4'11"	84	89	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193
5'0"	87	92	97	102	107	112	117	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199
5'1"	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	216
5'2"	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	223
5'3"	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	230
5'4"	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238
5'5"	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246
5'6"	118	124	130	136	142	148	155	161	167	173	179	185	192	198	204	210	216	222	228	235	241	247	253
5'7"	123	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261
5'8"	125	131	138	144	151	158	164	171	177	184	190	197	204	210	216	223	230	236	243	249	256	262	268
5'9"	128	136	142	149	155	162	169	176	182	189	196	203	210	216	223	230	236	243	250	257	263	270	276
5'10"	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	284
5'11"	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293
6'0"	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	301
6'1"	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	303	311
6'2"	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319
6'3"	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327
6'4"	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336
	HEALTHY WEIGHT						OVERWEIGHT						OBESE										

Make healthy food choices and know your portion size.



One portion of...	Serving size of...	Is about the size of...
Meat	3 ounces cooked	A deck of cards
Cheese	1 ounce	A pair of dice
Potato	1/2 cup	An ice cream scoop
Bread	1 slice	Half a bagel, half an English muffin, half a hamburger or hotdog bun
Cereal	1 ounce	1/2 to 1 cup depending on the type of cereal
Rice or pasta	1/2 cup cooked	A very small bowl in which side dishes are served at a cafeteria
Salad dressing or gravy	2 tablespoons	Half a ladle of dressing at a salad bar
Fruits and vegetables	1/2 cup chopped, cooked or canned	A very small bowl in which side dishes are served at a cafeteria
	1 piece	A medium apple or orange
Juice (fruit or vegetable)	3/4 cup	A small juice glass



EQIP: Enhancing Quality of care in Psychosis

- National HSR&D Quality Enhancement Research Initiative
- Joins with VA leadership to transform care for individuals with schizophrenia

Department of Veterans Affairs
Long Beach VA

For more information—
Yukie Hirabayashi, MA
VIGN Coordinator
(562) 826-8000 x4198
Cliff Widmark, MD
Principal Investigator
(562) 826-8000 x4318

Education of Providers

By local experts and opinion leaders

Fast Facts
FOR VA CLINICIANS

WEIGHT MATTERS:

A Guide to Controlling Patient Weight Gain

Enhancing Quality of care In Psychosis



Long Beach VA

For more information—

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A collaborative project:

- James J. Peters VAMC
- Long Beach VA Healthcare System
- Michael E. DeBakey VAMC
- Northport VAMC
- Clin E. Teague Veterans' Center
- Overton Brooks VAMC
- Southern Nevada VA Healthcare System
- Waco VAMC
- UCLA Health Services Research Center
- Los Angeles VA Mental Illness Research, Education and Clinical Center



What indicates a patient may need help with weight management?

- ✓Elevated BMI **or**
 - A BMI of 30 or higher, or a BMI of 27 -29 *plus* additional risk factors:
 - Smoking
 - Hypertension
 - High LDL or low HDL
 - Diabetes
- ✓Waist circumference (at iliac crest) **or**
 - Women with waist size > 35 inches
 - Men with waist size > 40 inches
- ✓Recent weight gain of 5 pounds



What should I tell the patient?

- ✓Being overweight is associated with health risks including: hypertension, diabetes, coronary heart disease, stroke, congestive heart failure, osteoarthritis, sleep apnea, and colon, breast and endometrial cancers.
- ✓Losing weight improves health and prevents disease.
- ✓Losing weight will require changes to your diet and exercise routine. The clinic has a 16-session group that will help you make and maintain these changes.

What are treatment options for the patient?

- ✓Change the patient to an antipsychotic that causes less weight gain.
- ✓Order labs (or confirm they have been completed within the past 3 months):
 - Lipid panel: cholesterol, LDL, HDL, triglycerides
 - Hemoglobin A1c or fasting glucose
- ✓Initiate appropriate medical care for any hyperlipidemia or hyperglycemia.
- ✓Refer the patient to our Wellness Program by contacting your VISN Coordinator.

Impact of Medication on Weight & Health

Medication	↑Weight	↑Lipids	↑Glucose
Olanzapine	+++	++	++
Quetiapine	++	+	+
Risperidone	++	+	+
Aripiprazole	-/+	-	-
Ziprasidone	-/+	-	-

EQUIP: Enhancing Quality of care In Psychosis

- National HSR&D Quality Enhancement Research Initiative
- Joins with VA leadership to improve care for individuals with schizophrenia
- National Principal Investigators: Alexander Young, MD, MSHS, and Amy Cohen, PhD, Greater Los Angeles VA

Routine Data and Monitoring for Quality Managers and Providers

SSN : None PAS ▶ Patient ▶ Report ▶ Special ▶ Logout



CASELOAD TRACKING REPORT

Records Found : 79, Displayed : 19, Per Page : , Page : of 3

Active Patient Report for : Amelia Bowman

Report Created on : Wednesday, October 22, 2008, 10:20AM

SSN ▲	NAME	CASE MANAGER	PSYCHIATRIST	# OF CARE PLANS	MOST RECENT CARE PLAN	MOST RECENT PAS			NEXT APPOINTMENT
						DATE	WEIGHT ISSUE	WORK ISSUE	
B1234	Brown, James	Rebecca Shoai	Alex Young	0		5/13/2008			
C1111	Chinman, Matthew	Rebecca Shoai	Alex Young	0		10/20/2008			
D1111	Doe, Jane	Jennifer Pope	Alex Young	0		3/10/2008	✓	✓	
D5678	Doe, John	Jennifer Pope	Alex Young	0		6/23/2008	✓		
H5678	Hamilton, Alison	Rebecca Shoai	Alex Young	0		9/23/2008		✓	
K3333	Kayman, Deborah	Jennifer Pope	Alex Young	0		3/19/2008	✓		
L9876	Look, Amy	Rebecca Shoai	Alex Young	0		9/17/2008		✓	
O2222	Oksas, Katy	Jennifer Pope	Alex Young	0		7/9/2008			

Routine Data and Monitoring for Managers and Administrators

Intervention Status

Date: 1/30/2009

VISN: A

Weight	Number of Patients	%
Overweight or gaining weight	65	
Prescribed olanzapine	18	28%
Prescribed risperidone or quetiapine	31	48%
Referred to wellness group	40	62%
Going regularly to wellness	18	28%

Benchmark Status

Date: 1/30/2009

VISN: A

Patients receiving a psychosocial intervention for weight / Overweight patients	%
Other Site	34%
Other Site	9%
Other Site	33%
YOUR SITE	28%

Care Reorganization

Developed new care flow diagram that included

- weighing of each patient at each visit (scale at kiosk)
- immediate information on weight for this session and last 2 sessions
(Summary Report, care management tracking)
- routinized referral to weight program
- routinized feedback on progress towards goals
(Summary Report, care management tracking)

Care Reorganization (continued)

- Trained staff to lead evidence-based weight management program (16 sessions)
- Freed up staff time to deliver program
- Identified room large enough for groups
- Identified other weight and exercise programs that exist at the medical center

Practice Phase

Strategies and Tools

- Kiosk maintenance; routine use
- Routine education to providers
- Monthly Quality Meeting/Quality Reports; support
- Continue tailoring from formative evaluation data and provider and leader input
- Continue local EBQI teams; Practice-Do-Study-Act (PDSA) cycles

Sustainability Phase

Strategies and Tools

- Kiosk integrated into regular care
- Education to new hires; new patients
- Quality Meetings/Quality Reports; support
- Local EBQI teams integrated into system

WEIGHT OUTCOMES



Patient Characteristics

- N=571 eligible for weight services
 - ▣ N=801 patients with schizophrenia
- Average age = 54
- 91% male
- 45% white; 46% African-American
- 68% HS or some college
- 44% were overweight; 56% were obese
- Weight service utilization in year prior to baseline:
 - ▣ Average 3 appointments (SD=4.5)
 - ▣ Rate of having at least one appointment in previous year is comparable at intervention (13%) and control sites (18%) ($p>0.05$)

Having a Weight Management Visit

- Intervention status (intervention vs control) was a significant predictor of having a weight management visit ($\chi^2=10.5$, $p<0.01$) after controlling for demographics and weight category (overweight or obese)
- Overweight individuals at intervention sites 2.3 times more likely than controls to have a weight service appointment

 **Individuals receiving intervention more likely to use weight services**

Time to First Weight Management Visit

- Intervention status was a significant predictor of the number of days to the first weight management visit ($t=2.0$, $p=0.05$) after controlling for demographics and weight category
 - ▣ Individuals at control sites averaged 136 days (SE=17)
 - ▣ Individuals at intervention sites averaged 98 days (SE=15)
- ✓ **Individuals receiving intervention start to use services 5 weeks sooner**

Number of Weight Management Visits

- Intervention status was a significant predictor of the number of weight management visits ($t=-4.6$, $p<0.01$) after controlling for demographics and weight category
 - Control sites: pre=4 visits; post=4 visits
 - Intervention sites: pre=3 visits; post=12 visits
- ✓ **Individuals receiving intervention continue to use the services 3 times more than controls**

Weight Management

- Control group was, on average, 13.4 +/- 7.6 lbs heavier than the intervention group at the end of the study year (F=4.83, p=0.03)

✓ **Individuals receiving intervention maintained weight; stopped gaining**

Acceptability of the Kiosks

Patients:

- 76% reported they enjoyed using the kiosk
 - ▣ “Sitting at the computer was one of the highlights of the project.”
- 71% reported they like getting the Summary Report
 - ▣ “It helped me see my progress in black and white.”
- Noted that kiosk questions promoted self-reflection
 - ▣ “It kept me in check with myself.”
 - ▣ “It helped me connect the dots.”

Providers:

- “The availability of the computer has made it easy for [patients] to monitor how they’re doing with [their weight].”
- “We weren’t doing a bad job before, but now we are doing an enhanced job.”
- Another commented that giving data to clinicians was essential.

Conclusions

- This is the largest QI effort in VA specialty mental health to date. Working in a partnered way was critical to the success of this study.
- Evidence-based quality improvement, including integration of routine data from patient-facing kiosks, resulted in timelier and greater utilization of services and improved patient outcomes.
- The kiosks were central to the care reorganization; were feasible in usual care clinics and acceptable to both patients with schizophrenia and their providers.

Key Questions and the Answers

- How can we work in a partnered way?
- Can care in specialty mental health be improved?
- What is the role of data in quality improvement?
- How do we get those data and from whom?

What's next for patient-facing kiosks?



- Front end interface for the VA Mental Health package
- Delivery of evidence-based care (weight management services)
- Gather and rank patient treatment preferences

- Funding Support

- VA HSR&D QUERI (MNT 03-213)
- VA Desert Pacific Mental Illness Research, Education and Clinical Program (MIRECC)
- VA HSR&D Center of Excellence for the Study of Healthcare Provider Behavior

- For further information

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- MIRECC, West Los Angeles VA Healthcare Center,
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References

- Chinman M, Young AS, Schell T, Hassell J, Mintz J: Computer-assisted self-assessment in persons with severe mental illness. Journal of Clinical Psychiatry. 2004; 65: 1343-1351.
- Chinman M, Hassell J, Magnabosco J, Nowlin-Finch N, Marusak S, Young AS: The feasibility of computerized patient self-assessment at mental health clinics. Administration and Policy in Mental Health. 2007; 34: 401-9.
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