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Population Management for Co-Occurring Diabetes and Mental Illness
Implementing a Registry to Increase Adherence to Diabetes Standards of Care
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About the Speaker
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Jessica A. Jonikas is Associate Director of the University of Illinois at Chicago (UIC) Center on Mental Health Services Research and Policy, as well as a Research Specialist in Health Systems Research for the UIC Department of Psychiatry. Ms. Jonikas is co-investigator or program director on multiple projects to promote health and self-determination for people with psychiatric disabilities, as well as evidence-based practice and research translation in public mental health settings. For over two decades, she has been involved in preparing and mentoring the behavioral health workforce. She is senior author or co-author on dozens of influential research articles, training materials, and other educational resources on recovery-oriented models of care.
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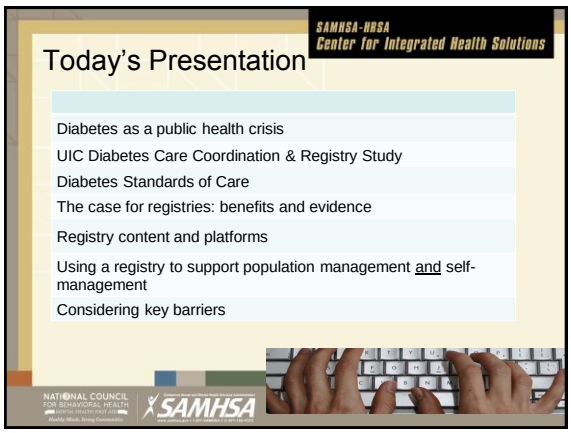
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Today's Presentation
Diabetes as a public health crisis
UIC Diabetes Care Coordination & Registry Study
Diabetes Standards of Care
The case for registries: benefits and evidence
Registry content and platforms
Using a registry to support population management and self-management
Considering key barriers
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A Public Health Crisis

People in recovery have a higher prevalence of diabetes:

- **lifestyle factors**
- **psychiatric medications that cause blood sugar disorders**
- **complicated illness**
  - doctors & patients often unsure of what's behind poorly controlled glucose

People with diabetes are at-risk for developing:

- **Hypertension**
- **Hyperlipidemia**
- **Heart disease**
- **Kidney disease**
- **Gum disease/loss of teeth**
- **Nerve damage/loss of feet**
- **Eye disease/becoming blind**
- **Costs are 2.4 times greater; nearly 40% of costs due to long-term complications!**

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Use of a Registry to Manage Care for Diabetes in Integrated Health Clinics for Adults with Serious Mental Illnesses

Judith A. Cook, PhD, Principal Investigator

Introduce a diabetes registry to:

1. **Improve care delivery**
   - full adherence to ADA standards of care
   - develop new treatment & service resources
2. **Enrich care coordination**
   - link clients to needed specialty care in accordance with ADA standards
   - teach clients about diabetes and its complications
   - introduce new client engagement activities
3. **Better monitor health indicators and outcomes over time**

American Diabetes Association.

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ADA Standards of Care for Diabetes - click box for related education

STANDARD OF CARE	WHAT IS THIS? WHY IS IT IMPORTANT?	HOW OFTEN SHOULD THIS BE DONE?	ADA RECOMMENDATIONS OR TREATMENT GOALS
HBA1-C TESTING	This test shows the average amount of glucose in the blood over the last 2–3 months and indicates if a person's diabetes is under control.	Test HbA1c every 6 months if the patient is in good control and at least twice a year.	The recommended level is < 7.0% when appropriate for the patient.
LDL-C TESTING OR A LIPID PANEL	Keeping low density lipid cholesterol (LDL-C) under control is recommended to decrease the incidence of heart attack and stroke. Completion of this test is the most often used indicator of quality care for persons with diabetes.	LDL-C testing should be done annually. While a fasting lipid profile is the preferred way to test a LDL-C, non-fasting direct measurement of LDL-C can be performed to determine if treatment for hyperlipidemia is required.	The LDL cholesterol goal is < 100 mg/dL.
BLOOD PRESSURE & CONTROL OF BP	High blood pressure leads to strokes, kidney and heart damage.	Blood pressure should be checked at every visit.	Control hyper tension with ACE/ARB and/or other medication as appropriate Treat to a blood pressure of < 130/80 mmHg.
SCREENING FOR KIDNEY DISEASE OR NEPHROPATHY	Several interventions can reduce the risk and slow the progression of renal disease for people who have diabetes.	Perform an annual test to assess urine albumin excretion in type 1 DM patients with a duration of 5 years of diabetes and in all ty pe 2 DM patients. Use the urine dipstick test for screening for microalbuminuria (A:CR) is recommended, if appropriate. Measure serum creatinine (eGFR) at least annually in all adults with diabetes.	Treatment with ACE inhibitors or ARBs should be used in the non-pregnant patient with micro or macroalbuminuria. Referral to a nephrologist may be indicated when nephropathy is present.
DILATED RETINAL EYE EXAM	A dilated eye exam can detect early disease, which allows early treatment which is important in an effort to prevent blindness.	A dilated retinal eye exam should be done on an annual basis.	Refer patients with diabetes to an optometrist or ophthalmologist every year or perform dilated retinal exams in your office.
TESTING FOR NEUROPATHY & FOOT EXAMINATIONS	Persons with diabetes may lose sensation in their feet and not notice a potential problem. Teaching self-foot inspection and care allows early treatment of problems. Diabetes can also damage the autonomic nerves, a condition called diabetic autonomic neuropathy (DAN)	For all patients with diabetes; perform an annual comprehensive foot examination to identify risk factors for ulcers or amputations. Have the patient remove their socks and shoes at each visit, so a quick foot exam can be completed. Assessment for DAN should also be performed	A foot exam should include inspection, assessment of foot pulses and testing for loss of protective sensation with a 10-g monofilament, a tuning fork or by pinprick sensation (DPN). Testing of ankle reflexes should also be performed. Refer to podiatry as needed.
HEALTH MAINTENANCE OR WELLNESS EXAM	Preventive health care is the cornerstone of prevention of diabetes complications.	Provide preventive health care at ever y visit as needed. Check to see if y our patient needs testing at each visit.	A n annual health maintenance exa m is recommended, as well as continuing medical care for diabetes.
IMMUNIZATIONS	Influenza, Pneumococcal and Hepatitis B vaccines prevent life threatening illnesses in persons with diabetes.	Check vaccine status at every visit, and reach out to patients to get an annual flu shot before the flu season. A dminister Pneumococcal vaccines and a Hepatitis B series as indicated.	Provide annual flu vaccine for diabetic patients ~ 6 months old. One lifetime pneumococcal vaccine with revaccination at 65 y ears old if last vaccine was > 5 y ears ago. Complete a Hepatitis B series for all < 60 years old or at provider's discretion if > 60 y ears old.
TESTING FOR PERIDONTAL DISEASE	The relationship between serious gum disease and diabetes is a two-way street. Not only are people with diabetes more susceptible to serious gum disease, but serious gum disease may affect blood glucose control and contribute to the progression of diabetes.	An annual comprehensive assessment, and treatment of identified periodontal disease, is indicated in patients with diabetes.	Refer patients with diabetes to a dentist for a comprehensive periodontal examination and follow-up care.

Adapted from MDwise.org https://mdwise.org/hoosierhealthwise/providers/docs/hedis/diabetes-toolkit.pdf

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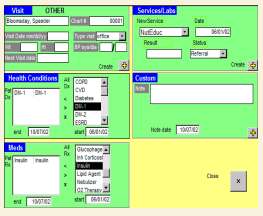
Why Registries for Standards of Care?

- One electronic database contains data from multiple sources to inform complex disease processes
- Quickly focuses effort on better managing chronic disease at population level
- Can be used by multiple parties (clinicians, patients, administrators) to facilitate care delivery while meeting care standards



(Ortiz, 2006)

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Registries and Patient-Centered Care

- Allows clients to see their test results related to 1 or more conditions all in one place
- Permits clients to share current results with specialists and other providers for safer/better care coordination and outcomes
- Helps clients track their own results over time, assess personal improvements, and identify areas of concern
- Enables clients to compare their test results and health outcomes with those of peers or the general population

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Why Registries for Care Coordination?

- Allows for identification and monitoring of clients with a specific need within a clinic or across clinics
- Fosters individual disease management through notifications of abnormal test results, missed appointments, and up-to-date information on client encounters
- Puts the focus on the needs and progress of high-risk clients to manage limited resources (client & clinic)
- Promotes use of evidence-based and values-driven care
- Facilitates health outcomes management at both the individual and clinic levels

(Hummel, 2000)

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"A physician who opens the chart may see that the patient's blood sugar is up. But that doesn't tell the clinician that out of 200 patients with diabetes, 10 are out of control."

Iowa Department of Public Health
Disease Registry Issue Brief, 2010

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"Rapid improvement in any field requires measuring results… Teams improve and excel by tracking progress over time and comparing their performance to that of peers inside and outside their organization. Indeed, rigorous measurement of value (outcomes and costs) is perhaps the single most important step in improving health care. Wherever we see systematic measurement of results in health care - no matter what the country - we see those results improve.

Yet the reality is that the great majority of health care providers fail to track either outcomes or costs by medical condition for individual patients."

Porter & Lee, 2013
Harvard Business Review

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Okay, but why not just use an Electronic Health Record?

- ❑ Most EHRs are not built to function as registries, so can't support population-based care
- ❑ It can take years (if ever) for system-wide reporting from an EHR
- ❑ A registry is relatively easy and inexpensive
  - Can have nearly immediate impact on clinic practice and client engagement & outcomes
- ❑ It can be instructive to learn population-based care parameters prior to implementing an EHR via a registry
  - Allows you to design EHR processes to support needs identified by registry use

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Content adapted from: www.powershow.com/view/21d14-MzEyZ/Using_Excel_for_a_HgA1c_Registry_powerpoint_ppt_presentation

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Comparing the Options

Disease Registry	EHR
1. Inexpensive	1. Costly
2. Easier to implement	2. Harder to implement
3. Focuses effort on specific medical needs/risks	3. Can mimic flawed care processes
4. Engages the client	4. Little client involvement
5. Promotes standard of care & coordination	5. Broader QI harder to implement
6. Low risk	6. High risk
7. Can be extended to other medical conditions	7. Often a poor registry for medical conditions

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Population Studies using a Diabetes Registry

Improving Diabetes Care in a Large Health Care System: An Enhanced Primary Care Approach
Sperl-Hillen, et al. (2000). Joint Commission Journal on Quality and Patient Safety.
Improved glycemic and lipid control among approximately 7,000 adults with diabetes.

The Impact of Planned Care and a Diabetes Electronic Management System on Community-Based Diabetes Care: The Mayo Health System Diabetes Translation Project
Montori et al. (2002). Diabetes Care.
Registry use augmented the impact of planned care on performance outcomes (increased use of specialty medical care) and certain metabolic outcomes. Did not impact glucose levels.

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Diabetes Registries: Across Clinics

Improving Diabetes Outcomes Using a Web-Based Registry and Interactive Education: A Multisite Collaborative Approach Morrow, R. et al., (2013). Journal of Continuing Education in the Health Professions

- Electronic diabetes registry in 7 clinics in NY
- With educational module on the registry and patient communication

Patients were:

- 1.4 times more likely to have A1C ≤ 9
- Almost twice as likely to have LDL < 100
- 1.3 times more likely to have BP < 140/90

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Diabetes Registries: At the Clinic Level

Impact of a Diabetes Electronic Management System on Patient Care in a Community Clinic
East, J. (2003). American Journal of Medical Quality

- 82 patients at a community clinic (managed in a registry) compared to 63 patients in same practice group (outside of the registry).
- Significant increases in percentage of registry patients receiving evidenced-based care. None observed in comparison group.
  - ⇧ serum creatinine, lipid, and hemoglobin A1C tests
  - ⇧ foot and retinal examinations
  - ⇧ patient establishment of self-management goals

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Diabetes Registries: Clinic Level (cont.)

East, 2003:

- ❑ Overall completion of evidence-based care processes increased by 26% in the intervention group
  - ➢ 3% of the time in the comparison group
- ❑ Adherence to care standards occurred 82% of the time in the intervention group
  - ➢ 51% of the time in the comparison group

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What is in the typical diabetes registry?

- ✓ Client demographics
- ✓ Practice, clinic, other administrative identifiers
- ✓ Test results and dates
  Glucose, eye exam, foot exam, dental exam
- ✓ Out of range values and risk factors
  BMI, glucose, blood pressure, lipids, triglycerides, nicotine
- ✓ Medications
- ✓ Vaccinations
- ✓ Co-morbidities
- ✓ Color-coding feature to identify out-of-range values

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Take Note!

Plan to build in capability to update registry content as care standards change

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Electronic Data Collection Options

CDEMS
cdems.com
- Good, free program!
- Challenging to learn and implement
- Technical support no longer available

Doc Site
portal.covisint.com/web/supporthc/ccahc
- Annual per provider fee
- Web-based; easy to access
- Can role up nationally

CareMeasures
www.caremeasures.org/CareMeasures/public/Default.aspx
- Easy to use & customize
- Manages multiple conditions
- Must register & pay fees

Excel
http://www.aafp.org/fpm/2006/0400/p47.html
- Free software and template
- Easy to learn and implement
  - Storing only the most recent results
- Good for population management of single disease

Content adapted from: www.powershow.com/view/21d14-MzEyZ/Using_Excel_for_a_HgA1c_Registry_powerpoint_ppt_presentation

Diabetes Tracking Worksheet

NOTE: DO NOT COPY AND PASTE DATA FROM CELL TO CELL AS THIS MAY UNDO IMPORTANT FORMATTING.
KEY: A1c = hemoglobin A1c; DFE = dilated fundoscopic exam; BMP = basic metabolic panel; BP = blood pressure

Patient name	Sex	Date of birth	ID number	Prov ider	A1c	Date of last A1c	Date of last DFE	Date of last foot exam	Date of last BMP	LDL	Date of last lipids test	Sys BP	Dia BP	Date of last BP	Co-morbidities
Adams, F		03/14/56	111-11-1111	Ortiz	6.5	04-Mar-06	1-Apr-05	1-Mar-06	1-Mar-06	75	23-Nov-05	140	100	23-Nov-05	HTN, obesity
Baker, JM		10/05/70	222-22-2222	Ortiz	5.7	24-Feb-06	12-Dec-05	24-Feb-06	24-Feb-06	90	24-Feb-06	110	75	12-Dec-05	
Brown, cF		02/22/63	333-33-3333	Ortiz	6.3	23-Jan-06	24-Jul-05	23-Jan-06	23-Jan-06	103	23-Jan-06	105	85	23-Jan-06	HTN, Retinopath
Carter, JM		07/05/73	444-44-4444	Ortiz	7.8	16-Feb-06	20-Mar-05	16-Feb-06	12-Nov-05	98	12-Nov-05	131	75	16-Feb-06	
Doe, JarF		08/06/66	555-55-5555	Ortiz	6.8	24-Oct-05	21-Jul-05	24-Oct-05	24-Oct-05	88	24-Oct-05	120	80	24-Oct-05	
Douglas M		07/01/49	666-66-6666	Ortiz	7.5	6-Aug-05	2-Feb-05	9-Jan-06	9-Jan-06	87	9-Jan-06	130	80	9-Jan-06	HTN
Jones, JF		10/01/42	777-77-7777	Ortiz	6.2	19-Dec-05	16-May-05	19-Dec-05	19-Dec-05	99	19-Dec-05	128	77	19-Dec-05	
Lane, JcM		01/01/64	888-88-8888	Ortiz	6.4	31-Jan-06	31-Jan-06	31-Jan-06	31-Jan-06	67	31-Jan-06	115	80	31-Jan-06	
Smith, JF		07/31/38	999-99-9999	Ortiz	6	17-Dec-05	17-Dec-05	17-Dec-05	17-Dec-05	100	17-Dec-05	130	80	17-Dec-05	
White, JM		02/28/53	000-00-0000	Ortiz	7	29-Dec-05	18-May-05	29-Dec-05	29-Dec-05	76	29-Dec-05	120	75	29-Dec-05	

www.aafp.org/fpm/2006/0400/p47.html

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Population Management via Reports

Client Last Name	Client Birthdate	Provider	Value of most recent A1C	Date of most recent A1C
Ryan	03/31/40		9.8	09/05/2013
Bell	05/25/72		8.9	02/18/2012
Cruz	06/16/60		7.8	06/17/2012
Smith	01/15/65		7.1	08/15/2013
Ramirez	05/24/61		6.5	08/01/2012
Jordan	09/12/60		6.5	09/12/2012
Stock	10/10/80		6.2	07/13/2013
Blake	12/12/40		5.2	05/14/2013
Bergman	11/12/61		5.0	05/05/2013

Sort by test value to determine who is most at risk

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Care Coordination via Reports

Client Last Name	Client Birthdate	Provider	Date of most recent eye exam
Bell	05/25/72		11/11/2011
Cruz	06/16/60		06/10/2012
Ramirez	05/24/61		04/15/2012
Jordan	09/12/60		02/17/2012
Smith	01/15/65		09/05/2012
Ryan	03/31/40		09/15/2012
Stock	10/10/80		04/13/2013
Bergman	11/12/61		03/05/2013
Blake	12/12/40		02/14/2013

Sort by test date to determine who is overdue and needs care coordination

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Care Coordination via a Birthday Letter

Registry information used to generate personalized letters for patients with concerning values.
Here's an example from a VA in OH of reaching out to patients on cholesterol results.
Underlined text is inserted using expert logic.

Cleveland VA **July 27, 2007**

Dear JOHN DOE,
Happy Birthday! Your VA health care providers want you to have many more!
We are sending you your latest diabetes test results because our VA records show that your **blood test for cholesterol is either too high, or needs to be rechecked**.

Your LDL-cholesterol (the 'bad' kind of cholesterol) should be less than 100 to protect you from stroke or heart attack. Even if your last test was good, you are due to have it checked again.

Your primary provider at the VA Lorain clinic would like you to call **L___ W___** to go over your results, set up a fasting blood test, or set up a visit.

Please call **(440) 244-3833 EXT 2247** to schedule. If you come for a clinic visit, please bring in all of your medication bottles, your blood glucose meter, and any glucose records if you have them. Thanks!

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Performance Management via Reports

Client Last Name	Client Birthdate	Provider	Value of most recent A1C	Date of most recent A1C
Ryan	03/31/40	Dr. S	9.8	09/05/2013
Smith	01/15/65	Dr. S	7.1	08/15/2013
Ramirez	05/24/61	Dr. S	6.5	08/01/2012
Jordan	09/12/60	Dr. S	6.5	09/12/2012
Bell	05/25/72	Dr. A	8.9	02/18/2012
Cruz	06/16/60	Dr. A	7.8	06/17/2012
Stock	10/10/80	Dr. A	6.2	07/13/2013
Blake	12/12/40	Dr. A	5.2	05/14/2013
Bergman	11/12/61	Dr. A	5.0	05/05/2013

Sort by provider then value to identify performance goals

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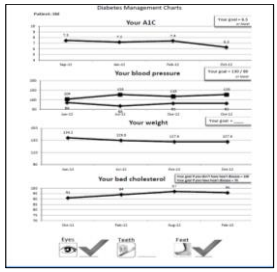
At our Center: Registry Reports for Self-Management



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Pros of Excel

Easy to learn

Good visual cues

Ease of data entry & data cleaning

System stability

Ability to interact with the data

Cons of Excel

Not automated: can be labor- and time-intensive (especially if tracking multiple values and dates)

Unwieldy for multiple diseases

- Single or different spreadsheets for multiple conditions?

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Getting Started

- ❑ Identify clients with diabetes
  - ~From clinic, billing, or lab systems
  - ~Lab systems have the advantage of giving test values and dates
- ❑ Set up registry in Excel
  - ~Pre-load one year's worth of data
  - ~Start small with just one indicator (e.g., A1c)
- ❑ Add data as indicators are checked, tests are performed, or referrals are arranged
  - ~Can write over any pre-existing data (save only the last value)

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Keep it Simple!

Monthly

- Sort Excel by patient then test results and date
- Give list of patients out-of-range and/or overdue for key tests to care coordinator and/or clinicians
- Send letters to patients (calls good too!)
  - Start with 5/month or by birthdays

Quarterly

- Sort Excel by provider, test values, and test dates
- Give to supervising clinician to address performance goals at provider and clinic level

As scheduled

- Meet with patients to give them personalized reports and review self-management goals

Content adapted from:
www.powershowom/view/21d14-MzEyZ/Using_Excel_for_a_HgA1c_Registry_powerpoint_ppt_presentation

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What are some key barriers?

- ✓ Shifting from reaction to prevention
- ✓ Moving from individual level to population-based care
- ✓ Getting multiple partners invested
- ✓ Time to load and maintain the spreadsheet or database
- ✓ Measuring performance can be threatening
- ✓ Just another fad?

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Learn about our registry study
www.cmhsrp.uic.edu/health/medical_home_registry.asp

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