Improving Evidence-Based Primary Care for Chronic Kidney Disease

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South Texas Ambulatory Research Network (STARNet)

Learning Objectives

- 1. be familiar with the clinical relevance of managing chronic kidney disease (CKD) in primary care;
- 2. recognize the importance of automated electronic reminders systems in the management of CKD; and
- 3. be aware of research initiatives by other electronically-linked PBRN's around the country.

Improving Evidence-Based Primary Care for Chronic Kidney Disease

- PI: Chet Fox MD
  - Upstate New York Research Network (UNYNet)
- Funding Agency: NIDDK
- Dates: 04/01/2012 - 03/30/2016

STARNet Research Priorities

- Diabetes
- Health Information Technology
- NIDDK
- AAFP NRN
- Academic Detailing (mentoring)

Background

- In the US, the prevalence of chronic kidney disease (CKD) is steadily increasing, causing sig. morbidity and mortality
- Evidence suggests that specific actions by primary care physicians can delay CKD and reduce mortality
- However, CKD is under-recognized and under-treated in primary care offices
- Clinical Decision Support (CDS) for CKD may promote effective, evidence-based care, but CDS alone may not be enough to improve quality of care
- Diabetes studies have shown improvement from a *combination* of CDS plus practice facilitation

Purpose

- The purpose of this EMR-enabled practice-based study is to conduct an intention-to-treat and process analysis between the Clinical Decision Support practices with facilitation, versus practices that only receive the Clinical Decision Support, with regard to
  1) CKD progression,
  2) all-cause mortality, and
  3) overall cost per quality-adjusted life year (QALY)

Methods

- The practice facilitation intervention is based on an effective approach to implement the Chronic Care Model
- Clinical Decision Support (CINA) plus having practice facilitators work with on-site teams led by physician champion
- In addition, each practice will be assigned an academic mentor and have routine audit and feedback of key elements of evidence-based chronic kidney disease care
- Compare Clinical Decision Support (CINA) practices with facilitation (Intervention) vs the CDS-only practices (control) on 1) CKD progression 2) all-cause mortality., and 3) overall cost per quality-adjusted life year

Duties, Control practices

- Free CKD treatment reference guide including Glomerular Filtration Rate (GFR) treatment chart
- Point-of-Care decision support by CINA based on analysis of practice electronic health record
- Give practice consent
- Keep CINA informed of any questions or concerns in regard to the Clinical Decision Support rec's
- Complete Human Subjects Training online course

Duties, Intervention Practices

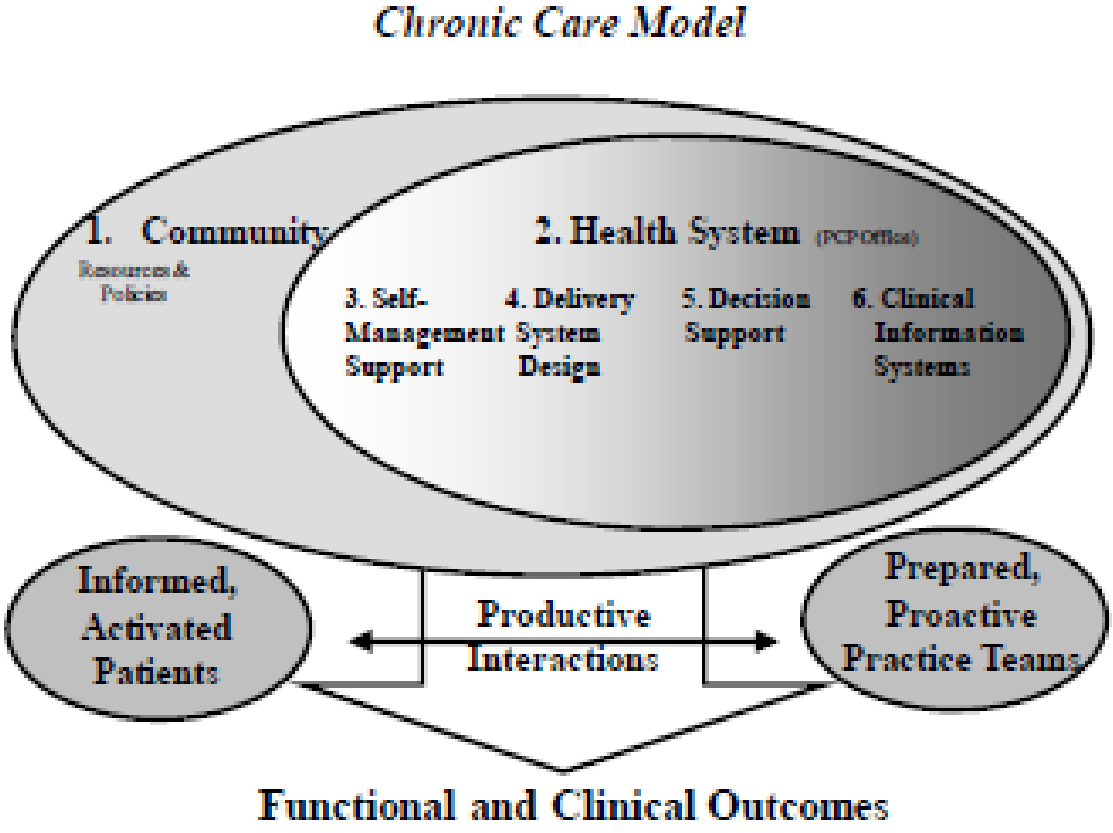
- Clinical Decision Support *plus* Practice Facilitation
- Point-of-Care decision support by CINA
- Videoconferencing with AAFP practice facilitators
- Academic Mentoring c PI (Chet Fox, Joe Vassaloti)
- Audit and feedback of patient-level outcome reports generated by CINA
- Case studies of CKD treatment improvements
- “Best-practice” shared with all facilitated-Clinical Decision Support sites

Timeline of Activities (Intervention practices)

- Practice Facilitation calls — monthly
- Academic Mentoring calls — monthly (prn)
- Audit Data Review — quarterly
- Performance Enhancement Report — semi-annually

Chronic Care Model

Figure 1. The Chronic Care Model



Clinical Informatics Collaborative (Project *CLIC*)

- Supplement to institution's CTSA grant
- Provided 2-year support to:
  - Recruit practices with compatible EMR's
  - Start-up costs for CINA implementation
  - Demonstrate feasibility thru 3 clinically relevant "data queries":
    - pediatric obesity
    - pre-diabetes
    - hypertension

3 Major Innovations

- 1) TRANSLATE: Adapting the TRANSLATE method for implementing the Chronic Care Model that was effective in diabetes care to CKD.

FULL TRANSLATE	PROVIDED BY
Target	CINA
Registry/Reminder	CINA
Administrative buy-in	Informed consent of practices
Network information systems	CINA
Site coordination	Practice Facilitation
Local Physician Champion	Practice Facilitation
Audit and Feedback	Practice Facilitation
Team approach	Practice Facilitation
Education	Practice Facilitation

TRANSLATE elements used in all participating practices:

- Target (e.g., BP <130/80, HbA1c < 7.0, LDL< 100, use ACE inhibitor or Angiotensin II Receptor Blocker (ARB), refer to nephrologist for GFR < 30, smoking cessation, avoid NSAIDS or COX-2 inhibitors
- Registry, reminder
- Administrative buy-in
- Network information systems

TRANSLATE elements used in facilitated practices:

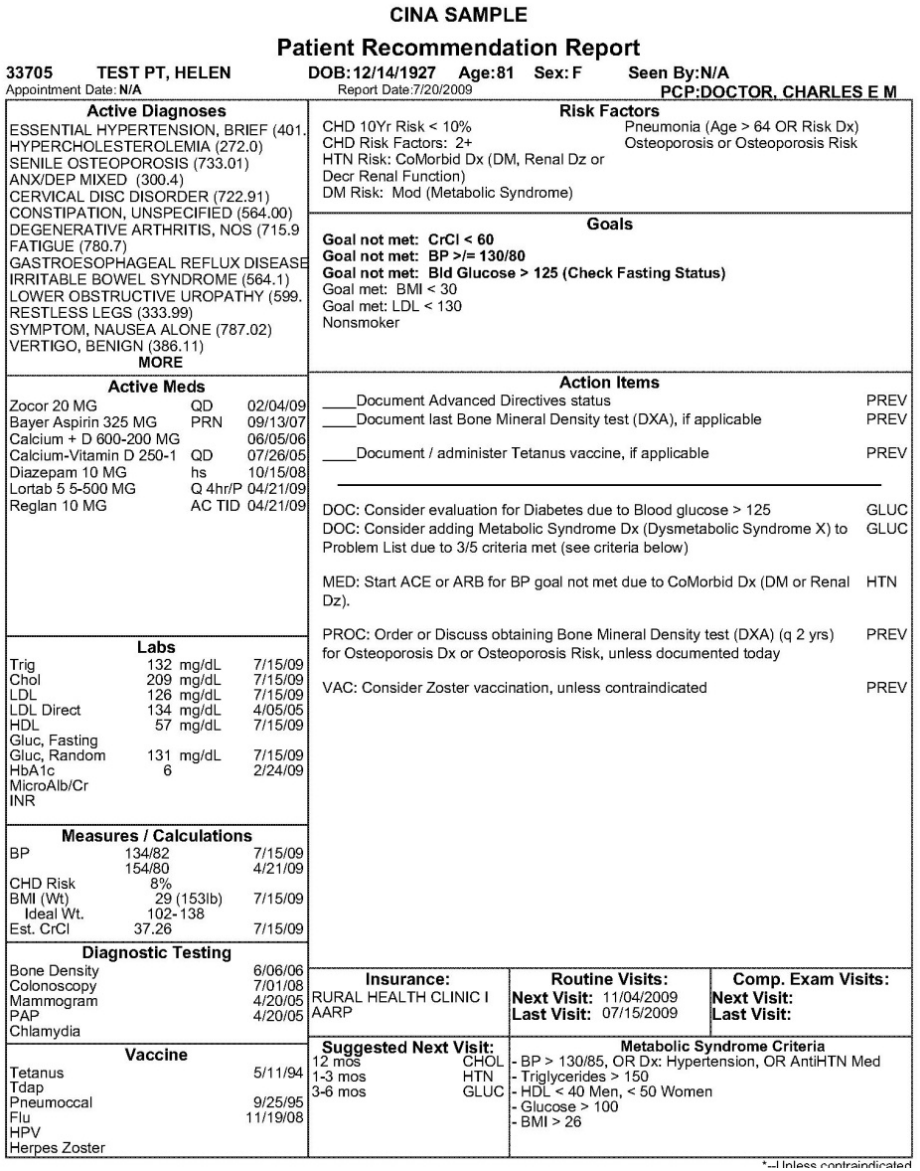
- Site coordination
- Local MD champion
- Audit and Feedback
- Team Approach
  - Quality Improvement team
- Education
  - “Academic Mentoring”

Audit and Feedback

- CINA will generate practice-, clinician-, and patient-level outcome reports for intervention practices on 7 performance measures:
- BP, HbA1c, LDL, use of ACEI/ARB, referral to a nephrologist, smoking cessation, and avoid NSAID or COX-2 inhibitor
- Quarterly reports reviewed with National Research Network practice facilitator by videoconference:
  - Share practice-level performance data
  - Share “what works” at other participating sites

Clinical Decision support

- 2) Generalizable Clinical Decision Support system: the point-of-care computerized decision support protocol engine is integrated with multiple EHRs



CINA SAMPLE

Patient Recommendation Report

33705 TEST PT, HELEN **DOB:12/14/1927 Age:81 Sex: F** **Seen By:N/A**
Appointment Date: **N/A** Report Date:7/20/2009 **PCP:DOCTOR, CHARLES E M**

Active Diagnoses
ESSENTIAL HYPERTENSION, BRIEF (401.
HYPERCHOLESTEROLEMIA (272.0)
SENILE OSTEOPOROSIS (733.01)
ANX/DEP MIXED (300.4)
CERVICAL DISC DISORDER (722.91)
CONSTIPATION, UNSPECIFIED (564.00)
DEGENERATIVE ARTHRITIS, NOS (715.9
FATIGUE (780.7)
GASTROESOPHAGEAL REFLUX DISEASE
IRRITABLE BOWEL SYNDROME (564.1)
LOWER OBSTRUCTIVE UROPATHY (599.
RESTLESS LEGS (333.99)
SYMPTOM, NAUSEA ALONE (787.02)
VERTIGO, BENIGN (386.11)
MORE

Risk Factors
CHD 10Yr Risk < 10%
CHD Risk Factors: 2+
HTN Risk: CoMorbid Dx (DM, Renal Dz or Decr Renal Function)
DM Risk: Mod (Metabolic Syndrome)
Pneumonia (Age > 64 OR Risk Dx)
Osteoporosis or Osteoporosis Risk

Goals
Goal not met: CrCl < 60
Goal not met: BP >/= 130/80
Goal not met: Bld Glucose > 125 (Check Fasting Status)
Goal met: BMI < 30
Goal met: LDL < 130
Nonsmoker

Active Meds

Zocor 20 MG	QD	02/04/09
Bayer Aspirin 325 MG	PRN	09/13/07
Calcium + D 600-200 MG		06/05/06
Calcium-Vitamin D 250-1	QD	07/26/05
Diazepam 10 MG	hs	10/15/08
Lortab 5 5-500 MG	Q 4hr/P	04/21/09
Reglan 10 MG	AC TID	04/21/09

Action Items
____Document Advanced Directives status PREV
____Document last Bone Mineral Density test (DXA), if applicable PREV
____Document / administer Tetanus vaccine, if applicable PREV

DOC: Consider evaluation for Diabetes due to Blood glucose > 125 GLUC
DOC: Consider adding Metabolic Syndrome Dx (Dysmetabolic Syndrome X) to Problem List due to 3/5 criteria met (see criteria below) GLUC
MED: Start ACE or ARB for BP goal not met due to CoMorbid Dx (DM or Renal Dz). HTN
PROC: Order or Discuss obtaining Bone Mineral Density test (DXA) (q 2 yrs) for Osteoporosis Dx or Osteoporosis Risk, unless documented today PREV
VAC: Consider Zoster vaccination, unless contraindicated PREV

Labs

Trig	132	mg/dL	7/15/09
Chol	209	mg/dL	7/15/09
LDL	126	mg/dL	7/15/09
LDL Direct	134	mg/dL	4/05/05
HDL	57	mg/dL	7/15/09
Gluc, Fasting			
Gluc, Random	131	mg/dL	7/15/09
HbA1c	6		2/24/09
MicroAlb/Cr			
INR			

Measures / Calculations

BP	134/82	7/15/09
	154/80	4/21/09
CHD Risk	8%	
BMI (Wt)	29 (153lb)	7/15/09
Ideal Wt.	102-138	
Est. CrCl	37.26	7/15/09

Diagnostic Testing

Bone Density	6/06/06
Colonoscopy	7/01/08
Mammogram	4/20/05
PAP	4/20/05
Chlamydia	

Vaccine

Tetanus	5/11/94
Tdap	
Pneumoccal	9/25/95
Flu	11/19/08
HPV	
Herpes Zoster	

Insurance:
RURAL HEALTH CLINIC I
AARP

Routine Visits:
Next Visit: 11/04/2009
Last Visit: 07/15/2009

Comp. Exam Visits:
Next Visit:
Last Visit:

Suggested Next Visit:

12 mos	CHOL
1-3 mos	HTN
3-6 mos	GLUC

Metabolic Syndrome Criteria
- BP > 130/85, OR Dx: Hypertension, OR AntiHTN Med
- Triglycerides > 150
- HDL < 40 Men, < 50 Women
- Glucose > 100
- BMI > 26

*--Unless contraindicated

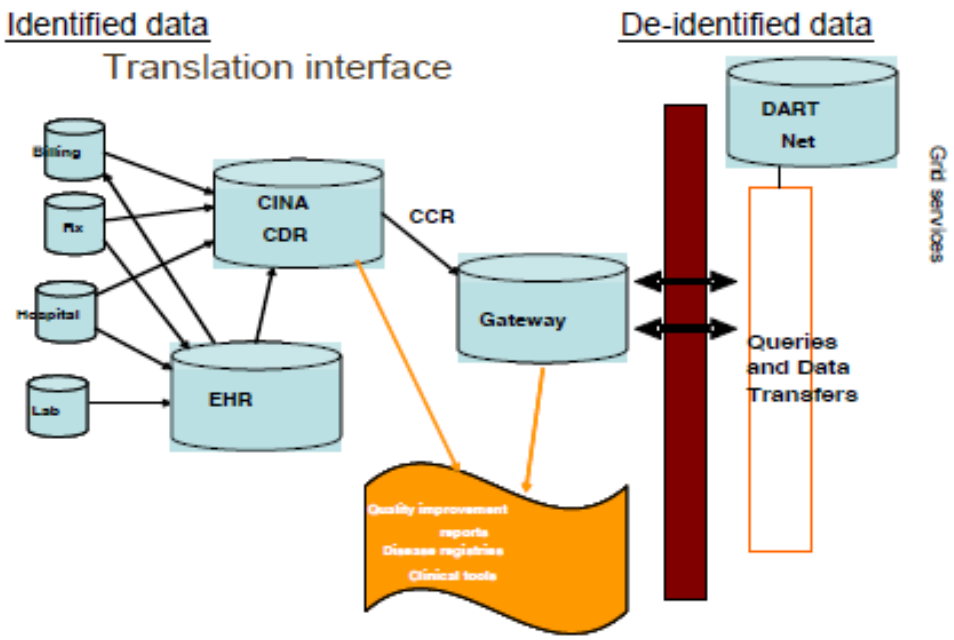
Practice Facilitation

- Managed by AAFP NRN staff
- Monthly conference calls with site coordinator, MD champion, QI cmte
- Quarterly performance reports
- Shared “best practices”
- Access to “academic mentoring” as needed

DARTNet (Distributed Ambulatory Research and Therapeutics Network)

- 3) DARTNET: Tracking in an efficient & longitudinal manner a very large population over a long period of time in “real world” practices through DARTNet allows both group level randomized RCT’s as well as population-based economic analyses, conducted in the same study

Figure 2 - DARTNet as Viewed From a Single Organization



CINA (Clinical Integration Networks of America)

- CINA software collects, standardizes and synthesizes data from multiple EHR vendors.
- CINA provides a set of tools for clinical decision support, quality improvement, and data aggregation for reporting.
- The Point-of-Care reminder system provides a synthesis of data for each pt using >30 algorithms based on the US Preventive Services Task Force guidelines and evidence-based guidelines for multiple chronic diseases (HTN, DM, CHF, etc.)

AAFP National Research Network Center of Excellence

- Funded by the Agency for Healthcare Research & Quality (AHRQ)
- **Specific Aim 1:** Advance two national, multi-vendor, electronic health record data-enabled practice-based research networks, eNQUIRENet and CoNNECT
- **Specific Aim** 2: Advance the DARTNet Collaborative, a group of national and regional networks using EHR's and standardized data to improve research methods.
- **Specific Aim 3:** Engage clinicians in both national and regional networks in projects that do not require the DARTNet Collaborative data systems.

Future Directions

- Enable more STARNet practices to choose and adopt an EMR
- Assist practices with “Meaningful Use” and Pay-for-Performance initiatives
- Help practices implement the Patient Centered Medical Home
- Use Integrated Data Repository to assist researchers on campus address clinical issues of interest to member physicians
- Continue partnership with AAFP NRN / DARTNet