The Zen of Working with Big Data

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Zen

- A school of Mahayana Buddhism that asserts that enlightenment can be attained through meditation, self-contemplation, and intuition rather than through faith and devotion

30 Years of "Enlightenment"

Derived from:

- 1985-91: Homegrown EHR at MUSC DFM

- 1991-95: Practice Partner at MUSC DFM

- 1995-2013: PPRNet in Practice Partner practices in 40+ states

- 2014---: Vendor agnostic PPRNet

1. Many studies are possible, although sometimes you have to study what you can, not what you would like.

2. All data are imperfect—when data are "fit for use" use them.

3. For the most part it is easier to change (clean) the data than change the recording behavior of clinicians; however…

4. If clinicians think cleaner data will help improve patient care, they will, within reason, help improve data quality

5. If you wait long enough, everything changes.

6. Data is only one part of meaning

Many studies are possible, although sometimes you have to study what you can, not what you would like
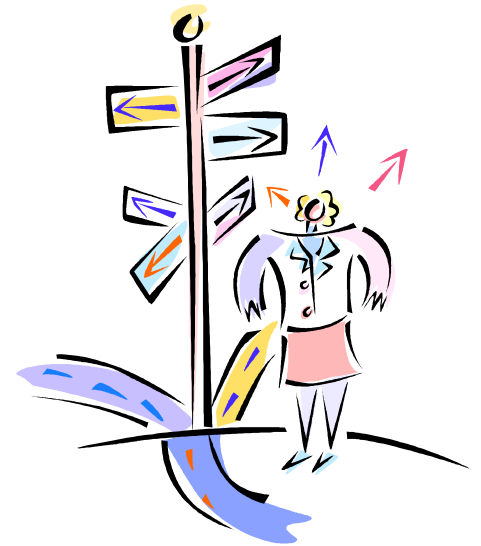
Some AHRQ & NIH Funded PPRNet Studies: 2000-2010

Years ID Number P.I.	Project Name	Funder	Brief Description
2000-2004 5U18HS011132 Ornstein	Primary and Secondary Prevention of CHD and Stroke (TRIP-II)	AHRQ	Group randomized trial assessing impact of QI intervention on guidelines for cardiovascular disease prevention and treatment in 20 practices
2002-2006 5U18HS013716 Ornstein	Accelerating Translation of Research into Practice (A-TRIP)	AHRQ	Demonstration project extending QI intervention to 84 indicators of preventive and chronic disease care in 99 practices
2004-2006 R25AA015066 Miller	Facilitating Alcohol Screening of Hypertensive Patients (AA-TRIP)	NIAAA	Group randomized trial assessing QI intervention to improve detection and management of excessive drinking among hypertension patients in 20 practices
2006-2010 R01CA112389 Ornstein	Colorectal Cancer Screening in Primary Care Practice (C-TRIP)	NCI	Group randomized trial assessing QI intervention to improve colorectal cancer screening in 32 practices
2007-2010 R18 HS17037 Ornstein	Medication Safety in Primary Care Practices (MS-TRIP)	AHRQ	Demonstration project to develop set of medication safety (MS) indicators, incorporate these indicators in quarterly practice reports, and assess the impact of QI model on MS indicators in 20 participating practices.

Some AHRQ & NIH Funded PPRNet Studies: 2008-2015

Years ID Number P.I.	Project Name	Funder	Brief Description
2008-2010 HHSA290200710015I Nemeth/Ornstein	Implementation and Evaluation of Standing Orders Using Heath Information Technology (SO-TRIP)	AHRQ	Demonstration project to assess impact of electronic standing orders on delivery of preventive services and diabetes monitoring measures in 8 practices
2008-2012 R01AA016768 Miller/Ornstein	Implementation of Alcohol Screening, Intervention and Treatment in Primary Care (AM-TRIP)	NIAAA	Group randomized cross-over trial assessing QI intervention designed to adopt new NIAAA alcohol screening and treatment guidelines in 20 practices
2009-2012 HHSA290200710015I Ornstein	Reducing Inappropriate Prescribing of Antibiotics by Primary Care Clinicians (ABX-TRIP)	AHRQ	Demonstration project to assess the facilitators and barriers to use, as well as the impact on antibiotic prescribing, of a clinical decision support system (note template) for diagnosis and management of acute respiratory tract infections
2010-2012 5R18HS019593 Wessell	Dissemination of the PPRNet Model for Improving Medication Safety in Primary Care (MS-TRIP 2)	AHRQ	The goal of the project is to decrease preventable prescribing and monitoring medication errors in PPRNet practices through dissemination of a medication safety focused QI model in 60 practices
2011-15 1K08HS18984 Litvin	Improving Recognition and Management of Chronic Kidney Disease in Primary Care (CKD-TRIP)	AHRQ	The goal of this project will be to demonstrate how care delivered to patients with CKD in the primary care setting can be improved using EHR based clinical decision support (CDS) tools

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Can vs. Like

Study	Could Study	Would Like to Have Studied
TRIP-II	Intermediate CVD Outcomes	CVD morbidity
AA-TRIP	Screening and BI	Alcohol misuse
C-TRIP	CRC screening	CRC case reduction
MS-TRIP	Safe medication prescribing	Safe medication consumption
SO-TRIP	Receipt of preventive services	Use of standing orders
AM-TRIP	Prescribing of alcohol meds	Patient use of alcohol meds, impact on alcohol misuse
ABX-TRIP	Use of CDS, Rx of antibiotics	Use of antibiotics for URI episode
CKD-TRIP	Guideline adherence	Impact on EGFR

All data are imperfect—when data are "fit for use" use them

Imperfect Raw Data

AMOX 250MG/5CC

AMOX CHEWABLES

AMOX 250MG/5ML

AMOX CHEWABLES

AMOX 125 TID X 10 DAYS

AMOX 250 TID X 14 DYAS

AMOX 875 BID X 10 DAYS

AMOX CHEW

AMOX CHEWABLES

AMOX DROPS

Fit for Use

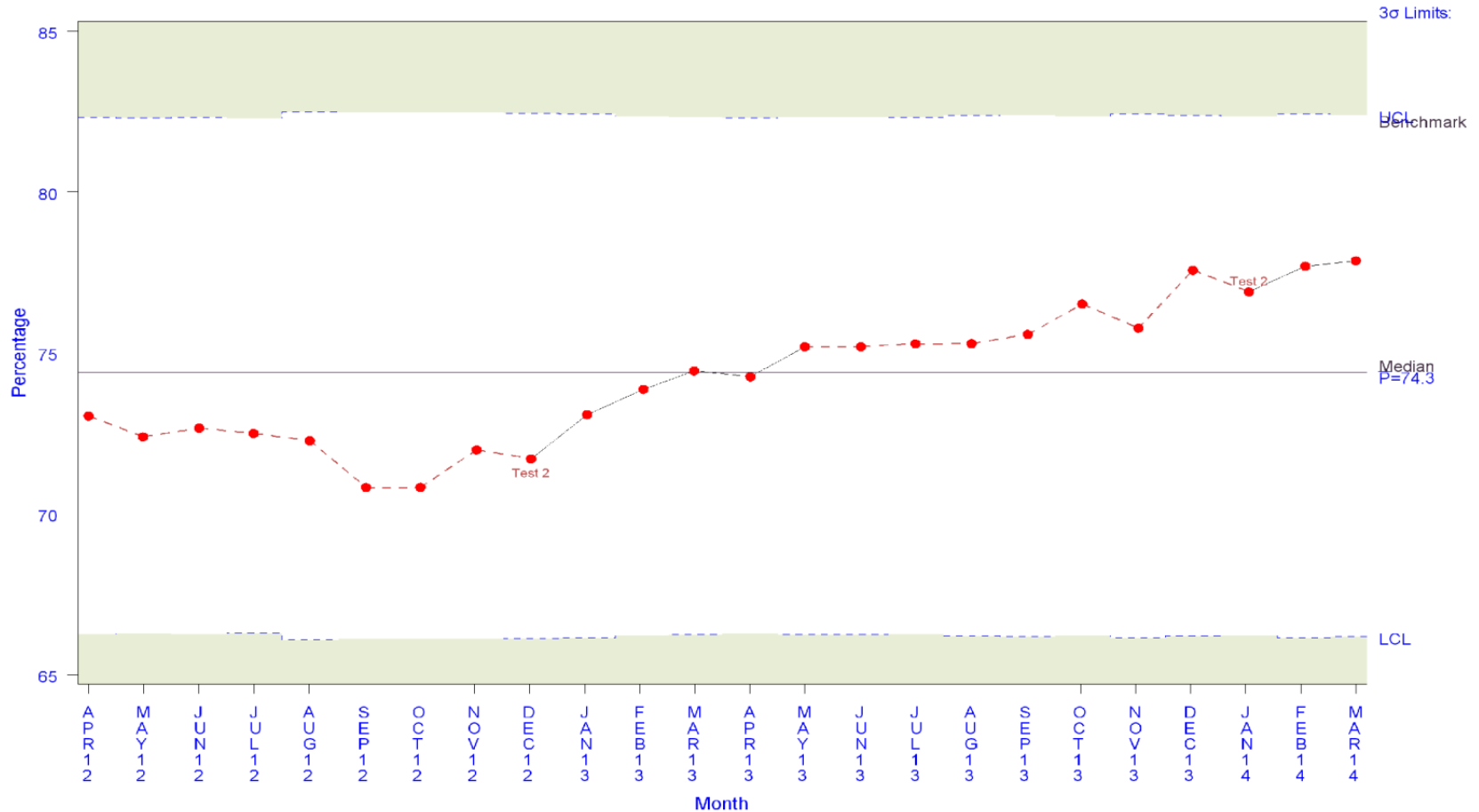Are these data clean with proper NDC codes? **NO**

Are these data fit to decide whether Amoxicillin has been prescribed? **YES**

Fit for Use?

24. DM/HTN pts with Ace Inhibitor or ARB Rx in 1 year

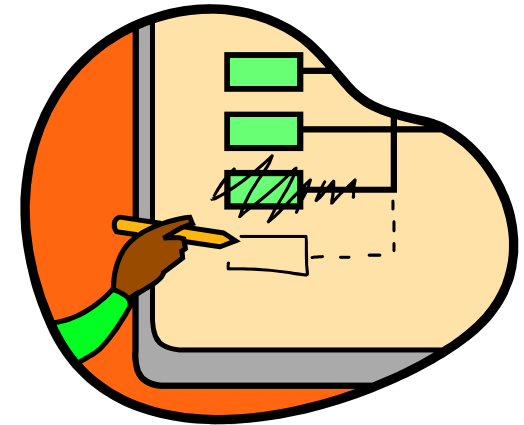DataPracticeID=200268

Subgroup Sizes: Min n = 256   Max n = 269

March 31, 2014

Even though ACEI/ARB allergy data are not captured or included in this measure, it is still meaningful

For the most part it is easier to change (clean) the data than change the recording behavior of clinicians

Sample of 13,199 Free Text Diagnoses C/W Hypertension

HTN CAD	HTN - NEW DX
HTN CHECK	HTN NOT AT TARGET;
HTN CONTROLLED	HTN NOT CONTROLLED
HTN CONTROLLED;	HTN NOW AT TARGET;
HTN - CONTROLLED;	HTN RESOLVED
HTN DJD	HTN STABLE
HTN DM	HTN STABLE;
HTN- FAIR CONTRO	HTN - UNCONTROLLED
HTN- GOOD CONTROL, MONITORING	HTN (RHW)
HTN- GOOD CONTRO	HTN / ALZHEIMERS

Automated processes have >99% specificity and sensitivity compared with clinician review of problem lists

Enlightenment #4

If clinicians thinks cleaner data
will help improve patient care,
they will, within reason, help
improve data quality

Cleaner Data

Study	Process	Patient Care Improvement
C-TRIP	Standardized HM names and rule-files	• More reliable HM reminders
AM-TRIP	Progress note template Or Quick-text	• Prompts for screen and standardized questions for more accurate dx • Guides brief intervention and other Rx scripts
ABX-TRIP	Progress note template	• Guides appropriate dx and rx • Provides patient education
CKD-TRIP	Progress note template	• Prompts case identification • Guides proper management

Gerta Bonheim

ID: 1100-10   **Age:** 83 years   **DOB:** 01/20/1931

| Arial | 10 | **B** | *I* | U | | | 100% |

Date: 06/26/14 : 09:22am
Title: *CKD Risk Assessment

Vital Signs:

Last CREATININE: 1.2 on 03/20/2013
Last GFR EST: 50 on 03/20/2013
DEL Last eGFR c/w Stage 3A CKD. Pts should have 2 eGFRs > 90 days apart to be diagnosed with CKD. If confirmed, click :
.MP: CHRONIC KIDNEY DISEASE STAGE III: 585.3
DEL *Pt should have eGFR every 6 months:*
DEL *Pt should have annual urine albumin to cr ratio, none recorded.*
DEL *Goal BP for CKD w/o proteinuria is at least <140/90. BP not at goal.*

DEL *LDL should be performed annually in pts with CKD. No documented LDL.*

If you wait long enough, everything changes

MU Stage 2 Standards

- Consolidated Clinical Document Architecture (C-CDA)—standards for clinical document exchange

- Quality Reporting Data Architecture (QRDA)—standards for exchange of electronic clinical quality measure (eCQM) data

Data is only one
part of meaning

Other Aspects of Meaning

- Preferences
- Context
- Interpretation
- Impact
- Intent

- Feeling
- Implication
- Importance
- Value
- Signification