Disclosure Statement

Wilson D. Pace, MD, FAAFP

- Research Grants: Sanofi US, Shire, Mallinckrodt, Genova Diagnostics, Pfizer
- Stock: Pfizer, Novartis, GSK, Novo-Nordisk, Sanofi US, Merck
- No off label medication use will be discussed.

What is DARTNet?

- DARTNet is a collaboration of Practice-based Research Networks utilizing electronic health record data, claims data and patient reported outcome data from multiple organizations
  - Facilitates data collection/ aggregation using multiple constructs
    - Point of care from office staff/providers/patients
    - Ancillary data to the PCMH – fulfillment data, claims data, patient reported outcomes

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DARTNet's Mission

- To improve health and healthcare through data driven practice-based inquiry and collaborative learning

Data Leading the Way

- Research informed by local data
- Guides the study question
- Guides the study methods
- Guides the site selection
- Guides study assignment
- Guides implementation

- Changes the game!

Management of Patients with Skin and Soft Tissue Infections
AHRQ Contract # HHSA290 2007 10008

- Study goal: develop and test sustainable, guideline-consistent treatment strategies for CA-MRSA

- Data sources: EHR, Clinician Decision Making, Manual Chart Audit, Patient Outcomes (Specialty visit, ED visit, hospitalization) and Provider Evaluations

- All data sources linked for analysis

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Demonstrated ability to study /improve acute problems

- Tracked 100% of soft tissue infections
- 3112 SSTI cases observed during the pre-intervention period (12 months/ 28 practices)
- 1406 cases during the intervention (8 months/ 16 practices)
- Increased use of MRSA antibiotics
- No change in outcomes

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Provider Decision Making

- Interested in guideline related decisions
- Clinicians invited to evaluate certain SSTI cases via email
- Email links to internal website which displays patient information
- Internal website links to Online Evaluation
- Online Evaluation data linked back to de-identified EHR data

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Provider Evaluation Overview

- 16 different clinical scenarios for clinicians to evaluate via "card" study
  - Child (yes or no)
  - Culture done (yes or no)
  - Procedure done (yes or no)
  - Antibiotics prescribed (yes or no)
- Nightly data feed allowed patient and clinician sorting and avoided collecting information already in EHR

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Nuanced Decision Making

- Directed Chart Audit for antibiotic use post drainage
  - Procedures tracked
  - Antibiotics tracked
- Central chart audit for antibiotic indications following drainage
- Quickly able to collect data with single chart auditor across 16 practices in two states

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Patient Outcomes

- All patients called on behalf of practice at 2 weeks
  - Other physicians seen for SSTI
  - Additional procedures (outside system)
  - ED visits
  - Hospitalizations
- Claims data could be used
  - 30 to 90+ days behind
- Clearly demonstrated limited impact of guidelines

Taking Research to Scale

- Kidney Disease Outcomes Quality Initiative (KDOQI) are a mixture of evidence based information and expert opinion
- Reproducibility of efficacy studies has been variable
- No trials that look at impact of implementing the entire set of guidelines

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TRANSLATE-CKD
NIDDK –1R01DK090407-01 (Fox)

IMPROVING EVIDENCE-BASED PRIMARY CARE FOR CHRONIC KIDNEY DISEASE

- Cluster randomized trial to implement KDOQI guidelines in 40 primary practices through clinical decision support versus full TRANSLATE model

- Tracking all outcomes through EHR and claims data

- Currently just over 28,000 patients with CKD in the study expect ~35-40K

What Does Big Data Bring?

- Randomization done using baseline practice performance and characteristics
- Able to balance multiple criteria at once even with small groups of practices
- Historical data allows tailoring of academic detailing to each site if needed
  - Focus on diagnosis if not many F/U tests done
  - Focus on screening if low
  - Focus on interventions if Dx data available

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Information Systems Support

- Clinical decision support at point of care
  - Adjust recommendations to new information or nuanced situations – high K^+ and ACE/ARB
- Registries are highly desired
- Feedback reports at practice and clinician level
  - Missed opportunities reports work better than traditional quality metrics

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Broad Array of Outcomes

- **Intermediate outcomes**
  - Increased screening
  - Improved diagnosis (less under and over)
  - Change in eGFR
  - Change in ACR
- **Patient outcomes that matter**
  - ESRD
  - Death – linkage to NDI

Adverse Outcomes

- Adverse effects
  - Number of individuals who develop hyperkalemia
  - Rate of Hip, forearm or clavicle fractures on and off ACE/ARB
  - Instances of acute renal failure

Cost Analysis

- Link claims data to clinical data
  - Difficult to obtain for full population
  - Can be costly depending on payer
  - May improve pick up for adverse events

- All of these outcomes require no additional data collection from patients or clinicians!

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Enhanced PBRN Approaches

- Re-usable research laboratory
- Close working relationship between practicing clinicians and researchers
- Non-disruptive or minimally disruptive to clinical care data collection
- Point of care or near point of care data collection that can explore decision making at the patient level – requires communication method

Contact Information

- Wilson Pace, MD, FAAFP
  University of Colorado Denver
  Director, AAFP National Research Network
  CEO, DARTNet Institute
  Wilson.Pace@dartnet.info
- Deborah Graham, MSPH
  COO, DARTNet
  Debbie.Graham@dartnet.info

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