

Medication Complexity in Elderly Home Care Patients-Bumps in the Road to Defining Variables

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Acknowledgments

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With Grateful Appreciation To:

Stephen Schondelmeyer, PharmD, PhD

Christine Mueller, PhD, RN, FAAN

Industrial Partners

CareFacts Information Systems

CHAMP Software

Funding

University of Minnesota Digital Technology Initiative and Grant-in-Aid Grants



Problem

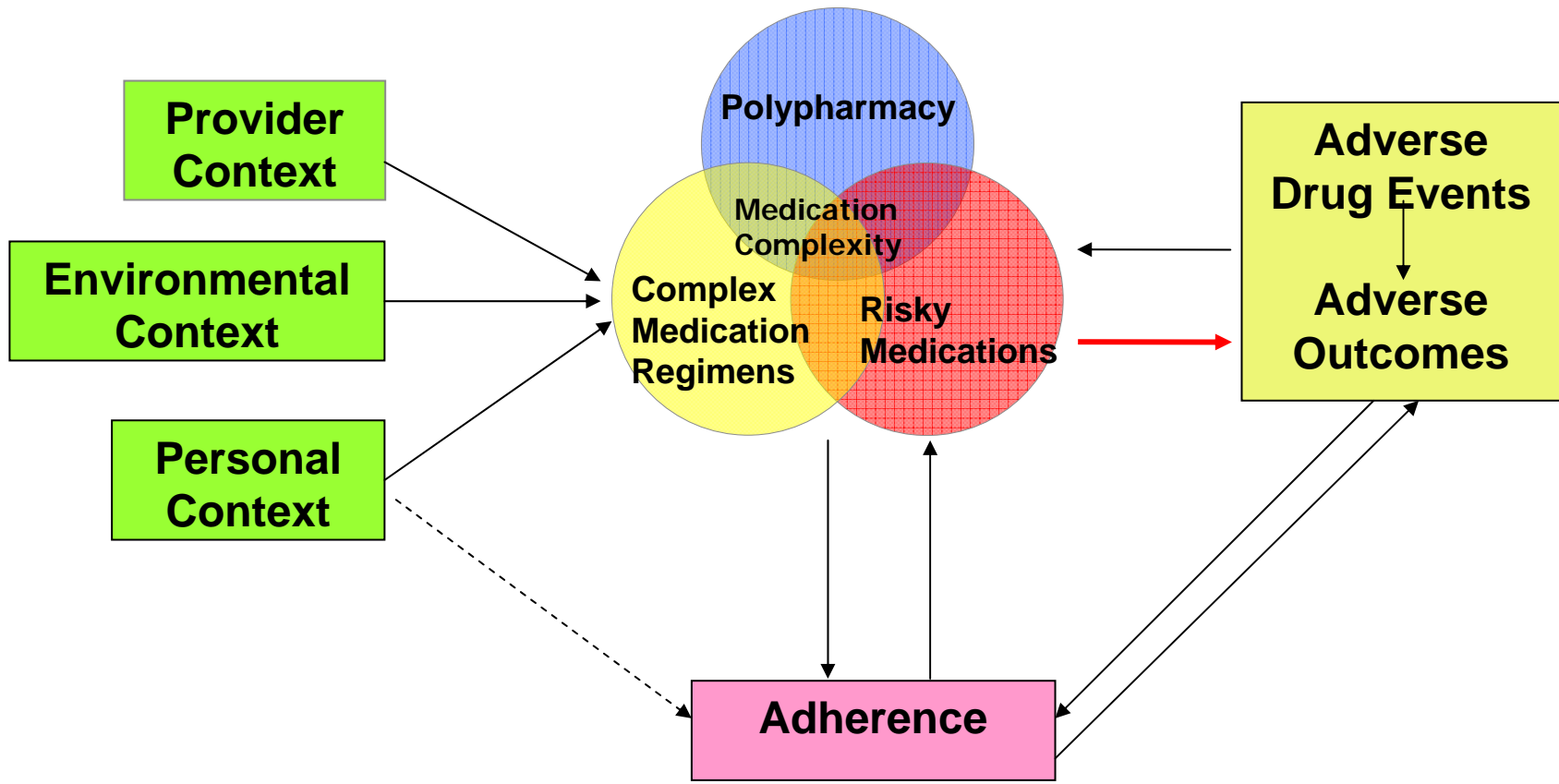
- **Elders do not take medications as prescribed** (Stewart, 1991)
- **ADEs are preventable** (Kallenback, 2008, Dennehy, et al. 1996)
- **Increased drugs → increased drug interactions** (Lin, 2004)
- **Many hospitalizations & deaths related to ADEs** (ASCP Update, 2000)
- **Community-dwelling elders average 4-5 prescribed & 2 OTC drugs** (Beers, 1999)
- **Existing risk assessment tools difficult to use for clinicians**



Research Aims

To develop a conceptual and operational definition of medication complexity that will be used in examining the relationship between medication complexity and adverse outcomes in community dwelling elders using home care.

Conceptual Framework





Sample & Design

Data included:

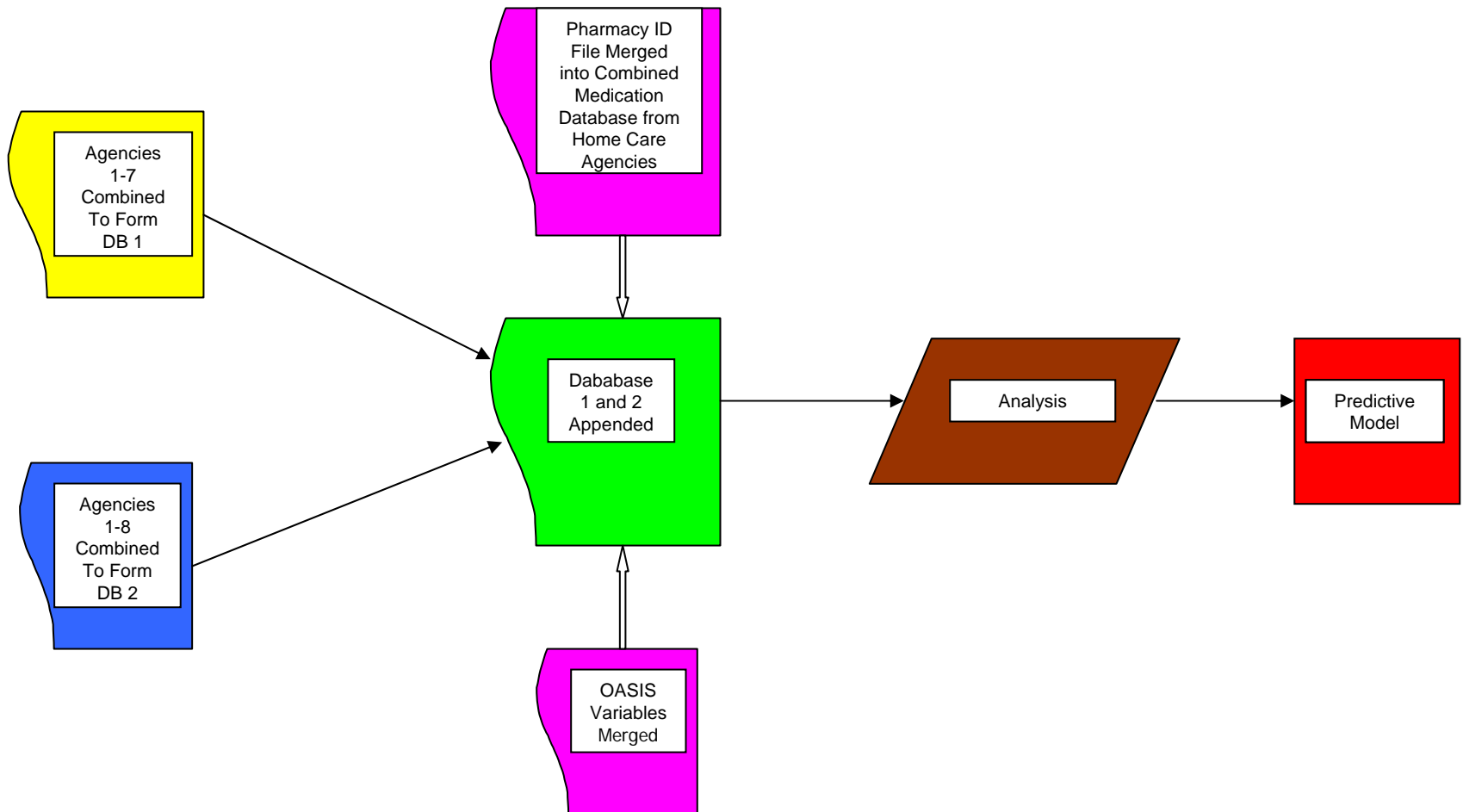
Medication data from 15 home health care agencies from Minnesota:

- All admissions opened in 2004
- 4,242 episodes of care for 2,806 patients
- 65,000+ medication records

Analysis:

- Secondary data analysis combining OASIS data and medication data
- Will be analyzed using logistic regression with generalized estimating equations and data mining techniques

What's the Big Picture?



The Data Preparation Process

In Excel Database Using Medication Data from HHC Agencies:

- Sort into proper agencies
- Split amounts/doses from their units
- Concatenate unique ID & patient number
- Eliminate duplicate records
- Sort string from numeric
- Clean up spelling/case
- Change route numbers to routes in case
- Standardized routes
- Standardized frequency

In Excel Database Using NDC Data:

- Drop finer categories after determining how much detail needed
- Combine re-packaged, non-repackaged & OTC databases
- Match formatting to pharmacy data formatting

In Stata:

- Append HHC medication files
- Generate variable dosing variable
- Determine descriptive findings/% of covariates
- Merge NDC data into pharmacy files
- Generate classification variable (dichotomous?)

Conceptual and operational definitions developed for medication complexity



Demographics

- 2,806 patients Mean age 74.4 (SD = 14.1)
 - 64.6% Females
 - 97.9% White
- 4,242 Episodes
 - 38.6% transfer to inpatient setting
 - 1,620 (38.4%) hospitalized
 - 29.9% continued with care
 - 1.7% died

(Demographics calculated from main study; courtesy of Bonnie Westra)



Operational Definitions-What Is Medication Complexity

Risky Medications:

Medications listed in a high risk classifications system

Polypharmacy:

Numbers of drugs used

Complex Medication Regimens:

- Number of regularly scheduled drugs
- Route of administration
- Variable dosing
- Complexity of measuring doses
- Potential doses per day



Discussion/Implications

- Despite legal implications of charting correctly, there are inconsistencies in documenting medications within and across patients, staff and agencies
- To avoid non-conforming format or spelling errors, use forced choice in medication selection
- Use of a national standard drug code would improve use of data for research
- Considerable variation as to what drugs pose risks for elders



Next Steps

- Reconcile medications within episodes
- Work with clinical pharmacist to classify medications
- Add medication complexity variables to existing data base for predicting outcomes
- Compare predictive models for outcomes with and without medication complexity variables