

# Estimation and Comparison of the Market Value of Highly Subsidized Care at Two Nurse-Led Clinics

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College of Nursing

# Introduction



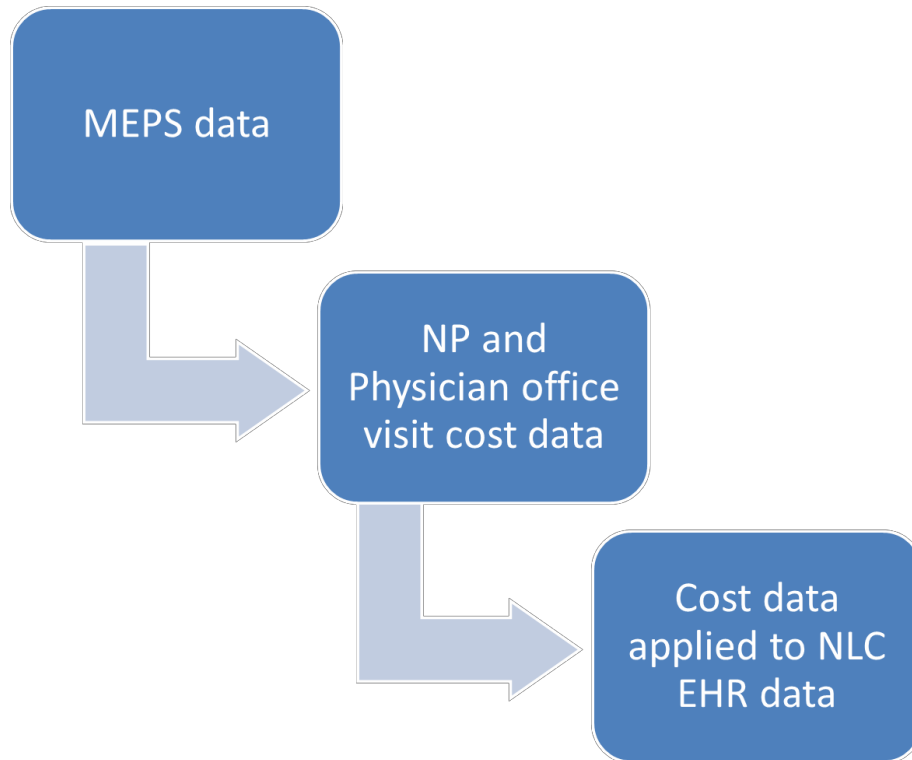
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Feature	Traditional Model	Collaborative NLC Model
Location:	Community-based	In existing CBO
Structure:	Stand alone primary care center.	Interdependent partnership
Community of Service:	Registered clinic clients.	All members of an identified community.
Determination of Services:	Defines and develops services on staff mix, marketing data.	Defines and continually modifies on a continual assessment of community needs, strengths and feedback
Point of Entry:	Typically at clinic registration.	Community residents determine.
Service Unit:	The individual (and sometimes the family).	The family, aggregate and whole community.
Access:	Restricted by criteria of insurance coverage or membership.	Open and unrestricted by criteria of insurance or membership.
Setting:	Services provided in a clinic.	Services outside the clinic setting.
Clients:	Individuals and families who become registered clients.	All members of the community if they are seen in the clinic or not.
Service Coordination:	Competitive with other primary care providers.	Complementary to other primary care providers.
Timing:	Services as episodic.	Services are continuous.
Level of care:	Majority of services are secondary or tertiary prevention nature focused on cure.	Majority of services (even in the clinic setting) are of a primary prevention nature focused on care.
Care Coordination:	Within the primary care center/affiliated delivery system.	Coordination of all health and health related services.
Other Provider Relationships:	Largely referrals, information sharing, general planning activities.	Largely collaborative in nature.  (Adapted from Lundeen (1995). Comparison of ...Models)

# 2017 Pilot Study

Marie Schuster, RN, Masters of Nursing Student; Dr. Jennifer Kibicho, PhD, CPA, (K);  
Dr. Pei-Yun Tsai, PhD; RN & Dr. Bev Zabler, PhD, RN

## Method



UWM IRB #17.224. Approved March 29, 2017

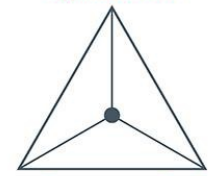
## Sample Data

- Hypertension only diagnosis
  - The 2013 Medical Expenditure Panel Survey (MEPS) (AHRQ, 2015)
  - The 2013 NLC EHR data

# Pilot Study Findings

The IHI Triple Aim

Population Health



Experience of Care

Per Capita Cost

## Annual Costs of Care for Hypertension

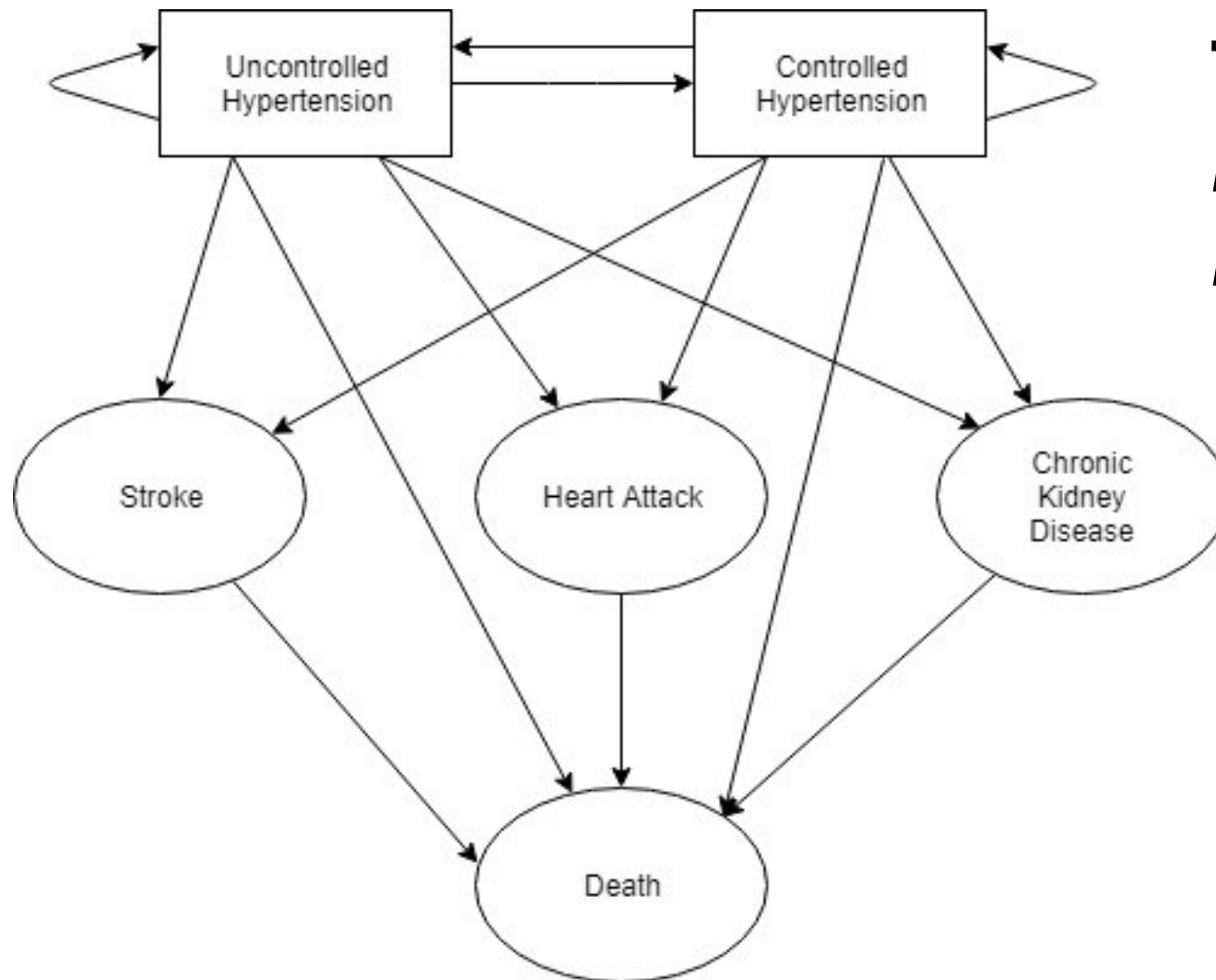
### Per Beneficiary Per Year Cost Difference

Median cost/ beneficiary	\$5,372	NLC Savings over traditional medical model
Mean cost/ beneficiary	\$7,990	NLC Savings over traditional medical model

### Per Beneficiary Percent of Savings

Median cost/beneficiary	2.76
Mean cost/beneficiary	2.49

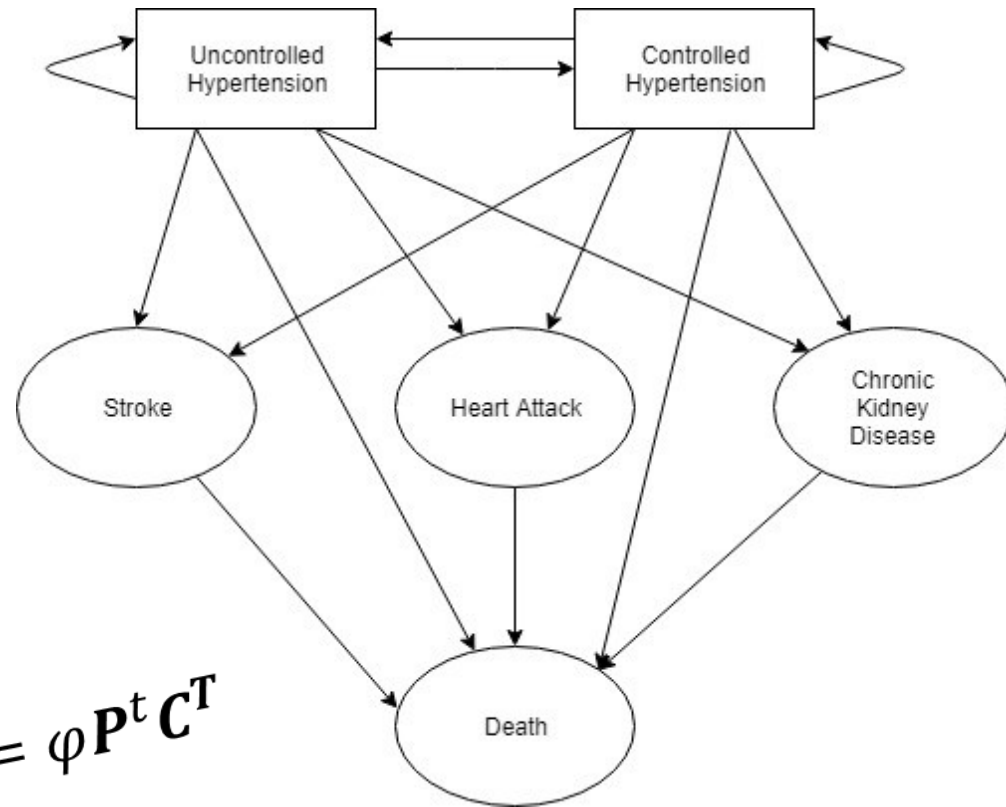
# 2018 Analysis: Cost and Health Improvement



## The Markov Model

# The Markov Model

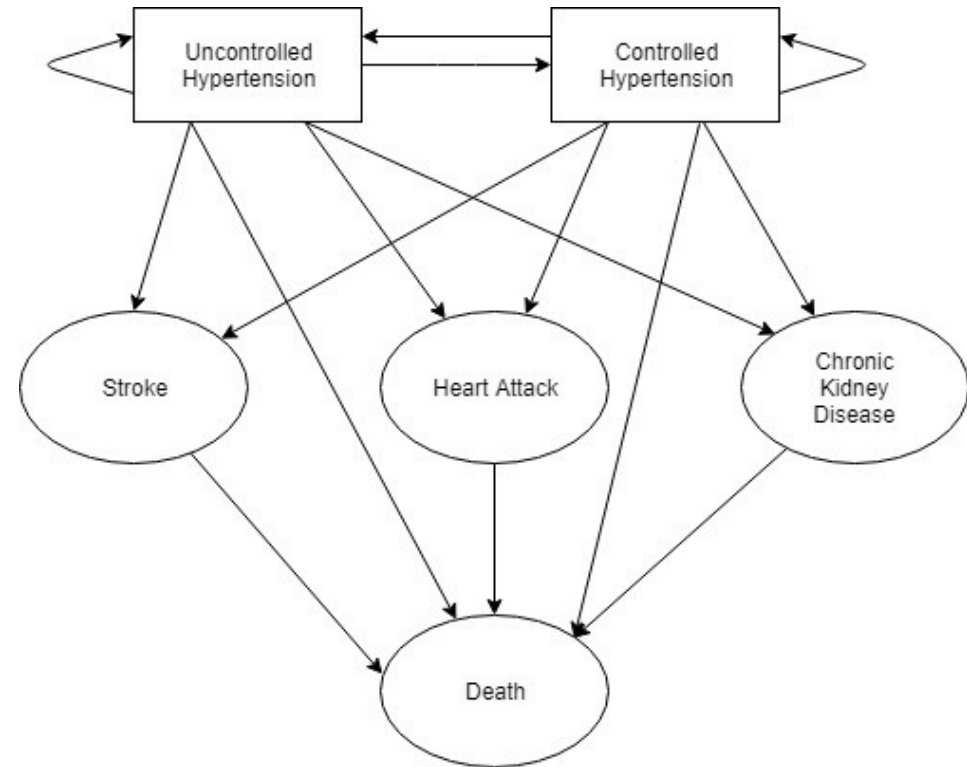
- A cost is associated with each condition
- The costs were estimated from MEPS data



$$\mathbb{E}[\text{cost}(t)] = \varphi \mathbf{P}^t \mathbf{C}^T$$

# The Markov Model

- A benefit is associated with each condition
- The benefits are simple binary values;
  - 1 for no health event occurring,
  - 0 for a health event occurring.



$$\mathbb{E}[benefits(t)] = \varphi P^t B^T$$

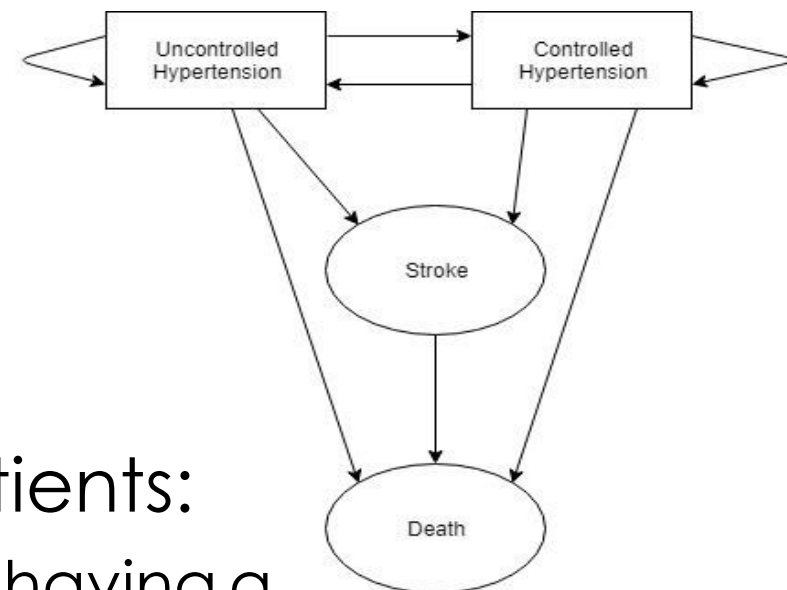


# Stroke in Traditional Primary Care

## Cox Proportional Hazard Model Estimates

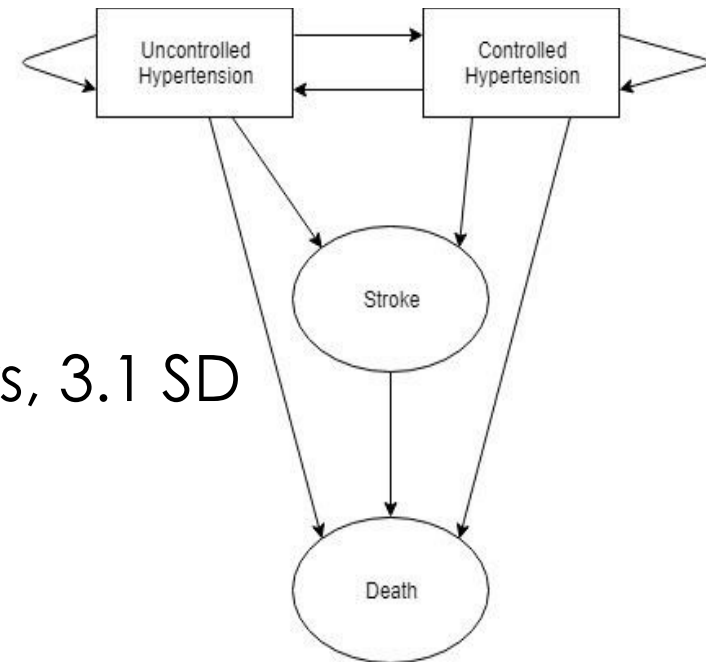
(Wolf et al, 1991)

- For stroke within 12 year
- With clinical measures
  - Age --SBP
  - Smoking --Diabetes
  - Tenure of care
- For 500 hypothetical patients:
  - Probability of no patients having a stroke is 0.2%; of 1 is 1.5%.
  - Expected strokes is  $6.1 \pm 2.42$



# Initial Run with CNC Data (2006-2018)

- 500 patients
  - Age Mean 49 & SD 9.45
  - Female 73% & Male 26.8%
  - African American 91%
- Average patient tenure: 2.7 years, 3.1 SD
- Average patient SBP:138
- 56% smokers
- 13% with diabetes
- No patients had a stroke documented between 2006-2018.



# Results: Nurse-Led Care Cost Savings

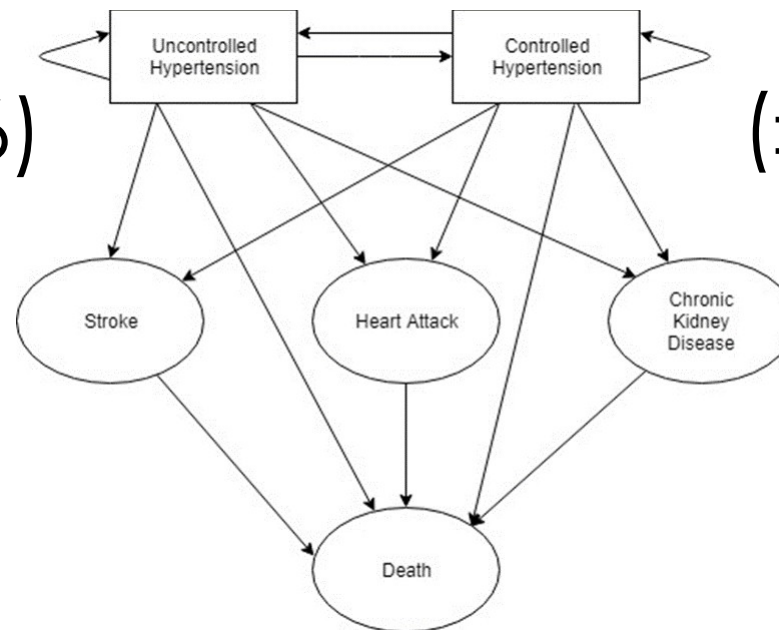
Average hospitalization costs of stroke per episode

(Wang et al, 2014)

\$20,39  
(±\$23,256)

Estimated hospitalization cost savings over ~ 3years:

\$124,416  
(±\$141,862)



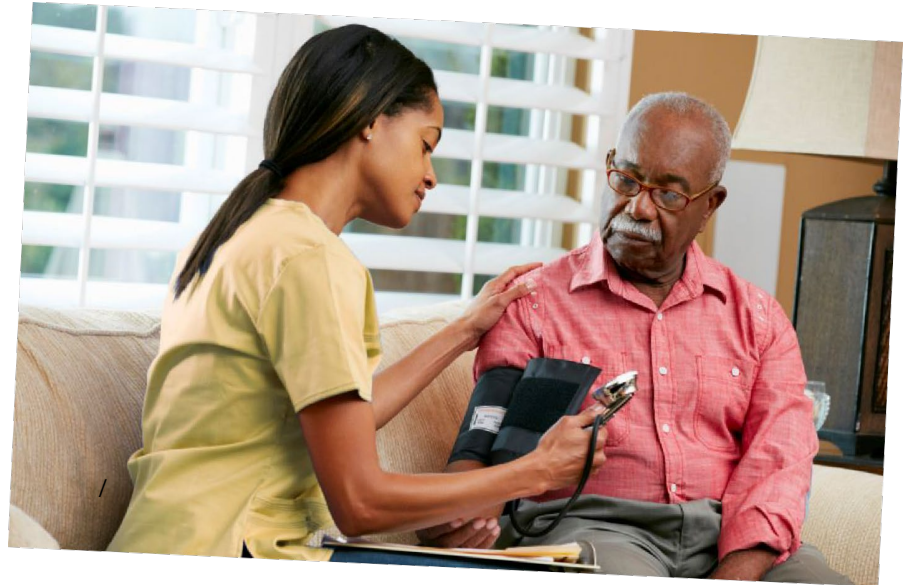
# Next Steps

- Markov Model run with Stroke, Heart Attack and Chronic Kidney Disease
- Pilot cost analysis with 'real-time' NLC insurance claims data
- Expand cost analysis to other NLCs
- Estimating health adjusted life years (HALYS).
- Long-term goal:
  - Software packages that can be used for cost/benefit analysis by any Primary Care delivery system for selected diagnoses

Any questions?

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*THANK-YOU!*

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