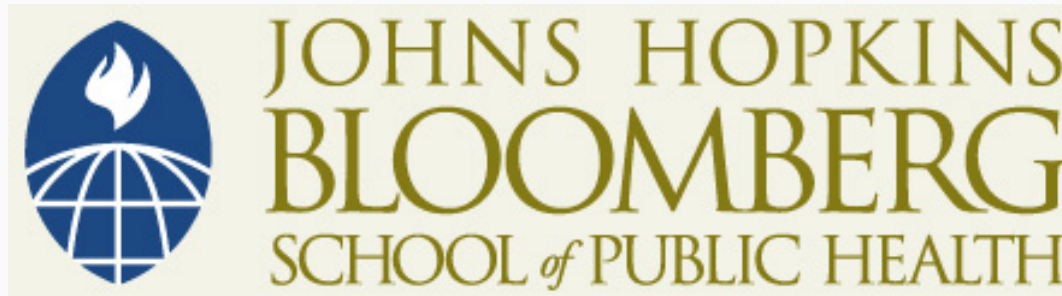


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## *Research Design: Wasson*

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## *Section A*

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Research Design: Wasson Part I

# *Continuity of Outpatient Medical Care in Elderly Men: A Randomized Trial*

- Wasson, J.R., Auvigne, A.E., Mogielnicki, R.P., Frey, W.G., Sox, C.H., Gaudetter, C., Rickwell, A.
- *JAMA* 252(17): 2413–2417 (1984)

# *Goals of the Study*

- To determine the impact of provider continuity on the course of the patient's illness
- To determine if earlier, positive findings regarding the benefits of provider continuity were generalizable to the adult population

# *Health Services Research and Evaluation Conceptual Framework*

- Basic health services research
- Moderately policy relevant
- Not program evaluation

# *Hypotheses of Study*

- The study is an hypothesis testing study
- Hypothesis—continuity of medical care will have a positive effect on the following:
  - The medical care process and use of services, and
  - The clinical outcomes of illness

## *Policy Relevance of Study*

- Important to know if continuity of care makes a difference, particularly in a large system which operates outpatient clinics
- Relevant to veterans administration system (less applicable to civilian clinics)

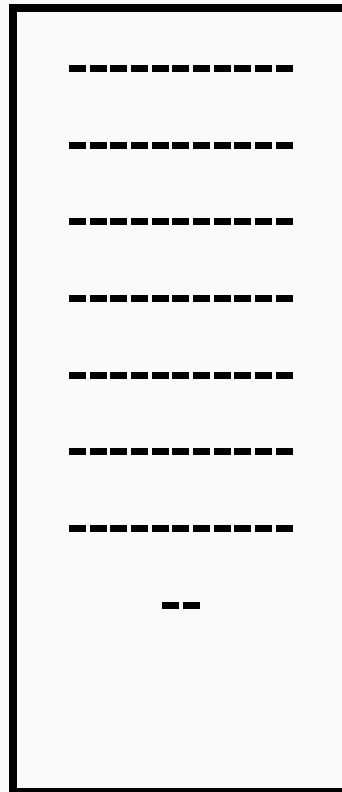


# Model of Effect of Continuous Care

**INDEPENDENT  
VARIABLE**

**Continuous  
Care**

**INTERVENING  
VARIABLES**



**DEPENDENT  
VARIABLES**

**Appropriate  
Use of  
Services**

**Clinical  
Outcomes**

# *Patient Selection and Exclusion*

- $\geq$  age 55
- One way mileage from clinic  $<$  90 miles
- Used VA more than other providers
- Used general medical clinics, not specialty only
- No patients with psychiatric DX or alcohol abuse
- Used VA within six months
- Patient mentally competent or alert

# Study Design

- Experimental
- Prospective
- Randomized controlled design
  - Double blind
- Multiple observation points
  - R X O O
  - O O
- O = Observations at 15 and 30 months
- X = Continuous care during this period

# *Equilibrium Period*

- A fair test of the hypothesis required that the experimental intervention have sufficient time for the differences in provider continuity of care to be established
- Twelve months were allowed for this purpose (the initial twelve months of the study were called “the equilibration” period)

# *Characteristics of Patients During the Equilibration Period*

- Age
- Diagnosis
- Hospital days
- Total outpatient visits
- Emotional impairment
- Limitations in function and mobility
- Chronic pain

# *Study Variables*

- Major independent (causal) variable
  - Continuity of care
- Dependent variables
  - Medical care related
  - Patient-provider interaction
  - Preventive care

# Study Variables

- Intervening variables
  - Age
  - Diagnosis—cardiac disease, respiratory disease
  - Hospital days during equilibrium period
  - Outpatient visits during equilibrium period
  - Limits in function
  - Chronic pain

# *Approaches to Measurement*

- Raw percentage of visits to main provider
- Sequential index of continuity
- Continuity index (new)
  - Adjusts for number of different providers and total number of visits



# *Sources of Data*

- Medical record
- Patient questionnaire (self-administered)
- Interview (in-person, during clinic)
- Pharmacy records



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## *Section B*

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Research Design: Wasson Part 2

# *Wasson: Continuity of Care Study*

- Threats to internal and external validity
- Results

# Wasson: Continuity of Care

## Wasson: Continuity of Care

### Measurement of Provider Continuity During the Analysis Period

| Measurement                          | Discontinuity | Continuity | p Value |
|--------------------------------------|---------------|------------|---------|
|                                      | Group         | Group      |         |
| Ratio of visits with same provider   | 0.34          | 0.58       | <.001   |
| Sequential visits with same provider | 0.35          | 0.48       | 0.004   |
| Continuity of care index             | 0.21          | 0.42       | <.001   |
| % of patients claiming continuity    | 51            | 71         | <.001   |

# Exercise



# *Internal Validity of Wasson Study*

- History—no problem, randomization
- Maturation—no problem, randomization
- Testing—no problem, randomization
- Instrumentation—valid, reliable measures, some newly created

# *Measurement Reliability and Validity*

- Accepted, published measures
- Use of medical records
- Use of reliability agreement approach for hospital classification into urgent, emergent, and elective
- Use of more than one continuity measure increases validity

# *Internal Validity of Wasson Study*

- Regression                      No problem
- Selection                        Some concern that the treatment group is not delineated from comparison group
- Attrition                         Two times greater withdrawal rate among comparison group



# *External Validity of Wasson Study*

- Testing-treatment interaction
  - Possibly a problem with satisfaction score
- Selection-treatment interaction (very pertinent)
  - Rural
  - VA
  - In-patient oriented
  - Very high LOS

# *External Validity of Wasson Study*

- Reactive/situational effects
  - Unlikely, if double-blinded
- Multiple treatment effects
  - Possible, given other sites of care used by patients

# Wasson: Continuity of Care

## Wasson: Continuity of Care

### Effects of Provider Discontinuity on Process and Outcome of Medical Care

| Measurement   | Discontinuity Group | Continuity Group | p Value |
|---|---------------------|------------------|---------|
| Hospital days per patient                                     | 9.1                 | 5.6              | 0.02    |
| Intensive care days   | 1.4                 | 0.4              | 0.01    |
| LOS   | 25.5                | 15.5             | 0.008   |
| % emergent hospitalizations                                   | 39                  | 20               | 0.002   |
| Patient satisfaction with continuity                          | 4.5                 | 5.9              | <.001   |
| Patient satisfaction with provider knowledge and thoroughness | 14.4                | 15               | 0.04    |
| Patients believe provider gives excellent patient education   | 10                  | 19               | <.001   |
| No. of outpatient chest X-rays and ECGs                       | 1.3                 | 1.7              | 0.03    |

# *General Strengths and Weaknesses*

- Randomized controlled trial
- Used several alternative dependent and independent variable measures
- Basically very sound methodology
- Sensitive to many reliability and validity issues
- Independent variable (continuity) somewhat “watered down”
- Reliance on medical records without reliability check
- Implications of non-VA visits and non-medical clinic visits