The Dartmouth Atlas: Origins

Small Area Variations in Health Care Delivery
A population-based spatial alternative to the use of planning and regulatory decision-making.
Alisa Meier and Elliott Fisher

The Quality of Medical Care in the United States: A Report on the Medicare Program
U.S. Hospital Referral Regions

Source: Science, December 14, 1973; Volume 182, pp 1152-68.
### Categories of Variation

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Effective Care</td>
<td><em>Services of proven effectiveness that involve no significant trade-offs — all patients with specific medical needs should receive them.</em></td>
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<tr>
<td>Preference-Sensitive Care</td>
<td><em>Involves trade-offs for patients; decisions should therefore be based on patients’ preferences and values. Supporting evidence may be weak or strong.</em></td>
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<td>Supply-Sensitive Care</td>
<td><em>Little or no clinical evidence on use, so judgment required (visits, hospital stay). Use rates strongly influenced by supply.</em></td>
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### Effective Care: Regional Variation

**Percent of Diabetic Medicare Enrollees Receiving Blood Lipids Test (2010)**

- Ocala, FL 89.4%
- Atlanta, GA 82.7%
- Denver, CO 76.5%
- Grand Forks, ND 72.7%
- Casper, WY 53.9%

Source: The Dartmouth Atlas
Effective Care: Hospital-Level Variation

Effective Care: Physician-Level variation

Source: Maine Quality Forum
Preference-Sensitive Care: Regional Variation

Elective Percutaneous Coronary Interventions Per 1,000 Members

- St. Joseph: 1.8
- Saginaw: 1.4
- Pontiac: 1.3
- Flint: 1.2
- Kalamazoo: 1.2
- Detroit: 1.2
- Traverse City: 1.1
- Royal Oak: 1.0
- Grand Rapids: 0.9
- Ann Arbor: 0.8
- Lansing: 0.8
- Dearborn: 0.8
- Petoskey: 0.8
- Marquette: 0.7
- Muskegon: 0.2

Source: Center for Health Care Research and Transformation Issue Brief: Variation in Interventional Cardiac Care in Michigan (April 2012)

Preference-Sensitive Care: Physician-Level Variation

Patients:
88% believed PCI would reduce risk of MI

Cardiologists:
43% would do PCI even if no benefit
Supply-Sensitive Care: Regional Variation

Association Between Hospital Beds per 1,000 and Discharges per 1,000 Among Medicare Enrollees: 306 Hospital Regions

All Medical Conditions
$R^2 = 0.54$

Hip Fracture
$R^2 = 0.06$

Source: The Dartmouth Atlas

Supply-Sensitive Care: Physician-Level Variation

Frequency of High Cost Imaging among Physicians in a Medical Group

Source: May 29, 2008 Presentation at Federal Trade Commission, Tom Lee, MD (Partners Healthcare System) (used with permission)
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<td>• Variation in process a major influence.</td>
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Doing the right thing – and doing it right
Doing the right thing – for the right patient
Doing the right thing – and no more