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HEALTH CARE AND HUMAN SERVICES POLICY, RESEARCH, AND CONSULTING - **WITH REAL-WORLD PERSPECTIVE**.

What Affects Primary Care Physician Productivity?

~Carol J Simon, PhD

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Goals & Objectives

- Examine factors that influence primary care productivity
- Explore different measures of productivity & economic output:
  - Hours worked
  - Patients treated
  - Revenues generated
  - Net earnings
    - *Do they tell the same story?*
    - *Which are most sensitive to key policy variables?*

Why We Care?

- Increasing physician productivity may ameliorate future shortages
- Current policies will affect physician practice & productivity
  - E.g. Stimulus funding for HIT investments
- Secular trends in practice organization, ownership and physician characteristics are linked to changes in productivity
  - Shift to group practice
  - Increase in female physicians
  - Use of NPs, PA’s and mid-level clinical staff

Approach

- Econometric modeling of PCP practice output and earnings

  Output = f(training, experience, practice scale, complementary FOP)

- Alternative measures of output
  - Hours worked
  - Patients seen in typical week
  - Revenues generated
  - Net practice income

Approach - 2

- Factors influencing productivity
  - Physician training and experience *(specialty, board certification, yrs in practice)*
  - Practice scale and scope *(# physicians, multispecialty)*
  - Ownership stake and structure *(owner/employee, who owns practice?)*
  - Availability of non-MD clinical personnel *(NPs, PAs)*
  - Availability & use of HIT (clinical notes, radiology, Rx, decision support)
  - Financial incentives (P4P,compensation/salary/etc)

Study Design & Population

Data:

- Multi-mode (mail, web) survey fielded January-June 2007
- Random sample of PCPs & Pediatricians from AMA Physician MasterFile
- Patient care MDs practicing in California, Georgia, Illinois, Pennsylvania and Texas
  - Pediatric and minority MDs over-sampled
    - ~ 50% pediatricians
    - ~15% African American and/or Hispanic
- Response rate 69.7%; 1967 valid responses

Methodological Approach

- Multivariate weighted regressions are used to model physician practice productivity, analyzing the effects of:
  - (1) health info technology**;
  - (2) practice organization;
  - (3) physician characteristics;
  - (4) use of mid-level non-physician providers**;
  - (5) performance incentives
- IV to attempt to control for endogeneity**
- Data are weighted to account for sampling design and known sources of non-response.

Survey Data Domains

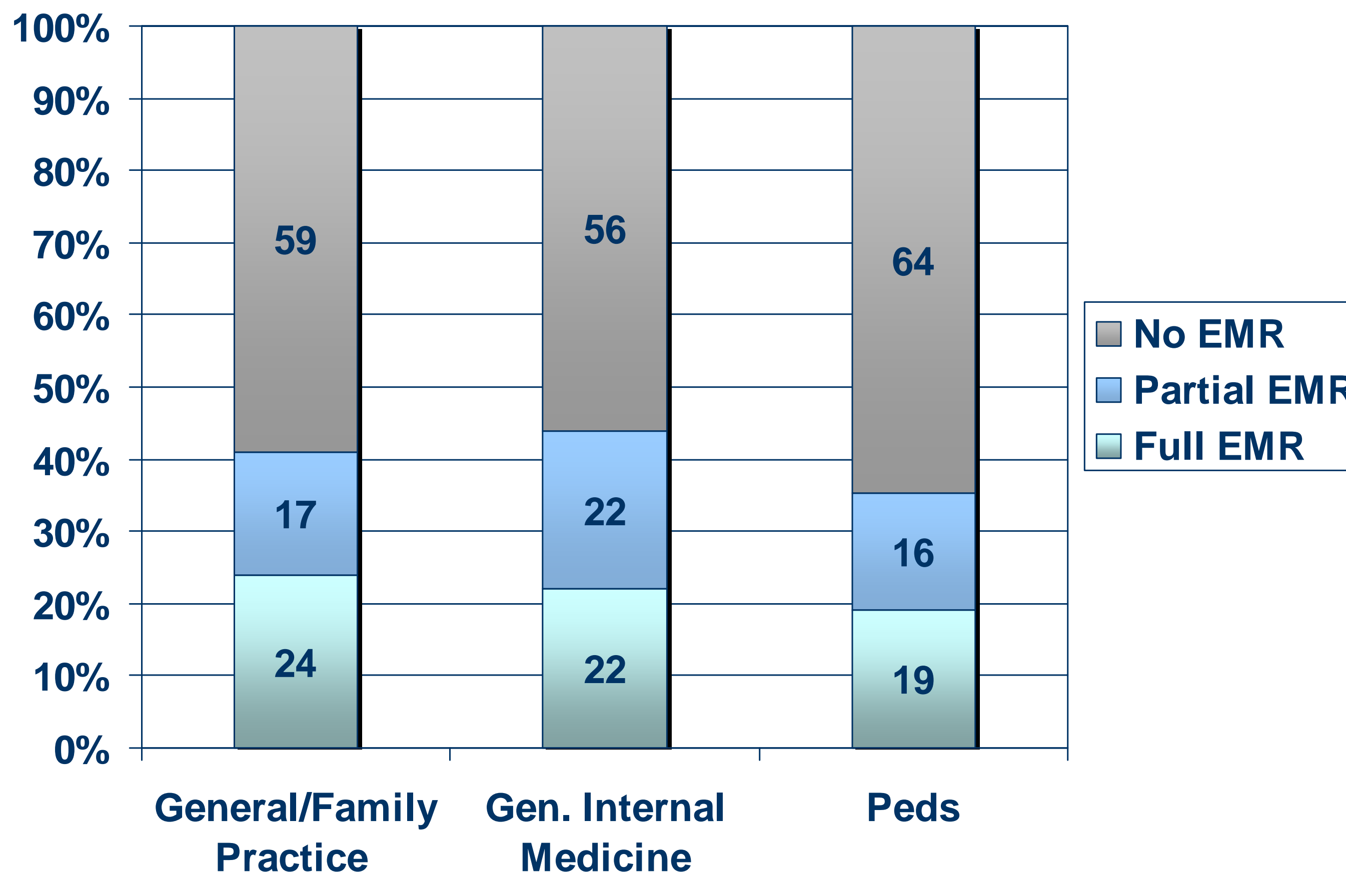
- Practice characteristics
- Administrative controls
- Payer types
- Revenues
- Practice Size
- Ownership
- Use of electronic health records or other HIT
- P4P
- Staffing, including use of NPs & PAs

- MD characteristics
- MD Demographics
- MD Income from medical practice & trends
- Specialty & sub specialty
- Hours worked/week
- Patients seen in typical week
- Treatment patterns for key chronic conditions (i.e., depression & asthma)
  - responses to clinical vignettes

There is considerable variation in output and earnings ~ *across and within PCP specialty*

- Policy relevant stuff matters
  - Practice size,
  - organization,
  - availability of HIT,
  - use of Nurse practitioners & Physician Assistants; and
  - certain types of incentive mechanisms significantly
- Comprehensive HIT capabilities increase measured productivity by 8-15%;
- Use of NPs and PAs augment physician productivity by 4-21%,
- mid-size practices (10-15 mds) have highest measured productivity;
- financial incentives have, on average, a modest effect (5-10%)
  - can have *negative associations* in some specifications..

EMR Adoption by Specialty: proportion of physicians with EMR capabilities



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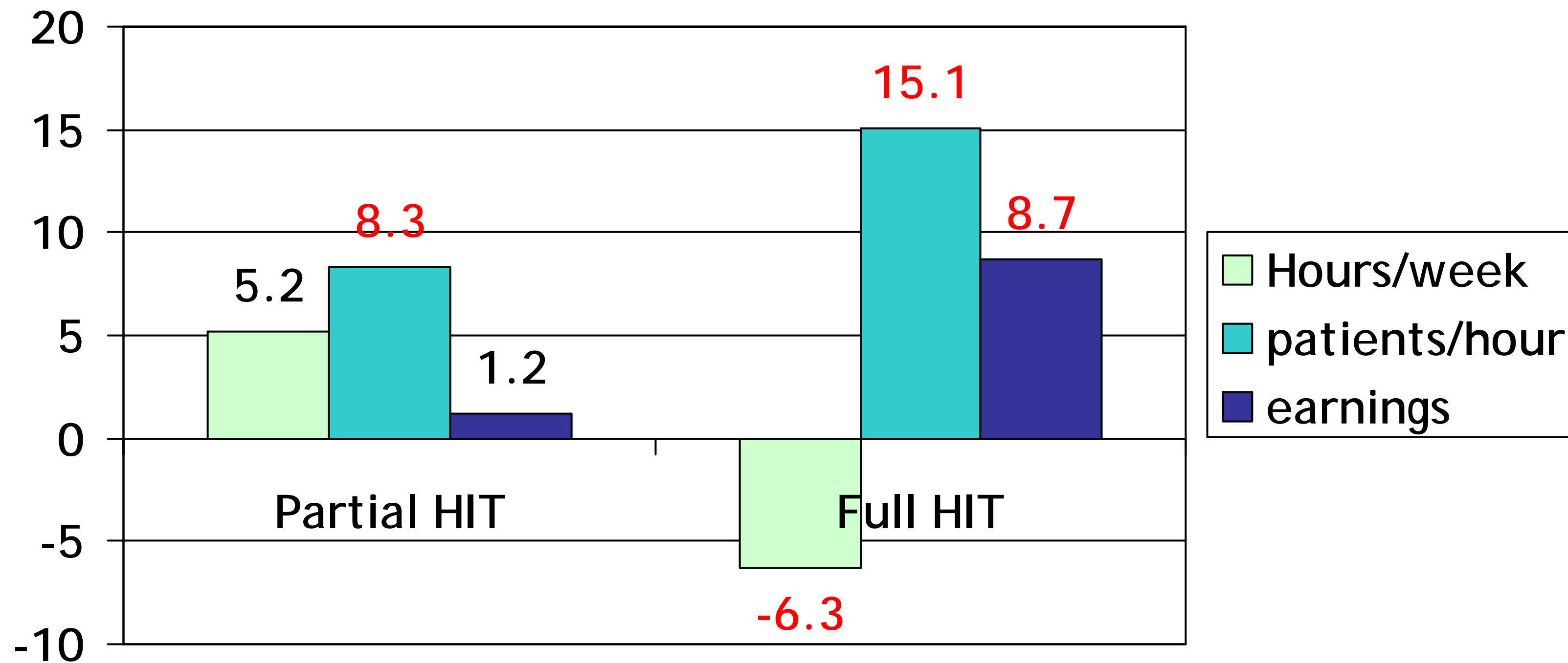
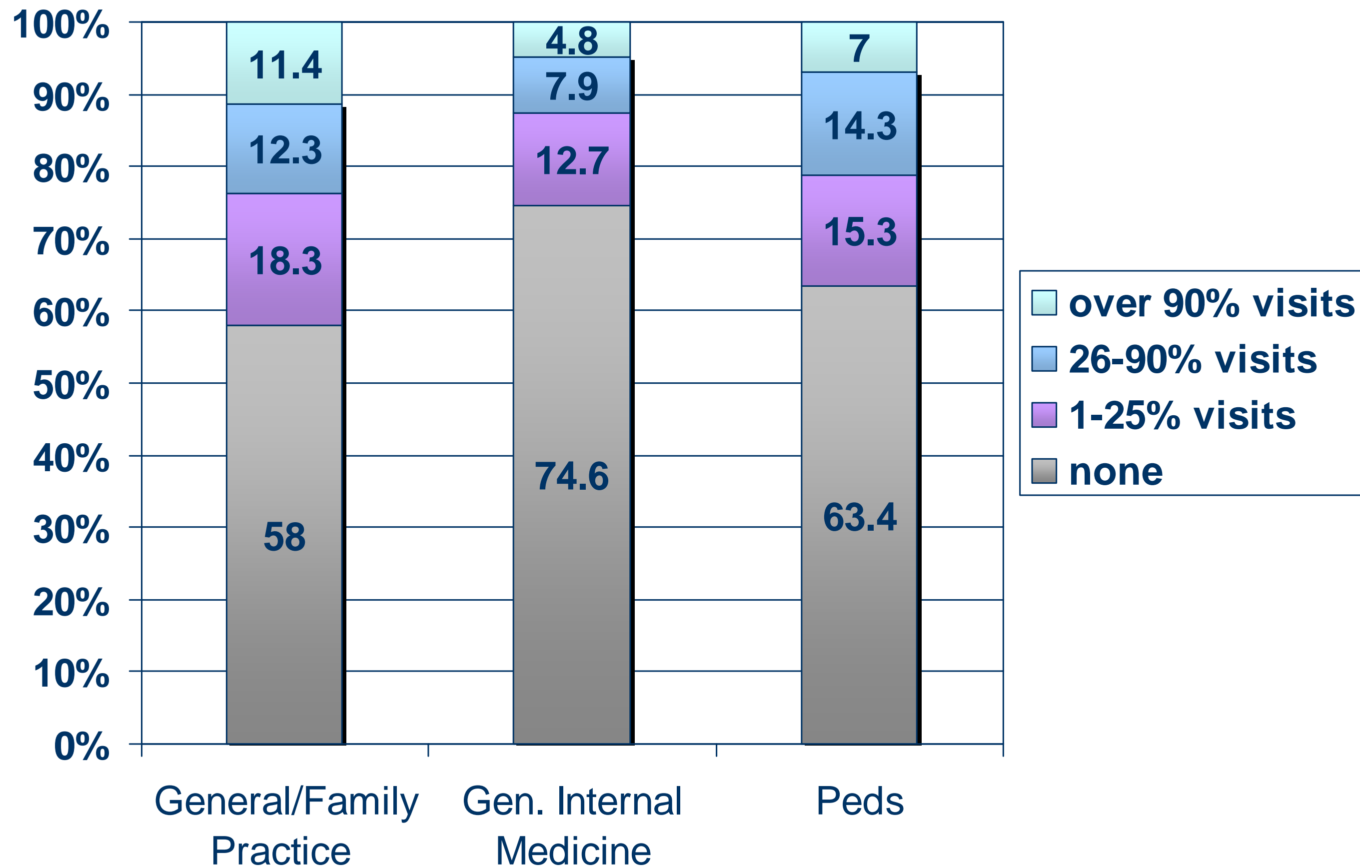
HIT Impact on hours; patients/hr worked, earnings ~ *percentage change relative to NO HIT*

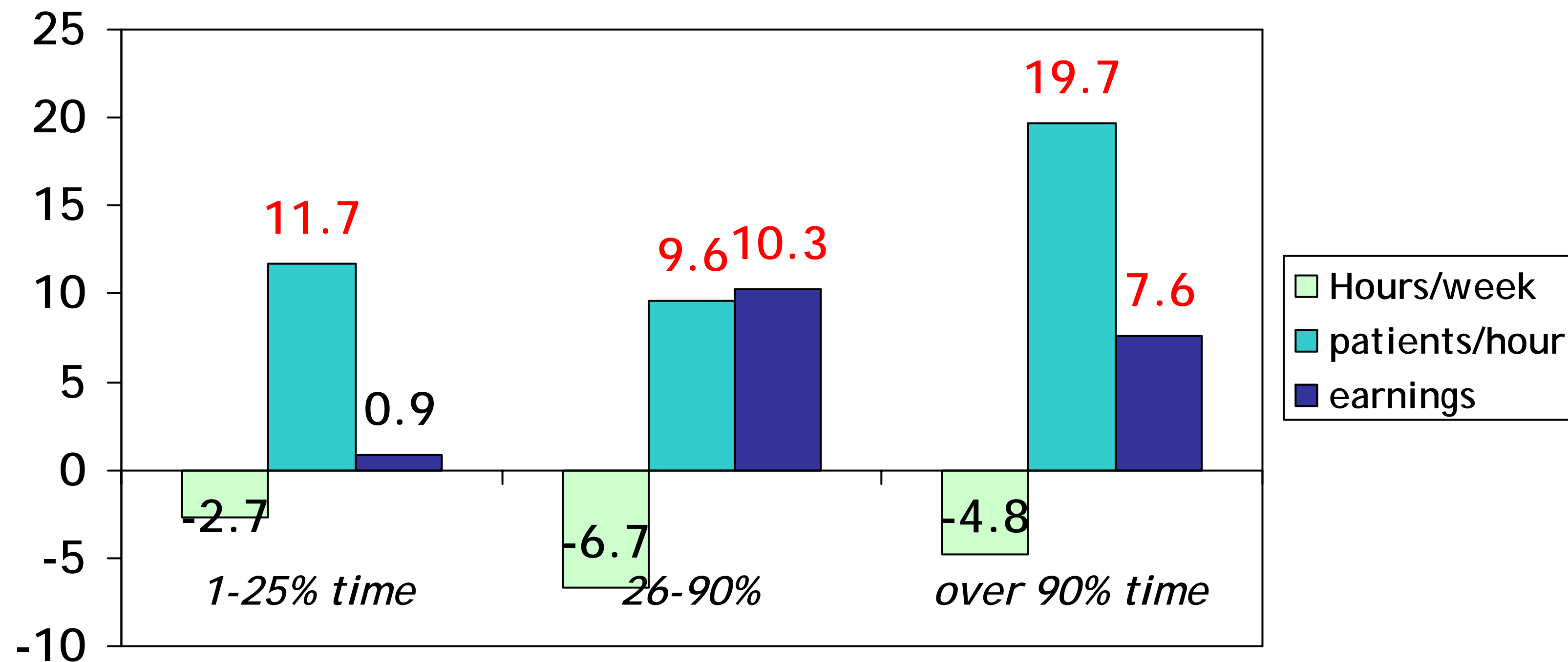


Regression adjusted effects; reported as % increase or decrease relative to NO HIT; ** statistically significant at α=0.05

Practices employing mid-level clinicians: Percent of patient visits where physician works with a NP or PA



Work with NP or PA Impact on hours; patients/hr worked, earnings ~ *percentage change relative to NO NP or PA*



Regression adjusted effects; reported as % increase or decrease relative to NO NP or PA; statistically significant at α=0.05

Preliminary conclusions

- Practices that make more use of HIT and those that leverage the use of mid-level clinicians have
  - Higher output
  - Higher earnings
- Important since these are changes that could be implemented in the short run
  - HIT is about to get a big boost
- Careful about the direction of causality
  - Results are corrected for potential endogeneity
    - But fixing the “chicken vs. egg” issue is tough

Thank You

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