

# Practice-Based Research Networks:

- New Knowledge that Changes Practice & Policy
- Network Features and Planning Decisions

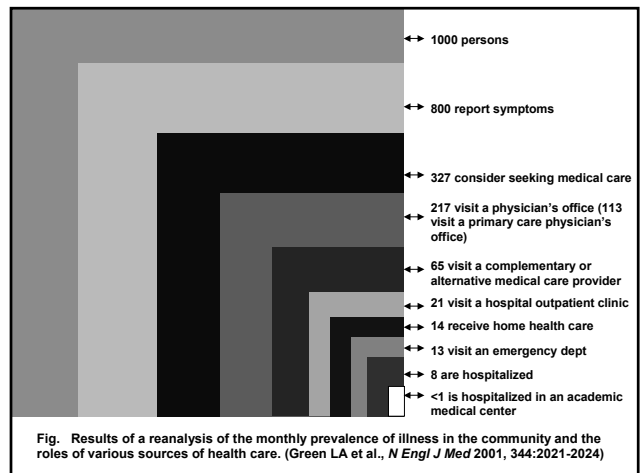
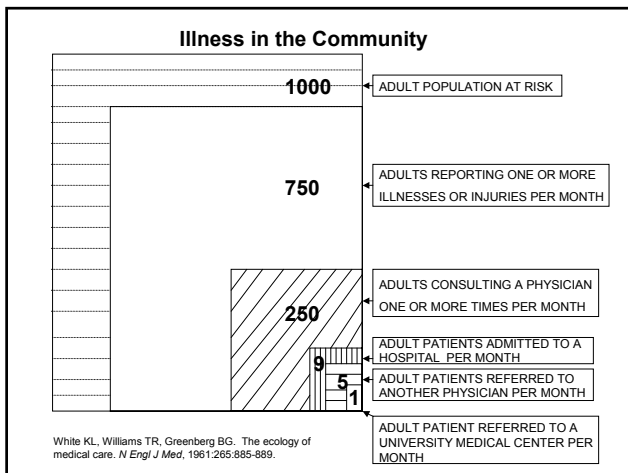
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# Overview

- Findings from Practice-Based Research
  - From Practice-Based Research Networks (PBRNs)
  - From individuals within PBRNs
- Characteristics of PBRNs
  - Decisions
  - Evolution
  - Polarities
- OAFP Retreat on PBRNs



## **Findings from PBRNs that change practice**

## **Women with a spontaneous abortion rarely need a D&C.**

- Ambulatory Sentinel Practice Network (ASPN)
- Green LA, Becker LA, Freeman WL, Elliott E, Iverson DC, Reed FM. Spontaneous abortion in primary care: a report from ASPN, part 1. *J Am Board Fam Pract.* 1988; 1:15-23.

## **Headaches rarely need evaluation with a CT scan.**

- ASPN
- Becker LA, Green LA, Beaufait D, Kirk J, Fromm J, Freeman WL. Use of CT scans for the investigation of headache: a report from ASPN, part 1. *J Fam Pract.* 1993; 37:135-141.
- Becker LA, Green LA, Beaufait D, Kirk J, Fromm J, Freeman WL. Detection of intracranial tumor, subarachnoid hemorrhage, or subdural hematoma in primary care patients: a report from ASPN, part 2. *J Fam Pract.* 1993; 37:135-141.

## **Antibiotics are not needed for all children with otitis media**

- ASPN & International Collaborative Network
- Fromm J, Culpepper L, Jacobs M, DeMelker R, Green L, vanBuchen L, Grob P, Heeren T. Antimicrobials for acute otitis media? A review from the International Primary Care Network. *BMJ.* 1997;315:98-102.

## **Codeine, dextromethorphan, and guaifenesin are equally effective for cough.**

- UCSF Collaborative Research Network
- Croughan-Minihane MS, Petitti DB, Rodnick JR, Eliaser GA. Clinical trial examining effectiveness of three cough syrups. *J Am Board Fam Pract.* 1993;6:109-115.

## **Limited effectiveness of risk assessment questions to target blood lead screening.**

- Pediatric Practice Research Group (PPRG)
- Binns HJ, LeBailly SA, Fingar AR, Saunders S, for the Pediatric Practice Research Group. Evaluation of risk assessment questions used to target blood lead screening in Illinois. *Pediatrics.* 1999;103:100-106.

## **Antibiotic prescribing for viral URI slightly reduces the chance of a f/u visit, but adds other costs for initial and subsequent antibiotics.**

- Practice Partner Research Network (PPRNet)
- Hueston WJ, Mainous AG, Ornstein S, Pan Q, Jenkins R. Antibiotics for Upper Respiratory Tract Infections. *Arch Fam Med.* 1999;8:426-430.

## **There is no need for regular b.p. checks for normotensive adults who don't gain weight.**

- Nijmegen University Academic Network Family Medicine (CMR/NMP)
- Bakx JC, vandenHoogen HJM, vandenBosch WJHM, vanSchayck CP, vanRee JW, Thien T, vanWeel C. Development of blood pressure and the incidence of hypertension in men and women over an 18-year period: results of the Nijmegen Cohort Study. *J Clin Epidemiol.* 1999;52:531-538.

## Long-term prognosis of people with depression.

- Nijmegen University Academic Network Family Medicine (CMR/NMP)
- Van Weel-Baumgarten EM, van den Bosch WJHM, van den Hoogen HJM, Zitman FU. Ten-year follow-up of depression after diagnosis in general practice. *Br J Gen Pract.* 1998; 48:1643-1646.

## An office systems intervention increases sun protection counseling.

- Dartmouth COOP
- Dietrich AJ, Olson AL, Sox CH, Tosteson TD, Grant-Petersson J. Sun protection counseling for children: primary care practice patterns and effect of an intervention on clinicians. *Arch Fam Med.* 2000;9:155-159.
- Dietrich AJ, Olson AL, Sox CH, Tosteson TD, Grant-Petersson J. Persistent increase in children's sun protection in a randomized controlled community trial. *Prev Med.* 2000;31:569-574.

## Tailored quality improvement strategies lead to sustained increases in preventive service delivery.

- RAP
- Goodwin MA, Zyzanski SJ, Zronek S, et al. A clinical trial of tailored office systems for preventive service delivery: the Study To Enhance Prevention by Understanding Practice (STEP-UP). *Am J Prev Med.* 2001; 21:20-28.

## Brief interventions in primary care reduce problem alcohol use

- WRen
- Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers. A randomized controlled trial in community-based primary care practices. *JAMA.* 1997;277:1039-1045
- Fleming MF, Manwell LB, Barry KL, Adams W, Stauffacher EA. Brief physician advice for alcohol problems in older adults: a randomized community-based trial. *J Fam Pract.* 1999;48:378-384.
- Manwell IB, Fleming MF, Mundt MP, Stauffacher EA, Barry KL. Treatment of problem alcohol use in women of childbearing age: results of a brief intervention trial. *Alcohol Clin Exp Res.* 2000;24:1517-1524.

## **Findings from PBRNs that change policy**

## **Forced discontinuity diminishes quality of primary care**

- RAP
- Flocke SA, Stange KC, Zyzanski SJ. The impact of insurance type and forced discontinuity on the delivery of primary care. *J Fam Pract.* 1997;45:129-135.

## **Care of the “secondary patient” is frequent and well accepted in family practice.**

- RAP & ASPN
- Flocke SA, Goodwin MA, Stange KC. The effect of a secondary patient on the family practice visit. *J Fam Pract.* 1998;46:429-434.
- Orzano AJ, Gregory PM, Nutting PA, Werner JJ, Flocke SA, Stange KC. Care of the secondary patient in family practice. A report from ASPN. *J Fam Pract.* 2001; 50:113-118.

## **Managed care restrictiveness increases physician hassle but doesn't diminish patient receipt of primary care**

- ASPN & RAP
- Flocke SA, Orzano AJ, Selinger A, et al. Does managed care restrictiveness affect the perceived quality of care? A report from ASPN. *J Fam Pract.* 1999;48:762-768.

# **PBRN methodology findings**

## **Patients in PBRNs are representative**

- ASPN, NEON
- Green LA, Miller RS, Reed FM, Iverson DC, Farley GE. How representative of typical practice are practice-based research networks? A report from the Ambulatory Sentinel Practice Network (ASPN). *Arch Fam Med.* 1993;2:939-949.
- Gilchrist V, Miller R, Gillanders W, et al. Does family practice at residency teaching sites reflect community practice? *J Fam Pract.* 1993;37:555-563.

## **Minimal differences in practice patterns of family physicians in a PBRN**

- ASPN
- Nutting PA, Baier M, Werner JJ, Cutter G, Reed FM, Orzano AJ. Practice patterns of family physicians in practice-based research networks: a report from ASPN. Ambulatory Sentinel Practice Network. *J Am Board Fam Pract.* 1999;12:278-284.

## **PBRN weekly return cards are accurate.**

- ASPN
- Green LA. The weekly return as a practical instrument for data collection in office-based research: a report from ASPN. *Fam Med.* 1988;20:185-188.
- Green LA, Reed FM, Miller RS, Iverson DC. Verification of data reported by practices for a study of spontaneous abortion. *Fam Med.* 1988;20:189-191.

## Accuracy of medical records and patient surveys compared to direct observation

- RAP
- Stange KC, Zyzanski SJ, Smith TF, et al. How valid are medical records and patient questionnaires for physician profiling and health services research? A comparison with direct observation of patient visits. *Med Care*. 1998;36:851-867.

## Functional status measures feasible for office practice

- COOP
- Nelson E, Wasson J, Kirk J, Keller A, Clark D, Dietrich A, Stewart A, Zubkoff M. Assessment of function in routine clinical practice: description of the COOP chart method and preliminary findings. *J Chronic Dis*. 1987;40:55S-63S.
- Nelson EC, Landgraf JM, Hays RD, Wasson JH, Kirk JW. The functional status of patients. How can it be measured in the physicians' offices? *Med Care*. 1990;28:1111-1126.

## Findings from studies by individual practices in PBRNs

## Clinical exam predicts positive culture results in URI

- RAP
- Bloom H, Zyzanski SJ, Kelley L, Tapolyai A, Stange KC. The clinical course, microbiology and familial transmission of upper respiratory infections treated with a protocol for selective antibiotic use in a solo family practice. *J Am Board Fam Pract*, 2002; 15:93-100.

## Chlamydia pneumoniae as a cause for adult onset asthma

- (WReN)
- Hahn DL, Beasley JJ. Diagnosed and possible undiagnosed asthma: a Wisconsin Research Network (WReN) study. *J Fam Pract.* 1994;38:373-379.
- Hahn DL. Chlamydia pneumoniae and asthma. *Thorax.* 1998;53:1095-1096.
- Hahn DL, McDonald R. Can acute Chlamydia pneumoniae respiratory infection initiate chronic asthma? *Ann Allergy Asthma Immunol.* 1998; 81:339-344.

## Leg edema, pulmonary hypertension and sleep apnea

- (RAP)
- Blankfield RP, Finkelhor RS, Alexander J, et al. Etiology and diagnosis of bilateral leg edema in primary care. *Am J Med.* 1998;105:192-197.
- Blankfield RP, Hudge DW, Tapolyai AA, Zyzanski SJ. Bilateral leg edema, pulmonary hypertension, and obstructive sleep apnea. *Arch Intern Med.* 2000;160:2357-2362.
- Blankfield RP, Zyzanski SJ. Bilateral leg edema, pulmonary hypertension, and obstructive sleep apnea: Is there a relationship? *J Fam Pract.* 2002; 15:561-566.

## Features of PBRNs

## Geography

- International International Collaborative Network, IFPBRN
- National / bi-national ASPN, PROS, PPRNet
- State WReN, MAFPRN
- Regional COOP, UPRNet, RAP
- Single health care system PPRG, Rainbow Network
- Single community HARNET
- Consortium of Networks FPBRN



## Size / Participants

- A few practices - hundreds of practices
- Single specialty - multispecialty, PAs, NPs

## Affiliations

- National Academy
  - PROS, AAFP Research Network
- State Academy
  - WReN, MAFPRN
- Academic Institution
  - RAP, NEON
- Hospital / Health System
  - PPRN

## Initiating Vision or Event

- Individual/group with a bee in the bonnet
- Knowledge gap
- Belief in wisdom gained from practice
- Computer system
- Teaching mission
- Single question or idea

## Governance

- Academy
- Board of Directors of participants
- Consensus (town meeting)
- Health system
- Academic partner
- Leader

## **Leadership**

- Network
  - Top down
  - Bottom up
  - Coalition / whole system leadership
- Specific projects
  - Network leader(s)
  - Clinician member(s)
  - Outside principal investigator

## **Idea Generation**

- Clinician's practice
- Family practice department
- Academicians
- Content experts
- Funders
- Group process

## **Project Design/Refinement**

- Small, transdisciplinary group
- Practitioner perspective
- Methods expertise
- Content expertise
- Access to literature
- Pilot testing

## **Funding**

- Opportunistic, ad hoc
- Foundation grants
- Department grants
- Research grants
- Academic department underwriting
- Academy underwriting

## Denominator

- Age/sex registries
  - Epidemiological/surveillance studies
- Representative samples of practices
  - Studies of clinician or practice behavior

## Practices are Changing Rapidly In 80 family practices in Northeast Ohio:

- 52% of all employees new within 2 years
- Staff duration
  - 1.8 yrs - network practice
  - 4.3 yrs - non-network practice
- Physician duration
  - 5.8 yrs - network practice
  - 11.3 yrs - non-network practice
- Ruhe MC, Goodwin MA, Stange KC. Physician and staff turnover in primary care practices. (in preparation), 2002.

## Research Designs

- Descriptive studies - clinical trials
- Longitudinal studies
- Quantitative - qualitative - multimethod

## Data Collection

- Data collection by
  - Practice
  - Research team
  - Health system
- Data collection method
  - “Weekly return” card
  - Computerized data
  - Medical record
  - Survey / interview
  - Direct observation

## **Data Analysis**

- Network staff
- Investigator

## **Scholarly Output**

- Academician or clinician
- Clinician - academician partnership
- Collaborators
- Writing / editing teams
- Participant reviewers
- Planned - evolutionary
- “Bigger pie” mentality
- Making time
- Write the abstract first

### **Ohio Academy of Family Physicians Research Planning Committee Retreat March 2-3, 1999**

- Enhancing practice-based research
- Consideration of a state-wide PBRN

### **Major Goals of Practice-Based Research**

- To increase the science-based knowledge that helps primary care clinicians take care of patients
- To reduce the gap between the intuitive sense of the practitioner and the availability of scientific knowledge that is relevant to practice

## Other Goals

- Decrease fragmentation and increase cohesion of effort
- Increase communication, shared learning, collaboration
- Increase involvement of private practitioners in research
- Build on health system linkages and other opportunities
- Increase visibility of research
- Incorporate the generation of new knowledge as part of the culture of our discipline
- Enhance the health of Ohioans
- Increase the patient base for research
- Increase research support
- Train the next and current generation of FPs to incorporate research into their professional lives
- Link with other health professionals and our patients

## Discovery

- There is a lot already going on regionally in affiliation with the state's 7 medical schools
- Need to nurture local activities
- Opportunities for partnerships

## Models

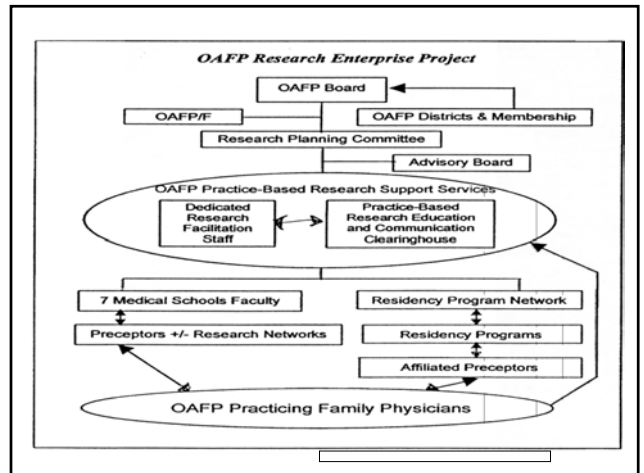
- Web of interrelated regional networks
- Communication vehicles
- PBR consultation service and mentorship program
- Joint pilot study (Nike approach)
- Network of residency programs
- State-wide network
- Join ASPN
- Partner with insurers, HCFA, OAHP, consumer groups
- Preceptor network(s)
- Longitudinal mega-database

## Issues

- Governance
- Core support
- Connecting current resources
- How to get the work done
- Data ownership
- Need for a research agenda  
(i.e. new knowledge to enhance the health of Ohioans)
- Link practice experts with research/content experts
- Human subjects protection

## Tasks for OAFP

- Basic research education
- Communication
- Facilitation of practitioner-initiated research\*
- Facilitation of medical school and residency practice-based research
- Developing partnerships with funders, systems, constituencies and content experts
- Idea generation, scholarships, operationalization, collaboration, data collection, analysis, scholarly output



## Action

- Expansion/contraction of regional, medical school and residency – linked practice-based research
- Informal linkages based on ideas in the plan
- Linking Research Day to Scientific Assembly
- Linkages sponsored by AHRQ initiative
- No formal pursuit of central support

## Conclusion

- Capture the wisdom of practice
- Support from research careerists
- Create linkages and partnerships
- Build on the passion

## References

- Nutting P, Beasley J, Werner J. Practice-based research networks answer primary care questions. *JAMA*. 1999;281:686-688.
- Nutting P, Baier M, Werner J, Cutter G, Reed F, Orzano A. Practice patterns of family physicians in practice-based research networks: a report from ASPN. Ambulatory Sentinel Practice Network. *J Am Board Fam Pract*. 1999;12:278-284.
- Nutting PA, Stange KC. Practice-based research: The opportunity to create a learning discipline. In: Rakel RE, ed. *The Textbook of Family Practice*; 2000.

## References (continued)

- Nutting P. Practice-based research networks: building the infrastructure of primary care research. *J Fam Pract*. 1996;42:199-203.
- Nutting P, Green L. Practice-based research networks: reuniting practice and research around the problems most of the people have most of the time. *J Fam Pract*. 1994;38:335-336.
- Nutting P, Green L. And the evidence continues to establish the feasibility of practice-based research. *Fam Med*. 1993;25:434-436.

## References (continued)

- Green LA, Nutting PA. Family physicians as researchers in their own practices. *J Am Board Fam Pract*. 1994; 7:261-263.
- Green LA, Hames CG, Nutting PA. Potential of practice-based research networks: Experiences from ASPN. *J Fam Pract*. 1994;38:400-406.
- Green LA, Niebauer L, Miller R, Lutz L. An analysis of reasons for discontinuing participation in a practice-based research network. *Fam Med*. 1991;23:447-449.
- Green LA, Lutz L.J. Notions about networks: Primary care practices in pursuit of improved primary care. In: Mayfield J, ML G, eds. *Primary Care Research: An Agenda for the 90s*. U.S. Department of Health and Human Services, Public Health Service: Agency for Health Care Policy and Research; 1990:125-132.

## References (continued)

- Thomas P, Griffiths F, Kai J, O'Dwyer A. Networks for research in primary health care. *BMJ*. 2001;322:588-590.
- Green LA, Dovey SM. Practice based primary care research networks. They work and are ready for full development and support. *BMJ*. 2001;322:567-568.
- Thomas P, While A. Increasing research capacity and changing the culture of primary care towards reflective inquiring practice: the experience of the West London Research Network (WeLReN). *J Interprofessional Care*. 2001;15:133-139.
- Wolf LE, Croughan M, Lo B. The challenges of IRB review and humans subjects protections in practice-based research. *Med Care*. 2002; 40:521-529.

