How Physicians Decide to Incorporate EHDI in their Practices: Evidence for Outreach Design

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Goal

- Determine where to focus limited staff and resources to increase the number of physicians properly referring children according to JCIH guidelines

The search for information

- No one compendium
- Previous studies on knowledge, attitudes and practice (KAP) regarding hearing
- Literature review to supplement
- Make inferences from related studies

Overview

- **Who** to address

- **How** to approach

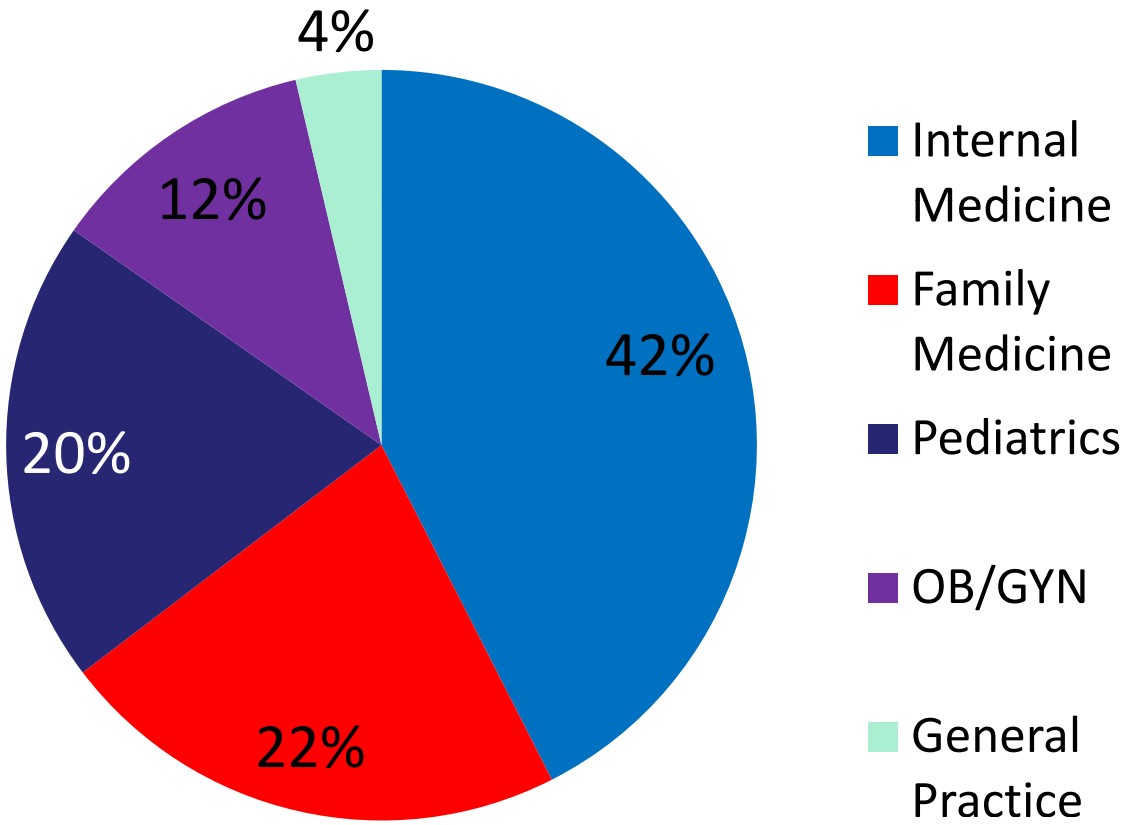
- **What** to include
- Summary

Who to address

Topics

- Adopting innovation
- Who is most likely to be receptive

Primary Care Specialties



American Medical Association, 2007

Population at risk of loss to follow-up/ loss to documentation

Children at risk for loss to follow-up in the EHDI system may be more likely to be seen by FP than a pediatrician

- There is evidence that children with family physicians as their usual source of care may be more likely to have no insurance or public insurance than children who have a different source of usual care.

2002 Medical Expenditure Panel (MEPS); analysis by the Robert Graham Center, 2005

Physicians who care for the pediatric population

- Approximately 20% of all physicians are pediatricians and 23% are family physicians. (*AMA. Physician Characteristics and Distribution in the US, 2007)*
- Family physicians provide 16% to 26% of visits for children and are named as the usual sources of care for approximately one-third of all children. (Phillips et al, 2006)

Family Practice and pediatric care

Number of pediatric patients varies among family medicine practices

Family Practice and pediatric care

- Most family practice physicians are involved in direct patient care (82.8%)
- Most family practice physicians report pediatrics as part of their practice.
- Note that 13% of surveyed practices reported no pediatric component.

(AAFP.org, 2009)

Innovation

- There can be surprising delays in the adoption of innovations
- The adoption process follows certain common patterns

Adopting innovation

"There is 17-year time lag between discovery and when most Americans benefit from that discovery." (Clancy, 2009)

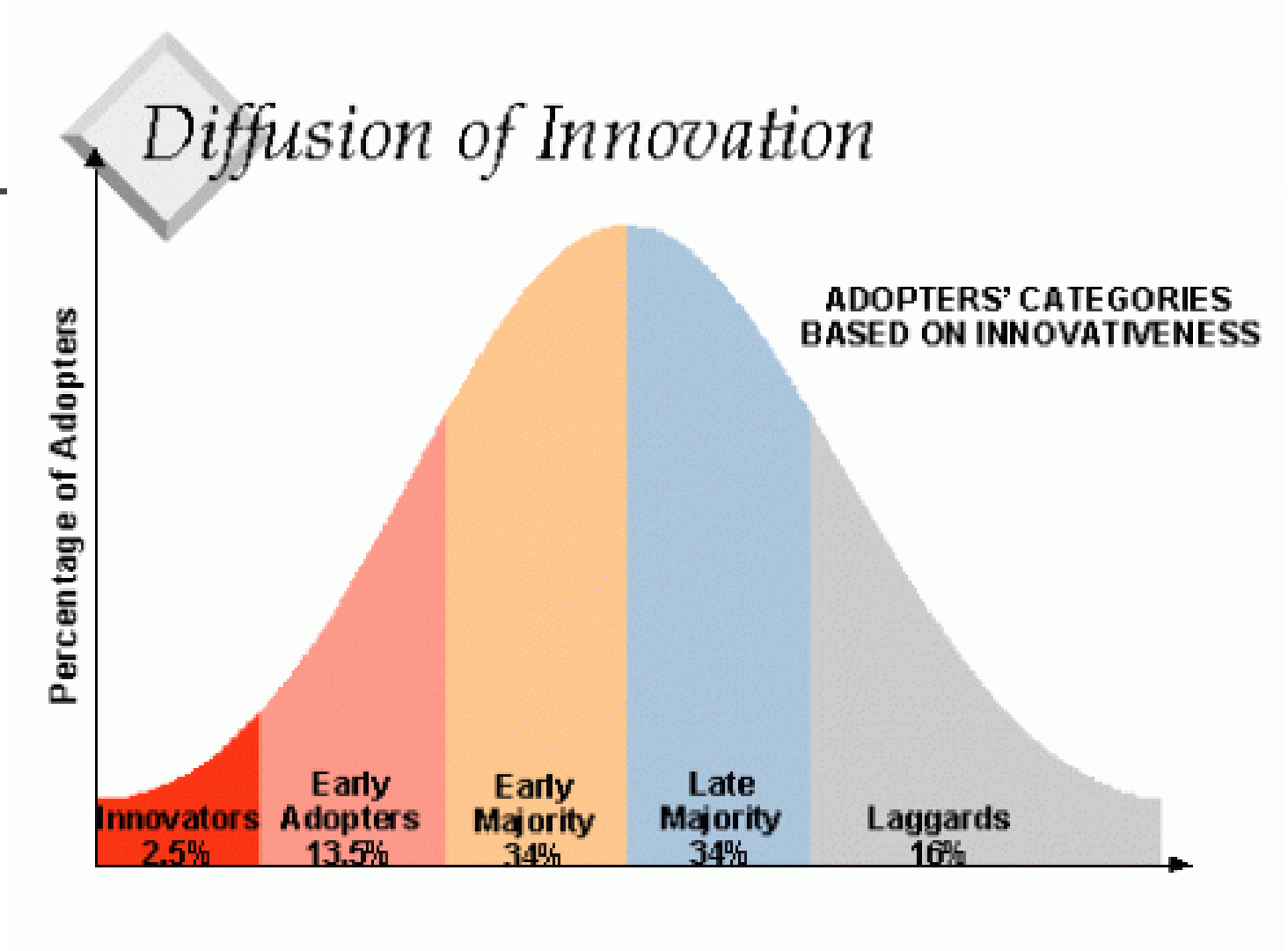
- In Georgia, only 26 percent of private healthcare providers are recording vaccinations in the state's immunization registry despite state law to do so. (Atlanta Journal-Constitution, Oct. 5, 2009)

Adopting hearing screening

- Although AAFP recommends screening for hearing loss [all ages] at annual physicals, 40% of respondents reported that they do not screen (Cohen, 2005) [N=260 IM/FP, questionnaire]
- 80% of physicians do not routinely screen for hearing loss in elderly patients (Bess et al, 1987)

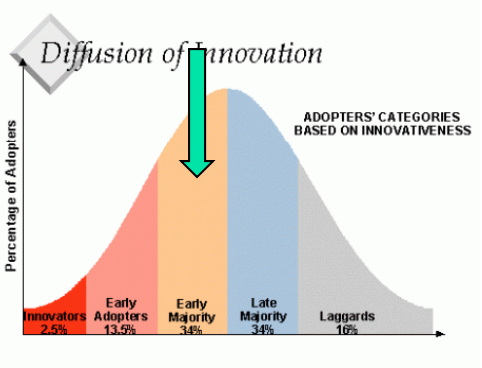
Diffusion of Innovation

- There is a general pattern to the diffusion of new ideas and practices
- Those who adopt innovation at different points in the process tend to fall into groups that share common characteristics



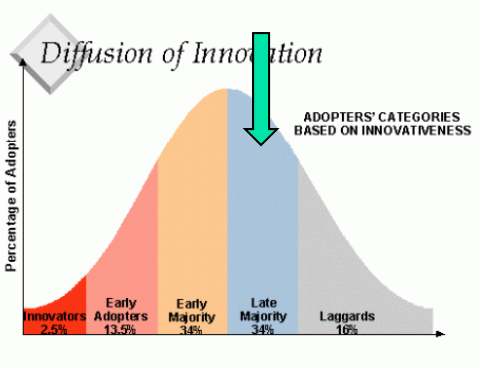
From EM Rogers; *Diffusion of Innovations: 4th Edition* (New York, The Free Press, 1995)

Early majority 34%



- Adopts new ideas just before average member of system.
- Interact with peers but seldom hold opinion leadership positions. Provide interconnectedness in interpersonal network.
- May deliberate for some time before a completely adopting a new idea.

Late majority 34%



- Adopt new ideas just after average in system.
- Adoption may be economic necessity and result from network pressure from peers.
- Approach innovation with caution and skepticism. Weight of system norms must favor innovation.

Early adopters (versus later adopters)

- Larger [work] units (practices, farms, companies, etc.)
- Greater ability to deal with abstractions, without seeing the innovation in actual practice.
- More connections outside their system than within it, e.g., physicians who attend more out-of-town professional meetings.

Early adopters (versus later adopters)

- Greater exposure to *mass media* communication channels.
- Greater exposure to *interpersonal* communication channels.
- Connected with like peers. "Trickle across" vs. trickle down. Special strategies may counteract this tendency.

Later adopters

- Interpersonal channels are more important for later adopters than for early adopters and innovators.
- Later adopters:

  - may learn about innovation through impersonal channels but
  - will be persuaded by their interaction with others, then
  - make a decision to try the innovation through impersonal channels again.

Financial considerations

- Imminent adopters [of computer-based record systems] reported more economic considerations for earnings than users and non-users. (Kaushai, 2009)
- **Solo practitioners** face particular barriers regarding finances and tech support (Kaushai, 2009)
- Children's hospitals have adopted Computerized Physician Order Entry (CPOE) at rates twice that of hospitals overall. May be because patient population is focused so changes can be more efficient. (Teufel, 2009)

National Cancer Institute (NCI) survey findings

- Diffusion of breast cancer risk assessment in primary care practices related to salience of breast cancer:
  - **personally** for physician (e.g., family member with breast cancer) and
  - **within the practice** (more cases of breast cancer),
- More influential than attitudes about the risk assessment methods.
- Patient preferences are important factor in genetic testing use.

(Guerra, Sherman, 2009)

Receptivity (From NCI Study)

Recommendations:

- Increase salience of breast cancer risk in primary care practice
- Develop tools *and support systems to help practices use the tools [emphasis added]*

Office of Market Research and Evaluation (OMRE)
Office of Communications and Education (OCE)
National Cancer Institute

Hearing cases

- Physicians will see few patients with hearing loss
- Experience with hearing loss cases does not guarantee accuracy of physician knowledge

Hearing loss is low-incidence condition in practice

- Respondents saw average of 3.3 children with mild-severe hearing loss in past three years
- FPs reported seeing average of 1.3 children with SNHL in previous 3 years.

(Moeller, 2006)

Experience alone not enough to ensure change in practice

- Neither years of practice nor number of patients with permanent childhood hearing loss affected accuracy of responses.
- Suggests experience alone not sufficient to change management strategies. (Moeller, 2006)

How to approach

Topics

- Channels currently used to get information
  - Personal
  - Print
  - Electronic

Sources of information

- Main sources of information are:
  - **Persons**
    - Colleagues
    - Office manager

  - **Print**, especially favorite journals

- Less effective are:
  - Web-based resources
  - Grand rounds

(Westat, 2009)

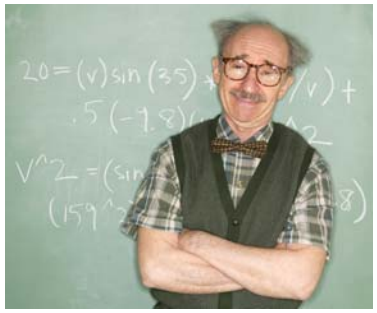
Main sources of information

- Colleagues
  - Face to face consult
  - Phone calls
    - Many phone calls are attempts to locate correct person to ask.
    - Medical colleagues account for 42% of calls medical staff received. (Davies, 2007)
- Hard copy
  - 2/3 of studies ranked text sources first as source of info on practice management. (Davies, 2007)

Residents vs. faculty

To find answers:

- Residents in the US are more likely to:
  - use a pocket reference or
  - consult a senior colleague. (Ramos, 2003)
- Faculty more likely to use texts. (ibid, 2003)



Reading patterns

- Trend is for physicians to read only 2-3 favorite journals

Print

Professional Journals

- 50 journals *delivered* to FP audience each month.
- FPs indicate they *receive* average of 7 journals per month,

- Meaning they personally *see* only 7/50 journals. (AAFP: The WHO Report, 2008)

Reading patterns

Trend is to see fewer journals

- Regularly read 2.1 journals.
- Average 6 hours per month reading medical journals.

Pediatrician journal article reading patterns

- Many articles each month
- Read quickly on average (av. 22 minutes per article)
- Read heavily from personal subscriptions
- Read both print and electronic journals
  - Primarily for current awareness but also heavily for treatment/diagnosis

(Tenopir, et al., 2007)

In-person office visits

- Physicians say they prefer very brief personal office visits rather than other channels to learn about new resources (Westat, 2009)
- They are more receptive to fellow clinicians or others who have practical knowledge of clinic demands (ibid)

Personal visits vs. other methods

- 80% say:
  - come to office
  - *with materials*

vs. much less effective

- ☒ conferences/grand rounds *(41%*)
- ☒ or mail materials (36%)

(Brady, 2009 conference presentation and private communication)

Personal visits

But

- Half of sales calls last less than 2 minutes
- 43% never get past receptionist

(Alkhateeb, 2009)

Who should visit

- Physician champion is the ideal
- Representative should be:
  - Enthusiastic
  - Able to speak to physician concerns
- Make appointment in advance

(Brady, 2009 conference presentation and private communication)

Who to talk to

- Office manager (41%)
- Physician directly (31%)

(Westat, 2009)

Internet use

- Greater use of Internet by younger respondents. (Sim, 2008)
- “Cohort trends suggest that the use of computers for clinical tasks and the use of the Internet as a tool in consultations will increase as the older workforce is replaced by the younger.” (Sim, 2008)

Literature searching

- If info is not located, it is often assumed not to exist. (Davies 2007)
- 22% of physicians in studies refer patient rather than undertake lit search (Davies 2007)
- SLPs tend to consult colleagues rather than peer-reviewed literature for clinical query (Nail-Chiwetalu, 2007)

Literature searching

- None of computerized resources seen as efficient enough by physicians. (Houston, 2005 in Davies, 2007)
- Prefer to use one authoritative source rather than search and evaluate multiple sources. (Davies 2007)
- Most users learn one or two electronic info resources and learn to use them effectively. (Potter, 2005)

Effectiveness

Less effective:

- Several systematic reviews indicate that conferences, printed materials and lectures have only weak effects on medical practice.

(Moeller, 2006; Davis, 1999; Freemantle,2000;Thomas O'Brien, 2001)

More effective:

- CME programs with interactive elements
- Local opinion leaders

(Moeller, 2006)

Mobile devices (PDAs)

- House staff liked access to high quality information from mobile devices

  but

- More concerned with getting access within 30 seconds.

(Davies 2007)

Mobile devices

- Pediatricians under age 35 more likely to use mobile devices, but as yet not for article reading (Tenopir, 2007)
- Patients in general were comfortable with care provided by clinic physicians using a computerized decision support system for depression. (Trivedi,2009)

What to include

Topics

- Physician concerns
- How physicians assess new offerings
- What tools and resources physicians value

Tools

- Important to develop “desktop” facilities with links to all the resources clinicians require to practice medicine and contain best-practice guidance. (Davies, 2007)
- Signpost how to find person who can find/provide info needed (Davies, 2007)

Physician recommendations

Study of criteria

- Study of physician willingness to recommend a community service [for arthritis patients] suggests possible talking points important to physicians

Physician recommendation

Reinforce to the physician why physician recommendation important:

- Patients may believe resource does to exist or otherwise physician would have mentioned it.
- About 50% of patients getting physician recommendation followed through on it. (Westat, 2009)

Main criteria

- Convenient time and location
- Low cost (64.5% said $25 “affordable” for total 6 week class fee)
- Physician or patient knows about program and staff
- Easy to hand out patient ed materials (82% like to give patient handout)
- Liked “not for profit” aspect

(Brady, 2009 conference presentation and private communication)

Barriers to recommendation

- Lack of awareness
- Cumbersome process: eliminate need to write anything, not even prescription unless pre-printed tear-off (Brady, 2009 Conference presentation)

Physician concerns: False positives

Important to address effects of false positive screening results on

- Practice burden
- Patient anxiety and family bonding

Physician concerns

Important to address concerns about:

- Increased demand on practice from new patient services
- Patient anxiety about false positive screening results

False positives: Emotional effects

For false-positive results on initial screen before rescreen:

- 80% reported worrying about child's hearing before rescreen
- Only 9% of mothers said they "treated their child differently" as a result of initial failed screen. (e.g., Clap hands to test hearing or speak louder)
- After rescreen, 86% reported no lasting anxiety.

(Clemens, 2000)

Clinical practice guidelines

- Clinical practice guidelines have had limited effect in changing physician behavior.

  (Woolf,1993; Kanouse,1989; Lomas,1989; Trivedi,2009)

Incentives

"…[G]uidelines for practice may predispose physicians to consider changing their behavior, but that unless there are other incentives or the removal of disincentives, guidelines may be unlikely to effect rapid change in actual practice.

We believe that incentives should operate at the local level, although they may include system-wide economic changes."

(Lomas, et al., 1989)

Physician assessment of hearing loss

- 97.6% responded that hearing loss [all ages] affected patients' quality of life but only 60% assessed for hearing loss.
  (Cohen, 2006)
- Reasons:
  - "Lack of time" 38.2%
  - "More pressing issues" 38.2%
  - Not sure of best assessment method 26.5%
    (Cohen, 2006)

Assessment methods

- PCPs may give “too much credence… to subjective measures of diagnosing newborn hearing loss, such as role of parental assessment and the presence of cooing and babbling by infants.”

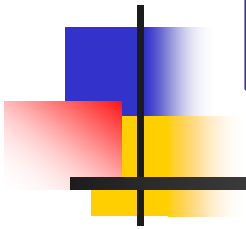
(vs. balanced use of parent report as one indicator)

(Carron, 2009) [Mississippi] 160 physicians (50 GP, 89 FP, 21 non-PCP and no pediatric care)

Presence of local resources

- Respondents with academic medical centers, ENTs and audiologists were not more likely to evaluate patients for hearing loss than those without.

(Cohen, 2006)



Final Summary

Who to approach

Assistance available to all physicians, but if resource limitations force priorities, consider these factors:

- Physicians who have requested assistance
- Those with experience with hearing loss, either personal or though the practice.
- Practice sees a large number of young children

Who to approach

- Larger practice
- Extensive interpersonal network with peers
- Attend conferences and other events outside geographic home
- Connected with Internet and other computer-based resources

How to approach

- Visit by respected colleague/champion or someone clearly familiar with realities of clinical practice
- Prepare for 2-minute and 15-minute versions of visit

Web-based information

Use to

- introduce topic and guided questions to agenda
- reinforce recommendations by others
- supplement personal contact with detailed *follow-up* information available *when most convenient*

Web-based information should have wide range of likely search terms, including misspellings

Mobile applications

- Satisfaction depends on:
  - Ability to execute tasks ‘in a straightforward manner” and
  - Response time of the application. (Kuperman, 2003)

For all Web-based resources

- Substantial support (“help at the elbow”) needed (Kuperman, 2003)

What to Offer

Information

- Counter concern over parent anxiety or decreased bonding
- Logistics of how to obtain services
- Cost ($25 would be “affordable” to 65% of practices) and sources of assistance
- Description of service patient will receive
- Evidence of program effectiveness and/or patient testimonial

Contacts for information

- Contact(s) for prompt information on content, procedure or other resources, such as referral
- Assistance in implementing proper follow-up

Persuasive messages to physicians

- Local programs are evidence-based and shown to be effective
- Research shows recommendation from physician can affect patient actions

Tools

- Easy to hand out patient ed materials (82% like to give patient handout)
- Eliminate need to write anything, not even prescription unless pre-printed tear-off

(Westat, 2009)

Overall

For all interventions

- We must consider detailed workflow
- to address predictable and unintended consequences
- for the practice and the patients

Thank you

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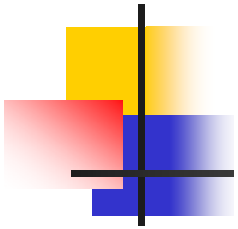
Early Hearing Detection and Intervention (EHDI) Web site: http://www.cdc.gov/ncbddd/ehdi/



EHDI

CONFERENCE

Primary care physicians handle a large portion of overall medical visits

- Of all office visits in the US in 2006: 23.1% were seen by physicians in general and family medicine (Cherry DK, Hing E, Woodwell DA, Rechtsteiner EA. National Ambulatory Medical Care Survey: 2006 summary. National health statistics reports; no 3. Hyattsville, MD: National Center for Health Statistics. 2008.)
- Over 1/3 of combined visits were to physicians in internal medicine, pediatrics, or OB/GYN. (ibid, 2009)

Trend

The number of family practice physicians is decreasing, especially in underserved areas

Trends in residencies

In 1996 – 15.5% of first year residents in the US were matched in **family practice** residencies. This has *steadily decreased* to 10.9% in 2009

The percentage of first year residents in the US who were matched in **pediatric** residencies remained *relatively unchanged* from 1996-2009 at approximately 11%

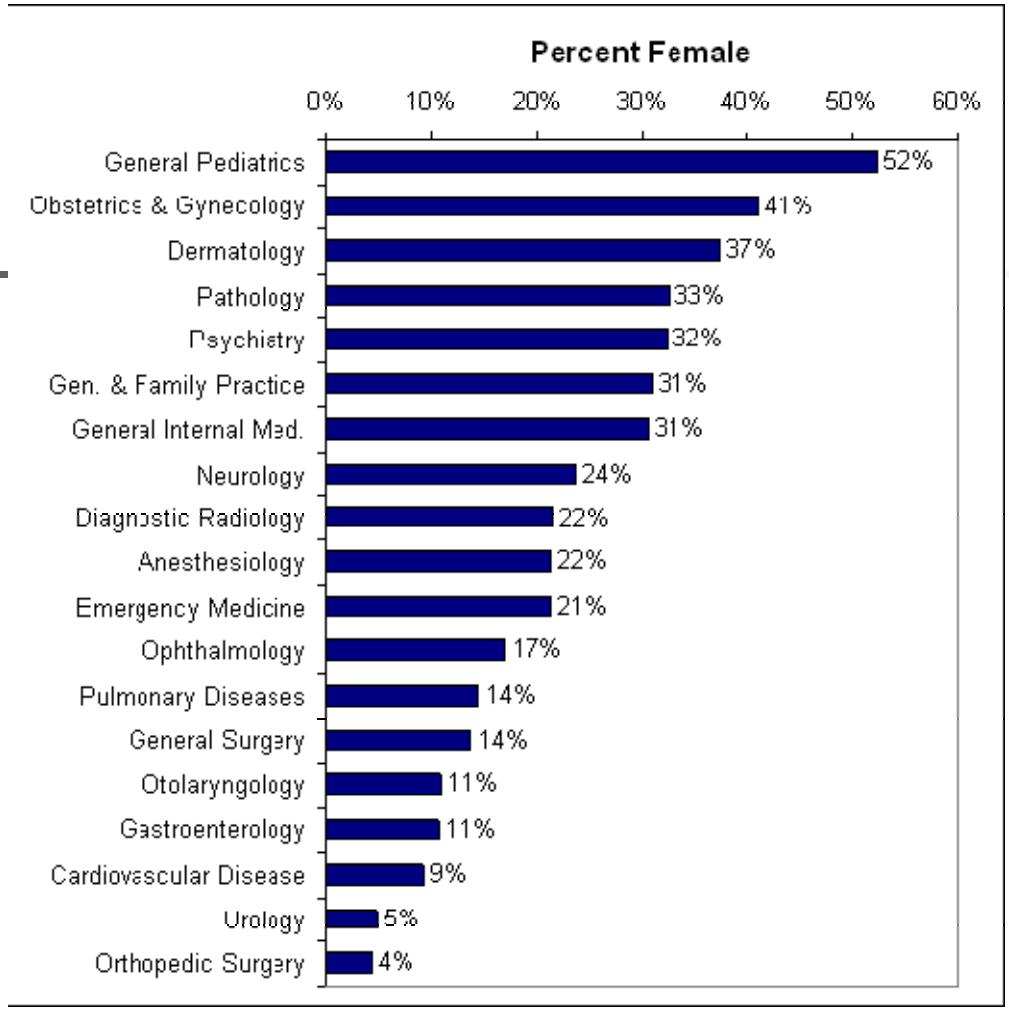
Source: National Residency Matching Program results and data 1996-2009
http://www.nrmp.org/data/index.html

Internal Medicine declines

- Shortfalls in the US physician workforce are anticipated as the population ages and medical students' interest in careers in **internal medicine** (IM) has declined (particularly general IM, the primary specialty serving older adults).
- The factors influencing current students' career choices regarding IM are unclear.

Trends

- A 2008 survey indicates that interest among medical students may not be enough to maintain the current proportion of **primary care physicians** (includes internists, pediatricians, and family medicine). Hauer KE, Durning SJ, Kernan WN, Fagan MJ, Mintz M, O'Sullivan PS et al. Factors associated with medical students' career choices regarding internal medicine. *JAMA, 2008, 300*(10):1154-1164.
- Fewer primary care physicians are choosing rural and underserved areas to practice.



Percent of Physicians who are Women: 2004

Source: *Physician Characteristics and Distribution in the US, 2006 Edition* (AMA, 2006)

Family Practice - Gender

By Sex

- Almost 1/3 of family medicine physicians are women, up from 17% in 1990.
- Osteopathic physicians: 30% women

Family practice demographics

The demographic makeup of family practice physicians is changing:

- Increase in proportion of women
- International and minority groups strongly represented among residents

Family Practice residents

In 2008, there were 10,042 total residents.

Of the total:

- 3,974 (40%) were **international** medical graduates.
- 5,326 (53%) were **women**
- 3,924 (39%) were from a **minority group**.

(MA article)

Women in pediatrics

Women constitute 24.6% of all physicians and 49.6% of pediatricians

Source: AMA Physicians Characteristics and Distribution in the US, 2003-2004 Edition

69% of pediatricians < 35 yrs of age are women whereas only 17% of pediatricians ≥ 66 years of age are women.

Source: American Academy of Pediatrics Division of Health Services Research. Periodic Survey of Fellows # 47-# 51, 2001

http://www.aap.org/workforce/Peddemograph2003.ppt#259,1, Pediatrician Demographics and Practice Characteristics

Family Practice - Age

By Age

- Almost evenly divided in first two age ranges:
  - 25-39: 37.3%
  - 40-59: 33.2%
  - Between 60-74: 9.2%

Pediatrician demographics: Age

Pediatrics has a higher proportion of physicians younger than 35 years than any other specialty.

- Proportion of US physicians younger than 35 years: 16%
- Proportion of US *pediatricians* younger than 35 years: 22%
- Proportion of US *pediatricians* younger than 45 years: 51%

Source: American Medical Association. *Physician Characteristics and Distribution in the US, 2007 Edition.* Chicago, IL: American Medical Association; 2007:9

National Cancer Institute (NCI) survey findings

Diffusion of breast cancer risk assessment in primary care practices

- Clinicians who have had experience with the condition may be more receptive.
- Experience can be:
  - Personal
  - Practice-related

(Guerra, Sherman, 2009) [N=351/ IM,FP,OBGYN; survey)

Sources of **practice management** information

- **PM journals ……37.0%**
- **Office manager …… 19.0**
- **PM articles in other journals… 12.0**
- Colleagues……7.0
- Medical associations……7.0
- Websites are among lowest sources (4.0%)

(AAFP The WHO Report, 2008)

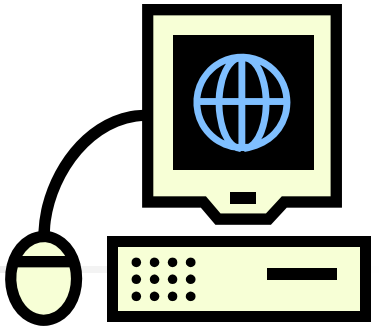
Web-based information

Factors encouraging Internet use are unclear but include:

- overall patient satisfaction,
- perceived improvement in service,
- time saving and
- demand from patients.

(Masters, 2008: Meta-analysis of 38 studies over10 years)

Physician concerns



- Patient use of internet likely to add to burden in terms of increase in patient questions. 66% of respondents said they had more questions as a result of Internet search. (Iverson, 2008)
- Physicians can overestimate the amount of time they spend dispensing info to patients. (Iverson, 2008)

Physician concerns

- High false positive rates may be legitimate concern. Can create “complacent attitude with health care professionals that ‘infants always pass the second screen.’”

(Moeller, 2006)

Barriers to action

- 89.4% aware of cochlear implants but only 25.9% had referred patients who are deaf or hard of hearing [all ages]for CI evaluation.
- Barriers:
  - Uncertain about where to refer
  - Unsure which patients were potential candidates

(Cohen, 2006 / N=85 / all ages)