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International Conference on Clinical Practice Guidelines

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Prof. Dr. Joseph Pliskin, Beer Sheva, Israel:

Cost-Effectiveness Analysis and the Implementaion of Guidelines: Which comes first?
(The Chicken and Egg Problem ...)

Slide **1**

Pre-guideline CEA

- Immunization
- Cancer Screening

Post-guideline CEA

- Smoking Cessation
- Emergency Medicine

Slide **2**

Immunization to Prevent Influenza

Guidelines:
(I) Immunization Practives Advisory Committee of CDC (1998)

- influenza vaccination annually for high risk persons 6 months or older
- medical-care personnel
- other persons wishing to reduce risk

(No CEA models cited.)

(II) Medicare Coverage

- Medicare influenza vaccine demonstration Selected States 1988 - 1992, MMWR 1992; 41: 152 - 155.

„Because of these generally favorable results, influenza vaccine was made a covered benefit for all Medicare part B beneficiaries on May 1, 1995."

Models:

- Riddiough MA, Sisk JE, Bell JC. Influenza vaccination: Cost-effectiveness and Public Policy. JAMA 1983; 249: 3189 - 3195
- Patriarca PA, Arden NH, Koplan JP, Goodman RA. Prevention and control of type A influenza infections in nursing homes: benefits and costs of four approaches to using vaccination and amantadine. Annals of Internal Medicine 1987: 107: 732 - 740

Slide **3**

Immunization to Prevent Pneumococcal Disease

Guidelines:

- The Advisory Committee of Immunization Practice (ACIP)
  - Age > 64
  - Age 2 - 65 with chronic illness (cardiovascular, pulmonary, diabetes, alcoholism, cirrhosis, asplenia, nursing home inhabitants)

... „results of a cost-effectiveness analysis indicate that pneumococcal polysaccharide vaccine is cost-effective and potentially cost-saving among persons aged >= 65 for the prevention of bacteremia. The caccine compare favorably with other standard preventative practices."

Models:

Lin JD, Sisk JE, Moskowitz A, Fedso DS. The cost effectiveness of pneumococcal vaccine (Abstract)

Slide **4**

Immunization to Prevent Varicella

Guidelines

(I) Advisiory Committee on Immunization (ACIP)

- All children between 12 - 18 months (unless history of varicella infection)
- all susceptible children by 13th birthday
- High-risk adults (day-care employees, non-pregnant woman of childbearing age, international travellers)

(II) The American Academy of Pediatrics (AAP)

- Same as ACIP

„Vaccine for universal use in early childhood and immunization in susceptible older children and adolescents is recommended based on the frequency of serious complications and deaths after infection with wild varicella, the excess to the family and

Abstracts of the American Public Health Association 124th Annual Meeting an Exposition. New York, NY Nov. 17 - 21 1996. (Cited)

This model was later published as:

Sisk JE, Moskowitz A, Whang W, Lin JD, Fedson DS, McBean AM, Plouffe JF, Cetron MS, Butler JC. Cost-effectiveness of vaccination against pneumococcal bacteremia among elderly people. JAMA 1997; 278: 1333 - 1339.

society incurred by varicella infection, and the efficacy and safety of the live attenuated varicella vaccine."

Models cited in both the ACIP and AAP Guidelines:

Lieu TA, Cochi SL, Black SB, et al. Cost-effectiveness of a routine varicella vaccination programm for U.S. children. JAMA 1994; 271: 375 - 381

Preblud SR, Orenstein WA, Koplan JP, Bart KJ, Hinman AR. A benefit-cost analysis of a childhood varicella programme. Postgrad. Med J 1985; 61 (suppl): 17 - 22

Slide **5**

Screening for Colorectal Cancer

Guidelines:

(I) The American Cancer Society (ACS)

- Annual Fecal Occult Blood Testing (FOBT)
- Flexible Sigmoidoscopy every 5 years
  or Colonscopy every 10 years
  or Double contrast barium enema (DCBE) every 5 - 10 years

(No models cited.)

(II) AHCPR

- Annual FOBT or sigmoidoscopy or both

Consensus report from the American Gastroenteriological Association and 4 other medical societies

- Annual FOBT (colonoscopy for abnormal FOBT
- Flexible sigmoidoscopy every 5 years for low risk individuals over 50
- DCBE every 5 - 10 years
- Colonscopy every 10 years

Models:

Wagner J. From the Congressional Office of Technology Assessment: Costs and effectiveness of colorectal screening in the elderly. JAMA 1990; 264: 2732.

Ransohoff DF, Lang CA. Screening for colorectal cancer, NEJM 1991; 325: 37 - 41

Eddy DM, et al. Screening for colorectal cancer. Annals of Internal Medicine 1990; 113: 373 - 384

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Screening for Breast Cancer

Guidelines: (I) ACS, NCI and 9 other groups:

- Routine screening begin at age 40
- Annual clinical breast exams (CBE)
- Mammograph every 1 - 2 years
- After age 50: annual CBE & mammography

(No models cited.)

(II) The NIH Consensus Development Conference Statement (January 1997)

- Mammography every 1 - 2 years for woman 50 - 69
- Annual CBE for woman 50 - 69
- Insufficient evidence for routine mammography for ages 40 - 49.

(no models cited.)

(III) National Strategic Plan for the Early Detection and Control of Breast and Cervical Cancer; U.S. Department of HHS

Model cited for III:

Eddy DM, et al. The value of mammography screening in woman under age 50 years. JAMA 1988; 259: 1512 - 1519.

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Screening for Cervical Cancer

Guidelines:

(I) American Cancer Society

- Pap test and pelvic exam for woman who are or have been sexually active or have reached age 18.
- Annual screening for 3 years and after 3 normal exams less frequently.

(II) NCI Office of Cancer Commuications

- Annual screening for woman beginning sexual activity or age 18.

(No models cited.)

(III) NIH Consensus Development Conference (April 1998)

Models for III

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Smoking Cessation

Smoking Cessation: Clinical Practice Guideline (AHCPR, 1996)

- Based on meta-analyses and expert opinion
- Guideline identifies efficacious interventions for primary care clinicians and smoking cessation specialty providers
- 15 smoking cessation interventions

Fiore MC, Bailey WC, Cohen SC et al. Smoking Cessation: Clinical Practice Guideline No. 18, Rockville, MD: AHCPR; 1996 (No. 96-0692)

Eddy DM. Screening for cervical cancer. Annals of Internal Medicine 1990; 113: 2114 - 2226.

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CEA OF AHCPR GUIDELINE

- Relative cost-effectiveness of 15 interventions
- Combined into global model of overall cost-effectiveness
- Assume the primary care clincians screen all presenting adults for smoking status
- Advise and motivate all smokers to quit
- Smoking cessation interventions are provided to 75 % of US smokers 18 years or older (willing to make a quit attempt within 1 year)
- Intervention modeling:
  - 3 counseling interventions for primary care clinicans
  - 2 counseling interventions for smoking cessation specialists
  - modeled with and without transdermal nicotine and nicotine gum

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Results

- Guideline would cost $6.3 billion to implement in its first year
- Gain 1.7 million new quitters
- $ 3779 per quitter
- $ 2587 per life-year saved
- $ 1915 for every QALY saved

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Conclusion:

Smoking cessation is extremely cost-effective compared with other preventive measures.

Cromwell J, Bartosch WJ, Fiore MC, Hasselblad V, Baker T. Cost-effectiveness of the clinical practice recommendations in the AHCPR Guideline for Smoking Cessation. JAMA 1997; 278: 1759 - 1766.

Slide **12**

Emergency Medicine

- Financial impact of practice guidelines on outpatient charges in the emergency department
- Cost-effective guidelines based on a patient´s chief complaint
- 23 guidelines and general recommendation for diagnostic testd
- Pre-intervention and post-intervention data collected

Guterman SJ, Van Rooyan MJ. Cost-effective medicine: The financial impact that practice guidelines have on outpatient hospital charges in the emergency department. The Journal of Emergency Medicine 1998; 16: 215 - 219

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Results:

Total hospitalization charge	↓	28 %
Laboratory hospital charge	↓	46 %
Radiology hospital charge	↓	20 %
Hospital supply charge	↓	31 %
Pharmacy charge	↓	11 %

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Recommendation

Cost-effectiveness analysis

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Guideline development

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Guideline implementation

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Cost-effectiveness analysis

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