Institute of Medicine National Policy Forum Implementing Colorectal Cancer Screening

Public and Patient Interventions to Implement Screening

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# IMPLEMENTATION

Ø The use of strategies to adapt/integrate evidence-based health interventions and change practice patterns within specific service settings.

Source: http://cancercontrol.cancer.gov/d4d

# Issues posed to IOM workshop participants

#### ø To identify:

- next steps to achieve implementation of recommended system and community interventions and even to propose additional approaches to increase screening
- major barriers to implementing system interventions and screening methods
- effective strategies to increase implementation of system and community interventions based on available research and our own experience

# Precursor issue that needs to be addressed

Do we have efficacious interventions that can be implemented in clinic and community settings/systems?

Recommendations for Client-oriented			
Cancer Screening Interventions			
Breast Cervical CRC			
Intervention			
Client reminders	Strong	Strong	Sufficient
Multi-component using media, education and enhanced access	Strong	Strong	Insufficient
Reducing structural barriers	Strong	Insufficient	Strong
Client incentives (with reminders)	Strong	Insufficient	Insufficient
Small media	Strong	Insufficient	Insufficient
Reduced out-of-pocket expense	Sufficient	Insufficient	Insufficient
Group education	Insufficient	Insufficient	Insufficient
One-on-one education	Strong	Insufficient	Insufficient
Client incentives (alone)	Insufficient	Insufficient	Insufficient
Mass media (alone)	Insufficient	Insufficient	Insufficient

#### Summary of effect sizes (odds ratios) from singlestrategy patient or provider interventions (Stone et al. Annals of Internal Medicine 2002;136:641-51)

Intervention Type	FOBT	Рар	Mammography
Organizational change	17.6	3.03	2.47
Provider education	3.01	1.72	1.99
Patient reminder	2.75	1.74	2.31
Patient \$ incentive	1.82	2.82	2.74
Provider reminder	1.46	1.37	1.63
Patient education	1.38	1.53	1.31
Provider feedback	1.18	1.10	1.76

# FOBT Clinic Interventions: Study characteristics

Primary Author	Year data collected	Setting	Total Sample
Courtier ('02)	1998-99	Municipal employees in primary care health clinic in Barcelona (aged 50- 74 yrs)	2026
Miller ('05)	2001-02	University-affiliated community clinic	194
Pignone ('00)	1998	3 Primary Care practices in NC	249
Stokamer ('05)	2002	VA New York Harbor healthcare clinic	788
Thompson('00)	1998	VA Puget Sound healthcare clinic	1109

### **FOBT Clinic Interventions**



\*Courtier (2002) and Miller (2005) did not have a control group—both in each study received intervention materials.

#### FOBT Community Interventions: Study characteristics

Primary Author	Year data collected	Setting	Total Sample
Braun ('05)	2001	8 Hawaiian Civic Clubs	121
Campbell ('04)	before 2004	12 rural African-American churches in NC	587
Church ('04)	2000	Residents aged ≥50 yrs in Wright County, Minnesota	1,255
Cole ('03)	2001	Urban residents on electoral rolls in Adelaide, Australia	1,818
Cole ('02)	1999	Urban residents from general practices and the electoral roll in Adelaide, Australia	2,400

#### FOBT Community Interventions: Study characteristics (con't)

Primary Author	Year data collected	Setting	Total Sample
Federici ('06)	2002-03	Italian residents from the Lazio region of Italy, including Rome (aged 50-75 years)	7,320
Lipkus ('05)	2000-03	Carpenter's Union in NJ	860
Ore ('01)	Before 2000	Male and female residents of Haifa,Israel (aged 50-74 years)	1,946
Segnan ('05)	1999-2001	5 study centers in Italy with 190 GPs (aged 55-64 yrs)	26,682

# **FOBT Community Interventions**



\*Studies did not have a control group – all groups received some form of intervention.

# Endoscopy Clinic Interventions

Primary Author	Year data collected	Setting	Total Sample
Ferreira ('05)	2001-03	2 VAMC outpatient clinics in Chicago, IL (aged ≥50 yrs)	1,978
Ganz ('06)	Began in 1998	36 provider organizations in a California HMO	1,850
Myers ('07)	2002	Primary care practice patients in Philadelphia, PA (Jefferson Family Medicine Associates)	1,546
Zauber (unpublished)	2000-04	3 study sites (GHCCC, U of MN, LSU)	1,402
Zapka ('04)	1999-00	5 Primary Care practices in MA	2966

### **Endoscopy Clinic Interventions**



#### Endoscopy Community Interventions

Primary Author	Year data collected	Setting	Total Sample
Basch ('06)	2000-02	Health care workers union in NYC	446
Corbett ('04)	2002-03	Residents of Australian Capital Territory from general practices and electoral rolls (aged 55-74 yrs)	392
Costanza ('07)	2001 & 2004	Patients attending practices in the UMass Health Care system (aged 50- 75 yrs)	2,472
Dietrich ('07)	2005	Women in the Medicaid managed care organization in NYC (aged 40-69 yrs)	1,316
Wardle ('03)	1997-98	6 trial centers in the UK Flex Sig Screening Trial (aged 55-64 yrs)	2,966

# Endoscopy Community Interventions



\*Corbett (2004) did not have a control group—both groups received invitations in the mail to get CRCS from either their general practioner or a local hospital.

#### Bottom line from CRC screening interventions

Ø Doing something, however modest, works – including usual care

Ø We need more data on the relative effectiveness and cost-effectiveness of interventions of varying intensity

Ø Other thoughts?

Information needed to develop and implement effective cancer screening interventions

- Ø Trends and patterns in cancer screening prevalence
- ø Correlates/predictors of screening
  - demographic characteristics
  - cost/access
  - attitudes, beliefs
- Ø Reasons for not screening

# Recent colorectal cancer test usage among respondents age 50 and older: 2000, 2003, and 2005



### The Importance of Correlates

- Ø Socio-demographic correlates identify subgroups of the population that should be targeted for intervention
- Ø Healthcare system correlates identify subgroups lacking access and/or potential opportunities for screening

# Recent CRC Screening by Race/Ethnicity



# Recent CRC Screening by Insurance



# Independent Variables Measured in the HINTS

#### Ø Cancer Information Seeking

- Looked for cancer information from any source (self, other)
- Confidence in being able to get advice or information about cancer if needed
- Trust in sources of cancer information\*
- Attention paid to information about health or medical topics in the media\*

#### ø Cancer Knowledge

- Age to start regular CRC testing
- CRC test-specific intervals
- High risk age group for developing CRC

#### ø Cancer Beliefs

- Perceived risk (absolute, comparative)
- Cancer worry
- Arranging a CRC test is easy
- Afraid to find CRC if tested
- Regular CRC testing increases chances of finding cancer when it's easy to treat
- CRC testing is too expensive
- Everything causes cancer
- There's not much people can do to lower their chances of getting cancer
- So many different recommendations about preventing cancer, it's hard to know which ones to follow

\* Multiple items used to create scale scores

# Reasons for Not Screening NHIS 2005

Reasons did not have screen	FOBT	Endoscopy
Lack Awareness		
Never thought about it; didn't need it; haven't had any problems	75.1	72.3
Not Recommended	20.2	17.9
Expense	0.8	2.0
Procrastination	1.3	3.3
Too painful, unpleasant, or		
embarrassing	0.4	1.6
No Physician	1.2	1.1
Other	1.1	1.8

Shapiro et al., Cancer Epidemiology, Biomarkers, and Prevention, under review.

#### The Translational Research Continuum: Bench to Trench

- Ø The NIH Clinical and Translational Science Awards (CTSA) consortium defines translational research, in part, as
- Ø "... the process of applying discoveries generated during research in the laboratory, and in preclinical studies, to the development of trials and studies in humans." This process includes efforts "aimed at enhancing the adoption of best practices in the community"

http://grants1.nih.gov/grants/guide/rfa-files/RFA-RM-07-007.html

The Translational Research Continuum for Cancer Screening Interventions

- Ø Understand the epidemiology of cancers for which there are evidence-based technologies to reduce incidence or mortality
- Ø Monitor the prevalence of cancer screening behaviors and trends over time
- Ø Understand determinants of cancer screening behaviors
- Ø Use behavioral science theory to develop behavior change interventions
- Ø Use new technologies to deliver interventions, e.g., interactive computer-based educational programs
- Ø Disseminate evidence-based interventions into clinical practice

#### Bench to Trench Feedback Loop

Dissemination of behavior change strategies

Epidemiologic surveillance (morbidity and mortality)

Trials of public health/ behavior change interventions

Advances in medical technology

(e.g., diagnostic imaging and biomarkers)

Dissemination of medical technologies Trials of medical technologies

to reduce morbidity and mortality

#### Knowledge Gaps & Directions for Future Research

#### Efficacy vs. Effectiveness

**EFFICACY:** The extent to which a specific intervention, procedure, regimen, or service produces a beneficial result under ideal conditions; the benefit or utility to the individual or the population of the service, treatment regimen or intervention. Ideally, the determination of efficacy is based on the results of a randomized controlled trial. EFFECTIVENESS: A measure of the extent to which a specific intervention, procedure, regimen, or service, when deployed in the field in routine circumstances, does what it is intended to do for a specified population.

Definitions from: Last, J.M. A Dictionary of Epidemiology, 4<sup>th</sup> ed. New York: Oxford University Press, 2001.

#### Knowledge Gaps & Directions for Future Research

- Ø We need to reconcile the different classification schemes for interventions
- Ø We need to be parsimonious in our approach to conceptual or theoretic models used for prediction and intervention development.
  - "A rose by any other name . . ."
- Ø We need more data on
  - I longitudinal predictors or determinants of screening uptake
  - mediators and moderators of uptake
  - intermediate endpoints that can be used as surrogates for behavior, e.g., intention, preferences

#### Knowledge Gaps & Directions for Future Research

We need to consider where we are in the diffusion curve and how that affects the types of interventions we use

Ø For new screening tests

- focus on never users
- consider a stepped approach where we begin with a minimal intervention, e.g., an invitation, to cull those most likely to comply followed by a more intensive intervention for those less willing
- ø For well-diffused tests
  - focus on those who are overdue for screening
  - Need more intensive intervention strategies?

#### STAT BITE

#### **Effect of Breast Cancer Awareness Month on Mammography Use**

In 1993, October was declared Breast Cancer Awareness Month, with the third Friday of October designated as National Mammography Day. According to data from 3,869,763 screening mammograms recorded in the National Cancer Institute's Breast Cancer Surveillance Consortium from 1994-2003, there was an initial increase in mammography use in October versus other months in the same calendar year. This increase has become less prominent over time. However, October remains the most likely month that women select to undergo screening mammography.



Source: Breast Cancer Surveillance Consortium; access at http://breastscreening.cancer.gov. Correspondence to William E. Barlow, Ph.D., Cancer Research and Biostatistics, 1730 Minor Ave. Suite 1900, Seattle, WA 98101 (e-mail: williamb@crab.org)

Journal of the National Cancer Institute, Vol. 97, No. 20, October 19, 2005

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#### Knowledge Gaps & Directions for Future Research

Ø We need to determine the optimal frequency, duration, and intensity of interventions

- when to use a minimal cue arm in addition to (instead of?) a survey-only and/or no contact control group
- evaluate the relative effectiveness of different types of minimal cues

#### Knowledge Gaps & Directions for Future Research

- Ø We need reliable and valid measures of screening uptake – both self-report and record sources (EMR, administrative databases)
  - we need to agree on conceptual (e.g., ever, recent, repeat) and operational (e.g., within past 12 months; month/year) definitions of behavioral outcomes
  - we need to understand sources of error and bias in all of our data sources

#### Section in CEBP on Validity of Colorectal Cancer Screening Behaviors

- Ø Bastani R, Glenn B, Maxwell A. Validation of self-reported colorectal cancer screening in a study of ethnically-diverse first-degree relatives of colorectal cancer patients identified from the California Cancer Registry.
- Ø Beebe TJ, Stoner SM, Anderson KJ, Davern ME, Rockwood TH. The effects of data collection mode (telephone vs. mail) and asking about future intentions on self-reports of colorectal cancer screening.
- Ø Jones RM, Mongin SJ, Lavozich D, Church TR, Yeazel MW. Validity of four self-reported colorectal cancer screening modalities in a general population: differences over time and by intervention assignment. NOTE:
- Partin MR, Fisher DA, Grill J, Noorbaloochi S, Halek K, Powell A, Burgess D, Griffin J, vanRyn M, Vernon SW. Validation of self-reported colorectal cancer screening behavior data collected from a mixed-mode survey of elderly veterans.
- Rauscher GH, Johnson TP, Cho YI, Walk JA. A meta-analysis of the accuracy of self-reported cancer screening histories for six cancer screening behaviors: mammography, clinical breast exam, Pap smear, prostate-specific antigen testing, digital rectal exam, fecal occult blood testing, and colorectal endoscopy.
- Schenck AP, Klabunde CN, Warren JL, Peacock S, Davis WW, Hawley ST, Pignone M, Ransohoff D. Evaluation of claims, medical records, and self-report for measuring fecal occult blood test use among Medicare enrollees in fee-for-service.
- Ø Vernon SW, Tiro JA, Vojvodic RW, Coan SP, Diamond PM, Greisinger A. Reliability and validity of self-reported colorectal cancer screening behaviors: Does mode of administration matter?

# Knowledge Gaps & Directions for Future Research

- Ø Successful or evidence-based programs will not naturally diffuse into routine practice
- Potential for dissemination must be a priority throughout the planning, implementation, evaluation, and reporting phases of intervention research

# Knowledge Gaps & Directions for Future Research

- Ø We need to consider intervention efficacy vs. effectiveness
  - We need to use and evaluate study designs in addition to RCTs
  - External validity warrants more attention
- Ø We need to improve the quality of execution and reporting of trials
  - Use the modified CONSORT criteria to report results of RCTs

#### Intervention Research Across the Diffusion Curve

New Efficacy Research	<ul> <li>Motivate late adopters and laggards – address specific issues of under- served</li> </ul>
Dissemination Research —	<ul> <li>Disseminate evidence-based interventions, incorporate systems to remind and reinforce</li> </ul>
Efficacy Research ——	Motivate adopters. Special efforts to reach under-served populations
Mass Media	> Create awareness
Basic Behavioral Research	Reach and motivate early adopters, including both providers and public/patients
Chanks to Parbara Pimor	

# Recent CRC Screening by Age



## Recent CRC Screening by Education



# Recent CRC Screening by # MD Visits (1 yr)



# Recent CRC Screening by Usual Care

