

Evidence, efficacy and effectiveness  
of screening for colorectal cancers  
with fecal occult blood test

Pr J FAIVRE, Dijon,  
France

# Results of case-control studies

|                | SCREENED |          | ODDS RATIO      |
|----------------|----------|----------|-----------------|
|                | cases    | controls |                 |
| California     | 31%      | 43%      | 0.7 (0.5 - 0.9) |
| Saarland       |          |          |                 |
| <i>males</i>   | 17%      | 15%      | 1.2 (0.7 - 1.9) |
| <i>females</i> | 16%      | 29%      | 0.5 (0.3 - 0.8) |
| Seattle        | 8%       | 16%      | 0.5 (0.3 - 0.9) |
| Japan          | 6%       | 12%      | 0.4 (0.2 - 0.9) |
| Firenze        | 22%      | 29%      | 0.6 (0.4 - 0.9) |
| Burgundy       | 49%      | 60%      | 0.7 (0.5 - 0.9) |

# Results of controlled studies

|            | Follow-up<br>years | overall decrease<br>in mortality | decrease in mortality<br>among participants |
|------------|--------------------|----------------------------------|---|
| Funen      | 10                 | 18%                              | 33%   |
| Nottingham | 6.7                | 15%                              | 39%   |
| Burgundy   | 11                 | 16%                              | 33%   |
| Minnesota  | 13                 | -                                | 32%   |

Kronborg, *Lancet* 1996

Mandel, *N Engl J Med* 1993

Hardcastle, *Lancet* 1996

Faivre, *Gastroenterology* 2004

# Participation with screening in population-based european trials

## BIANNUAL FOBT SCREENING

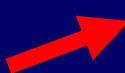

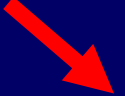
|            | 1st | 2nd | 3rd | 4th | 5th |
|------------|-----|-----|-----|-----|-----|
| Funen      | 67% | 62% | 59% | 55% | 50% |
| Nottingham | 54% | 56% | 50% | 52% | 53% |
| Burgundy   | 53% | 54% | 57% | 58% | 56% |

# Participation according to the way of proposing the test

|                 | Medical invitation phase<br>tests done | Postal invitation<br>tests done |
|-----------------|--|---------------------------------|
| 1st campaign    | 85%                                    | 34%                             |
| Succeeding ones | 91%                                    | 28%                             |

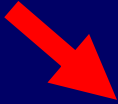
Tazi, J Med Screen 1997

# Effect of acceptability on the cost per year of life saved

|   | mortality | cost per year<br>life saved |
|---|-----------|-----------------------------|
| Participation 55%   | 18%       | 3 357€                      |
|  10%  | 22%       | - 20%                       |
|  10% | 13%       | + 31%                       |
|  20% | 9%        | + 86%                       |

Lejeune, *Int J Technol Assess Health Care* 2004

# 18-year cumulative incidence from colorectal cancer (Minnesota study)

|   | Annual<br>screening | Biennial<br>screening | Control group |
|---|---------------------|-----------------------|---------------|
| Incidence   | 32‰                 | 33‰                   | 39‰           |
|  Incidence | 20%                 | 17%                   |               |

Mandel, *New Engl J Med* 2000

# European Code against Cancer and EU council recommendation (December 2003)

"Men and women from 50 years of age should participate in colorectal screening.  
This should be within programmes with built-in quality assurance procedures"

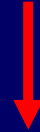
" Faecal occult blood testing is actually the only recommended screening strategy"

# The French pilot programme

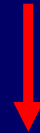
- Strict organisation
  - local structure in charge of implementing CRC and breast cancer screening
  - inclusion criteria : subjects aged 50 to 74  
FOBT every two years
  - exclusion criteria : symptoms
    - 1st degree relative with index case < 65 years
    - personal history of CRC or adenoma
    - colonoscopy during last 5 years
- Mobilisation of physicians in the community and in the workplace
- Centralisation of test interpretation
- Evaluation of the screening campaign

# Invitation strategy

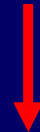
Invitation letter + information brochure  
+ press campaign  
+ posters in GPs waiting room



GPs explain and give the FOBT

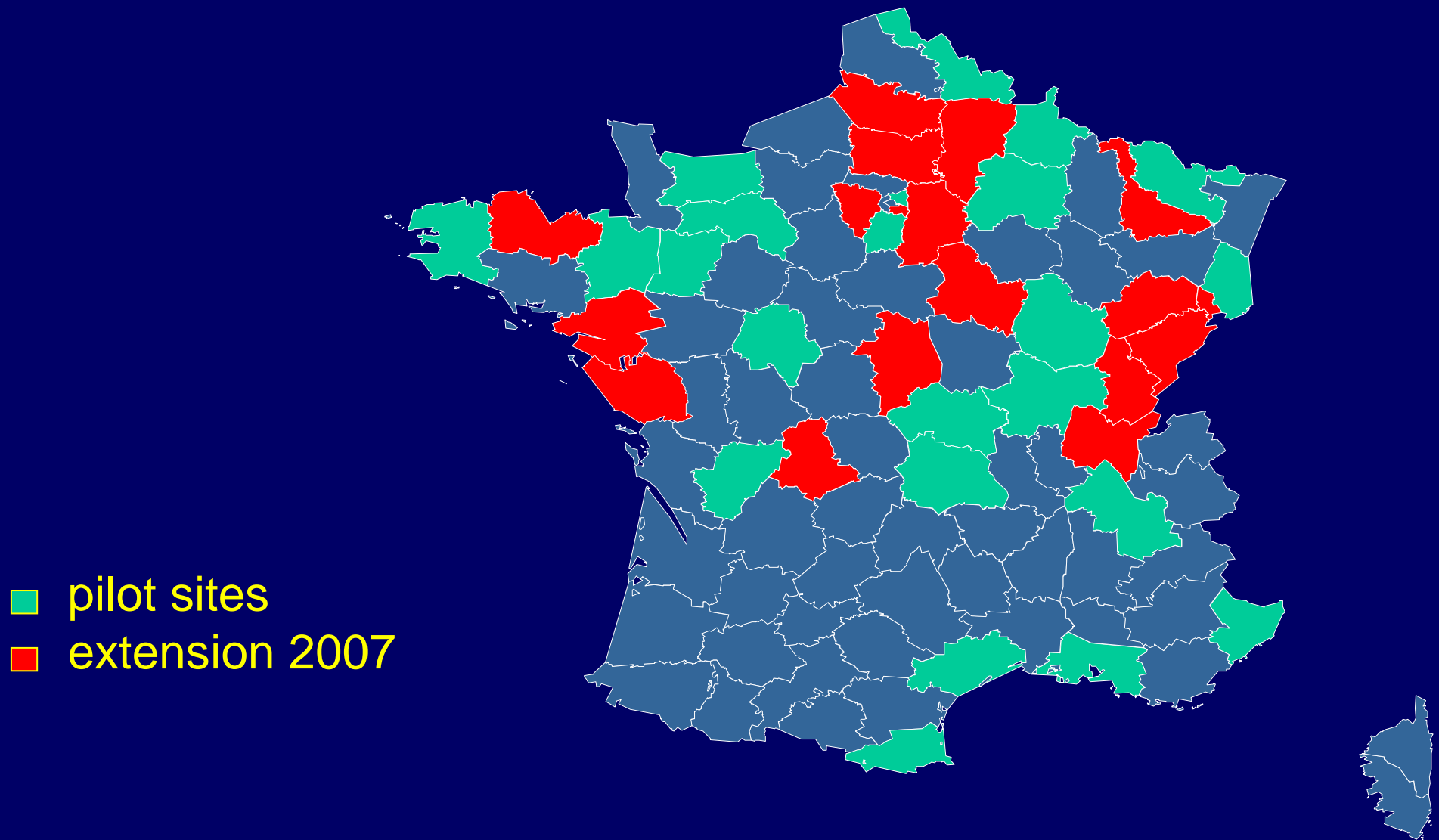


Reminder letter with a questionnaire  
on exclusion criteria

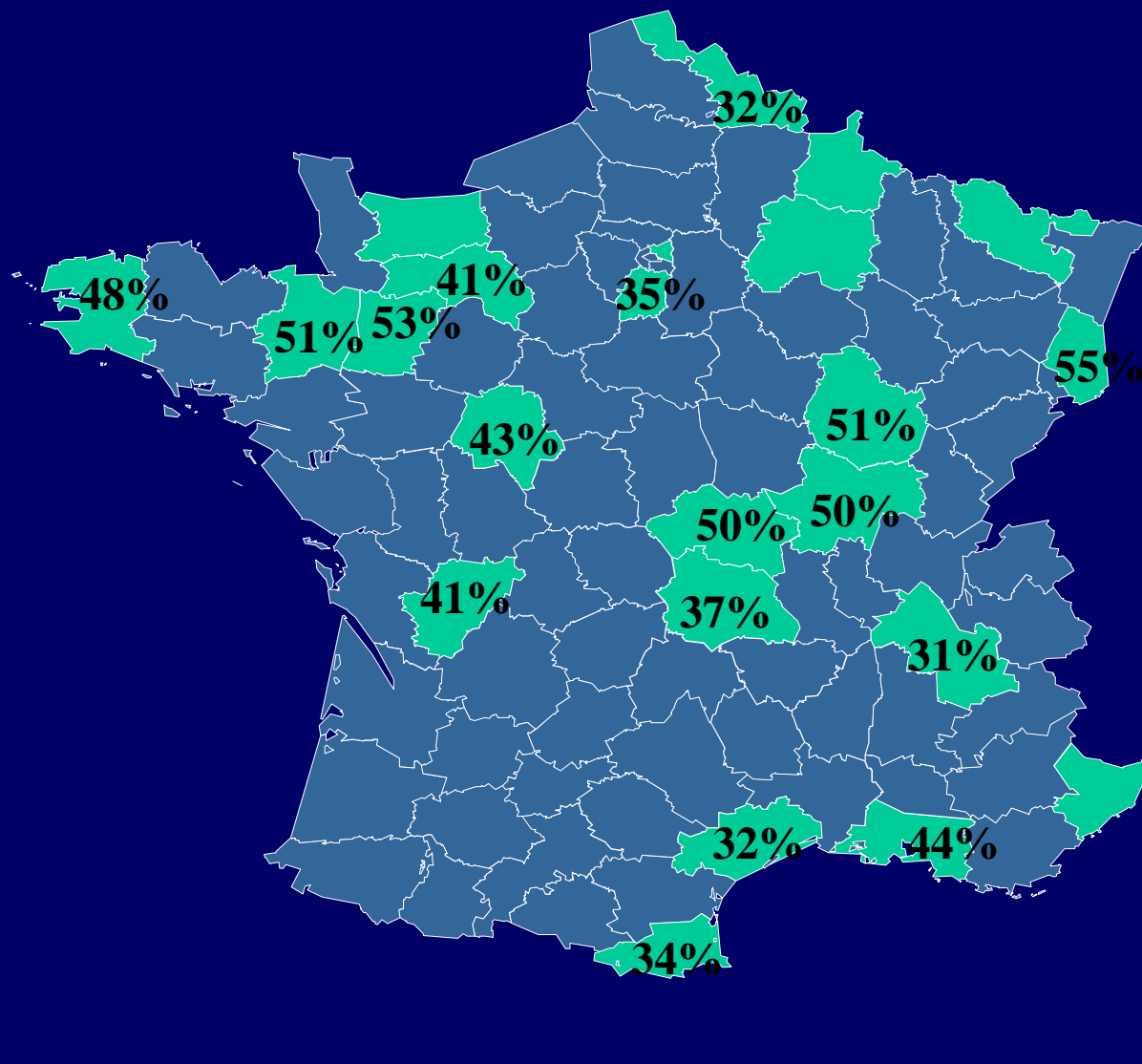


Mailing of the test to non participants  
+/- reminder letter

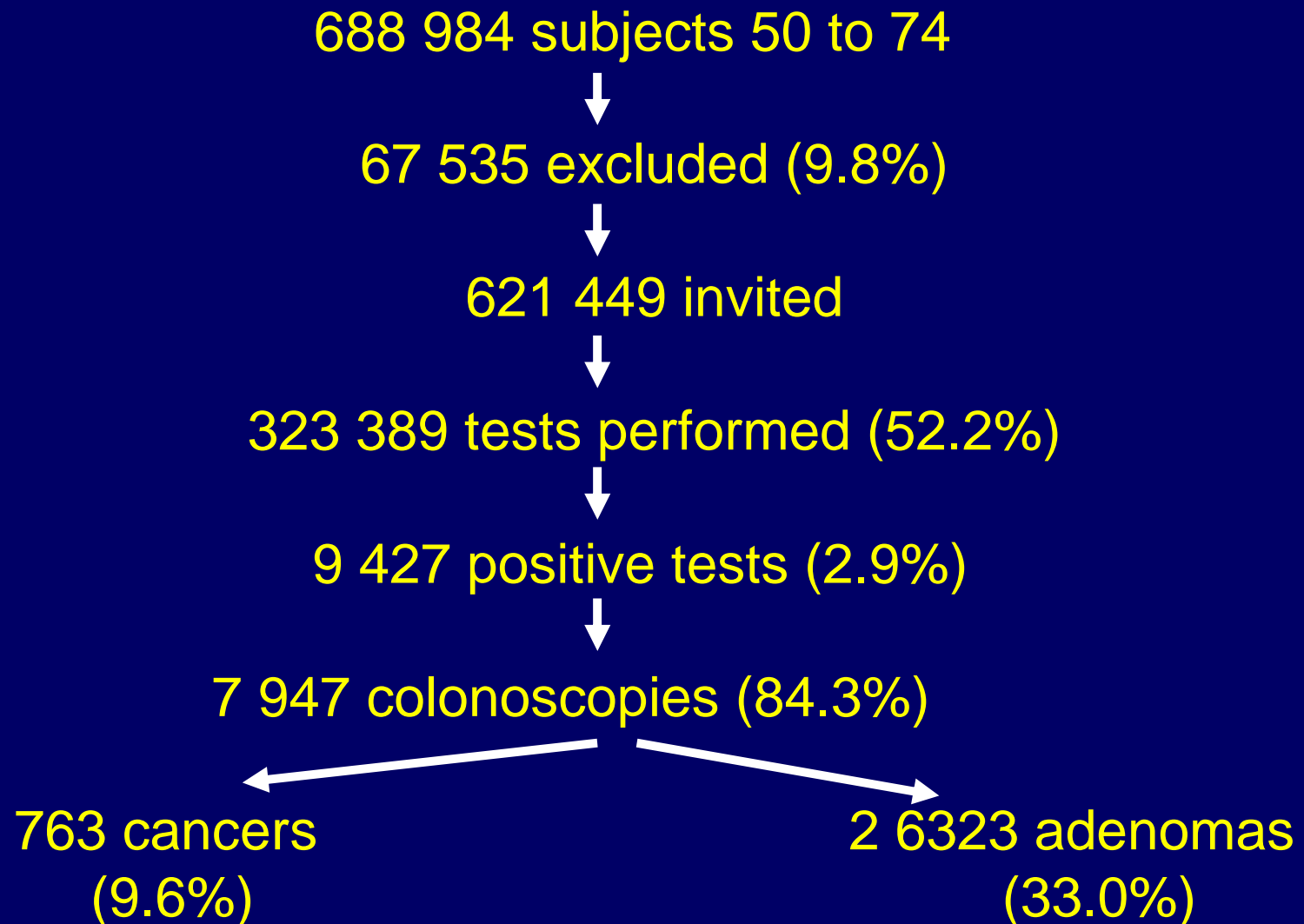
# Colorectal cancer screening in France



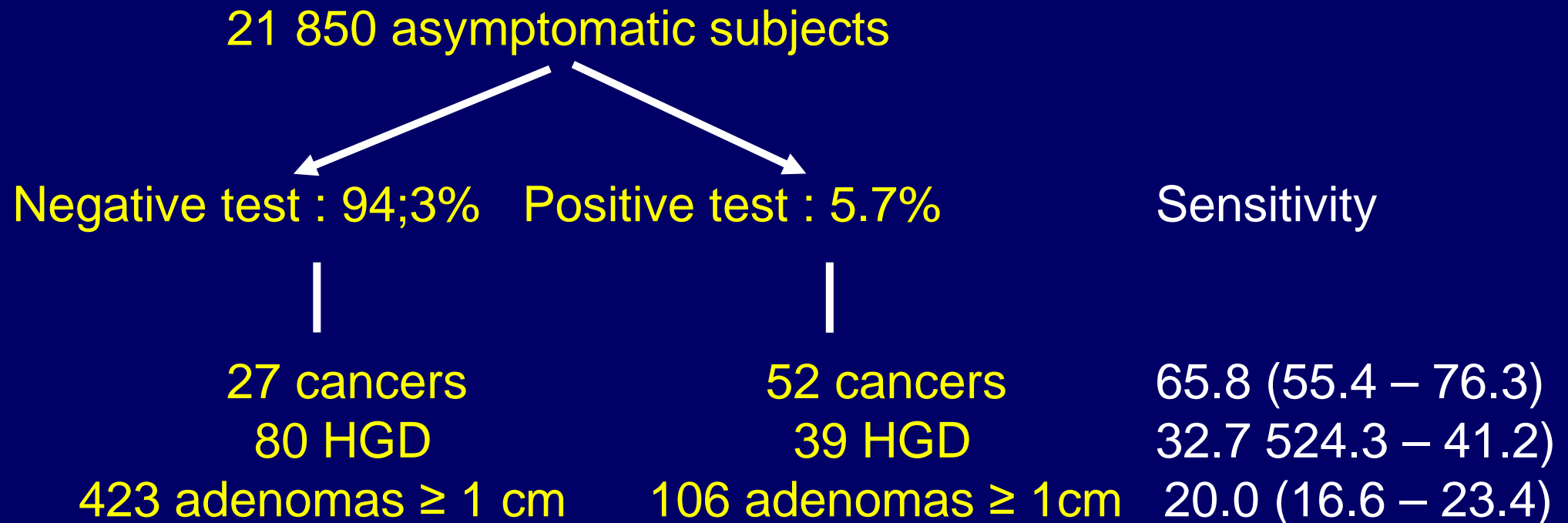
# Compliance to colorectal cancer screening in France



# First results of pilot programmes (Côte-d'Or, Haut-Rhin, Ile et Vilaine, Saône-et-Loire)



# Faecal Immuno chemical tests = the future



Monkawa et al, *Gastroenterology* 2005

# Faecal Immuno chemical tests

- Higher sensitivity  
lower specificity and positive predictive value  
automated analyzers available
- 1-day or 2-days testing ?  
which cut-off ? or what is unacceptable  
positivity rate ?

# Detection of colorectal cancer and adenoma by multiple-target DNA markers

(2 507 asymptomatic persons)

|                  | n   | Positive faecal<br>DNA panel |
|------------------|-----|------------------------------|
| Adenocarcinoma   | 31  | 51.6%                        |
| Advanced adenoma | 403 | 15.1%                        |
| Other adenomas   | 286 | 8.0%                         |

Imperiale et al, *N Engl J Med* 2004

- Stool-based DNA testing represents an emerging technology which cannot yet be proposed in the current scheme of CRC screening
- Questions remain concerning the spectrum of DNA alterations to test, interval between tests, acceptability to patients
- Cost of the test must be lowered to make faecal DNA testing an acceptable screening strategy

# Conclusion

The Hemoccult test (Guaiac test) is the mass screening test which has been the most intensively evaluated.

Converging data suggest an effectiveness of the Hemoccult test in reducing colorectal cancer mortality.

To achieve this goal :

- Compliance must be over 50% in the 1st screening
- Compliance must remain high when rescreening
- a colonoscopy must be performed in case of positive test
- quality insurance → organised programme