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COLORECTAL CANCER (CRC) SCREENING IN ISRAEL

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CRC screening has been performed in Israel since 1979, initiated & supported by the Early Diagnosis Committee of the Israel Cancer Association. It is provided by most hospital-based Gastroenterology (GI) Units & now by the 2 largest ambulatory Health Insurance bodies. The standard methods used are fecal occult blood testing, flexible sigmoidoscopy & colonoscopy, offered at subsidized cost to *average risk* individuals, & as a service to organized groups. *Higher-risk* individuals are actively enrolled in most GI units. A *registry* & *advisory service* has been established for high-risk families. Lack of epidemiologic evidence indicating that mass screening is cost-beneficial has inhibited the Cancer Association and Health Authorities from recommending *mass screening*. However, local publicity is supported & led to much higher public & professional awareness of CRC as a treatable disease if diagnosed early. Thus, laying the ground for large-scale screening when the Methodology has been established as *cost-beneficial*.

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BREAST CANCER SCREENING IN THE CONTEXT OF DISEASE NATURAL HISTORY

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In the Swedish two-country trial of breast cancer screening, a total of 2459 cancers have been diagnosed, 1419 in the study group (77080 women) and 1040 in the control group (55985 women). This is a valuable information source on the differences between tumours diagnosed clinically and those arising in a modern mammographic screening program. Study of the tumour attributes size, malignancy grade and axillary lymph node status of these tumours assist in understanding of the mechanisms whereby screening works, and suggest some features of the manner of progression of the disease. For example, it is shown that after elimination of length bias case, there is a group of tumours for which malignancy grade, node status and size distributions of the tumours diagnosed, can in large measure predict its subsequent effect on mortality. An understanding of these mechanisms of disease progression and its arrest by screening can assist in early monitoring of screening programs and in interpretation of observed variation in screening effectiveness among age groups.

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MAKING BREAST SCREENING WORK : WHICH TUMOURS MOST NEED EARLY DETECTION ?

L. Tabar

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CERVICAL CANCER SCREENING IN EUROPE: INTERNATIONAL VARIATION IN PRACTICE AND EFFECT by Lynge E, Danish Cancer Society, Strandboulevarden 49, DK-2100 Copenhagen O, Denmark.

Cancer screening is given a high priority in most EC countries. A major part of the screening activity has, however, been spontaneous and not undertaken as part of organized programmes. This is true both for the cervical cancer screening, the breast cancer screening by mammography, and in certain areas also for colorectal cancer screening. It is now well known that in order to achieve the maximum benefit for the population of the screening activities, these activities have to be organized and monitored properly. Changes are therefore needed in many areas. But changes have to be implemented differently depending on the structure of the health care system, the extend of the ongoing screening activity, the payment system, etc.

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TRIALS OF COLORECTAL CANCER SCREENING

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At the present time, only the strategy of screening for intestinal tumours at the asymptomatic stage could reduce the problem of colorectal cancer. The only method of mass screening so far has been the detection of occult blood in faeces. Two recent case-control studies (Saarland, Kaiser Permanent Medical Care Program) have shown some evidence that population screening may lead to a mortality reduction. A recent report from the prospective study in Minnesota indicates that, in volunteers, annual faecal occult-blood testing with rehydratation of the samples decreased the 13-year cumulative mortality from colorectal cancer by 33 %. In order to establish reliable evidence at the population level concerning the reduction of mortality the results of on-going studies in Nottingham (UK), Funen (Denmark), Burgundy (France) and Goteborg (Sweden) need to be waited. This strategy will improve the sensitivity of the screening strategy. However screening costs would improve and compliance could decrease. Control trials also suggest that it may be possible to reduce the incidence of colorectal cancer, as 3-4 times as many persons have had adenomas removed in the test group compared to the control group. It is too early to report reliable mortality data. Actually predictions made from the staging in the test and control groups would suggest a mortality reduction of about 10 %. Also of interest is the on-going european trial on adding sigmoidoscopy to haemoccult testing.

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FAMILY CANCER SCREENING

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Physisians have long known that some kinds of cancers, including common ones such as breast tumours and colon cancer, tend to run in families. That observation suggests that, although diet and other environmental factors influence the development of cancer, the susceptibility to a particular cancer can be inherited. Segregation analysis of population-based series of families with either breast or colon cancer indicated that an autosomal dominant gene with high penetrance could fully explain clustering of breast or colon cancer each in about 5% of the families. Carriers of the gene are estimated to have an 85-90% lifetime risk of developing cancer with an increased incidence of multiple primaries and more than 50% occurring before the age of 50 years.

Mortality from breast and colon cancer has not changed during the last 30 years. Because the prognosis depends on tumour size at presentation, early diagnosis is essential for the improvement of the quality of life and the reduction of mortality. Identification of high risk families offers the possibility of early detection and radical cure. Several studies have shown that periodic examination of members of families with a genetic predisposition to colorectal cancer (hereditary nonpolyposis colorectal cancer) led to the detection of this cancer in an early stage. However, only a few data concerning the benefit of screening of breast cancer-prone families are available. Recent genetic studies have provided evidence pointing to the localisation of a breast cancer gene on chromosome 17 and a colon cancer gene on chromosome 2. These findings may have important implications because screening can be focused on high-risk individuals and the family members at low risk can be less rigourously followed until the genes concerned are isolated and appropriate methodology for the detection of a specific mutation becomes available. Future studies should focus on the development of appropriate surveillance protocols for the gene carriers.