

*Editorial***Alarming Colorectal Cancer Incidence Trends: A Case for Early Detection and Prevention**

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Despite being largely preventable, colorectal cancer (CRC) affects a large number of individuals across the globe. CRC incidence trends over a decade or more provide important information, both about the dynamics of demographic and lifestyle changes in many countries as well as about the success of early detection and prevention strategies. Recent CRC incidence trends in the United States have shown promising declines especially in distal CRC relative to proximal cancers. In contrast to U.S. trends, in this issue of CEBP, Center and colleagues [ref] show that CRC incidence rates have increased in most other major registries across the globe. This increase points toward a failed early detection and prevention strategy as well as failure to address lifestyle and dietary challenges of urbanization that affect most of the globe (Fig. 1). Significant declines in CRC incidence rates were seen in California, with twice the effect for distal cancers than for proximal cancer. This decline may indicate wider use of screening modalities such as flexible sigmoidoscopy, introduced in the 1980s. Flexible sigmoidoscopy reduced CRC incidence by detection and removal of premalignant polyps primarily in the distal colon and rectum. Aspirin and other nonsteroidal antiinflammatory drug use also may have contributed to this decline (1-3).

The gastrointestinal tract is constantly under exposure to dietary and environmental factors increasing the risk of precancerous lesions to progress along the carcinogenesis pathway. More than 1 million people worldwide are diagnosed with CRC each year, and a staggering 0.5 million die of the disease in the same time period (4). Although there are widespread recommendations for people to seek early detection through fecal occult blood test, colonoscopy, double contrast barium enema, or flexible sigmoidoscopy (5), the majority of people disregard these recommendations. Recent evidence in the United States and some other countries that the increase in CRC cases is stabilizing also show an increase in the awareness for timely screening. This issue of CEBP reports that CRC incidence rates are continuing to increase in economically transitioning countries. Especially alarming signs are the cancer incidence rates among men in Czech Republic and Slovakia where the peak incidence rates are exceeding (statistically signifi-

cant) those observed in the United States and other developed nations. A concerted effort in early detection and cancer prevention strategies by the leading authorities is needed to transpose these trends.

This unique and comprehensive study of CRC incidence rates across all five continents (includes 55 registries) over a nearly 20-year period (1983 to 2002) (this issue of CEBP) shows increased rates of the disease in the majority of the registries including Eastern European, Asian, and some South American regions. However, Eastern Europe saw the largest increase in CRC incidence rates in the same time period and they do not seem to be leveling off as seen recently in some parts of the world (6, 7). Asian countries like India, Thailand, and Kuwait still have relatively low CRC incidence rates although they are increasing while these countries move toward urbanization and accompanying life style changes without an equivalent adjustment in screening and prevention strategies.

What are the reasons for the disparate CRC incidence rates among different nations? Generally, low CRC incidence is reported in several underdeveloped and Asian countries (8, 9). Some indications are that dietary choices and genetic environment are at work, but transitioning developing countries are showing an increase in CRC rates. It is quite possible that industrialization pressures are forcing changes not only in dietary patterns but also in the physical activity regimens, as adaptation to sedentary lifestyles are part and parcel of development. Much research is needed to confirm the actual underlying cause for these changing trends; furthermore a concerted effort is needed to find effective, safe, and targeted drug interventions to reduce CRC risk. Despite the mechanisms and unavailability of clear-cut and safe interventional options, effective screening and early detection approaches are currently available and can significantly impact the course of CRC incidence rates.

Another clue for the role of diet and cultural influences on CRC incidence comes from disparate rates among ethnic populations living in the same regions. For instance in Singapore, CRC incidence rates in the last two decades have increased by more than 55% among the Malay ethnic group compared with 10% to 30% among the Chinese population. Similarly, CRC incidence rates have more than doubled in the non-Jewish population compared with a less than 20% increase in the Jewish population in Israel (this issue of CEBP). Despite differences in different populations and regions of the world, another common trend is that these increases are seen among men more than women.

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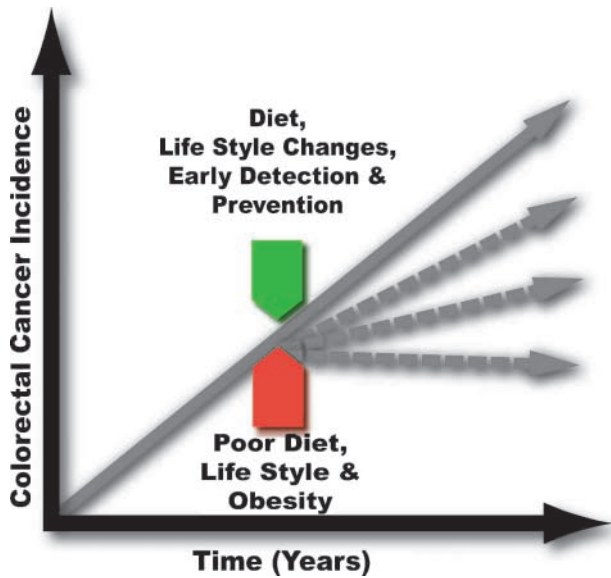


Figure 1. Effect of human choices on CRC incidence rates.

Hence, we can conclude that recent data suggest an alarming pattern in lifestyle changes that is parallel to CRC and probably other cancer incidence rates. Furthermore, alarming trends in increased obesity and lack of physical activity, combined with low screening rates for CRC, are exacerbating the CRC incidence trends. It is estimated that recommended screening tests, such as colonoscopy, contribute to a reduction between 60% to 70% in CRC mortality (10). In combination with these tests, the U.S. Preventive Services Task Force guidelines for screening (5) and diet and lifestyle changes may play a greater role in reducing rates of CRC incidence and mortality. This multipronged approach, along with cancer prevention efforts in high risk groups, has the potential to help greatly reduce the burden of CRC; however, we need to better understand the interplay of these factors to identify a variety of mediations that include lifestyle

adjustments (11, 12) to add to early detection and cancer prevention strategies.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

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References

1. Baron JA, Cole BF, Sandler RS, et al. A randomized trial of aspirin to prevent colorectal adenomas. *N Engl J Med* 2003;348:891–9. PubMed doi:10.1056/NEJMoa021735.
2. Benamouzig R, Deyra J, Martin A, et al. Daily soluble aspirin and prevention of colorectal adenoma recurrence: one-year results of the APACC trial. *Gastroenterology* 2003;125:328–36. PubMed doi:10.1016/S0016-5085(03)00887-4.
3. Sandler RS, Halabi S, Baron JA, et al. A randomized trial of aspirin to prevent colorectal adenomas in patients with previous colorectal cancer. *N Engl J Med* 2003;348:883–90. PubMed doi:10.1056/NEJMoa021633.
4. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin* 2005;55:74–108. PubMed doi:10.3322/canjclin.55.2.74.
5. U.S. Preventive Services Task Force. Screening for Colorectal Cancer: U.S. Preventive Services Task Force Recommendation Statement. AHRQ Publication 08–05124-EF-3, October 2008. Agency for Healthcare Research and Quality, Rockville (MD). Available from: <http://www.ahrq.gov/clinic/uspstf08/colocancer/colors.htm>.
6. Jemal A, Siegel R, Ward E, et al. Cancer statistics, 2008. *CA Cancer J Clin* 2008;58:71–96. PubMed doi:10.3322/CA.2007.0010.
7. Parkin DM, Olsen AH, Sasieni P. The potential for prevention of colorectal cancer in the UK. *Eur J Cancer Prev* 2009. Epub 2009 Feb 20.
8. Kuriki K, Tajima K. The increasing incidence of colorectal cancer and the preventive strategy in Japan. *Asian Pac J Cancer Prev* 2006;7:495–501. PubMed.
9. Sung JJ, Lau JY, Goh KL, Leung WK. Increasing incidence of colorectal cancer in Asia: implications for screening. *Lancet Oncol* 2005;6:871–6. PubMed doi:10.1016/S1470–2045(05)70422-8.
10. Ransohoff DF. How much does colonoscopy reduce colon cancer mortality? *Ann Intern Med* 2009;150:50–2. PubMed.
11. World Cancer Research Fund International. Policy and Action for Cancer Prevention. London: World Cancer Research Fund International; 2009.
12. World Cancer Research Fund International. Food, Nutrition, and Physical Activity: a Global Perspective. London: World Cancer Research Fund International; 2009.