

Global Increase of Colorectal Cancer in Young Adults over the last 29 years: An Analysis of the Global Burden of Disease Study 2019

Yichen Wang, MD1; Xiaoquan Huang, MD2; Mahesh Cheryala, MD3; Mark Aloysius, MD3,4, Beishi Zheng, MD5; Keming Yang, MD, PhD6; Bing Chen, MD7; Marwan S. Abougergi, MD8; Shiyao Chen2,9

PURPOSE / OBJECTIVES

The United States Preventive Services Taskforce lowered the recommended starting age for colorectal cancer (CRC) screening in average-risk adults from 50 to 45 years. This recommendation has not been widely adopted by other countries partially because the burden of young CRC is unclear compared to the US. We aimed to estimate the global burden and trends of colorectal cancer in adults aged 20-49 years.

MATERIAL & METHODS

This is an analysis of the Global Burden of Diseases, Injuries, and Risk Factors Study 2019 (GBD 2019). The GBD 2019 estimation methods were used to describe the incidence, mortality, and disability-adjusted life years (DALYs) of early-onset CRC in adults aged 20-49 years from 1990 to 2019. Data from 204 countries and geographic areas were available. The primary outcome is the incidence of colorectal cancer. Secondary outcomes include mortality and DALYs caused by colorectal cancer. All outcomes are provided using GBD 2019 estimation methods with 95% uncertainty intervals.

RESULTS

The global incidence rate of young CRC increased from 4.2/100,000 to 6.7/100,000 from 1990 to 2019. Mortality and DALYs of young CRC also increased. The CRC incidence rate increased faster in young adults (1.6%) than in adults aged 50-74 years (0.6%) as measured by the annual percentage change. The increase in young CRC incidence was consistently observed in all five socio-demographic index (SDI) regions and 190 out of 204 countries and territories. Three countries and territories had higher, and several had similar young CRC incidence rates compared to the US by 2019; CRC screening for average-risk adults 45-49 years old should be studied in these areas. Middle and high-middle SDI regions had faster annual increases in young CRC, which warrants further attention.

The global burden of young CRC increased from 1990 to 2019 worldwide.

Three countries and territories had higher, and several had similar young CRC incidence rates compared to the US by 2019.

Middle and high-middle socio-demographic index regions had faster annual increases in young CRC, which warrants further attention.

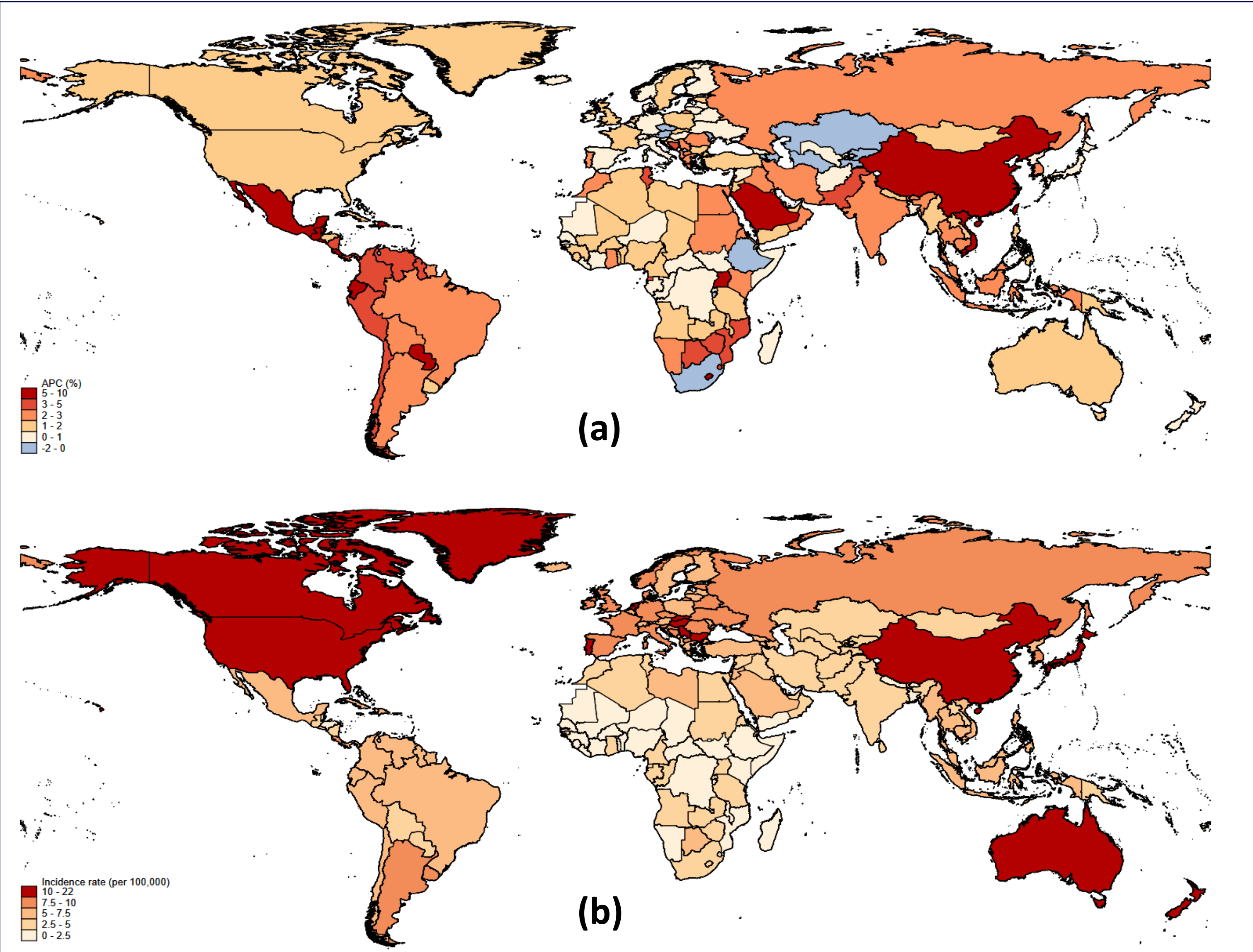


Figure. Incidence and incidence rate change of colorectal cancer in adults aged 20-49 years in individual countries. (a) annual percentage change of incidence rate from 1990 to 2019; (b) incidence rate by 2019. Abbreviation: APC, annual percentage change.

Table. Age-adjusted incidence rate of colorectal cancer in individuals aged 20-49 years, top 10 countries and territories by 2019

Country/territory name	1990	2019
Taiwan (Province of China)	8.6 (7.6-9.8)	22.0 (15.5-30.7)
Monaco	8.7 (6.0-12.3)	13.5 (8.7-19.9)
Portugal	7.6 (6.4-8.9)	12.5 (8.6-17.6)
United States of America	8.0 (7.7-8.4)	12.2 (10.3-14.4)
China	4.4 (3.8-5.1)	12.1 (10.0-14.4)
Australia	8.7 (7.7-9.7)	11.9 (8.4-16.5)
Andorra	8.8 (5.4-13.3)	11.6 (7.3-17.2)
Brunei Darussalam	7.9 (5.5-10.8)	11.6 (8.3-15.8)
Slovakia	8.2 (6.8-9.8)	11.4 (7.7-16.2)
New Zealand	10.2 (8.7-12.0)	11.3 (8.5-14.6)

Affiliations: 1Mercy Internal Medicine Service, Trinity Health of New England, MA, USA; 2Department of Gastroenterology and Hepatology, Zhongshan Hospital, Fudan University, Shanghai, China; 3Department of Internal Medicine, the Wright Center for Graduate Medical Education, PA, USA; 4Geisinger Commonwealth School of Medicine, PA, USA; 5Department of Internal Medicine Woodhull Medical Center New York, NY USA; 6Massachusetts General Hospital and Harvard Medical School, MA, USA; 7New York University Grossman School of Medicine, NY, United States; 8Division of Gastroenterology, University of South Carolina School of Medicine, SC, USA; 9Center of Evidence-Based Medicine, Fudan University, Shanghai, China