## IDDF2020-ABS-0181 DISEASE BURDEN, RISK FACTORS, AND RECENT TRENDS OF COLORECTAL CANCER: A GLOBAL ANALYSIS OF DATA FROM 186 COUNTRIES

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**Background** This study aimed to evaluate the updated incidence, mortality, risk factors, and epidemiologic trends of colorectal cancer (CRC) for different regions and sex using publicly available data from 186 countries.

**Methods** The *Global Cancer Observatory* (*GLOBOCAN*) database was retrieved for the age-standardized rates (ASR) for incidence and mortality of CRC in 2018 and 2012. The prevalence of risk factors (2008–2016) was retrieved from the *Global Health Observatory* database. The associations between the prevalence of risk factors and incidence and mortality of CRC and were measured using beta coefficients (β) with 95% confidence intervals (CI) generated from a univariable linear regression analysis.

**Results** In 2018, the highest incidence and mortality of CRC were in regions of very high human development index (HDI) (ASRs, 30.6 and 11.1) with men to women ratio of 1.4 and 1.2. Population in countries with higher incidence have higher alcohol consumption (β=1.30, 95% CI 1.02 to 1.57 for men; β=0.46, CI 0.35 to 0.57 for women), higher prevalence of tobacco use (β=0.11, CI 0.02 to 0.19 for women), insufficient physical activity (β=0.59, CI 0.34 to 0.84; β=0.19, CI 0.09 to 0.29), overweight (β=0.47, CI 0.38 to 0.57; β=0.16, CI 0.12 to 0.20), obesity (β=0.24, CI 0.11 to 0.38; β=0.34, CI 0.25 to 0.43), and elevated cholesterol (β=1.80, CI 1.53 to 2.07; β=1.22, CI 1.05 to 1.38). Similar associations were also found for mortality (figure 1). From 2012 to 2018, there was an overall increase in the trend of incidence and mortality, particularly in Asia (+29.7% and +17.4%) and Africa (+24.3% and +17.6%), and among men (+14.6% and +8.0%) compared with women (+14.0% and +4.3%).

**Conclusions** The variation in disease burden of CRC was associated with HDI and the prevalence of risk factors. There was an increasing trend in the incidence and mortality of CRC, particularly in regions with low and middle incomes and among men. More intensive lifestyle modifications and population-based screening are recommended for these populations.

| Outcome | Risk factor | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *β* | 95% CI | | *P* | *β* | 95% CI | | *P* |
| Incidence (ASR) | HDI | 7.30 | 6.32 | 8.28 | <0.01* | 4.50 | 3.94 | 5.05 | <0.01* |
| | GDP per capita | 4.23 | 3.30 | 5.15 | <0.01* | 2.89 | 2.39 | 3.40 | <0.01* |
| | Alcohol consumption | 1.30 | 1.02 | 1.57 | <0.01* | 2.57 | 2.05 | 3.09 | <0.01* |
| | Tobacco use | 0.13 | -0.10 | 0.36 | 0.27 | 0.55 | 0.42 | 0.67 | <0.01* |
| | Insufficient physical activity | 0.59 | 0.34 | 0.84 | <0.01* | 0.19 | 0.07 | 0.31 | <0.01* |
| | Overweight | 0.47 | 0.38 | 0.57 | <0.01* | 0.20 | 0.11 | 0.29 | <0.01* |
| | Obesity | 1.00 | 0.77 | 1.23 | <0.01* | 0.24 | 0.11 | 0.38 | <0.01* |
| | Diabetes | -0.51 | -1.35 | 0.33 | 0.24 | -0.57 | -0.96 | -0.18 | <0.01* |
| | Hypertension | 0.63 | 0.09 | 1.17 | 0.02* | -1.10 | -1.31 | -0.90 | <0.01* |
| | Elevated cholesterol | 1.80 | 1.53 | 2.07 | <0.01* | 1.22 | 1.05 | 1.38 | <0.01* |
| Mortality (ASR) | HDI | 2.32 | 1.88 | 2.75 | <0.01* | 1.12 | 0.88 | 1.37 | <0.01* |
| | GDP per capita | 1.08 | 0.68 | 1.47 | <0.01* | 0.60 | 0.39 | 0.81 | <0.01* |
| | Alcohol consumption | 0.46 | 0.35 | 0.57 | <0.01* | 0.68 | 0.48 | 0.87 | <0.01* |
| | Tobacco use | 0.11 | 0.02 | 0.19 | 0.02* | 0.15 | 0.10 | 0.20 | <0.01* |
| | Insufficient physical activity | 0.19 | 0.09 | 0.29 | <0.01* | 0.05 | 0.01 | 0.09 | 0.02* |
| | Overweight | 0.16 | 0.12 | 0.20 | <0.01* | 0.06 | 0.03 | 0.09 | <0.01* |
| | Obesity | 0.34 | 0.25 | 0.43 | <0.01* | 0.08 | 0.04 | 0.13 | <0.01* |
| | Diabetes | -0.11 | -0.43 | 0.21 | 0.49 | -0.08 | -0.22 | 0.05 | 0.22 |
| | Hypertension | 0.45 | 0.26 | 0.65 | <0.01* | -0.23 | -0.31 | -0.15 | <0.01* |
| | Elevated cholesterol | 0.56 | 0.44 | 0.68 | <0.01* | 0.31 | 0.24 | 0.38 | <0.01* |

The analysis was conducted using univariable linear regression model at a country level.
*β*, beta coefficient. The beta coefficient can be interpreted as the change in incidence or mortality associated with one percent increase of a certain risk factor.
CI, confidence interval; ASR, age-standardized rate; HDI, human development index; GDP, gross domestic products.
* *p* values less than 0.05.

**Abstract IDDF2020-ABS-0181 Figure 1** Associations between risk factors and incidence and mortality of colorectal cancer

## IDDF2020-ABS-0183 PROFILE TRIAL: PREDICTING OUTCOMES FOR CROHN'S DISEASE USING A MOLECULAR BIOMARKER

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**Background** The course of IBD varies substantially between individuals, but there are a lack of reliable prognostic markers to guide clinical practice. Previously, we have described a transcriptional signature detectable within peripheral blood CD8 T-cells at diagnosis, identifying two subgroups of patients, correlating with subsequent disease course. We have sought to develop a whole-blood biomarker that could re-capitulate the prognostic CD8 subgroups and then assess whether this biomarker can improve clinical outcomes by appropriately matching therapy to disease course.

**Methods** From a training cohort of 69 newly-diagnosed IBD patients, we simultaneously obtained a whole-blood PAXgene RNA tube and peripheral blood CD8 T-cell sample. Gene expression in both samples was measured by microarray. Statistical modelling was used to identify a transcriptional classifier in whole-blood gene expression data re-capitulating the CD8 findings and subsequently optimised into a multi-gene qPCR assay with independent validation in a second, independent cohort of 123 newly-diagnosed adult patients.

The PROFILE trial has incorporated this classifier to compare the relative efficacy of 'top-down' and 'accelerated step-up' therapy between biomarker-defined subgroups of 400 patients with newly-diagnosed Crohn's disease.