

Digestive cancer screening across Europe

Digestive Cancers Across Europe: The Facts

Europe accounts for a quarter of all global cancer cases, with rates set to increase by more than 24% by 2035.¹ Digestive cancers are the leading cause of cancer-related death in Europe, with over 350,000 deaths each year from gastric, colorectal, liver and pancreatic cancer.²

This position paper presents available evidence and the main issues that need to be addressed to ensure the successful implementation of screening for these four cancers, providing recommendations to aid informed decision-making in reducing the burden of digestive cancers across Europe.³

1. The number of gastric cancer deaths is expected to rise over the next 20 years,⁴ but estimates suggest up to 40% of these deaths are preventable.⁵
2. Colorectal cancer is the second most common cancer in women and the third most common in men in Europe, with more than 150,000 deaths every year.⁶
3. Liver cancer is the third most frequent cause of cancer-related death globally, with 78,000 deaths per year in Europe.⁷
4. The 5-year overall survival rate for pancreatic cancer is below 10%⁸ and, at the time of diagnosis, tumours are incurable in more than 80% of patients.

DIGESTIVE CANCER SCREENING ACROSS EUROPE: CHALLENGES AND OPPORTUNITIES

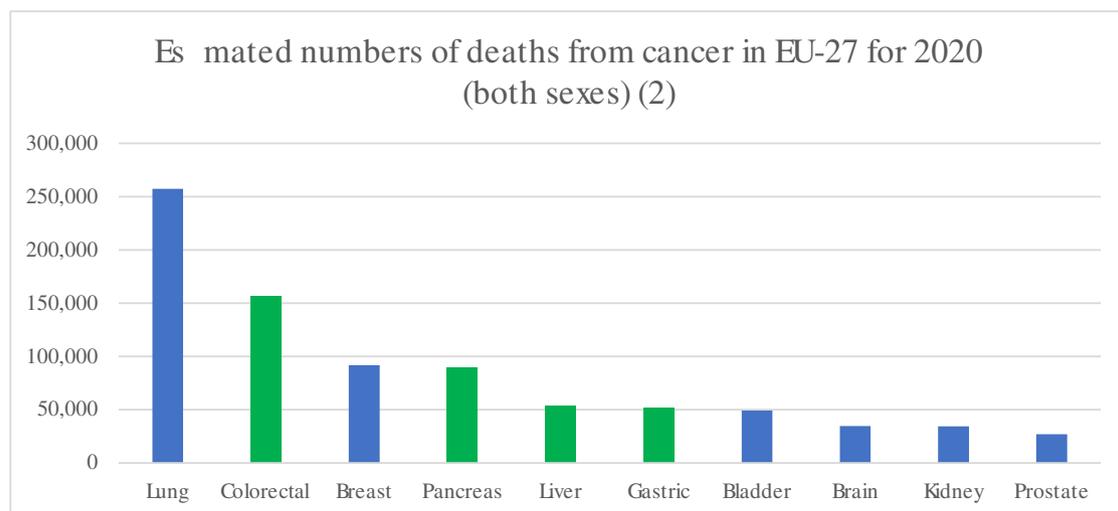
Gastric cancer

Approximately 90% of all gastric cancer cases are related to *H. pylori* infection.⁴ Based on recent research, a 40% reduction in mortality is achieved by eradicating *H. pylori* among healthy individuals.⁴

The 2020 Taipei global consensus concluded that there is sufficient evidence to support the testing of all high-risk individuals for *H. pylori* infection and subsequent treatment, and that mass screening and eradication of *H. pylori* should be considered in populations at a high-risk of gastric cancer.⁹ This has been reinforced in European guidelines.¹⁰

Colorectal cancer

Population screening for colorectal cancer (CRC) enables early detection of the disease, which significantly improves chances of survival. In addition, organised screening programmes provide many benefits, including equality of access and information, quality assurance, and reminders to members of the public to participate and increase screening uptake.¹¹



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However, the variety of different screening tests, their related costs and the burden these tests inflict on the patient make the overall assessment difficult across Europe. Other challenges include suboptimal uptake of screening and a lack of effective information on the benefits of CRC screening for eligible target groups.^{12,13}

There is an opportunity to use individual risk-based assessments to highlight those at the highest risk of developing CRC and therefore who should be targeted by screening. Risk calculators should utilise environmental, hereditary, genetic and lifestyle factors to assess this.^{14,15}

The recent concept of learning screening programmes also provides an opportunity to further improve the benefits and reduce the burden of CRC screening programmes across Europe,¹⁵ which has been undertaken in countries such as Poland, Finland, Norway, and the Netherlands.

Liver cancer

Detecting liver cancer at an early stage can significantly reduce the risk of mortality, but more than 60% of patients in Europe are diagnosed at an intermediate or advanced stage.^{16,17}

In Japan, however, more than 60% of patients are diagnosed at an early stage with 5-year survival improving from 5.1% in 1978–1982 to 42.7% in 2003–2005.¹⁸ These improvements are attributed to the establishment of liver cancer screening.

Liver cancer develops in people with chronic liver disease, often in those with an advanced stage of the disease with liver cirrhosis.¹⁹ Chronic liver disease is almost universally caused by viral hepatitis, non-alcoholic fatty liver disease or harmful alcohol consumption and patients with one or more of these risk factors are at high-risk and should be considered for liver cancer screening.

Pancreatic cancer

The high mortality rate for pancreatic cancer is mainly attributable to its insidious onset and a lack of optimal tools for early detection, as well as its aggressive tumour biology and poor responsiveness to treatment.⁸

Despite the growing disease burden, screening the general population for pancreatic cancer is not currently feasible, but screening those at high-risk should be targeted. To date, however, evidence for precise definitions of high-risk populations is poor and there are questions on which screening tools are most appropriate to employ. Several population groups have been identified as high risk and therefore may benefit from surveillance, including those with a family history of the disease; patients with preneoplastic pancreatic cystic lesions; individuals with recent-onset diabetes and patients with chronic pancreatitis.

In contrast to other cancers, the majority of pancreatic cancer cases arise from very small precursor lesions that current imaging technologies are unable to detect. Therefore, biomarkers predictive for the presence of premalignant lesions or invasive malignancies at

an early stage are important for screening high-risk populations, ideally obtained by non-invasive procedures.

UEG RECOMMENDATIONS AND CALLS TO POLICYMAKERS

Gastric cancer

1. Population-based screening for *H. pylori* in countries with high incidences of gastric cancer (Eastern European countries, Portugal, Slovenia) and in all other countries in individuals who are considered at a high risk of gastric cancer.
2. A well-designed *H. pylori* screen and treat implementation strategy on a regional and/or national basis with thorough monitoring and outcome data collection.
3. Research into non-invasive markers to help identify the individuals at an increased risk who could benefit from systematic screening.
4. The possibility and modalities of gastric cancer screening combined with CRC screening should be considered.

Colorectal cancer

1. Expanding the organised, population-based CRC screening programmes across Europe, with modern quality assurance and equal access to screening information.
2. Embedded research to quantify the benefits and harms between different CRC screening tests and applications.
3. Risk-based screening algorithms based on age, sex, genetic risk, and lifestyle factors should be encouraged to enable personalised CRC screening in the future.

Liver cancer

1. Implementation of targeted liver cancer screening in high-risk populations.
2. Enhanced liver cirrhosis screening to help aid early detection of liver cancer.
3. Inclusion of chronic liver disease patients in the high-risk groups for liver cancer screening.

Pancreatic cancer

1. Establishment of pan-European networks that utilise large-scale trials and state-of-the-art methodologies to help establish high-risk populations and first-degree relatives.
2. Identification of screening marker panels for each high-risk population with sufficient accuracy and cost-effectiveness to detect microscopic precancerous lesions.

3. Development of novel or refined imaging methods to detect precancerous lesions and invasive tumours at a very early stage in high-risk populations.

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DATA AVAILABILITY STATEMENT

NA.

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REFERENCES

- European Commission. European commission's group of chief scientific advisors scoping paper: cancer screening; 2021. [ONLINE] https://ec.europa.eu/info/sites/default/files/research_and_innovation/groups/sam/scoping_paper-cancer_screening-april_2021.pdf. Accessed March 2022.
- European Journal of Cancer. The European cancer burden in 2020: incidence and mortality estimates for 40 countries and 25 major cancers. 2021. [ONLINE]. <https://www.sciencedirect.com/science/article/pii/S0959804921004974>. Accessed March 2022.
- United European Gastroenterology. UEG contribution to the EC call for evidence regarding the update and possible extension of the 2003 Council Recommendation on cancer screening. 2022. [ONLINE] <https://bit.ly/3tPiGYi>. Accessed March 2022.
- International Agency for Research on Cancer. Global cancer observatory. 2021. [ONLINE] <https://gco.iarc.fr/>. Accessed March 2022.
- Ford AC, Yuan Y, Moayyedi P. Helicobacter pylori eradication therapy to prevent gastric cancer: systematic review and meta-analysis. *Gut*. 2020;69(12):2113–21.
- European Cancer Information System. 2021. Colorectal cancer burden in EU-27. [ONLINE] https://ecis.jrc.ec.europa.eu/pdf/Colorectal_cancer_factsheet-Mar_2021.pdf. Accessed March 2022.
- GBD 2019 Disease and injuries collaborators. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet*. 2020;396:1204–22.
- Siegel RL, Miller KD, Fuchs HE, Jemal A. Cancer statistics, 2021. *CA Cancer J Clin*. 2021;71(1):7–33.
- Liou JM, Malfertheiner P, Lee YC, Sheu B-S, Sugano K, Cheng H-C, et al. Screening and eradication of Helicobacter pylori for gastric cancer prevention: the Taipei global consensus. *Gut*. 2020;69(12):2093–112.
- Malfertheiner P, Megraud F, O'Morain CA, Gisbert JP, Kuipers EJ, Axon AT, et al. Management of Helicobacter pylori infection—the Maastricht V/Florence consensus report. *Gut*. 2017;66(1):6–30.
- Săftoiu A, Hassan C, Areia M, Bhutani MS, Bisschops R, Bories E, et al. Role of gastrointestinal endoscopy in the screening of digestive tract cancers in Europe: European society of gastrointestinal endoscopy (ESGE) position statement. *Endoscopy*. 2020;52(4):1–12.
- Helsing LM, Vandvik PO, Jodal HC, Agoritsas T, Lytvyn L, Anderson JC, et al. Colorectal cancer screening with faecal immunochemical testing, sigmoidoscopy or colonoscopy: a clinical practice guideline. *BMJ*. 2019;367:l5515.
- Senore C, Basu P, Anttila A, Ponti A, Tomatis M, Vale DB, et al. Performance of colorectal cancer screening in the European Union Member States: data from the second European screening report. *Gut*. 2019;68:1232–44.
- Carr R, Weigl K, Edelmann D, Jansen L, Chang-Claude J, Brenner H, et al. Estimation of absolute risk of colorectal cancer based on healthy lifestyle, genetic risk, and colonoscopy status in a population-based study. *Gastroenterology*. 2020;159(1):129–38.
- Kalager M, Bretthauer M. Improving cancer screening programs. *Science*. 2020;367(6474):143–4.
- Cucchetti A, Trevisani F, Bucci L, Ravaioli M, Farinati F, Giannini EG, et al. Years of life that could be saved from prevention of hepatocellular carcinoma. *Aliment Pharmacol Ther*. 2016;43(7):814–24.
- Park JW, Chen M, Colombo M, Roberts LR, Schwartz M, Chen P-J, et al. Global patterns of hepatocellular carcinoma management from diagnosis to death: the BRIDGE Study. *Liver Int*. 2015;35(9):2155–66.
- Kudo M. Management of hepatocellular carcinoma in Japan as a world-leading model. *Liver Cancer*. 2018;7(2):134–47.
- European Association For The Study Of The Liver and European Organisation For Research And Treatment of Cancer. EASL-EORTC clinical practice guidelines: management of hepatocellular carcinoma. *J Hepatol*. 2012;56:908–43.