

Cancer Projections and Early Detection

Dr Rozana A. Rahman

MB BCh BAO LRCP & SI, MRCP UK, MD

Consultant Medical Oncologist

UCD Clinical Assistant Professor

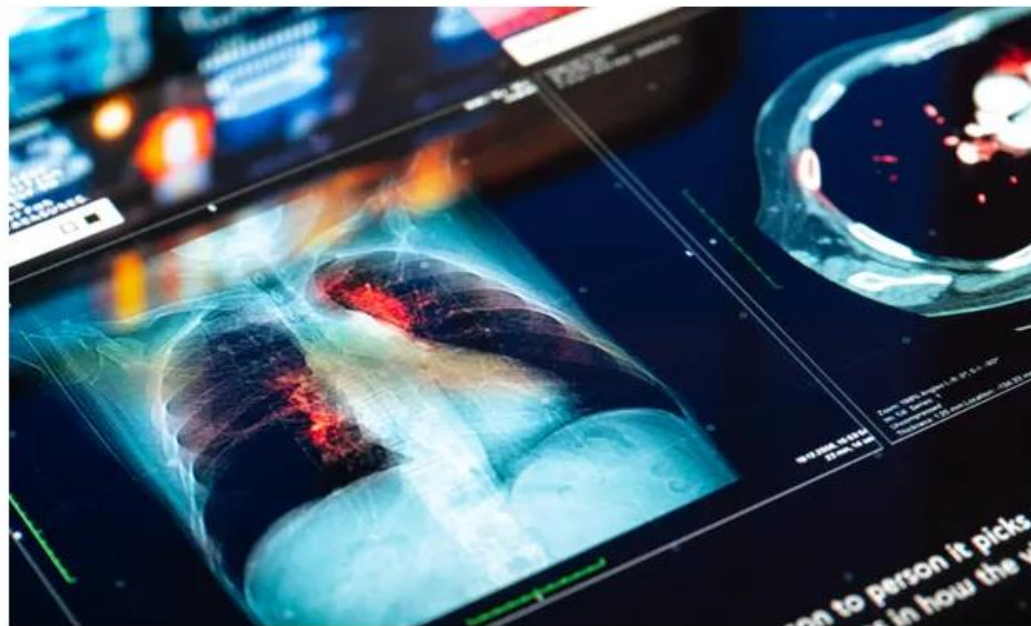
Cancer cases in under-50s worldwide up nearly 80% in three decades, study finds

More than a million under-50s a year dying of cancer and figure projected to rise by another 21% by 2030

Andrew Gregory Health editor

@andrewgregory

Wed 6 Sep 2023 00:30 CEST



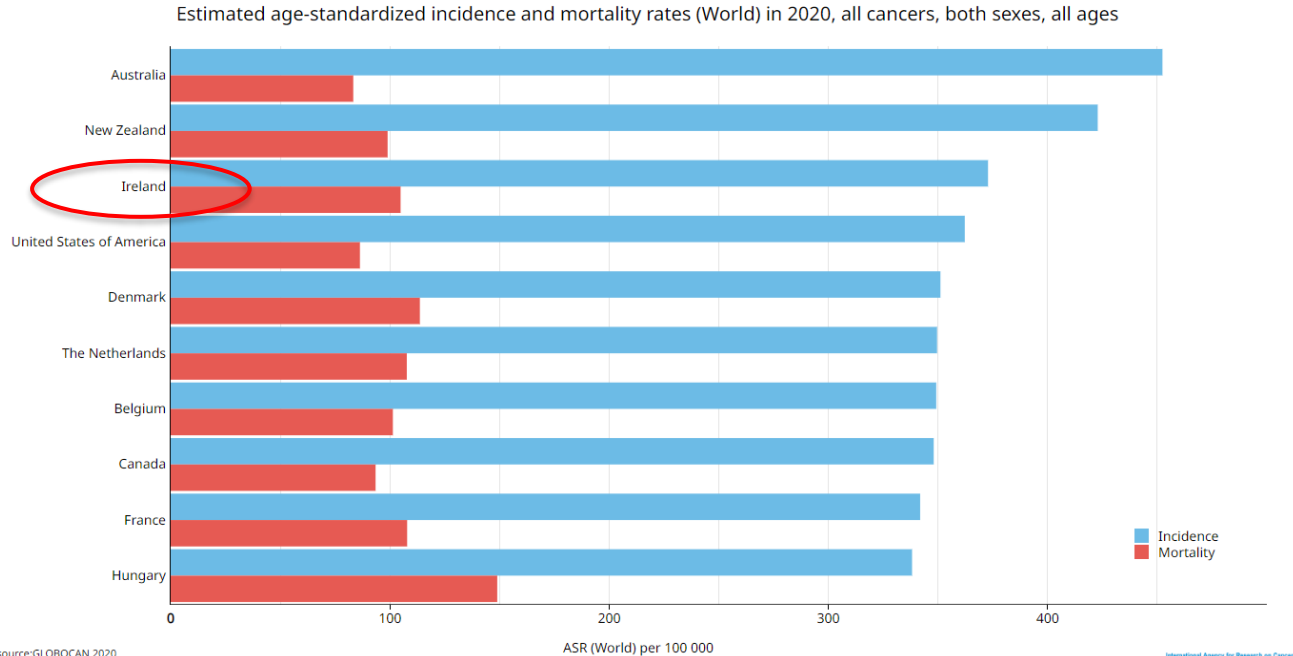
An MRI scan for lung cancer. The researchers say poor diets, alcohol and tobacco use, physical inactivity and obesity are likely to be among the factors in the rise. Photograph: da-kuk/Getty Images

Objective

1. Current cancer statistics in Ireland and projected cancer trends
2. Importance of early cancer detection and its challenges
3. Early detection method and innovative technologies

1. Current Cancer Statistics in Ireland and Projected Cancer Trends

Introduction



Data source: GLOBOCAN 2020
Graph production: Global Cancer Observatory (<https://gco.iarc.fr/>)
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International Agency for Research on Cancer
World Health Organization

CANCER IN IRELAND



20
22

2018 - 2020 cases (tumours), deaths, survival and lifetime risk

43,470

Registered tumours per year

24,327

Invasive cancers per year
*excl non-melanoma (NMSC)
skin cancer



9,751

Deaths per year

30%

of deaths in Ireland are attributed to cancer

1 in 5

Cancer deaths are caused by Lung Cancer



68

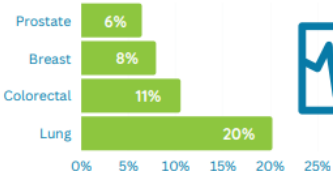
Median age at diagnosis



74

Median age at death

Top causes of cancer death



65%

5-year net survival (2014-2018)

>50%

increase in cancer survivors vs a decade ago

Most common invasive cancers

*excl NMSC



Prostate



Breast

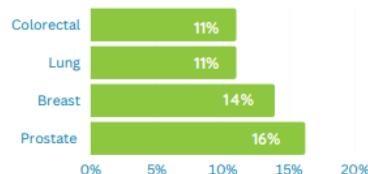


Lung



Colorectal

Ranking & Percentages



1 in 2

Lifetime risk of developing cancer

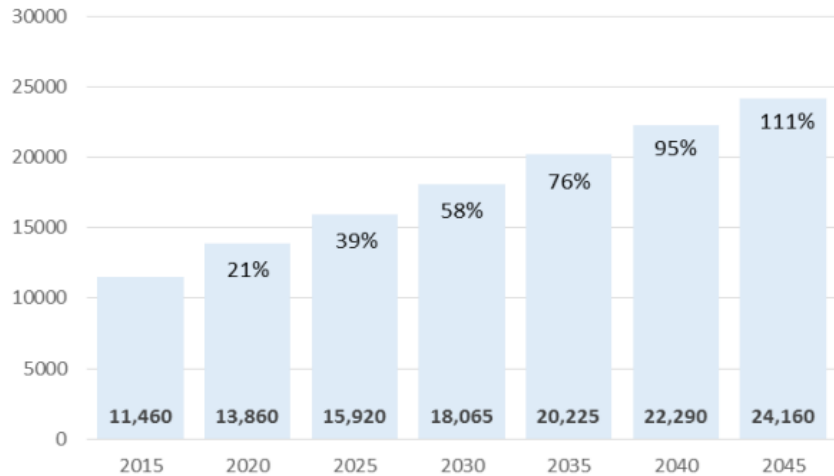
*excl NMSC



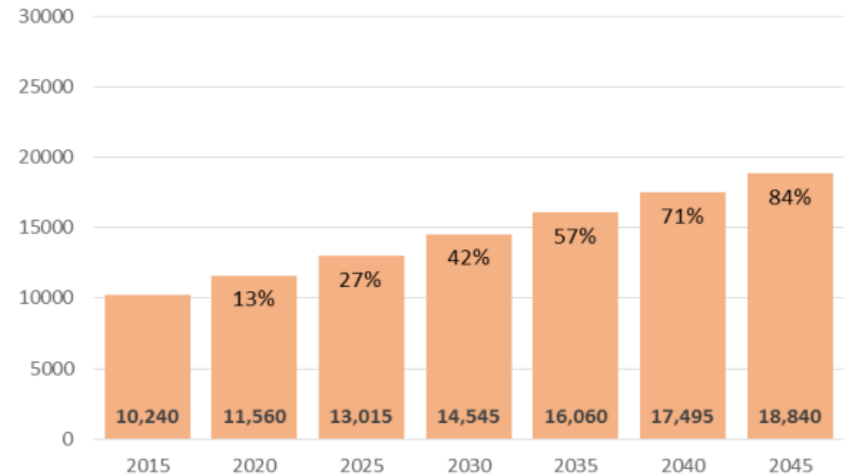
Projected Cancer Trends

Projections: All invasive cancers, excluding NMSC

males



females



The figures for 2015 represent the number of cases observed in that year. The figures for 2020, 2025, 2030, 2035, 2040 and 2045 are projections. The percentages are the increase on the observed 2015 case count.

Factors Contributing to the Projected Increase in Cancer Cases

Table 1. Population attributable fractions (PAFs) and attributable cases of all cancer excluding NMSC by risk factor in Ireland, 2016.

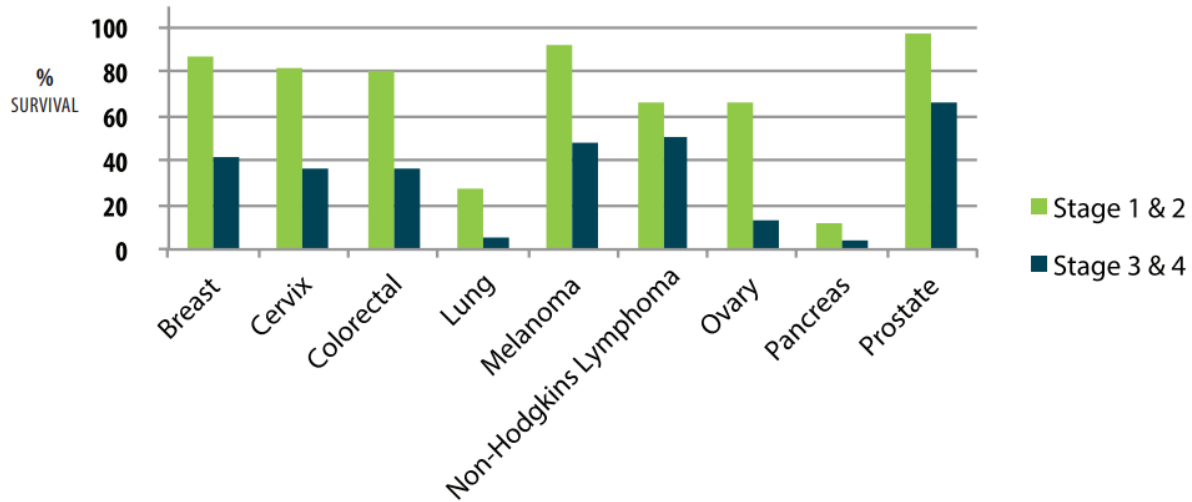
Risk Factor	PAF (%)	Attributable cases of all cancer excluding NMSC
Smoking	13.0	2779
Overweight and obesity	5.0	1061
Infection	3.6	766
Alcohol intake	2.4	506
Single episode of sunburn and sunbed use	1.9	414
Radiation	1.1	237
Processed meat intake	0.8	173
Oral contraceptive*	0.5	114
Use of hormonal replacement therapy*	0.5	114
Lack of physical activity	0.2	38
Fine particulate air pollution	0.2	36

*Please note, although oral contraceptive and hormonal replacement therapy usage can increase the risk of certain cancers, they can also decrease the risk of other cancer types. Therefore, it is likely that the net effect of cancer cases attributable to oral contraceptive and hormonal replacement therapy use is lower than presented here.

2. Importance of early cancer detection and its challenges

Better Survival with Early Detection

Ten-year Survival Rate by Stage at Diagnosis in Ireland (2008 – 2012)



Cancer Treatment Delay Impact

Even a four week delay of cancer treatment is associated with increased mortality

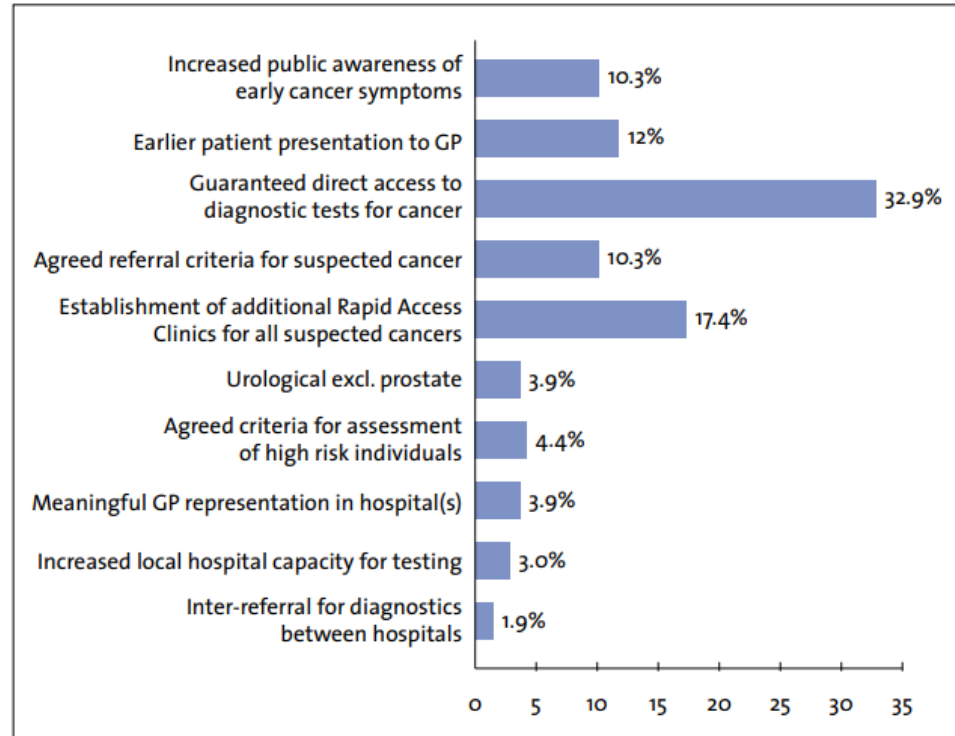
– BMJ Nov 2020

Over 60 000 cancer patients could live at least an extra six months if treatment delays are tackled

– LCP analysis commissioned by Macmillan Cancer Support Dec 2023

Challenges in Early Detection

Figure 14. The main factor which GPs considered would assist in the early detection of cancer in general practice

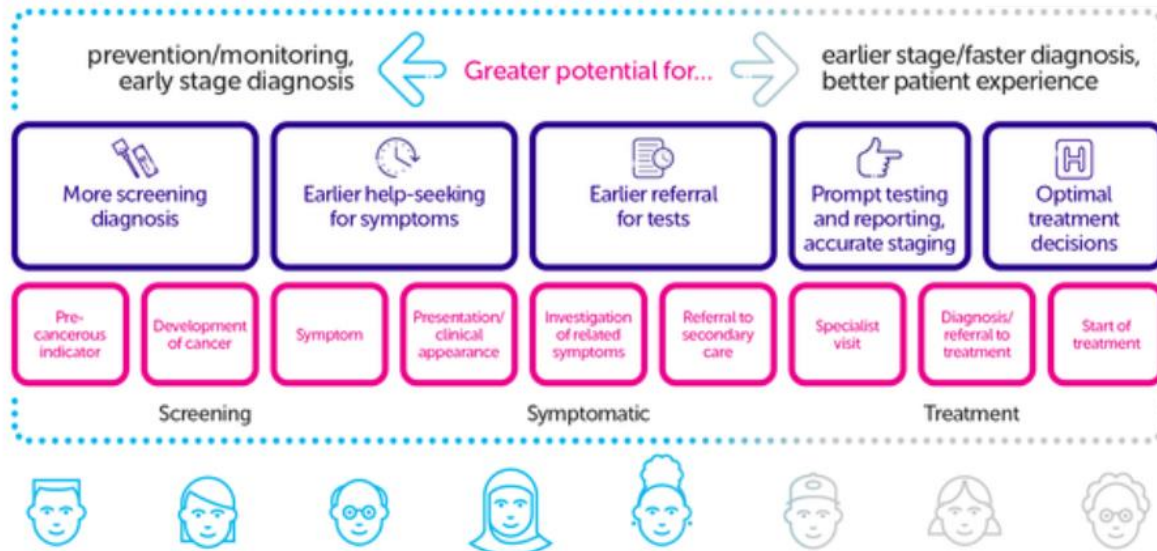


Access to Diagnostics Used to Detect Cancer

AUTHORS
Marie T O'Shea and Claire Collins,
Irish College of General Practitioners
April 2016

Early Diagnosis Initiative

Acting across the diagnostic pathway



Produced by the Strategic Evidence Team, Policy, Information and Communications Directorate, Cancer Research UK

3. Early detection method and innovative technologies



12 WAYS TO REDUCE YOUR CANCER RISK

BASED ON THE EUROPEAN
CODE AGAINST CANCER.

How to reduce your risk of getting cancer

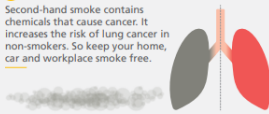
1 QUIT SMOKING

One in 3 cancers is linked to smoking. Even if you have smoked for years, quitting now can reduce your risk of getting cancer.



2 AVOID SECOND-HAND SMOKE

Second-hand smoke contains chemicals that cause cancer. It increases the risk of lung cancer in non-smokers. So keep your home, car and workplace smoke free.



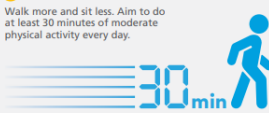
3 KEEP A HEALTHY WEIGHT

Being overweight or obese is linked to some cancers. Try to keep active, eat well and keep a healthy weight for your height. Talk to your doctor if you are worried about your weight.



4 STAY ACTIVE

Walk more and sit less. Aim to do at least 30 minutes of moderate physical activity every day.



5 EAT HEALTHY FOOD

Eat lots of fruit, vegetables, wholegrains and pulses. Try to avoid processed foods, red meat and sugary foods.



6 LIMIT ALCOHOL

If you choose to drink alcohol, try to limit your intake. Not drinking alcohol is the best option for preventing at least 7 types of cancer.



7 BE SUNSMART

Skin cancer is the most common cancer in Ireland. Protect your skin: seek shade, cover up, wear sunglasses, a hat, sunscreen and check the UV index. Avoid sunbeds.



8 BE AWARE OF THE AIR

Protect yourself against pollutants in your workplace by following health and safety rules.



9 CHECK THE RADON RISK

Radon gas can get into your home through cracks in the floors or gaps around pipes. It can increase your risk of cancer. You can have the radon levels in your home tested. Visit www.radon.ie for more information.



10 ADVICE FOR WOMEN

Breastfeeding reduces your risk of breast cancer.

HRT is a hormonal drug for menopausal symptoms. Some types of HRT may increase the risk of some cancers. The benefits and risks vary from person to person, so talk to your GP.



11 GET VACCINATIONS

Some cancers are spread by viruses and bacteria. Ensure your children take part in vaccination programmes for Hepatitis B (for newborns) and human papillomavirus (HPV) (for children over 12 years).



12 TAKE SCREENING TESTS

Screening means looking for the early signs of cancer before you show symptoms. Ireland has national screening programmes for bowel, breast and cervical cancer. Visit www.screening.ie for more information.



Cancer specialists and scientists from across Europe compiled the code based on the latest scientific evidence on cancer prevention. This code was developed by the International Agency for Research on Cancer and the European Commission 2014.

For more about the **European Code Against Cancer** and ways to reduce your risk of cancer, visit the cancer prevention section on our website www.cancer.ie or call 1800 200 700

If you are concerned about cancer you can speak with a cancer nurse in confidence by calling our Support Line on Freephone 1800 200 700

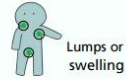
You can also contact us through our:

- Email service – at supportline@irishcancer.ie
- Online Community – on our website www.cancer.ie
- Daffodil Centres – check our website www.cancer.ie for a Daffodil Centre near you

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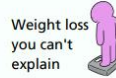
Spot anything?



Lumps or swelling



Unusual bleeding



Weight loss you can't explain



Pain that won't go away



Sores that don't heal



Cough or changes in your voice or breathing



Mouth or tongue ulcer that won't go away



Bloating that won't go away



Trouble swallowing, indigestion or heartburn



Changes in toilet habits



Any change to your breast



A new mole or a change in a mole

If you notice any change to your body that you can't explain or that won't go away, get your GP to check it out.

Cancer Screening



Every two years, we invite **584,000** women aged 50-69 for screening

We aim to screen **70%** of the eligible women

4 BreastCheck units with 287 staff consisting of nursing, medical, health and social care, patient and client care and admin personnel

24 mobile units



Every three to five years, we invite **1,330,000** women and people with a cervix aged 25-65 screening

We aim to screen **80%** of the eligible population

15 Colposcopy units providing colposcopies

2 Screening labs and

12 Histopathology labs



Every two years, we invite **521,000** men and women aged 60-69 for screening

We aim to screen **50%** of the eligible population

1 screening lab providing FIT kit analysis

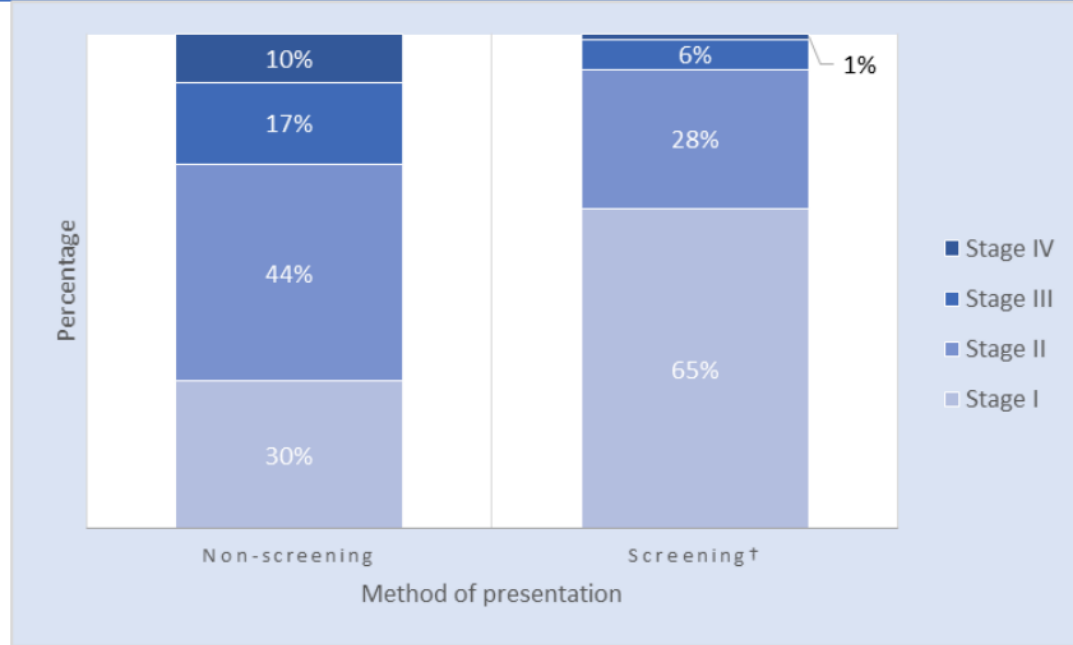
15 participating endoscopy units providing colonoscopies

8 histopathology labs

8 National Cancer Centres providing surgery

Advantage of screening

C50 BREAST: FEMALE: STAGE AND METHOD OF PRESENTATION 50-69 YEAR OLDS 2014-2018



† Includes opportunistic & unspecified screening (see glossary for more details)

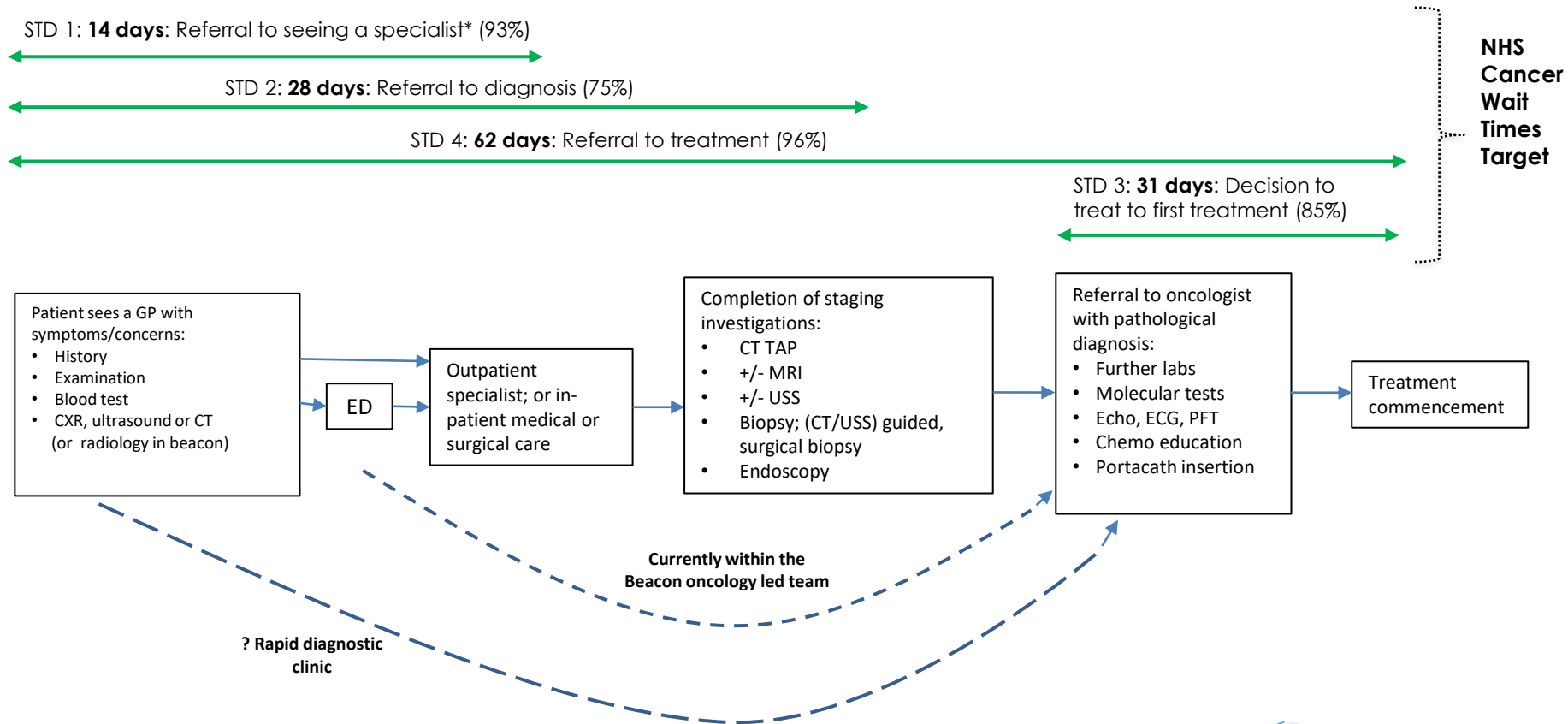
Rapid Access Clinic

- Rapid Access Clinics in many cancer centres
- Rapid Access Clinics are for:
 - **Prostate cancer** detection and treatment
 - **Lung cancer** detection and treatment

Cancer centres

Hospital Group	Centres
Royal College of Surgeons, Ireland	Beaumont Hospital
Ireland East	Mater University Hospital St Vincent's University Hospital
Dublin Midlands	St James's Hospital
South/Southwest	Cork University Hospital University Hospital Waterford
Saolta University	University Hospital Galway Letterkenny General Hospital
University Limerick	University Hospital Limerick
Children's Health Ireland	Our Lady's Children's Hospital Crumlin

Current Pathways within Beacon Hospital



Our Audit Results for Patients Between June 2022 and December 2023

Audit Standard	Standard Guideline	NHS target
Time from initial referral to first appointment with a specialist* (n=92)	14 days	93%
Time from initial referral to diagnosis (pathology) (n=92)	28 days	75%
Time from decision to treat to first treatment (n=60)	31 days	96%
Time from initial referral to first treatment (n=60)	62 days	85%

Table 1: NHS Cancer Wait Times standards and targets are detailed, along with the audit results and median values.

*no longer an NHS standard as of August 2023

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Our Audit Results for Patients Between June 2022 and December 2023

Audit Standard	Standard Guideline	NHS target	Our Results	Median (95% CI) (days)	Median for ED admissions (days)	Median for OPD referrals (days)
Time from initial referral to first appointment with a specialist* (n=92)	14 days	93%	95%	0 (1.0-4.8)	0	7
Time from initial referral to diagnosis (pathology) (n=92)	28 days	75%	97%	10 (10.8-20.2)	10	15
Time from decision to treat to first treatment (n=60)	31 days	96%	98%	7 (8-12)	7	9
Time from initial referral to first treatment (n=60)	62 days	85%	93%	32 (29 -42)	28	42

Table 1: NHS Cancer Wait Times standards and targets are detailed, along with the audit results and median values.

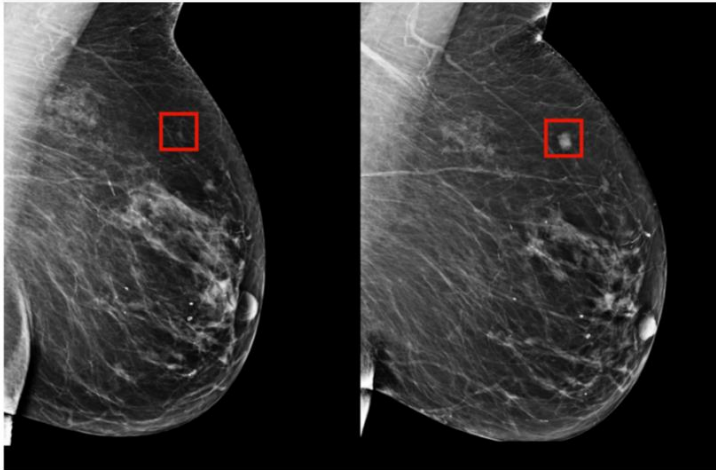
*no longer an NHS standard as of August 2023

AI Role in Predicting Cancer Early

Using AI to predict breast cancer and personalize care

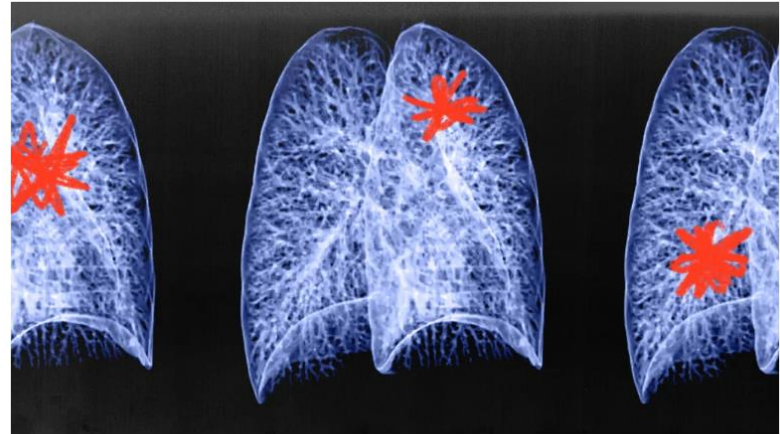
MIT/MGH's image-based deep learning model can predict breast cancer up to five years in advance.

Adam Conner-Simons and Rachel Gordon | CSAIL
May 7, 2019



Yala A et al. Sci Transl Med. Jan 2021. PMID: 33504648.

AI tool may predict lung cancer with 94% accuracy with 1 year of screening



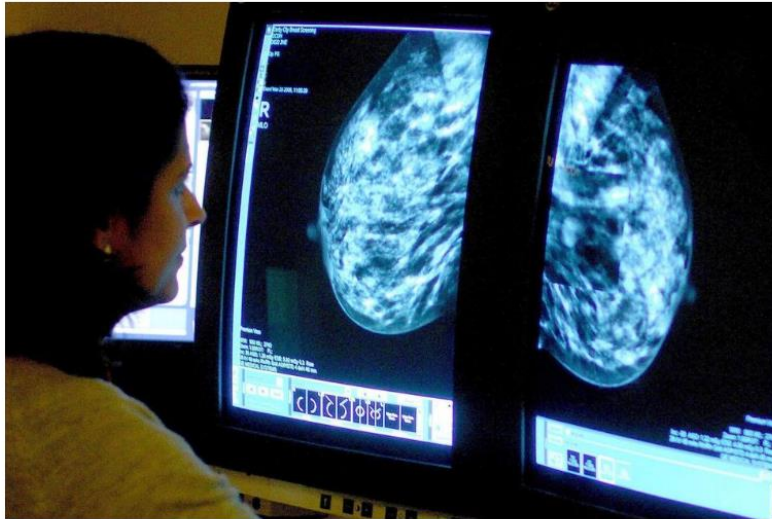
Artificial intelligence tools may be able to help doctors identify patients at risk for lung cancer. ZEPHYR/SCIENCE PHOTO LIBRARY/Getty Images

Mikhael PG et al. J Clin Oncol. Apr. PMID: 36634294;

Multicancer Early Detection Test (MCED)

[Home](#) / [Irish News](#)

'Promising' trial for blood test to detect 50 types of cancer



The Galleri test is available in the US. Photo: Rui Vieira



Conclusion

Conclusion

- Ireland has one of the highest cancer incidence in the world
- Cancer numbers in Ireland are projected to double by 2045
- Early detection and treatment can lead to improved survival

- But Have our effort been sufficient?

- Challenges in early detection – education, screening, early diagnosis
- Modifiable risk factors – education – 6000 cancers less per year
- Future is exciting – AI and multi-cancer early detection (MCED)

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Thank you