INTERCEPTION
GUSTAVE ROUSSY
Le programme de prévention personnalisée des cancers

Combiner détection précoce et interception – modèles théoriques et pratiques

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Departement d'Oncologie Médicale
Gustave Roussy, Villejuif

Liens d'intérêt

Suzette Delaloge

Research support (to my institution)

AstraZeneca, MSD, BMS, Sanofi, Taiho, Novartis

European Commission, INCa, Banque des Territoires, Fondation Philanthropia

Honoraria for lectures and advisory boards (to my institution)

Astra Zeneca, Gilead, Novartis, Elsan, Besins, Sanofi, Exact Sciences, Lilly

Travel support

Novartis (SPDV)

Plan

- Pourquoi combiner détection et interception
- La carcinogenèse en cours est elle une bonne cible?
- La détection par biopsie liquide est elle actionable
- La prévention de précision aujourd'hui
- Conclusions & perspectives

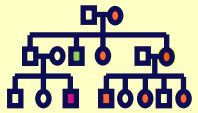
La synergie entre les champs de prévention doit être exploitée pour adresser les grands enjeux

- Tackle the moving target of cancer epidemiology
- Transform our knowledge on carcinogenesis into efficient prevention strategies
- Reduce cancer-related health inequalities
- Build acceptable and desirable prevention strategies
- Build sustainable economical models
- Replace therapeutic strategies in the long run!

$$\frac{[e^{\frac{lim_{n\to\infty}\frac{2^{2n}(n!)^2 log 7}{(2n)!\sqrt{n}}}{\int_0^\infty e^{-t^2}dt}} - e^{i\sum_{k=0}^{\infty}\frac{8}{(4k+1)(4k+3)}}|\int_0^\infty \frac{2t}{e^t-1}dt}{[\int_0^\infty \frac{\sqrt{3}dt}{t^6+1}|^2[\int_{-\infty}^\infty e^{-\pi t^2}dt|[\int_0^\infty e^{-t}tdt|} = 50$$

Detecter précocement la carcinogenèse ou les situations à risque de cancer permet des actions multiples!

Social and cultural determinants



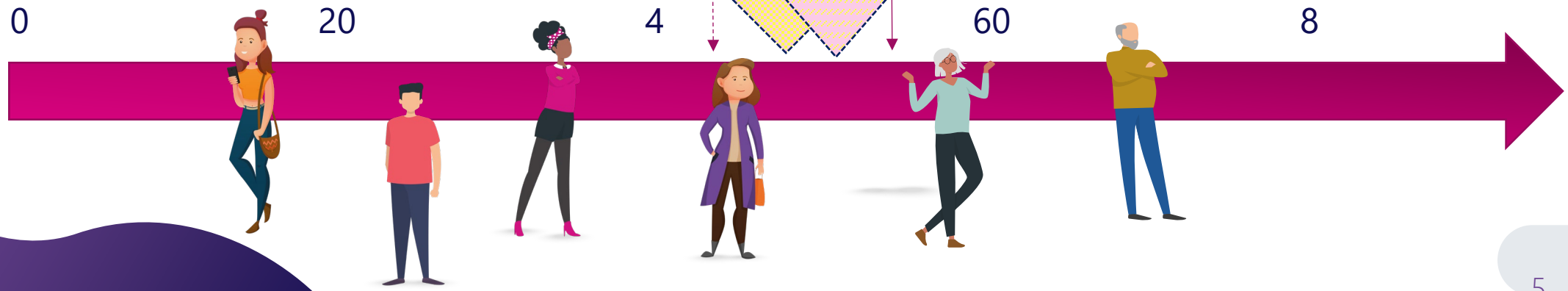
Age, gender, genetic determinants

Exposure
Tobacco, alcohol, infectious agents, sun, pollutants, diet, excess weight, radiation, sedentary lifestyle, hormones, etc.

Identification of a situation with increased risk several years before the event

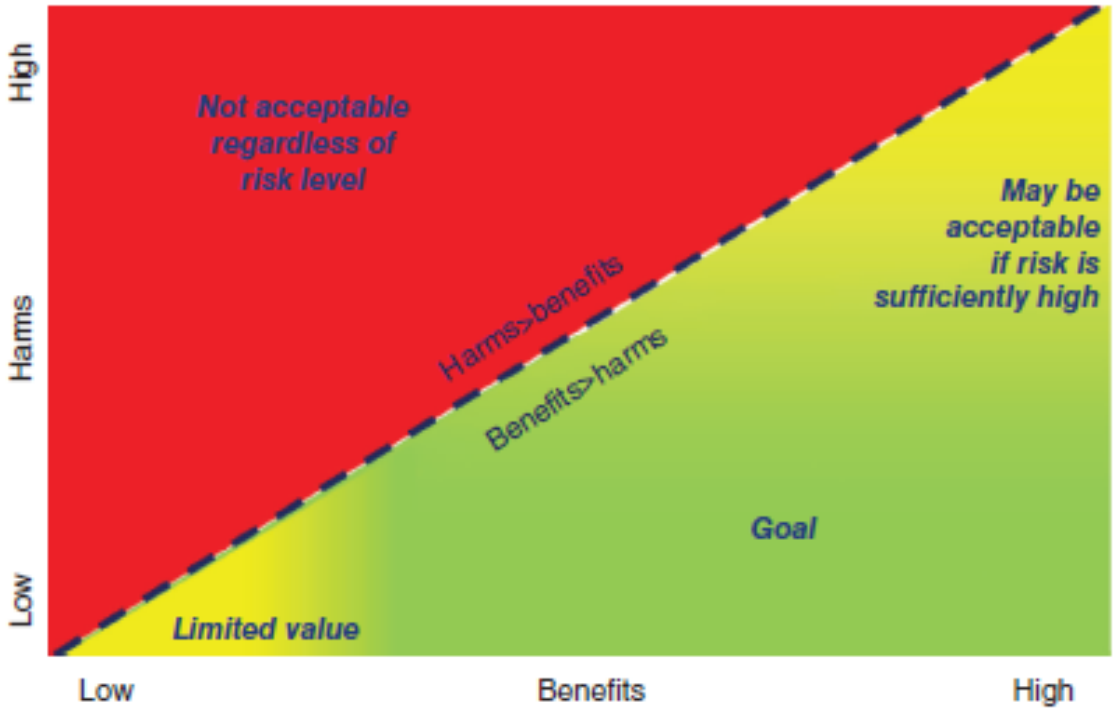
Targeted intervention

Cancer



Assessing individual risk at a given time allows for the implementation of appropriate interventions

Precision prevention framework

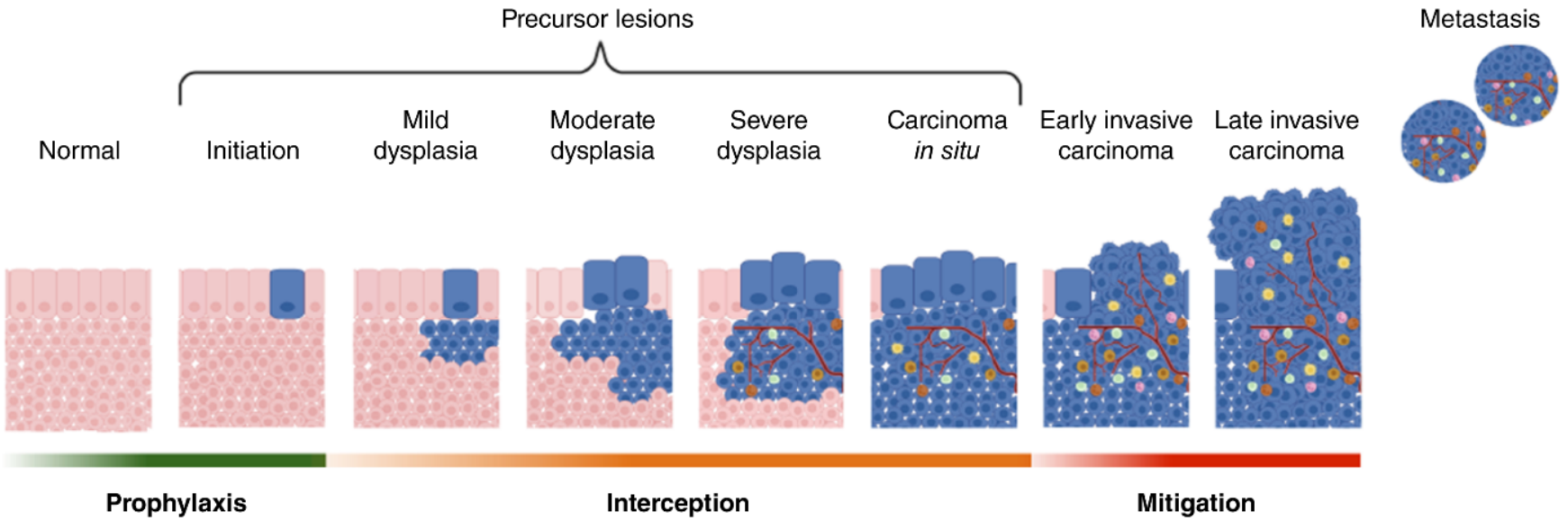


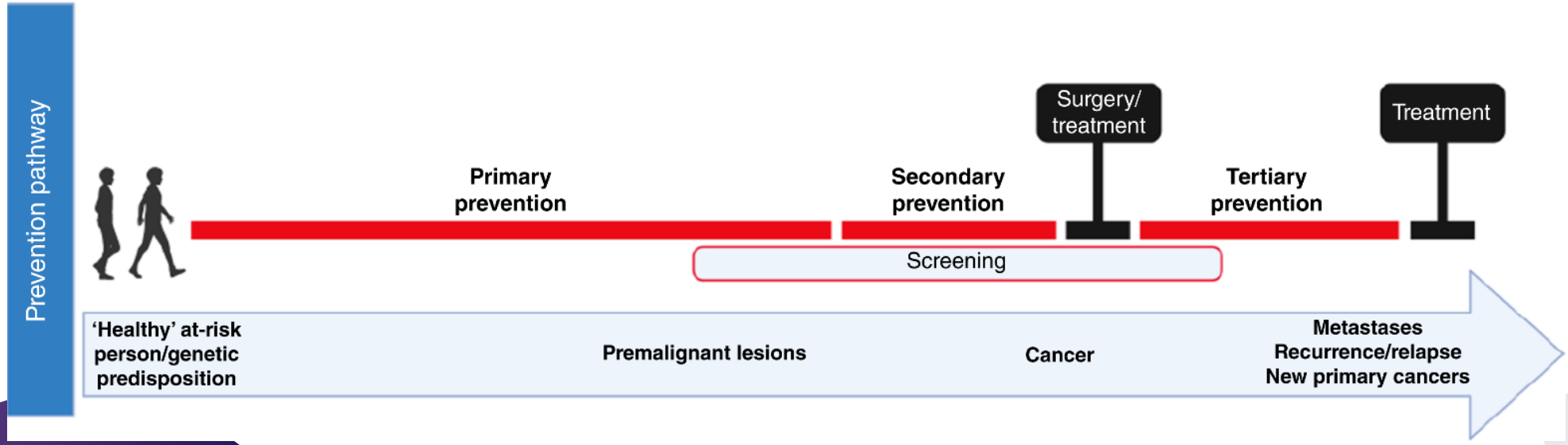
RISK AND BENEFITS TO HARMS RATIO AS ORGANIZING PRINCIPLES FOR DEVELOPING AND IMPLEMENTING INTERVENTIONS

	Class of prevention		
Features	Prophylaxis	Interception	Mitigation
Cancer status	No evidence of cancer presence	Suspicion of cancer presence or knowledge of early precursor lesions	Early stage, curable cancer
Stage of natural history/carcinogenesis impacted	Prevent initiation and the development of precursor	Prevent progression of early biological changes and precursors to invasive cancer	Prevent cancer from causing death; optimize quality of life
Target population	General, at-risk population with no indication that events leading to cancer have occurred	Populations in which there is evidence that progression toward invasive cancer may have started	Population that may have early-stage cancer
Identification	General population, individuals at risk due to family history genetic susceptibility, exposures, etc.	Demographics (e.g., age), lab test (e.g., screening/ diagnostic test or procedure; genetic testing)	Lab test (e.g., screening/ diagnostic test or procedure; genetic testing)
General strategy	• Vaccination • Avoidance of exposure and behavioral modification	• Vaccination • Screening • Behavioral modification • Preventive agents	Tailor interventions to specific symptoms, medical manifestations, or behavioral/psychosocial needs
Examples	• HPV vaccination • HBV vaccination • Smoking prevention • Preventive surgery	• Smoking cessation • Screening & early detection • Daily aspirin use	Cancer early detection; monitoring low-grade cancer (e.g., low-grade prostate cancer)

Castle et al, Framework for cancer prevention, NIH, Cancer Discov 2024

The Interception opportunity!

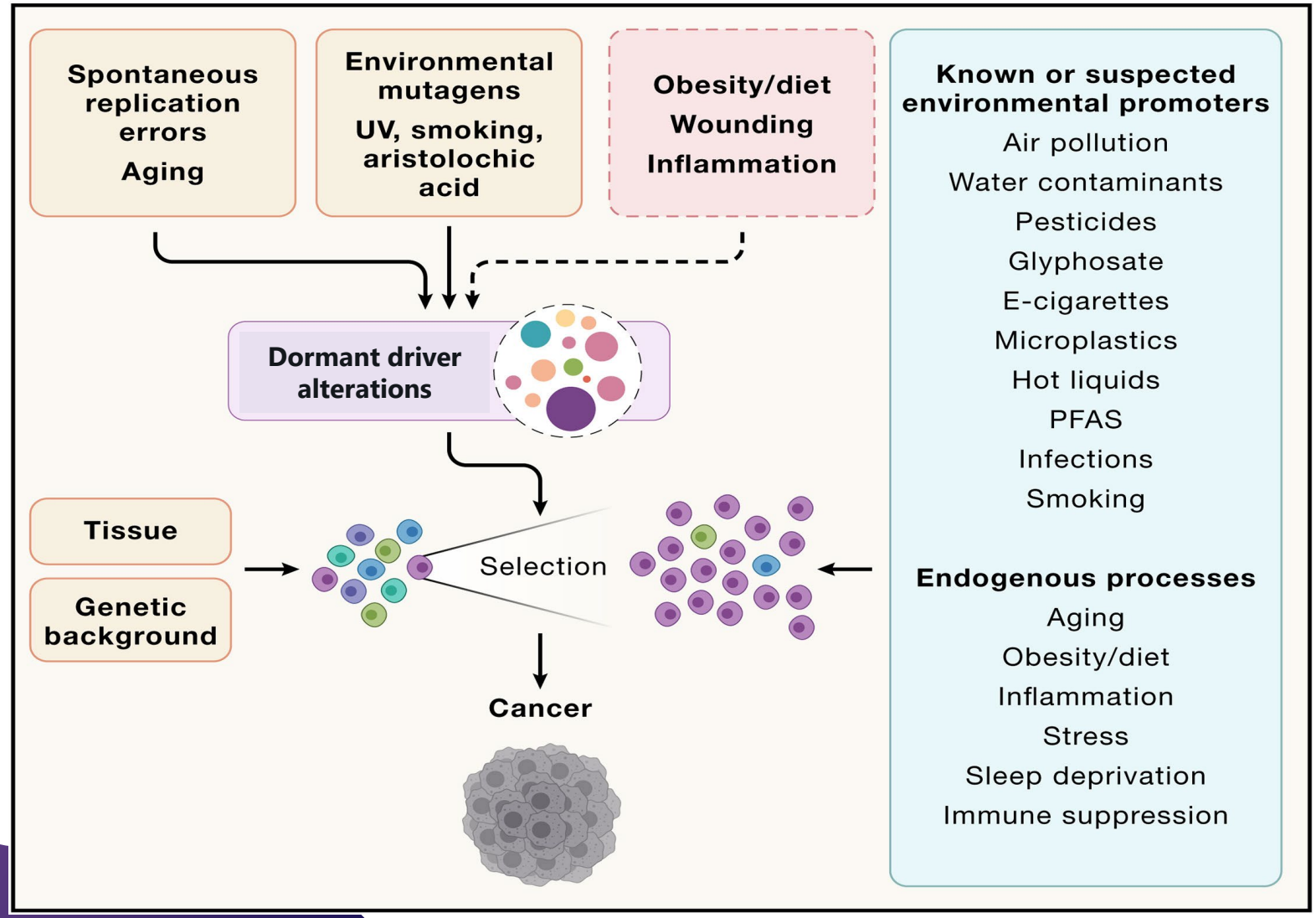




Cancer Prev Res (Phila). 2025;18(9):499-507. doi:10.1158/1940-6207.CAPR-25-0035

Our revised view of carcinogenesis fuels precision prevention

Adapted from Swanton et al Cell 2024,



- Major role of the microenvironment
- Deleterious exposures with risky clonal expansion
- Possibility of reprogramming tissue at risk

Prevention >> Target cancer drivers or some of their modifiers

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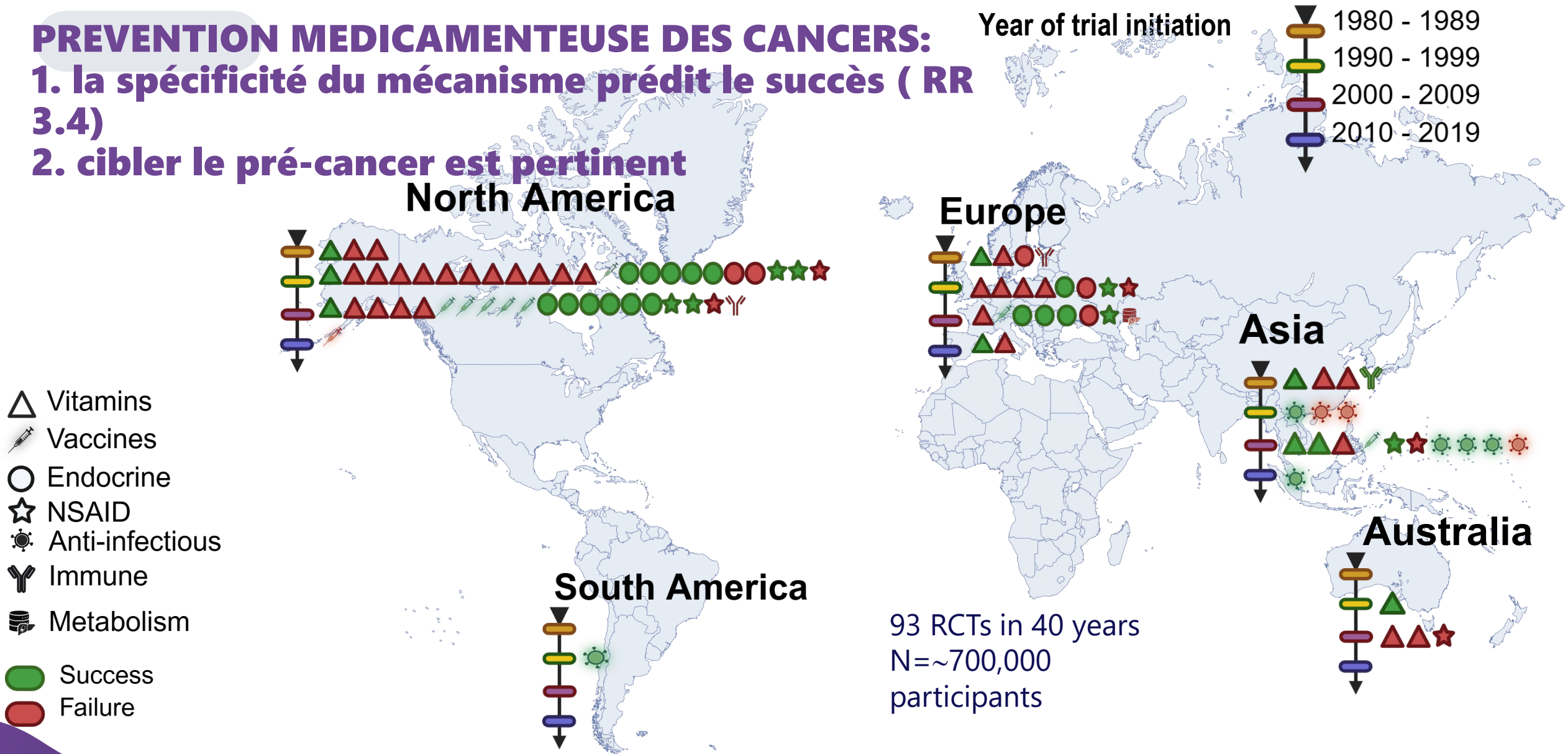
PREVENTION MEDICAMENTEUSE DES CANCERS:

1. la spécificité du mécanisme prédit le succès (RR 3.4)

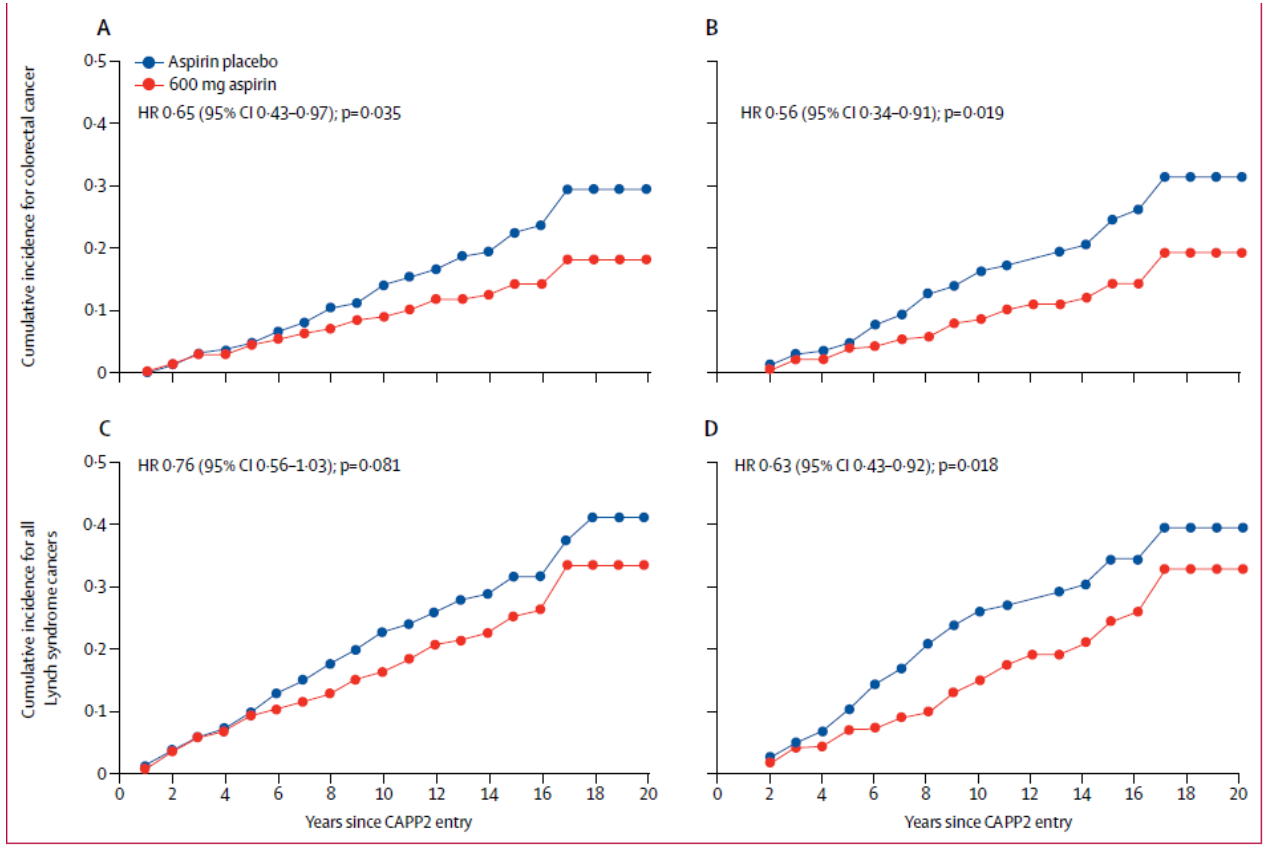
2. cibler le pré-cancer est pertinent



93 RCTs in 40 years
N=~700,000 participants

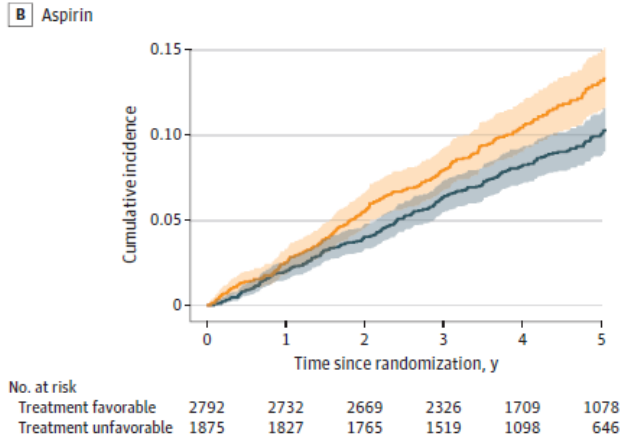
DO NOT POST

L'aspirine en prévention des cancers ne fonctionne pas.. Sauf sur le cancer du colon en cas de Sd de Lynch ou en cas de CHIP+?



Burn Lancet 2020

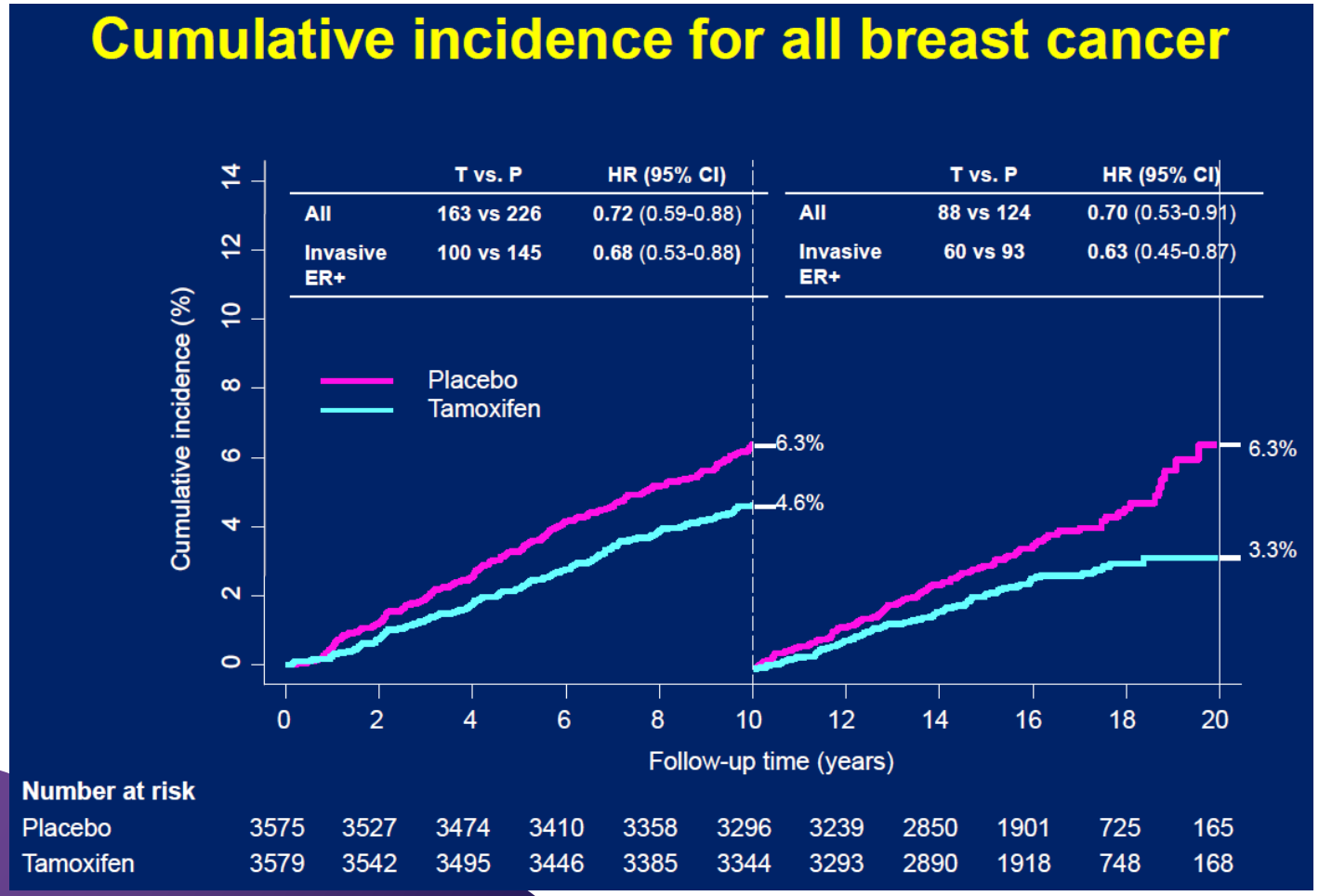
Group	No. (%) of participants	Participants with incident cancer (n = 1009) No. (%) of placebo events	No. (%) of aspirin events	HR (95% CI)
All participants	9350 (100)	513 (25.3)	496 (24.4)	0.96 (0.85-1.09)
Treatment favorable	5529 (59.1)	307 (25.6)	267 (21.7)	0.85 (0.72-1.00)
Treatment unfavorable	3821 (40.9)	206 (25.0)	229 (28.6)	1.14 (0.95-1.38)
Test for heterogeneity: $P = .02$				



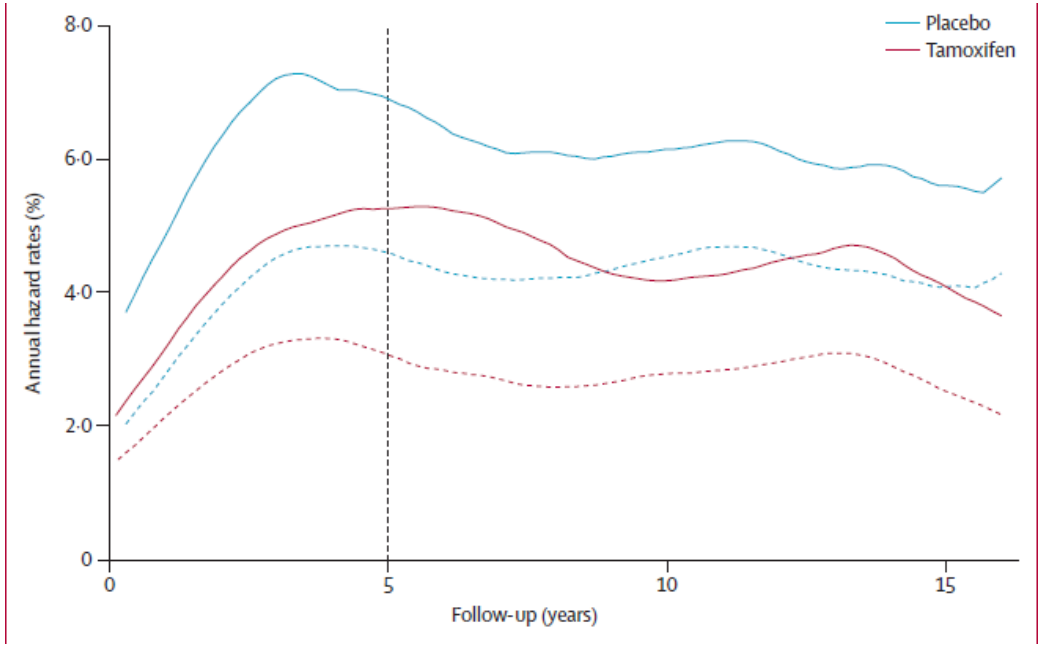
Thi Phuong Tao JAMA Oncol 2025

A MODEL FOR BREAST CANCER INTERCEPTION: LONG-TERM EFFECT OF 5 YEARS OF TAMOXIFEN IN THE IBIS-1 STUDY

Tissue reprogramming may be allowed by **limited term interventions**



5years of endocrine prevention have a long-term protracted risk-reduction effect



Cuzick et al Lancet Oncol 2015; SABCS 2023

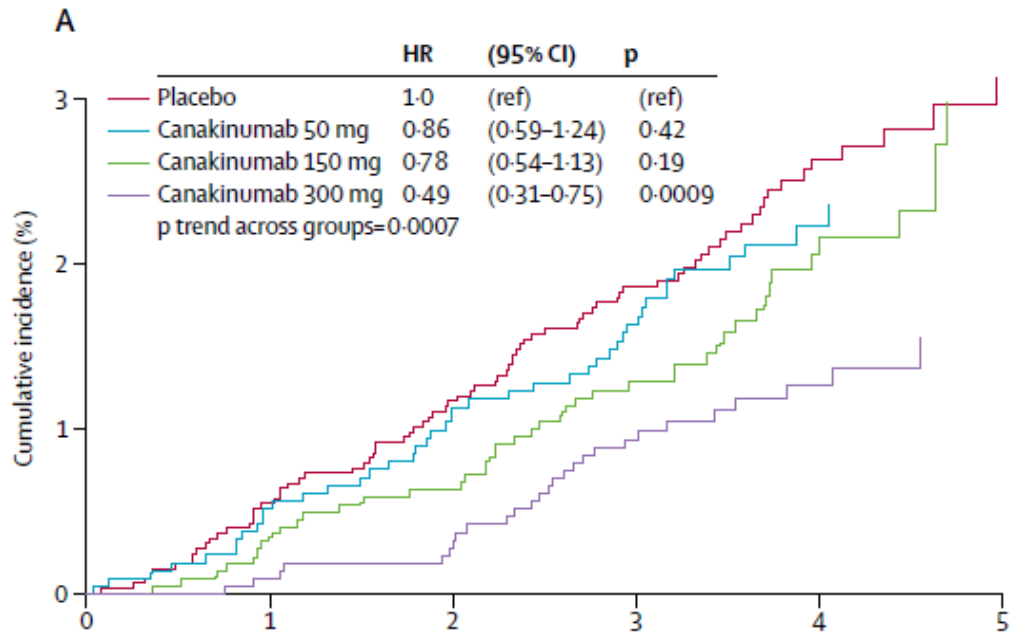
BUT A NUTRITIONAL INTERVENTION MAY HAVE MORE EFFECT ON BREAST CANCER MORTALITY THAN ENDOCRINE PREVENTION!

			Breast Cancer Incidence			Deaths From Breast Cancer		
Trial	**N**	**Follow-up[a]**	**Tamoxifen**	**Placebo**	**RR (95% CI)**	**Tamoxifen**	**Placebo**	
Royal Marsden[b]	2,494	13.2 years	82	104	0.78 (0.58 to 1.04)	12	9	Not reported
			Tamoxifen	**Placebo**	**HR (95% CI)**	**Tamoxifen**	**Placebo**	**OR (95% CI)**
NSABP P-1	13,388	74 months (mean)	145	250	0.57 (0.46 to 0.70)	12	11	Not reported
			Tamoxifen	**Placebo**	**HR (95% CI)**	**Tamoxifen**	**Placebo**	**OR (95% CI)**
IBIS-1	7,154	16.0 years (median)	251	350	0.71 (0.60 to 0.83)	31	26	1.19 (0.68 to 2.10)
			Anastrozole	**Placebo**	**HR (95% CI)**	**Anastrozole**	**Placebo**	
IBIS-II	3,864	131 months (median)	85	165	0.51 (0.39 to 0.66)	2	3	Not reported
			Exemestane	**Placebo**	**HR (95% CI)**	**Exemestane**	**Placebo**	**HR (95% CI)**
MAP.3	4,560	35 months (median)	11	32	0.35 (0.18 to 0.70)	1	0	Not reported
			Low-fat	**Control**	**HR (95% CI)**	**Low-fat**	**Control**	**HR (95% CI)**
WHI DM	48,835[a]	19.6 years (median)	1,299 (0.44%)	2,075 (0.46%)	0.95 (0.89 to 1.02)	132 (0.037%)	251 (0.047%)	0.79 (0.64 to 0.97)
			CEE	**Placebo**	**HR (95% CI)**	**CEE**	**Placebo**	**HR (95% CI)**
WHI CEE-alone	10,739	20.3 years (median)	238 (0.30%)	296 (0.37%)	0.78 (0.65 to 0.93)	30 (0.031%)	46 (0.046%)	0.60 (0.37 to 0.97)

Chlebowski et al, J Clin Oncol 2020, JOP 2021

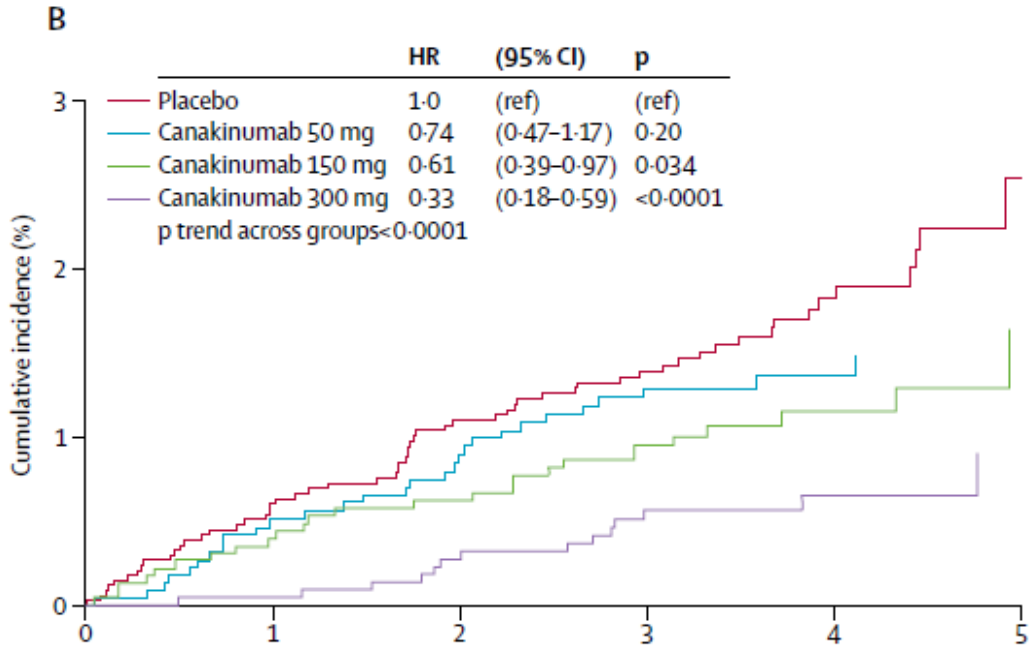
Canikinumab (anti IL1b) and lung cancer incidence among smokers (Cantos)

Incidence all cancers



Number at risk						
Placebo	3344	3255	3162	2868	1423	257
Canakinumab 50 mg	2170	2117	2054	1845	838	57
Canakinumab 150 mg	2284	2221	2163	1972	998	243
Canakinumab 300 mg	2263	2204	2139	1949	1013	227

Incidence lung cancer

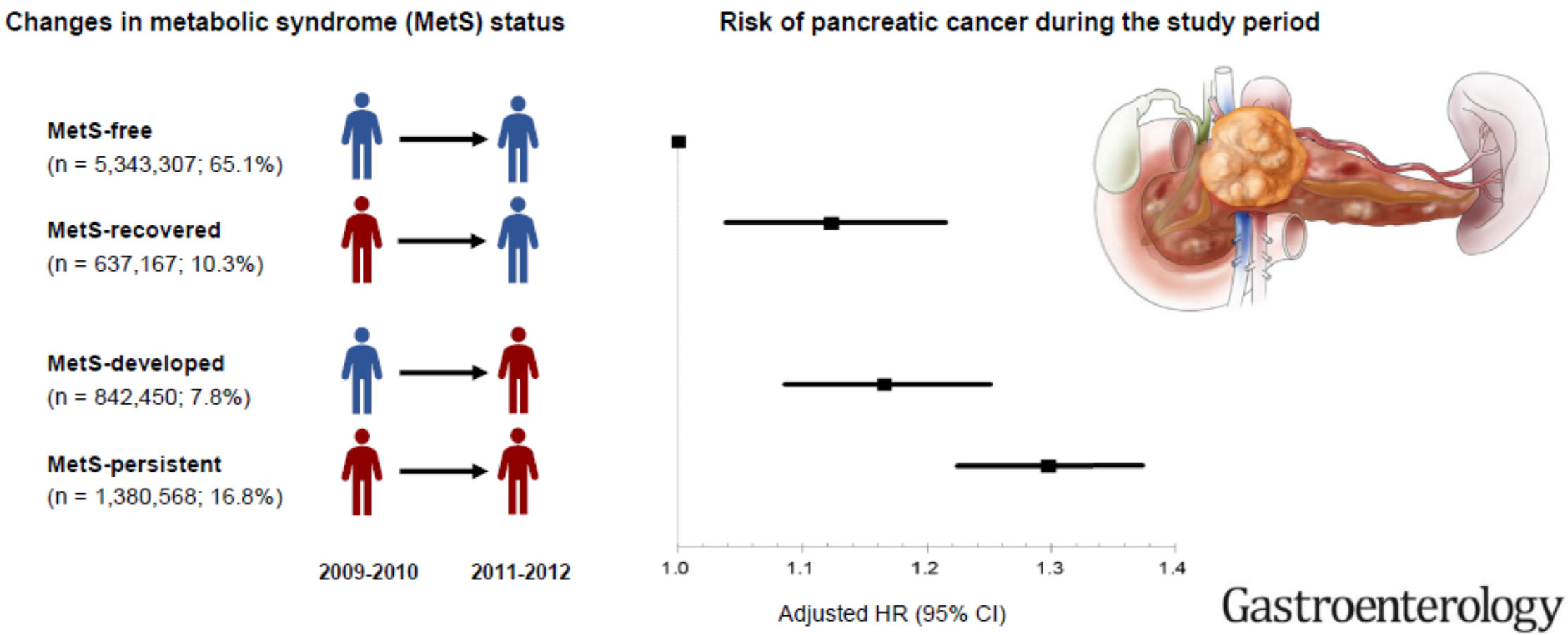


Number at risk						
Placebo	3344	3241	3142	2835	1401	251
Canakinumab 50 mg	2170	2110	2047	1825	827	53
Canakinumab 150 mg	2284	2207	2148	1950	982	233
Canakinumab 300 mg	2263	2201	2128	1928	1002	222

Ridker Lancet 2017

Tissue reprogramming and reversion: possible?

Dysmetabolism and pancreatic cancer



Park et al Gastroenterology 2022

Plan

- Pourquoi combiner détection et interception
- Détecter précocement… le cancer ou la carcinogenèse?
- La détection par biopsie liquide est elle actionable?
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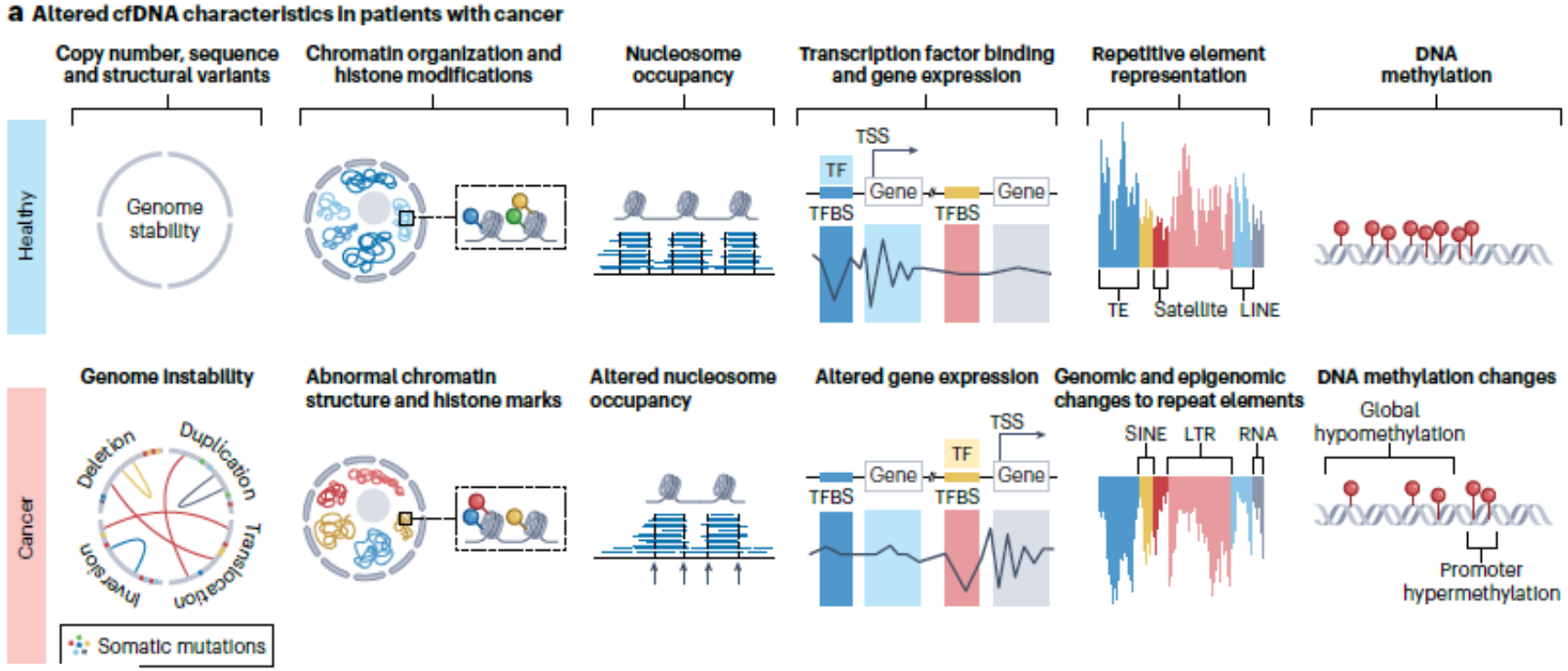
Biopsie liquide pour la détection précoce des cancers

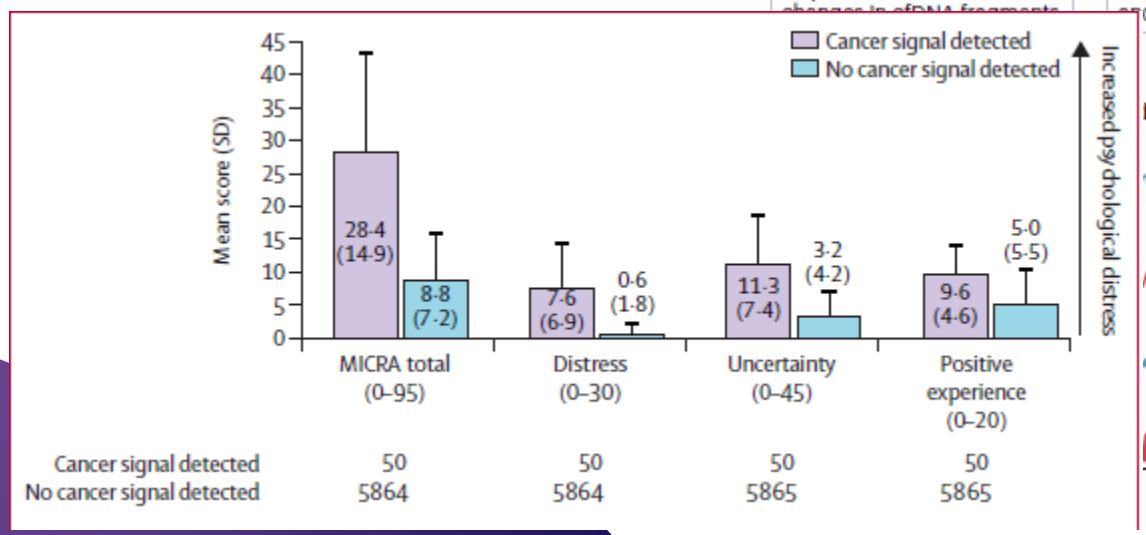
Genomic and fragmentomic landscapes of cell-free DNA for early cancer detection

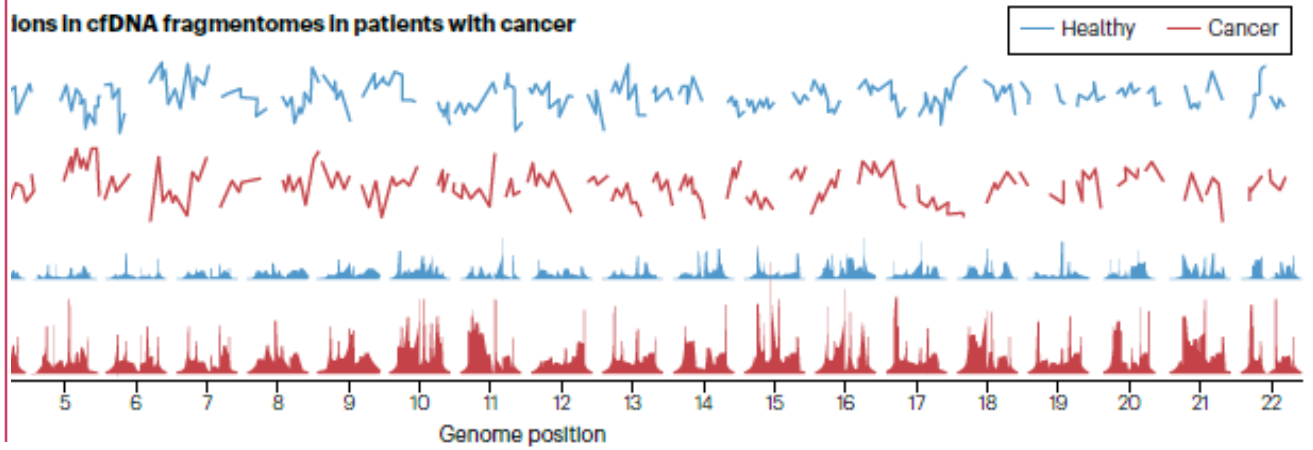
Daniel C. Bruhm[1], Nicholas A. Vulpescu[1], Zachariah H. Foda[1,2], Jillian Phallen[1], Robert B. Scharpf[1,3] & Victor E. Velculescu[1,2]

Nature Reviews Cancer | Volume 25 | May 2025 | 341–358



Distress in Pathfinder JAMA Oncol 2025





Biopsie liquide : « actionabilité »?

- En oncologie de précision: pas sur les techniques actuelles ADNc, oui avec d'autres biomarqueurs (cft présentations du jour)
- En chirurgie: intérêt du mini invasif, dévelopement de la RI, mais surtout de l'imagerie de détection précoce associée!
- Intérêt de développer les réponses thérapeutiques associées à la détection précoce!!

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Precision cancer prevention must be built at the public health level

Exposome analysis
Social, cultural, lifestyle, infectious, environmental, medical, hormonal, occupational, etc.

Understanding cancer biology

Biomarkers
Circulating /tissue/ imaging

Intrinsic factors
Age and gender
Genetic
Epigenetics

PUBLIC HEALTH

"PRIMORDIAL" PREVENTION

Primary **Secondary**

PERSONALISED PREVENTION
1. Identify cancer risk situations
2. Early detection and risk reduction based on risk and biology

(PRECISION PREVENTION)

Health

Precision prevention: germline genetics have opened the path

Focus on (some) high penetrance genetic conditions

Germline alterations - cancer	Early detection means (LoE)	Risk reduction measures (LoE)
BRCA1/2 – breast and ovarian	Breast MRI (+ mammography) (IIA)	Prophylactic mastectomy (IIA) and adnexectomy (IIA), endocrine therapies (IIIB), lifestyle interventions (IV)
Other BC genes – breast and ovarian	*Low level evidence, attitude derived from BRCA1/2 data*	
Lynch syndrome – broad spectrum	Colonoscopy/gastroscopy, pelvic ultrasound, etc. (II-III)	Prophylactic hysterectomy and adnexectomy (III), lifestyle (IV), aspirin (IIB)
Multiple genes - Pancreatic cancer	Pancreatic MRI / endoscopic ultrasound (III)	Lifestyle (IV)
TP53 – broad spectrum	Breast MRI (III), whole body MRI (IIB), other	Prophylactic mastectomy (IV) lifestyle (IV)

Kotsopoulos JAMA Oncol 2024; Lubinski, JAMA Oncol 2024; Metcalfe Br J Cancer 2023; Burn et al Lancet 2020; Blackford JAMA Oncol 2024; Hered Cancer Clin Pract 2019; Consul Am J Roent 2021

Données de dépistage spécifique du cancer du sein dans les situations de haut risque en 2025

Ipina et al
EUCanScreen initiative
Systematic review
Early Cancer detection conf 2025

Type of risk definition	Intervention & Comparison	Studies	Design	N°	LoE GoR RoB	Outcomes													
						BC incidence	Sensitivity Specificity	Interval Cancer Rates	Detection rates	Survival outcomes	Safety outcomes	Recall rates	Overdiagnosis	False positives	Biopsy rates	Socio-psychological impact	Quality of Life	Costs and Cost-effectiveness	Acceptability
gBRCA 1/2 carriers only	Addition of MRI vs SoC (no MRI)	[Lubinski et al, 2024]	OC	2488	IIIA	X				X									
		[Evans et al, 2014] [Sardanelli et al, 2011]	OC NRCT	1516 501	IIIA IIIA	X	2	X	X	X				X					
		[Evans et al, 2016] [Hagen et al, 2007] [Passaperuma et al, 2012]	OC OC NRCT	448 554 496	IIIB IIIB IIIA	2	2	2	X	2									
	Addition of US to SoC (with MRI)	[van Zelst et al, 2017]	OC	296	IIID		X	X	X			X		X	X				
Risk scores ± Genetics Family history *(might include gBRCA1/2 and other carriers)*	Addition of MRI vs SoC (no MRI)	[Saadatmand et al, 2019]	RCT	1354	IB			X	X					X	X				
		[Chiarelli et al, 2020] [Kuhl et al, 2005]	OC OC	8782 578	IIIA IIIA	2	2	X	X			X		X	X				
		[Hartman et al, 2004] [Lehman et al, 2005] [Lehman et al, 2007] [Riedl et al, 2015] [Rijnsburger et al, 2010] [Trop et al, 2010]	OC OC NRCT OC NRCT NRCT	41 390 171 559 2157 184	IID IIB IIB IIB IIA IIC	X	4		5	X		3	X	3	3				
	Annual mammography vs no screening ages 35-39 y.o	[Evans et al, 2019]	OC	2899	IIC	X	X		X		X	X			X				
	Abbreviated MRI q6 months vs Full MRI	CAPS	OC	400	NA				X										
	CESM + mammography (2D or DBT) vs mammography alone	[Patel et al, 2024]	OC	460	IIIB		X	X	X			X		X					X
	CESM + MRI vs MRI alone	[Jochelson et al, 2017]	OC	307	IIIC		X							X					
	CESM vs MRI + digital mammography	Con Trust	RCT	2200	NA	X	X	X	X	X	X	X		X	X				
Image-based risk prediction tools	Annual MRI for High Risk determined by MIRAI vs TC	[Shazeeb et al, 2024]	NRCT	200	NA	X			X										
High Breast Density	Addition of MRI to mammography vs mammography alone	[Bakker et al, 2019]	RCT	40373	IB	X		X	X	X				X	X		X	X	X
	Addition of abbreviated MRI vs ABUS vs CESM to mammography vs mammography alone	[Gilbert et al, 2025]	RCT	900	IB	X	X		X		X								
Individual high risk factors	CBE versus Mammography – US	[Choridah et al, 2023]	OC	503	IIIC	X	X											X	X
PUMCH model	Mammography + US combined vs mammography alone	[Shen et al, 2015]	RCT	13393	IIC	X	X											X	
Harvard-modified cancer index	Mammography +US+CA125 combined vs mammography alone	[Sun et al, 2022]	OC	10821	IIIB	X	X		X										

PRECISION PREVENTION IS ON THE WAY!

Effect of invitation to colonoscopy versus faecal immunochemical test screening on colorectal cancer mortality (COLONPREV): a pragmatic, randomised, controlled, non-inferiority trial

Antoni Castells, Enrique Quintero*, Luis Bujanda, Susana Castán-Cameo, Joaquín Cubiella, José Díaz-Tasende, Ángel Lanas, Akiko (
Miquel Serra-Burriel, Eladio Frías-Arrocha, Cristina Hernández, Rodrigo Jover, Montserrat Andreu, Fernando Carballo, Juan Diego Mo
Dolores Salas, Raquel Almazán, Inmaculada Alonso-Abreu, Jesús M Banales, Vicent Hernández, Isabel Portillo, Mercedes Vanaclocha
Mariola de la Vega, on behalf of the COLONPREV study investigators†*

The Lancet 2025

New Engl J Med 2025

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Assessment of a Polygenic Risk Score in Screening for Prostate Cancer

J.K. McHugh,[1,2] E.K. Bancroft,[1,2] E. Saunders,[1] M.N. Brook,[1] E. McGrowder,[1]
S. Wakerell,[1] D. James,[1,2] R. Rageevakumar,[1] B. Benton,[1,2] N. Taylor,[1,2] K. Myhill,[1,2]
M. Hogben,[1,2] N. Kinsella,[2,3] A.A. Sohaib,[2] D. Cahill,[2] S. Hazell,[2] S.J. Withey,[2]
. Osborne,[1,2] S. Benafif,[1,4] A.-B. Jones,[1,2] D. Patel,[5]
ell,[2] R. Nicholson,[2] F. Croft,[2] J. Sobczak,[2] C. McNally,[2]
ston,[2] Q. Karlsson,[1] T. Dadaev,[1] S. Saya,[1,6] S. Merson,[1]
ussain,[1] A. Thwaites,[1] S. Hussain,[1] I. Rafi,[7] M. Ferris,[8]
. Pashayan,[9] Z. Kote-Jarai,[1] and R.A. Eeles,[1,2] for the
eering Committee and Collaborators*

JAMA Oncology | Original Investigation

Low-Dose Aspirin for Individualized Cancer Prevention in Older Adults

A Secondary Analysis of the ASPREE Randomized Clinical Trial

Group	No. (%) of participants	Participants with incident cancer (n = 1009)		HR (95% CI)
		No. (%) of placebo events	No. (%) of aspirin events	
All participants	9350 (100)	513 (25.3)	496 (24.4)	0.96 (0.85-1.09)
Treatment favorable	5529 (59.1)	307 (25.6)	267 (21.7)	0.85 (0.72-1.00)
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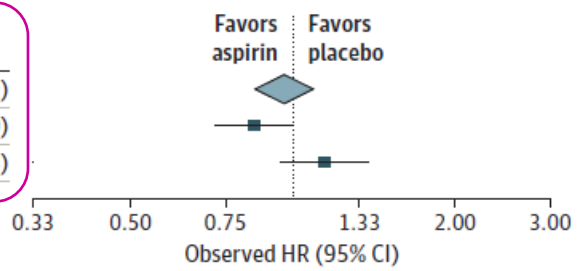
Test for heterogeneity: $P = .02$				



Modelling is key!!

Benefits and harms of mammographic screening by risk and density (NL)

The one size fits all model could be improved importantly!

Subgroups varying in risk and density highlight the potential for stratified breast cancer screening

Eugenio Gil Quessep [a,*], Danielle van der Waal [b], Jim Peters [c], Suzette Delaloge [d], Carla van Gils [e], Harry J. de Koning [a], Mireille Broeders [b,c], Nicolien van Ravesteyn [a]

European Journal of Cancer 217 (2025) 115220

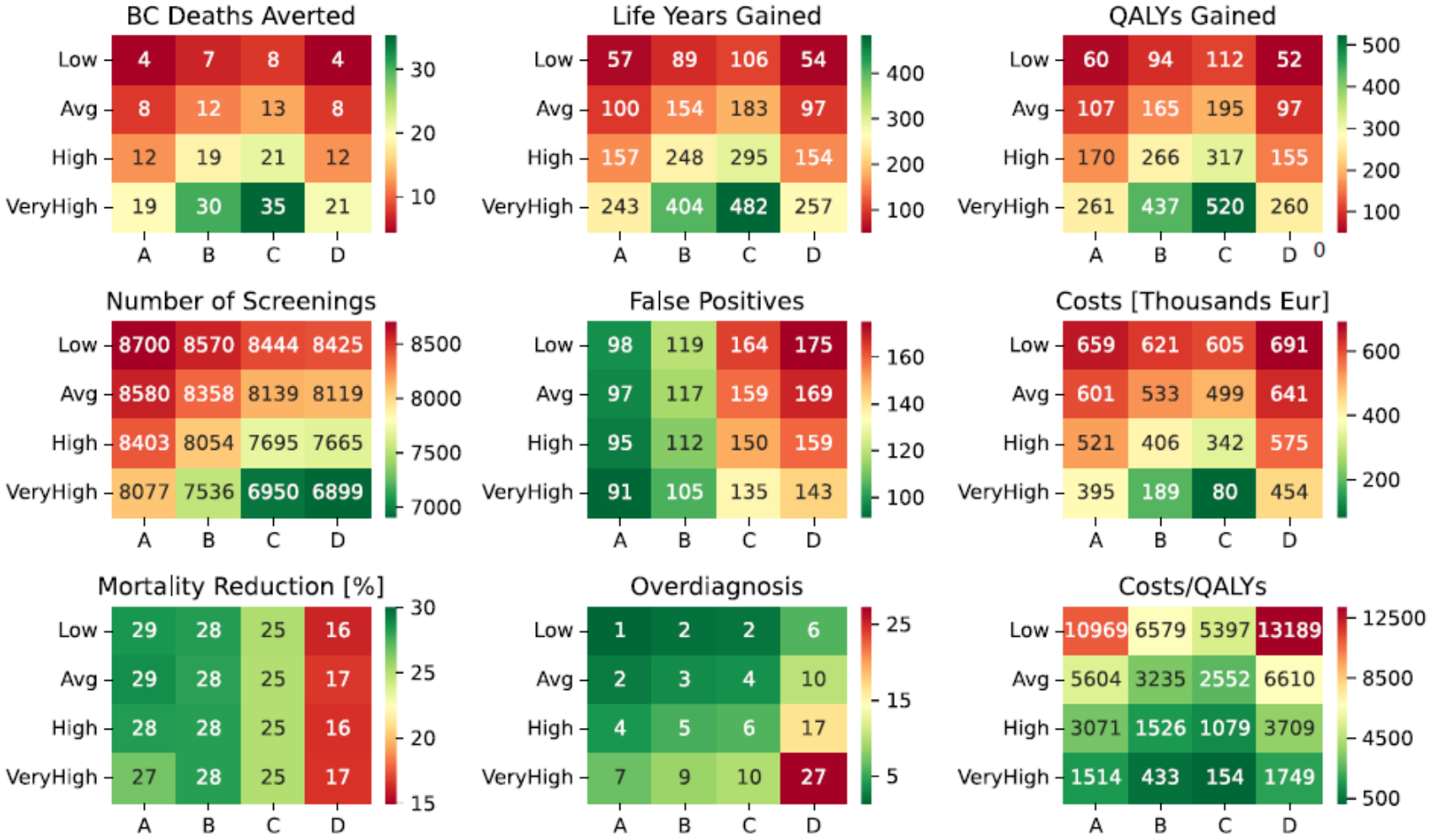
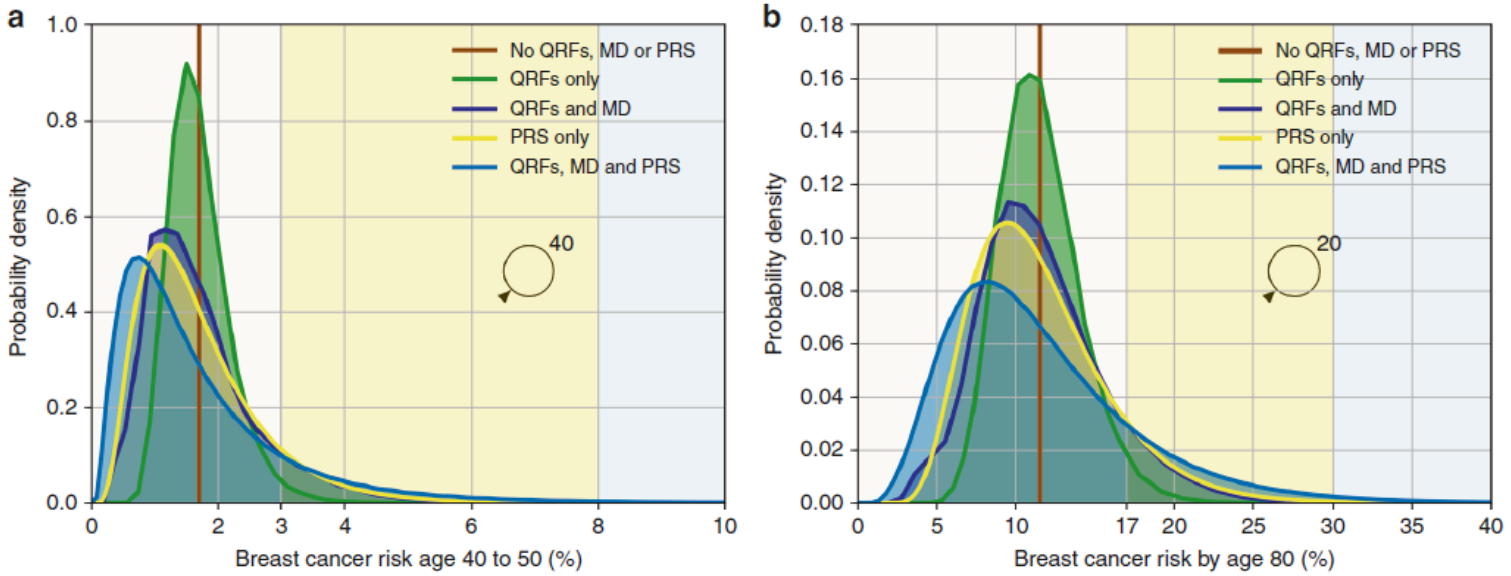


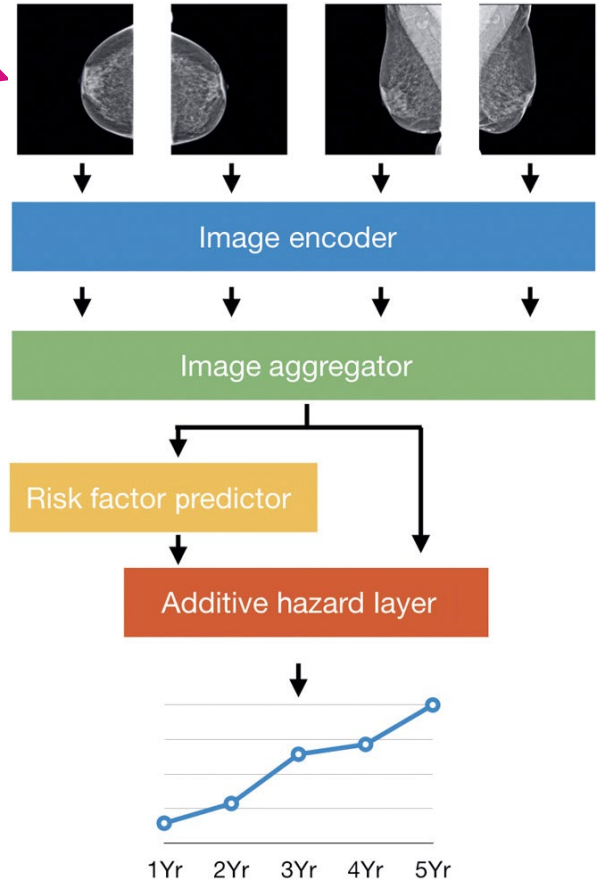
Fig. 1. Heatmaps of outcomes per 1000 women from a one-size-fits-all screening strategy. Results from nine health and economic outcomes when performing mammography every 2 years from age 50–74y for each subgroup of risk level and breast density. BC: breast cancer; QALYs: quality-adjusted-life-years.

Predicting cancer risk: clinical data- or image/IA-based?

BREAST CANCER

Personal genetics (SNP scores) + exposures + timely biomarkers





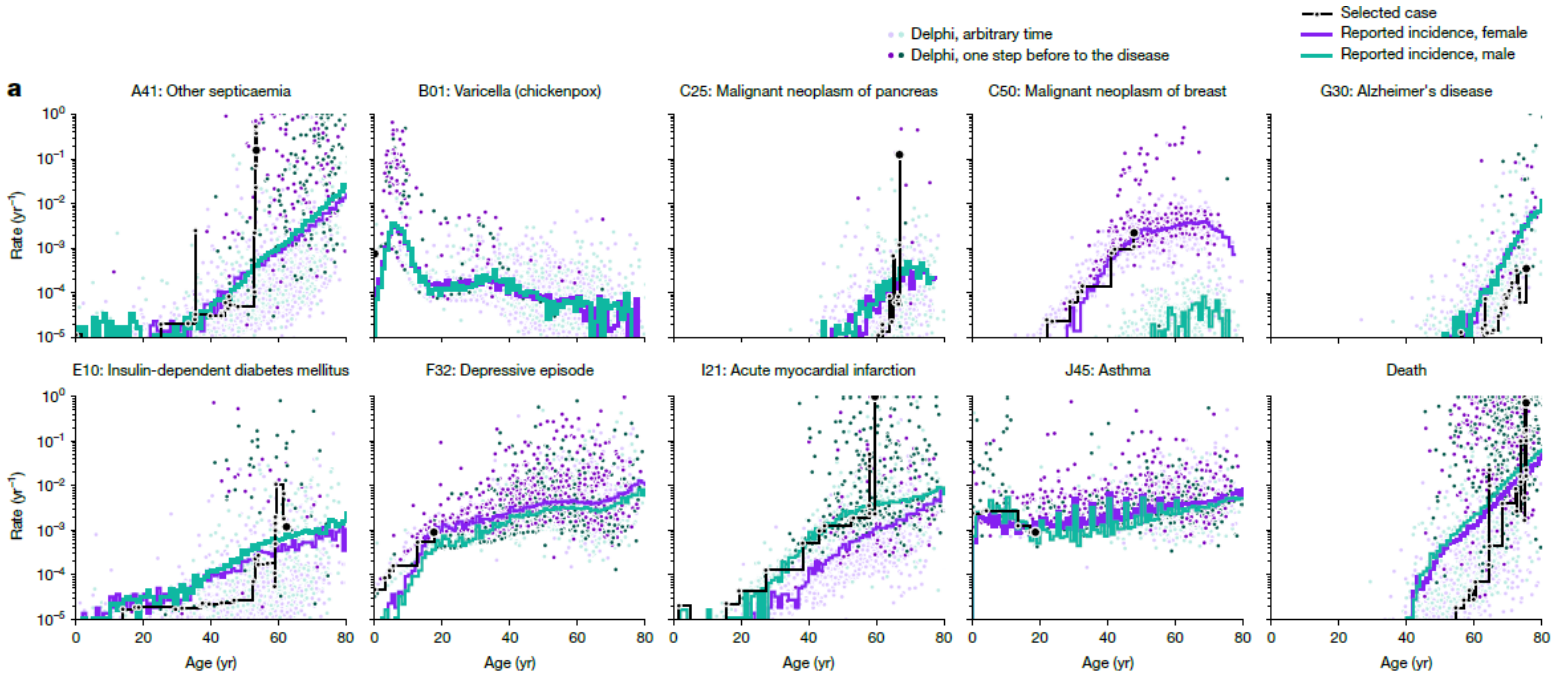
Clairity™ FDA relase June 2025

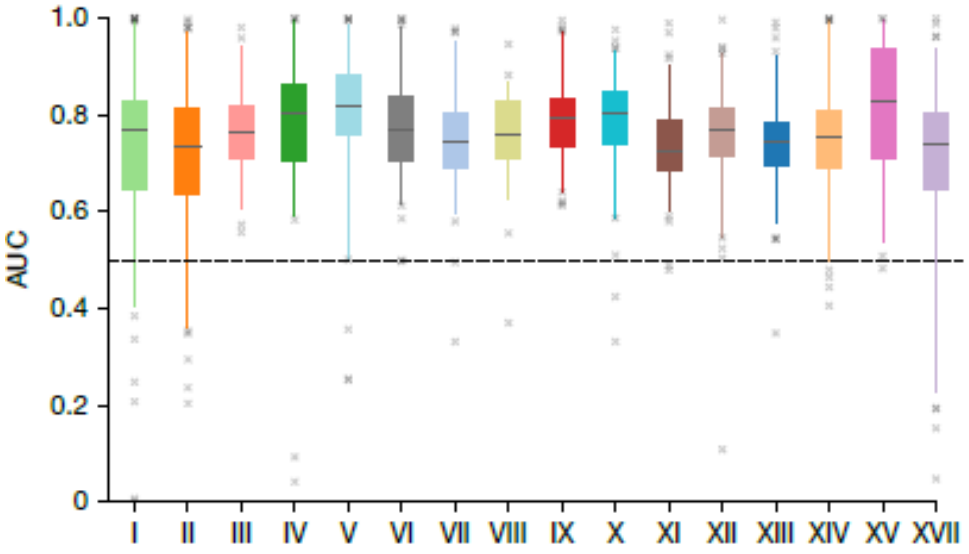
Lee genet Med 2019
Lehmann J Natl Cancer Inst 2022

Predicting cancer risk: disease-specific versus pan-health?

Learning the natural history of human disease with generative transformers

https://doi.org/10.1038/s41586-025-09529-3



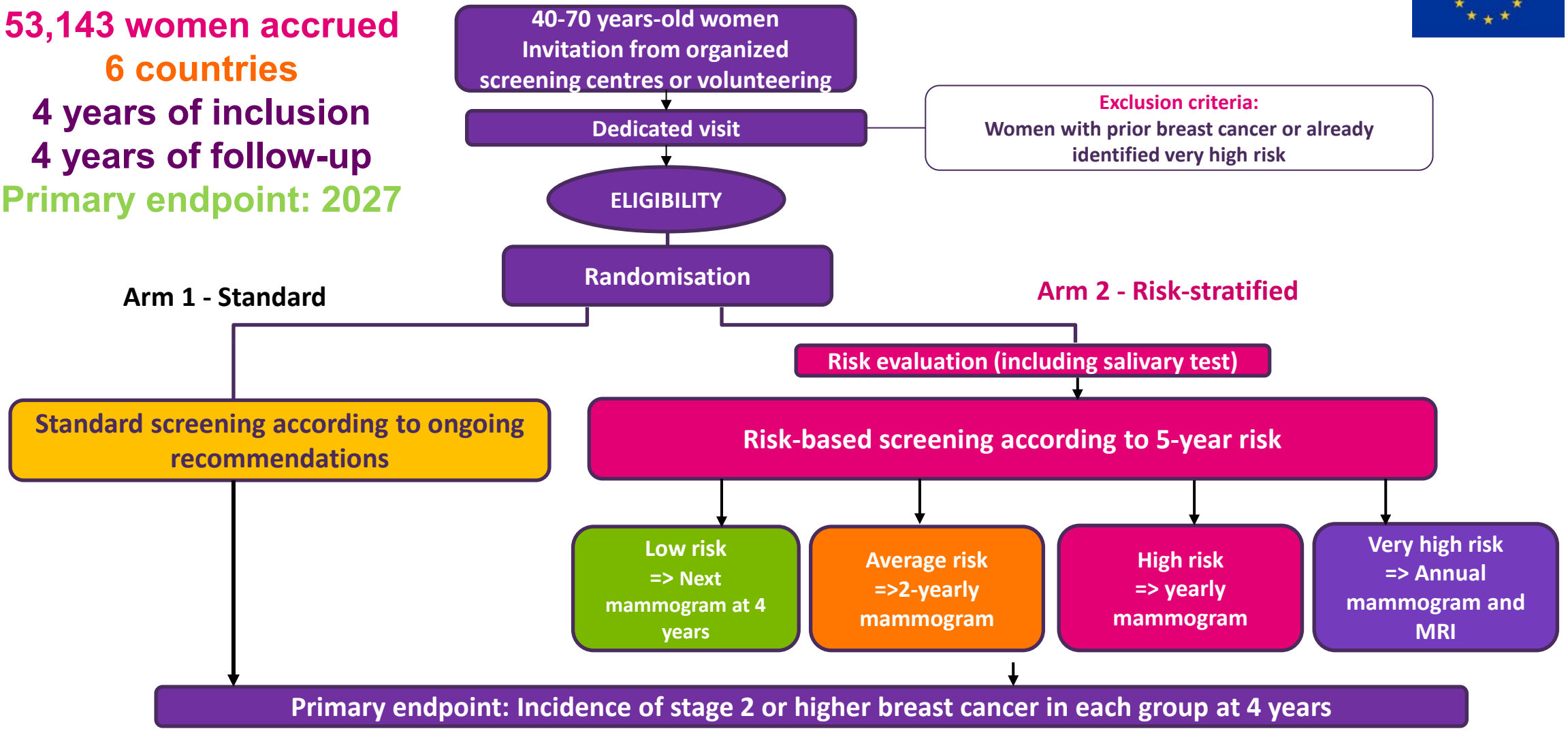


I: Infectious diseases
II: Neoplasms
III: Blood and immune disorders
IV: Metabolic diseases
V: Mental disorders
VI: Nervous system diseases
VII: Eye diseases
VIII: Ear diseases
IX: Circulatory diseases
X: Respiratory diseases
XI: Digestive diseases
XII: Skin diseases
XIII: Musculoskeletal diseases
XIV: Genitourinary diseases
XV: Pregnancy and childbirth
XVII: Congenital abnormalities

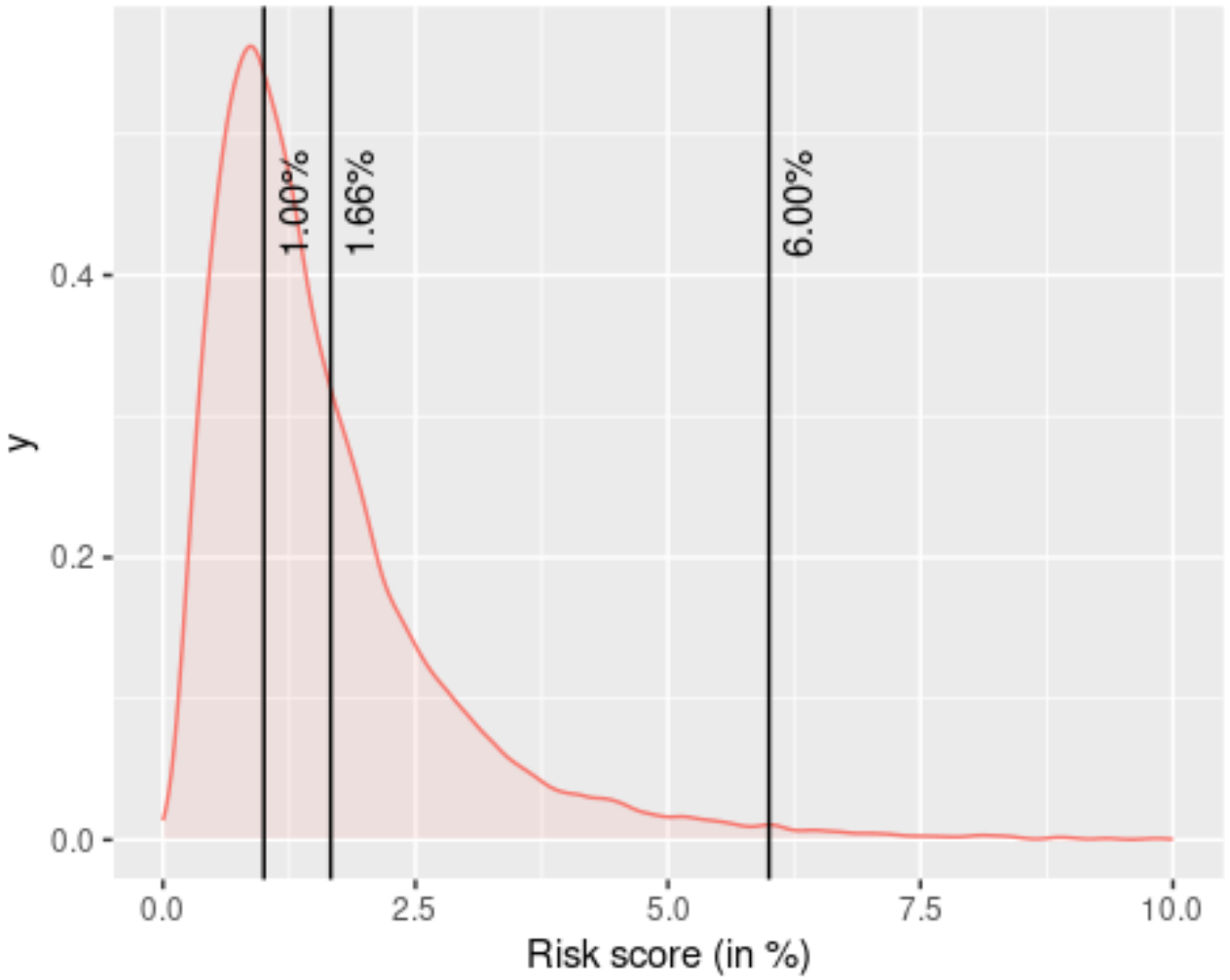
MyPeBS
Personalising Breast Screening

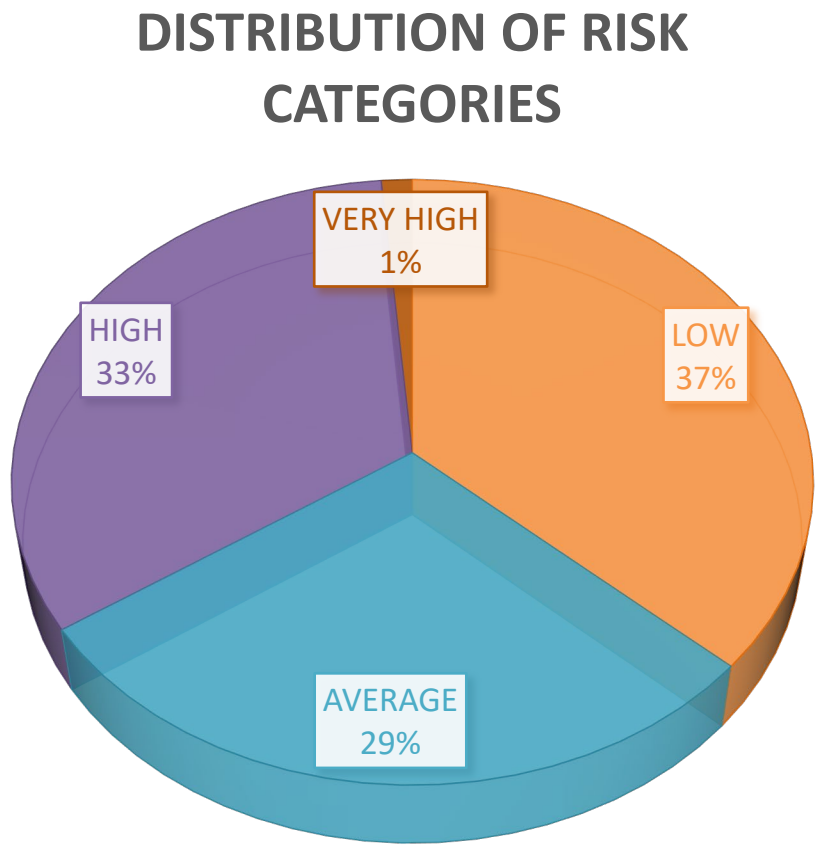
Demonstrating the value of risk-based BC screening

53,143 women accrued
6 countries
4 years of inclusion
4 years of follow-up
Primary endpoint: 2027



Distribution of complete risk score & risk categories (all)





Ongoing experimentations in general populations: PICO framework

Ipina et al, Early detection conf 2025

= Efficacy
= Survival
= Safety
= Patient-based
= Implementability

Study	Country	Design	Accrued N	Age interval	Intervention	Comparison	Primary endpoint	Outcomes													
								BC incidence	Sensitivity Specificity	Interval Cancer Rates	Detection rates	Survival outcomes	Safety outcomes	Recall rates	Overdiagnosis	False positives	Biopsy rates	Socio-psychological impact	Quality of Life	Costs and Cost-effectiveness	Acceptability
MyPeBS	EU Itl.	RCT	Accrued 53.142	40 to 70	Stratified screening scheme by risk level (frequency of mammography + addition of MRI)	Standard age-based screening	Non-inferiority (and potential superiority) for incidence of stage ≥II breast cancers at 4 years	X		X		X	X	X	X	X	X	X	X	X	X
WISDOM	US	RCT	Accrued 46.289 (28.335 randomised)	40 to 74	Personalized risk-based schedule (start date, stop date, and frequency)	Annual screening	Non-inferiority for incidence of stage IIB+ breast cancer and biopsy rates	X		X		X	X	X	X	X	X	X	X	X	X
PROCAS2	UK	NRCT	Planned 32.298	50 to 63	Implementation study supplemental imaging/ chemoprevention	Mammography every 3 years	Uptake of chemoprevention and acceptability of individualized risk assessment during screening appointments	X						X				X	X	X	X
PRSONAL	Denmark	RCT	Accrued ~ 2200	50 to 67	Modification of screening intervals according to risk (mammography every 1 to 4 years)	Standard biennial mammography	Acceptance of de-escalation among low-risk women											X	X	X	X
MISS	Italy	RCT	Planned 60.000	45 to 49	Mammography intervals (DBT/sDM) every 2 years or tailored based on breast density	1-year screening interval (DBT/sDM)	Cumulative incidence of stage 2 or higher breast cancer	X			X			X			X			X	X
TBST	Italy	RCT	Accrued ~33.200	45 to 50	Mammography intervals every 1 or 2 years based on breast density	Standard screening	Screening performance (detection rates and interval cancers)	X		X						X					X
RIBBS	Italy	NRCT	Accrued 10.269	45 to 50	Personalized imaging and interval screenings using DBT, US and MRI based on breast density and risk prediction score	Annual DBT	Cumulative incidence of advanced cancers (stage ≥II)	X		X	X		X	X	X		X			X	X
PERSPECTIVE I&I	Canada	OC	Planned 12.000	40 to 69	Age at start, type of technologies and screening intervals	-	Implementation and feasibility of RBS				X					X	X		X	X	X
SMART	Sweden	RCT	Planned 70.000	40 to 74	Addition of CESM and modification of screening intervals	Standard biennial mammography	Incidence of interval cancers	X		X			X	X			X	X		X	X
Hovda et al, 2024	Norway	OC	Accured 80	40 to 50	Assessment of PRS	-	Assessment of BC 10-year risk		X										X		X

Construire les parcours de prevention - INTERCEPTION pilot program

INTERCEPTION is a unique and innovative pilot program for personalized prevention in people at high risk of cancer.

- It enables and structures a new, largely digitalized healthcare pathway dedicated to
- It is based on a replicable mixed digital and physical city-hospital infrastructure.
- It aims to scientifically demonstrate the benefits of this new healthcare pathway for individuals and society
- and to develop high-level research in prevention to improve the health of those concerned.

INTERCEPTION provides a new, systematic, organized, and innovative way to

- Identify people at risk
- Inform them and help them make preventive choices
- Set up a personalized prevention and early detection monitoring program
- Provide high-quality and rapid care in cases of suspected cancer or cancer.

A mixed physical and digital community-hospital personalized prevention program for patients at high risk of cancer, rolled out nationwide

4 pillars

Identification of people at risk

Information, awareness, education

Personalized screening and prevention

If necessary: Early care

ScoRisk

Identification of people at risk

MÉDECIN DE VILLE

Interception Day

MÉDECIN DE VILLE

Coordinated follow-up

Positive screening
Suspected cancer

Immediate care

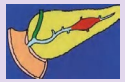
Scorisk for healthcare professionals

Digital application

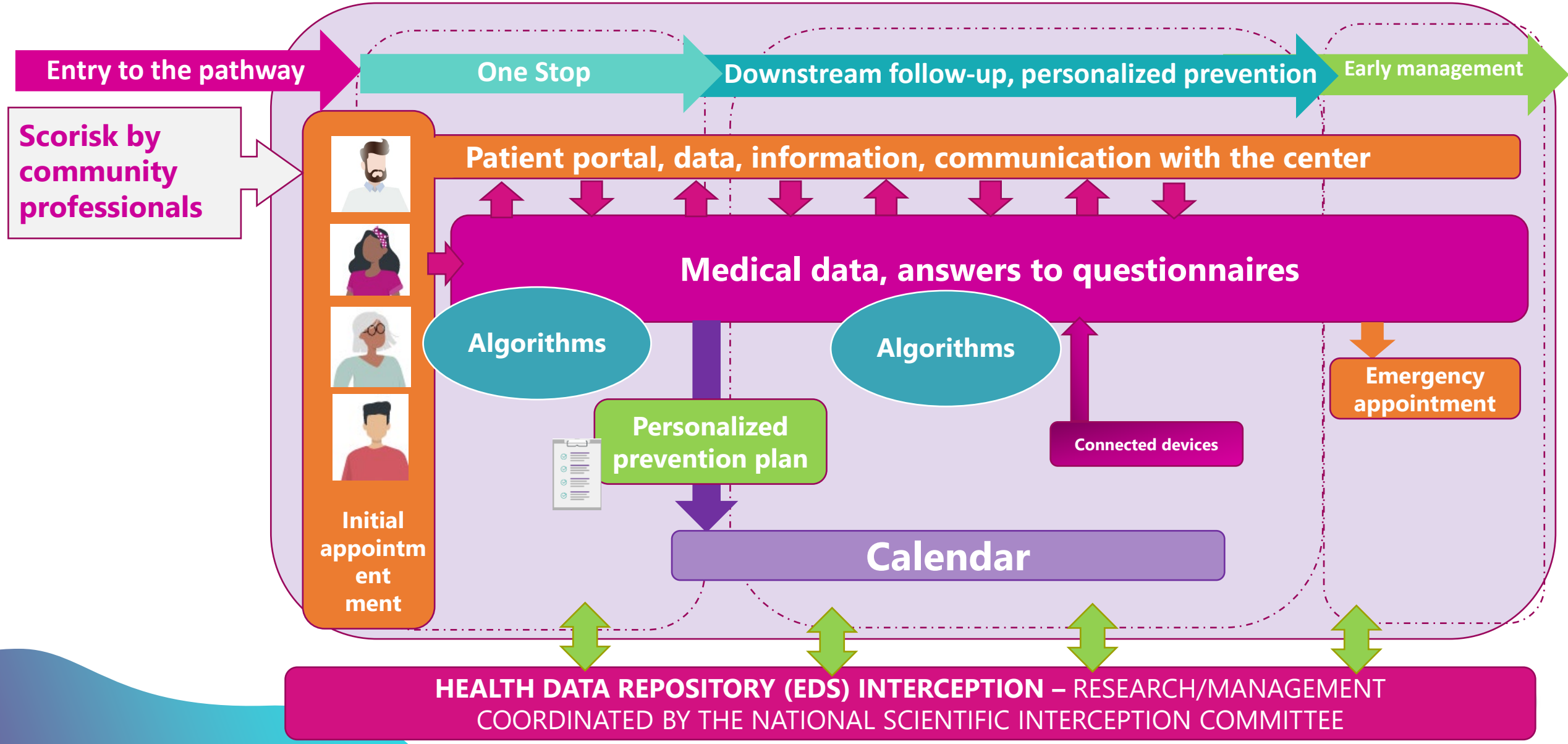
MY INTERCEPTION

Interception pathways

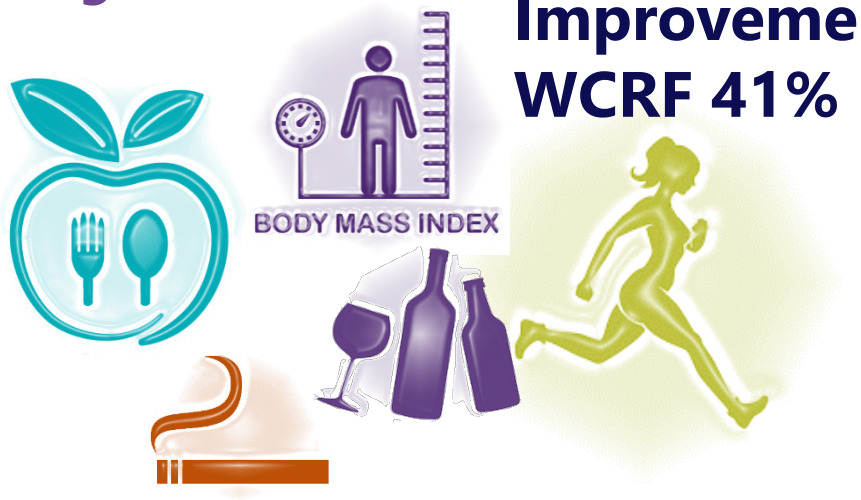
interception@gustaveroussy.fr

Pathway: risk situation	Who
High breast cancer risk – non genetic 	Women at high risk of breast cancer > 2.5% at age 5 (family history, atypical lesions, composite score, etc.)
High risk of pancreatic adenocarcinoma 	erPeople over 45 with two first-degree relatives with pancreatic cancer, or TIPMP, or chronic pancreatitis, or germline mutations: *CDKN2A*, Peutz Jeghers, *BRCA2, BRCA1, PALB2, ATM*, or Lynch with one family history
High risk of lung cancer 	People ≥ 50 years old, smoking > 20 pack-years and quit < 10 years ago
High risk of hepatocellular carcinoma (2025)	People with liver fibrosis from any cause, including MASH
High risk of (non genetic) colon cancer	Family history without predisposition, high-risk polyps, other
BRCA syndrome and co	Women with germline mutations in the BRCA1, BRCA2, PALB2 genes
Lynch syndrome	Carriers of germline mutations in the *MLH1, MSH2, MLH6, or PMS2* genes
BRCA for men	Men who carry germline mutations in the *BRCA1, BRCA2* genes
Carriers of TP53 mutations (2025)	People with a germline mutation in the TP53 gene
ENT oral lesions at risk	Leukoplakia-type oral lesions, erythroplakia, actinic cheilitis
Childhood exposures	Adults exposed to chemotherapy and/or radiation therapy before age 18
CHIP carriers	Carriers of clonal hematopoiesis

A multifunctional digital platform/application supports all activities



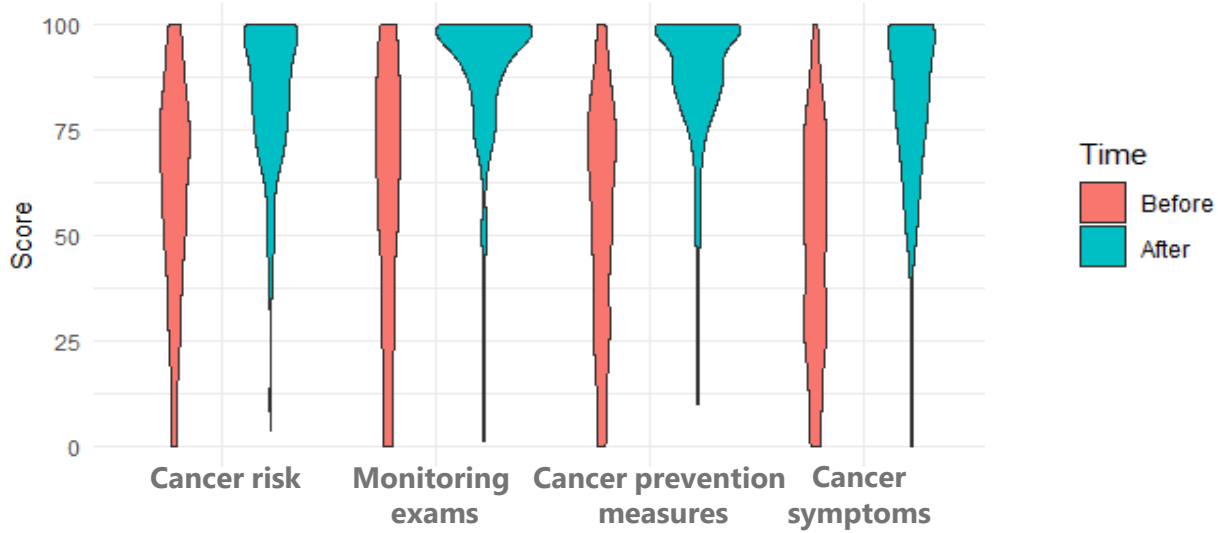
Personalized prevention program: Clinical impact after 1 year



Improvement ≥ 1 point
WCRF 41%

High adherence to specialized screening 85-100%

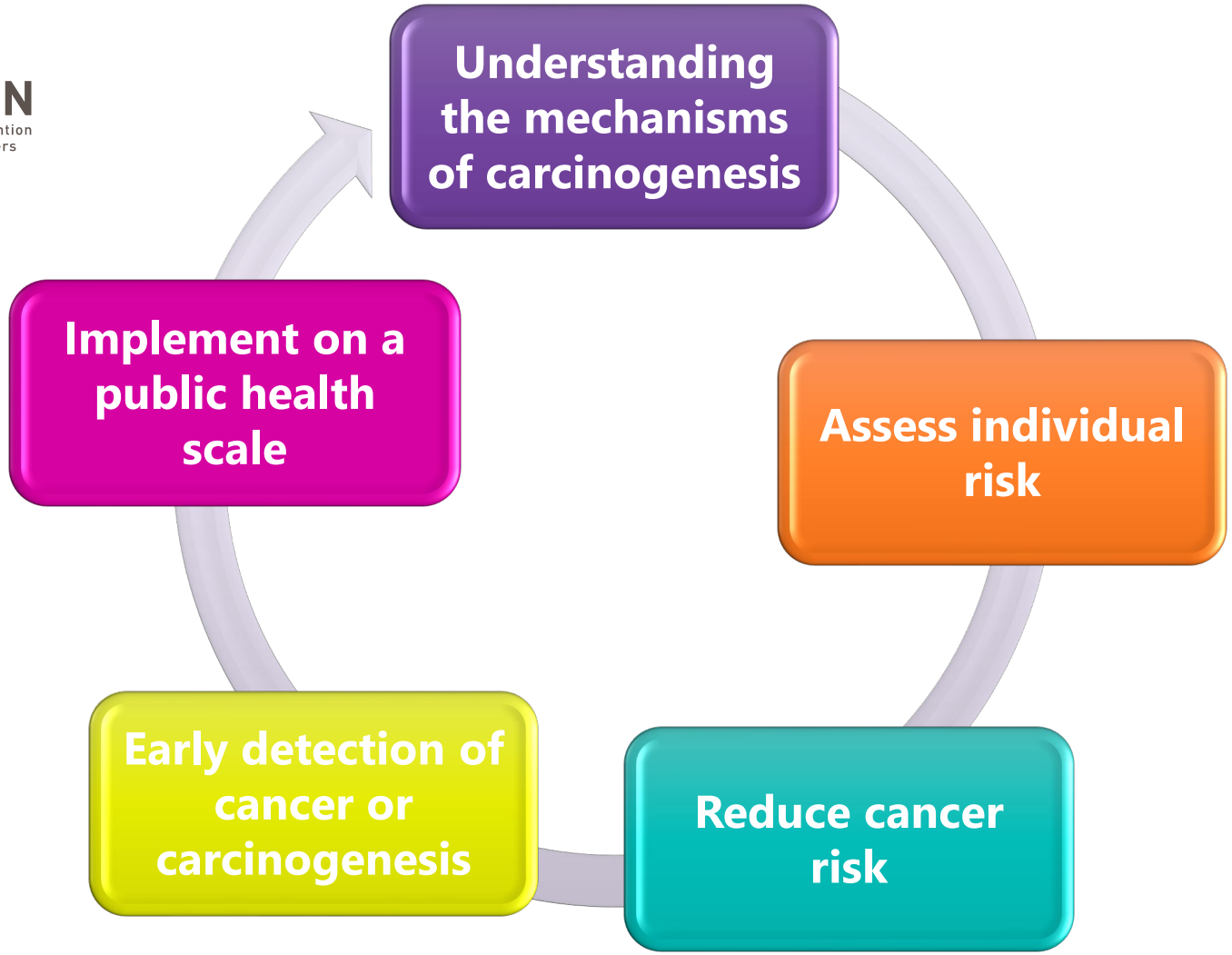
Major increase in awareness



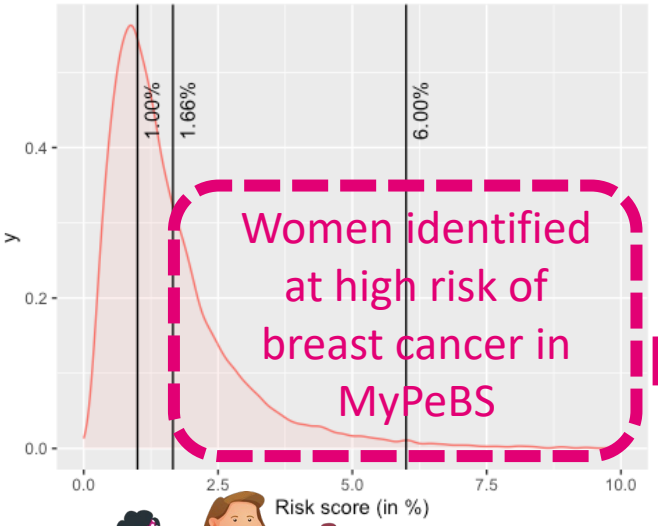
Abdayem et al, ESMO 2023, Veron et al, ESMO Breast 2023 and SFSPM 2023, Veron SFSPM 2024, Ben Ahmed ESMO Breast 2024, Assises de génétique 2024 and ASCO 2024; Veron et al DKFZ 2024

CROSSTALK AND CROSS FEEDING for precision prevention research

INTERCEPTION
GUSTAVE ROUSSY
Le programme de prévention personnalisée des cancers



Fragmentation is a major issue!
Reunify screening and prevention MyPREV (JA-PREVENT NCD)



Women identified at high risk of breast cancer in MyPeBS

N = 1821 in France
N = 1195 in Italy (CPO + ISPRO)

Invitation

Email invitation via webplatform

Proposal of a virtual lifestyle-targeted BC risk-reduction intervention

Declines

Intervention

Questionnaires T0

Accepts

Virtual webinar

Online personalised clinical visit

Shared personalised prevention plan*

Access to complementary online information materials

Follow-up Questionnaires

8 Days

- **Anxiety**
- **Knowledge and knowledge perception**
- **Satisfatction**

3 Months

- **WCRF**

1 Year

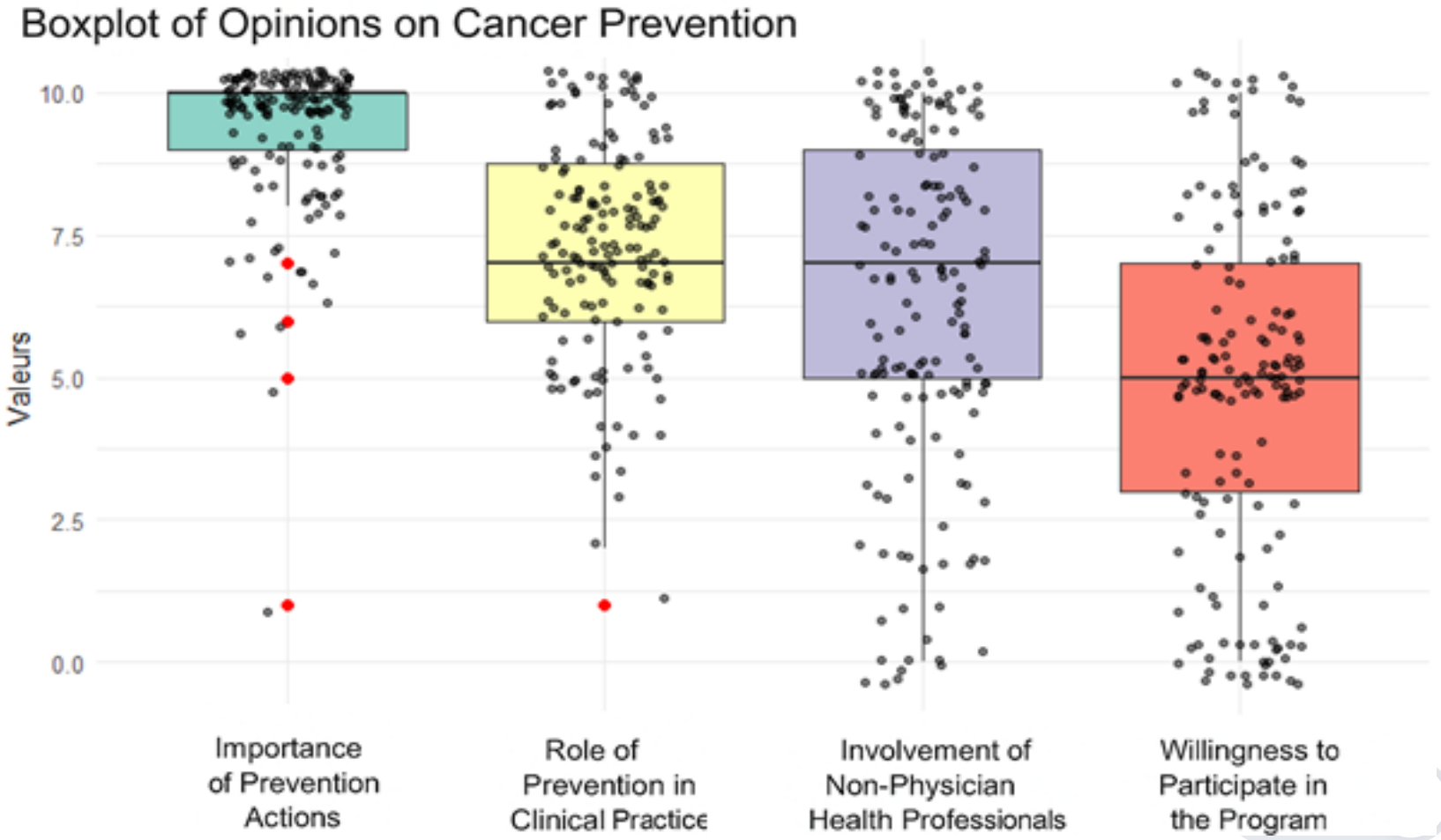
- **WCRF**
- **Anxiety**
- **Knowledge and knowledge perception**
- **Satisfaction**
- **Qualitative interview on levers and barriers (substudy on at least 20 participants)**

*Personalised (stratified and predefined) measures regarding weight, nutrition, physical activity, hormone exposures, other exogenous exposures to be discussed and decided in a shared decision process

Who is in charge of cancer prevention?

Perceptions and practices of general and personalized prevention (PP) of cancer in primary care and their determinants – a mixed method study

Primary care physicians with > 20 years practice had a decreased perception of the importance of cancer prevention (OR 0.3, 95% CI 0.13-0.7, p=0.008).



Ben Ahmed et al ESMO 2025

Plan

- Pourquoi combiner détection et interception
- La carcinogenèse en cours est elle une bonne cible?
- La détection par biopsie liquide est elle actionable
- La prévention de précision aujourd'hui
- Conclusions & perspectives

Conclusions and perspectives

- Primary and secondary prevention are key for the future of oncology
- Personalised (including precision) prevention has a great potential but :
  1. Requires large scale prospective demonstration before implementation
  2. Must be developed at the public health level
- Prevention research and prevention clinics are multidisciplinary!
- A close collaboration between research areas has the potential to accelerate developments in the field and tackle the major challenges

MERCI ☺

INTERCEPTION
GUSTAVE ROUSSY
Le programme de prévention personnalisée des cancers

DÉPISTAGE DES CANCERS
Centre de coordination Île-de-France

dac santé 94 OUEST

OCTAV

unicancer

Cancer Contribution

INSTITUT NATIONAL DU CANCER

CANCEPT
Cancer Primary Prevention Transdisciplinary Nutrition and Environment Research Network

LES HAUTS-DE-BIÈVRE COMMUNAUTÉ D'AGGLOMÉRATION

ars Agence Régionale de Santé Île-de-France

CENTRE DE LUTTE CONTRE LE CANCER LEON BERARD

CPTS de la Bièvre
Cachan | Chevilly-Larue | Fresnes | L'Haÿ-les-Roses | Rungis

les seintinelles
contre le cancer, tous volontaires

PATIENTS en réseau

CNGE

FRANCE 2030

Centre de Lutte contre le Cancer François Baclesse

Centre Eugène Marquis RENNES

Institut Bergonié
Centre Régional de Lutte Contre le Cancer de Bordeaux et du Sud-Ouest

Sainte Catherine
INSTITUT DU CANCER
Avignon-Provence

MyPeBS
Personalising Breast Screening

ODYSSEA
ensemble contre le cancer du sein

ONCOBIOME
Microbiota against cancer
International research program

cesp

L'Assurance Maladie
VAL-DE-MARNE

Centre Oscar Lambret
Centre Régional de Lutte contre le Cancer

Institut de Cancérologie de Lorraine
Alexis Vautrin
Ensemble, construisons l'avenir

PREVALUNG-EU

LA LIGUE CONTRE LE CANCER

FONDATION ARC POUR LA RECHERCHE SUR LE CANCER

AliraHealth

ELSAN
Notre Santé autrement

FONDATION PHILANTHROPIA
LOMBARD ODIER

Inserm

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