INTERCEPTION
GUSTAVE ROUSSY
Le programme de prévention personnalisée des cancers

Prevention personnalisée des cancers du sein

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Liens d'intérêt

Suzette Delaloge

Research support (to my institution)

AstraZeneca, MSD, BMS, Sanofi, Taiho, Novartis

European Commission, INCa, Banque des Territoires, Fondation Philanthropia

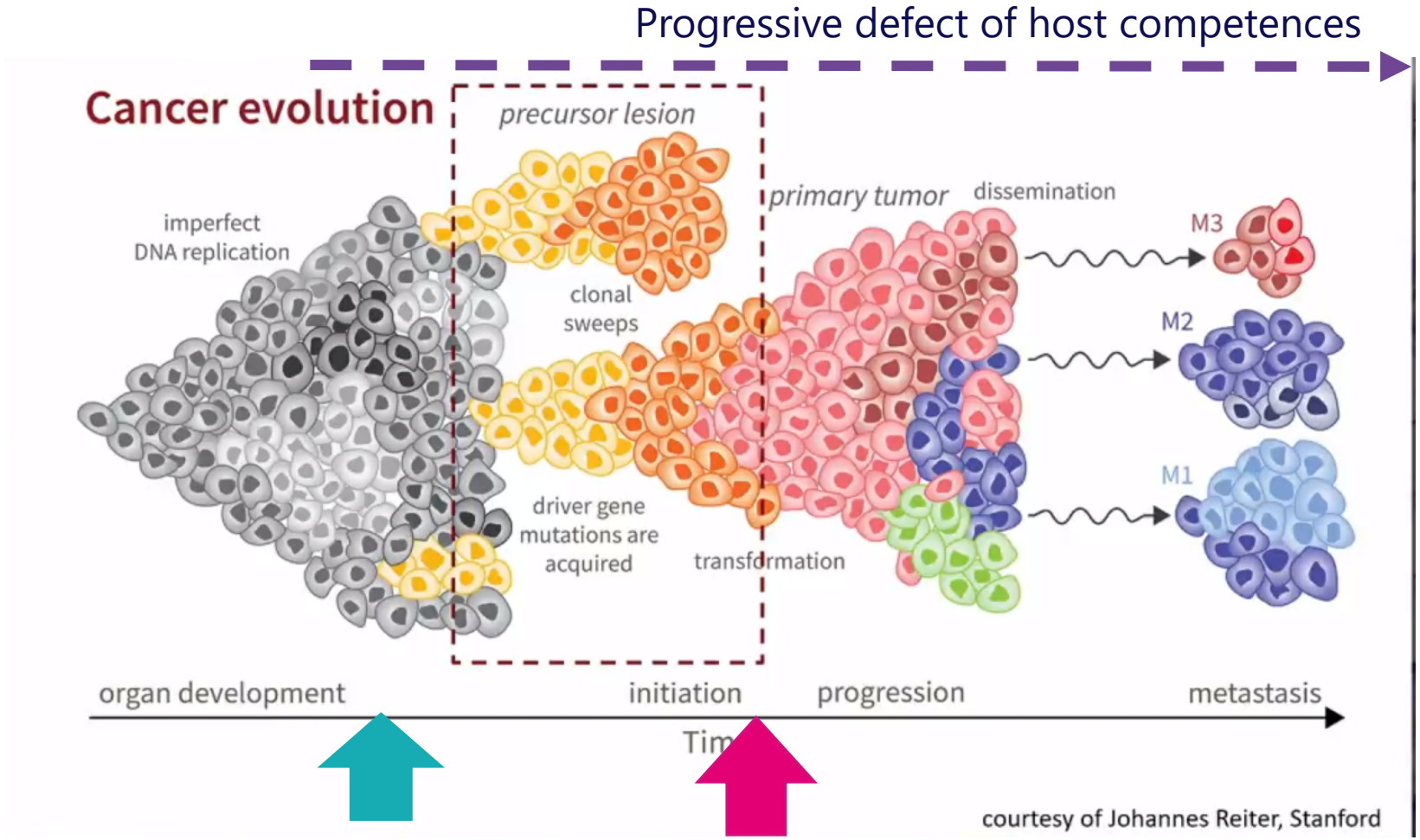
Honoraria for lectures and advisory boards (to my institution)

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

Travel support

Novartis (SPDV)

La prévention vise à éviter l'apparition de maladies avancées et génétiquement complexes



Prévention primaire : éviter l'initiation, la promotion ou la croissance tumorale

Prévention secondaire : détection précoce

Fitzgerald AACR 2022

Plan

- Nouvelles données en épidémiologie et biologie
- Le modèle de la prévention personnalisée
- Les résultats d’interventions de PP
- Des recommandations internationales disparates
- Conclusions et perspectives

Plan

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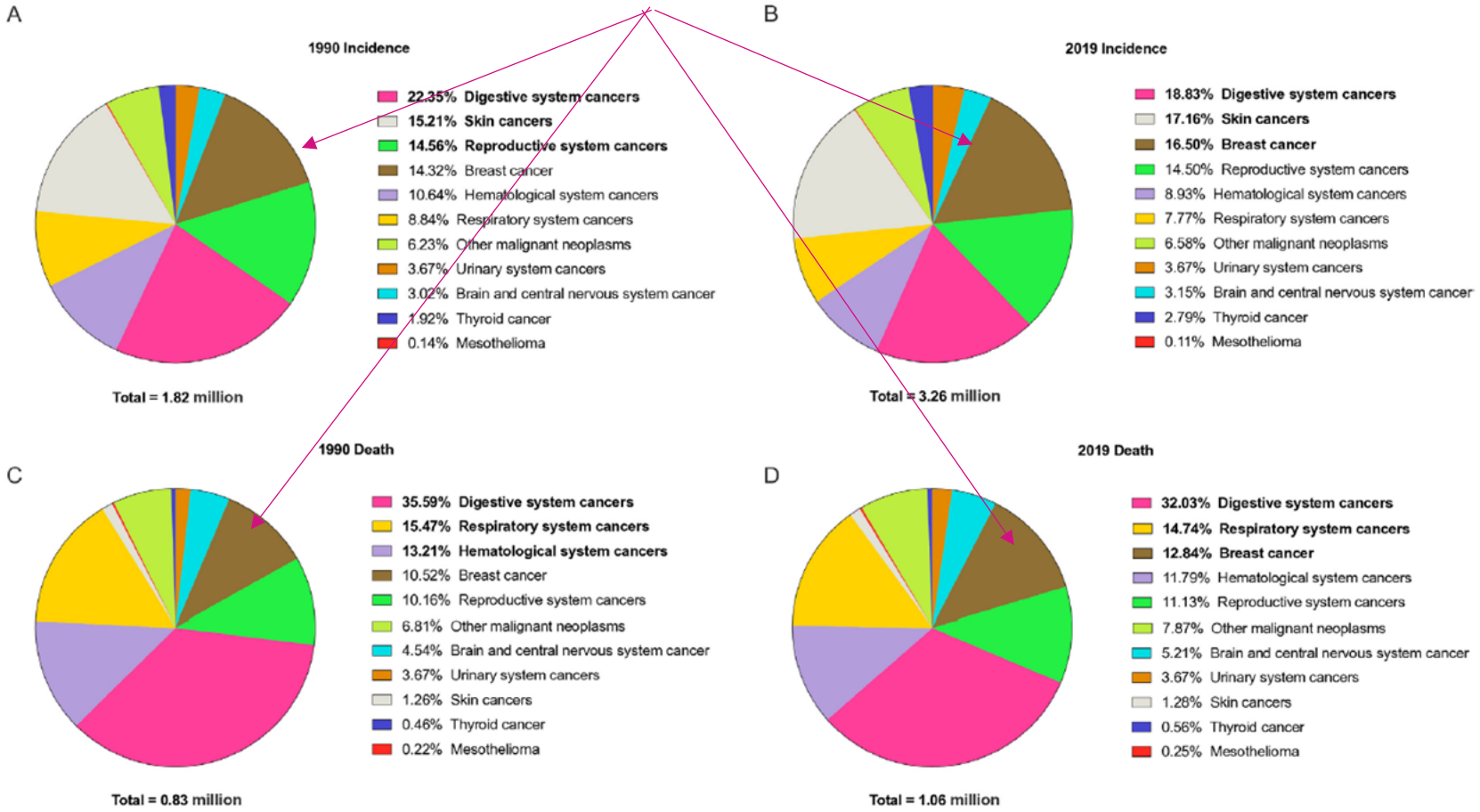
Nouvelles données

1. Augmentation lente mais continue de l'incidence des cancers du sein dans le monde, incluant les femmes < 50 ans

Part du cancer du sein dans l'incidence et la mortalité globale par cancer avant 50 ans 1990 >> 2019

Zhao BMJ oncol 2023

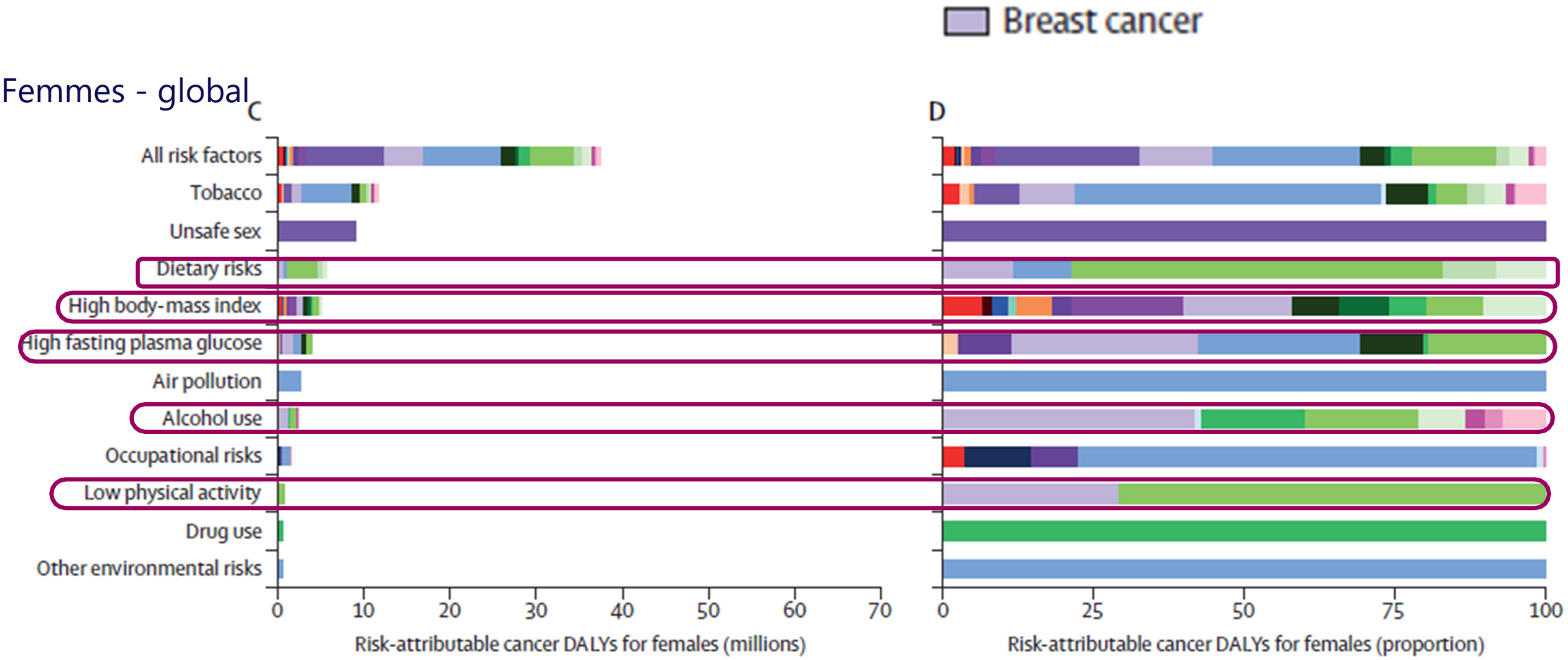


Nouvelles données

1. Augmentation lente mais continue de l'incidence des cancers du sein dans le monde, incluant les femmes < 50 ans
2. Changements majeurs dans notre compréhension de la carcinogenèse

Facteurs modifiables validés >> expositions

Femmes - global



Global burden of disease, Lancet 2022

La moitié des décès par cancers du sein pourraient être prévenus (évités)?

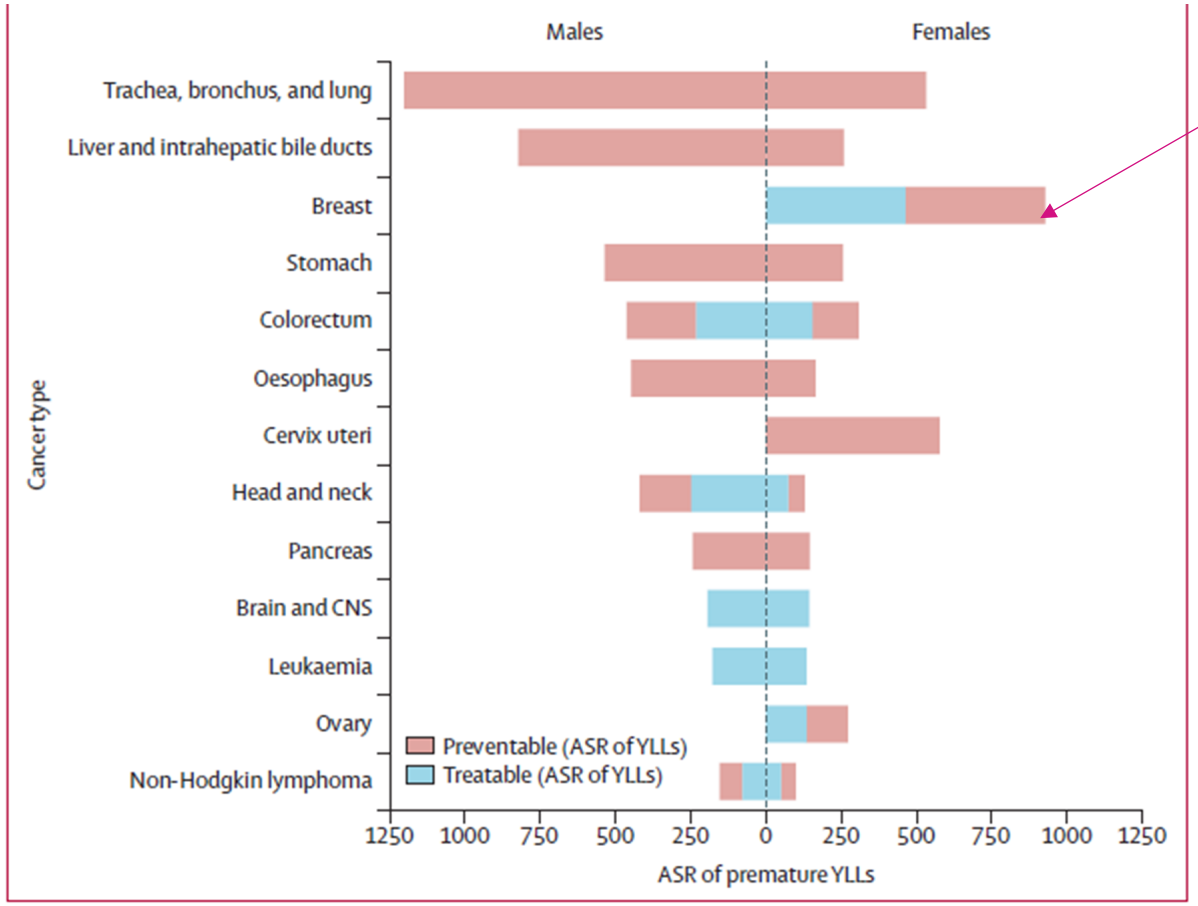


Figure 1: **ASR per 100 000 person-years of premature, preventable, and treatable YLLs from cancer (ages 30–69 years) by major cancer types in men and women, 2020**

Frick et al Lancet Global Health 2023

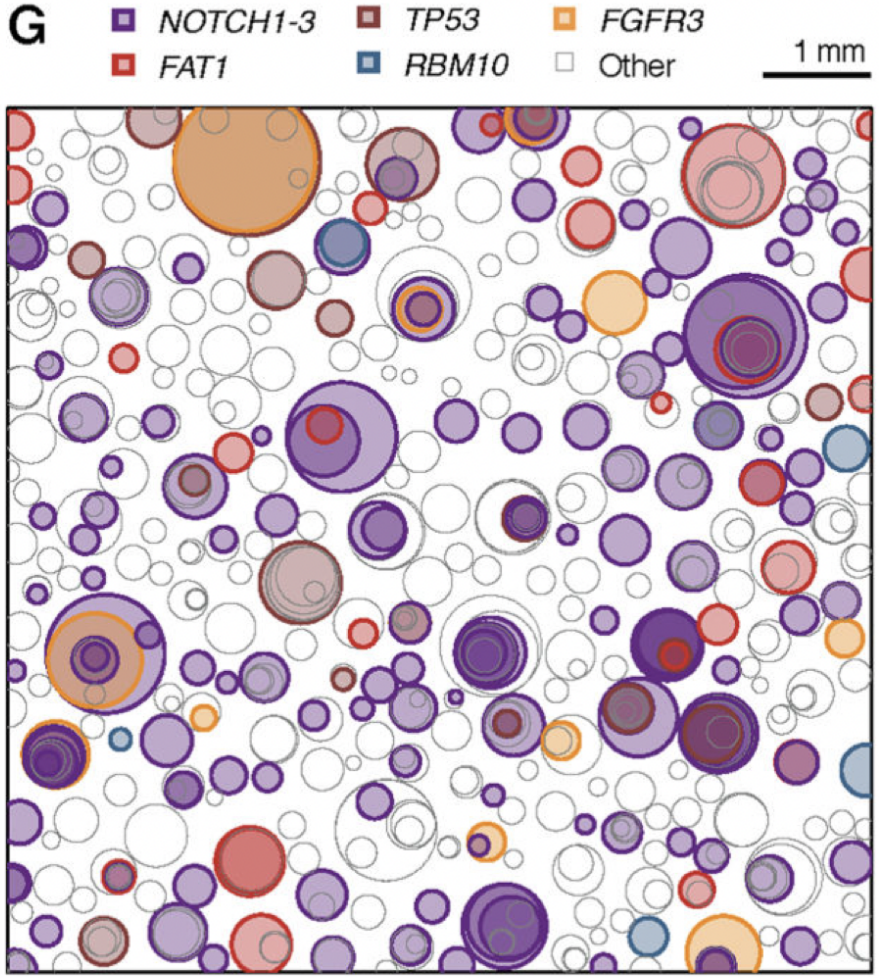
1. Dépistage
2. Prévention en lien avec facteurs de risque (promotion):
   - Grossesses allaitements...
   - Hormones exogènes
   - Alimentation
   - Alcool
   - BMI
   - Faible activité physique

Emergents (sur incidence)

- Aliments ultratransformés
- Boissons sucrées, Edulcorants
- Travail de nuit/expositions à la lumière nocturne
- PM2.5....

Jacobs BJN 2022, Debras PlosMed 2023, Chazelas BMJ 2019, Wickert EJE 2023, Cordina Duverger 2018, White JNCI 2023, Fervers ESMO 2023

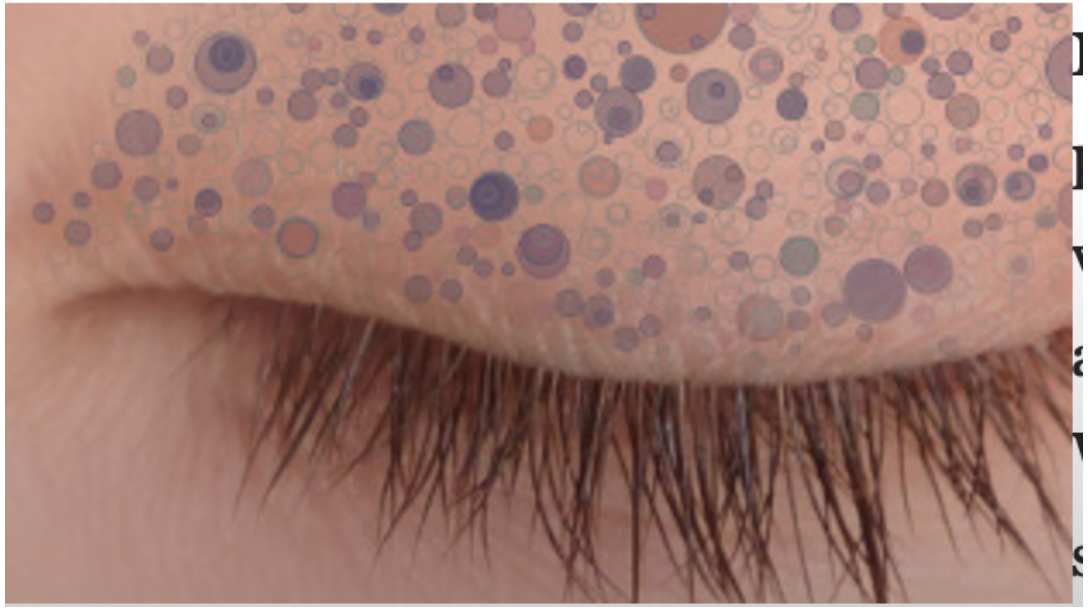
La carcinogenèse est maintenant reconnue comme un processus mixte cellulaire autonome et non autonome: les alterations de l'ADN sont nécessaires mais non suffisantes pour créer un cancer



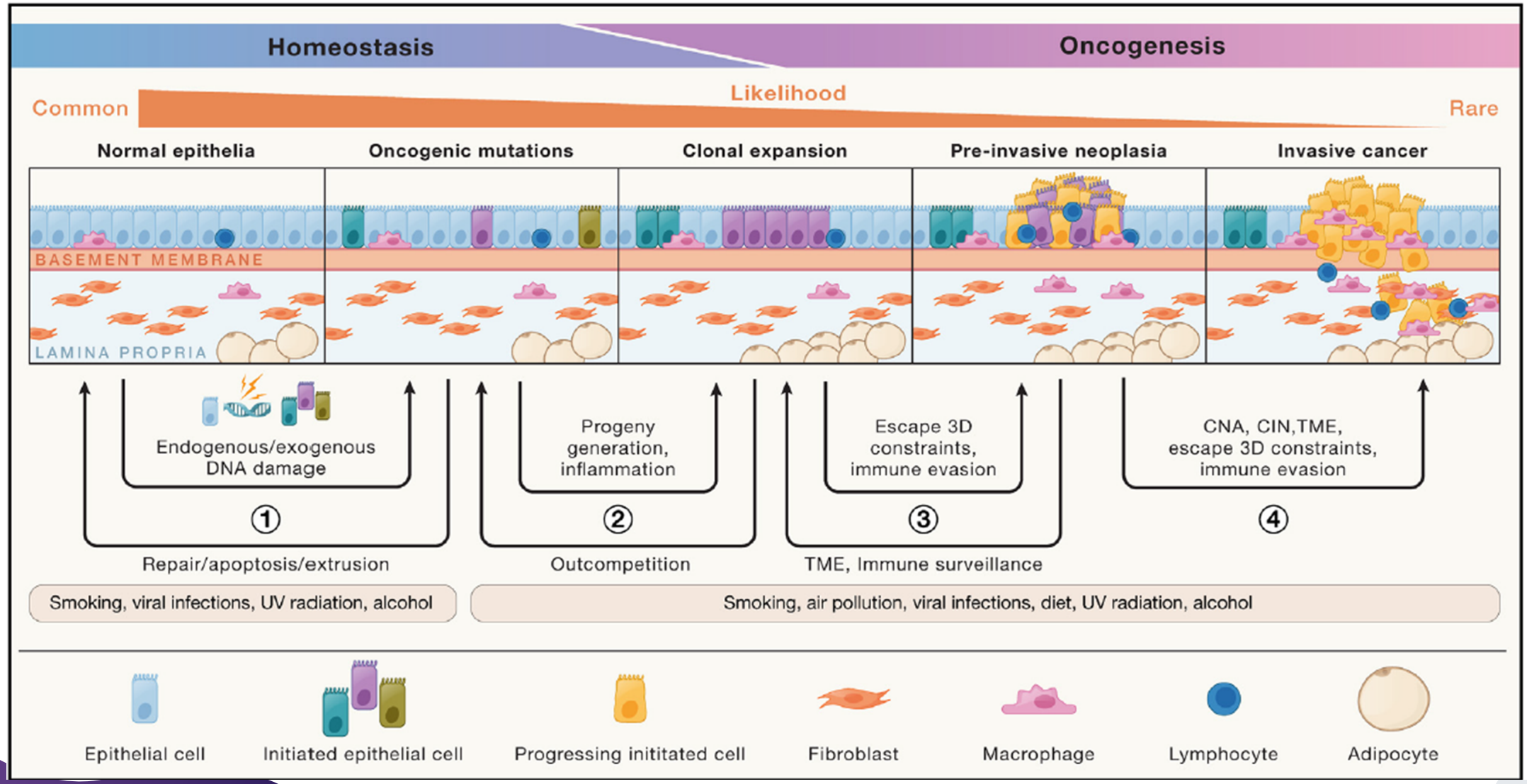
Mutations très fréquentes dans les tissus sains

Mutant clones in 1 cm2 normal lid

Martincorena et al. Science (2015)



Une vision revisitée de l'oncogenèse en 2023



Weeden, Swanton, Impact of risk factors on early cancer evolution, Cell 2023

Nishimura Nature 2023: les cellules mammaires normales mais mutées apparaissent très tôt dans la vie

Prediction of nb mutations

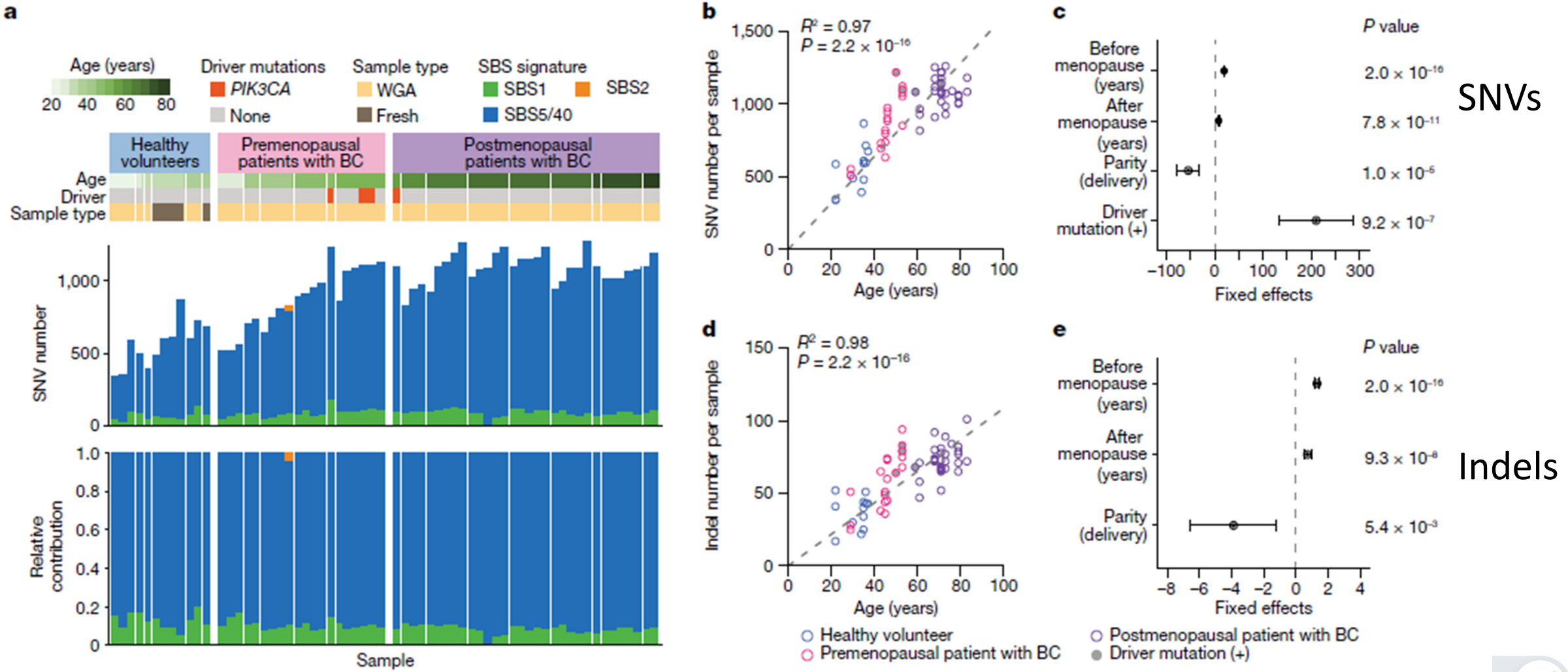


Fig. 1 | Mutations in normal mammary epithelium. a, Summary of SNVs found (n = 64) are plotted for participant's age. Regression lines assuming a zero

Nishimura Nature 2023: l'expansion clonale de cellules normales mutées fait le lit (non obligatoire) du cancer

Evolutionary histories of breast cancer and related clones

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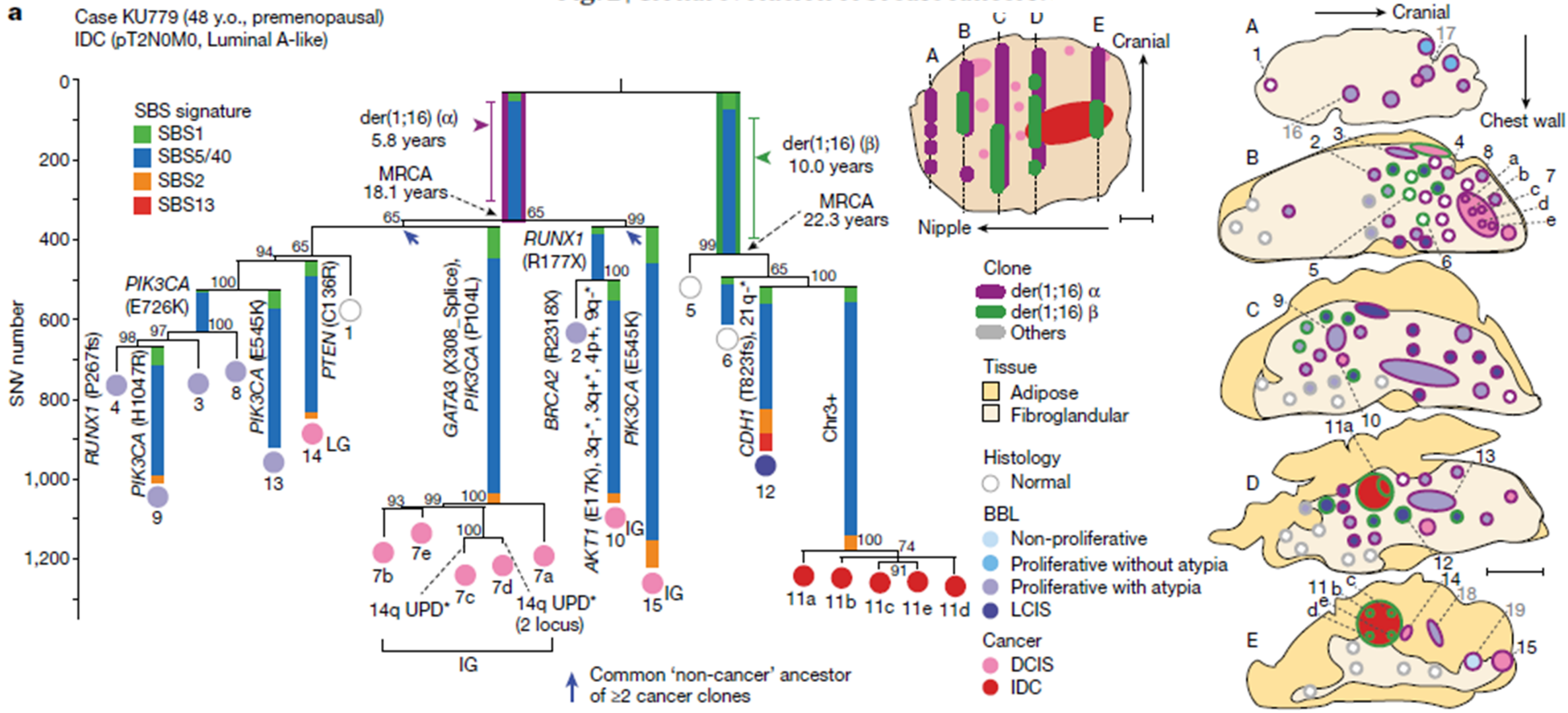
Tomomi Nishimura[1,2,3,26], Nobuyuki Kakiuchi[1,4,5,26], Kenichi Yoshida[1,6], Takaki Sakurai[7,8], Tatsuki R. Kataoka[7,9], Eiji Kondoh[10,11], Yoshitsugu Chigusa[10], Masahiko Kawai[12], Morio Sawada[13], Takuya Inoue[13], Yasuhide Takeuchi[1,7], Hirona Maeda[13], Satoko Baba[14,15,16], Yusuke Shiozawa[1], Ryunosuke Saiki[1], Masahiro M. Nakagawa[1,2], Yasuhito Nannya[1,17], Yotaro Ochi[1], Tomonori Hirano[1,5,18], Tomoe Nakagawa[1,18], Yukiko Inagaki-Kawata[1,3], Kosuke Aoki[1], Masahiro Hirata[7], Kosaku Nanki[19], Mami Matano[19], Megumu Saito[19,20], Eiji Suzuki[3,21], Masahiro Takada[3], Masahiro Kawashima[3], Kosuke Kawaguchi[3], Kenichi Chiba[22], Yuichi Shiraishi[22], Junko Takita[22], Satoru Miyano[22,23], Masaki Mandai[10], Toshiro Sato[19], Kengo Takeuchi[14,15,16], Hironori Haga[7], Masakazu Toi[3,27] & Seishi Ogawa[1,18,24,27]

Fig. 2 | Clonal evolution of breast cancers.



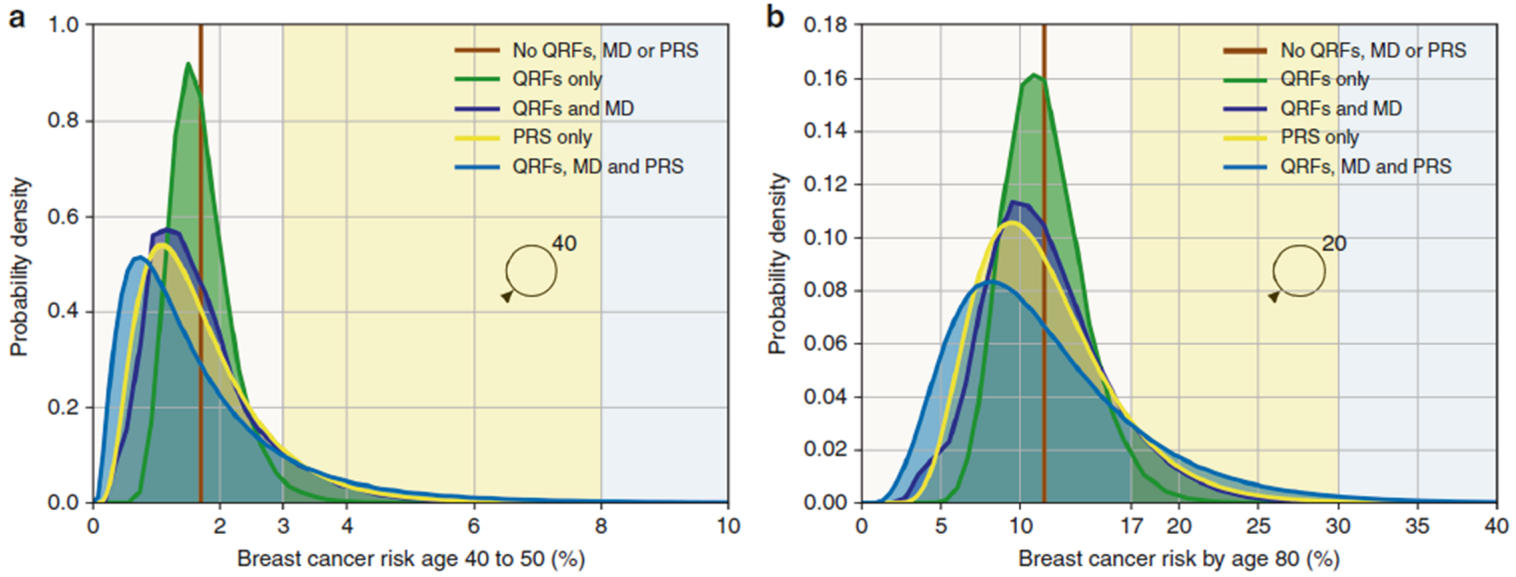
Nouvelles données

1. Augmentation lente mais continue de l'incidence des cancers du sein dans le monde, incluant les femmes < 50 ans
2. Changements majeurs dans notre compréhension de la carcinogenèse
3. Des moyens de plus en plus efficaces pour identifier les risques individuels de cancer du sein

Identifier les femmes qui développeront un cancer au cours des 5 prochaines années

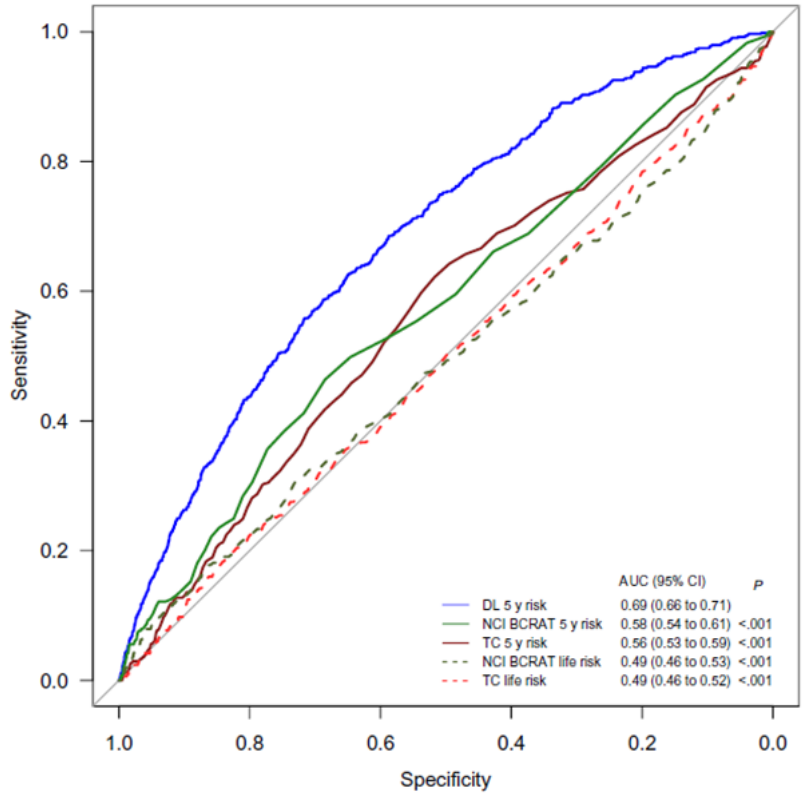
breast cancer

Scores de risque: données hormonales + génétiques + expositions + biomarqueurs



Lee genet Med 2019
Lehmann J Natl Cancer Inst 2022

IA sur images



Yala Nat Med 2022
Eriksson Sci Translat Med 2022
Vachon JCO 2023
Damiani Radiol 2023

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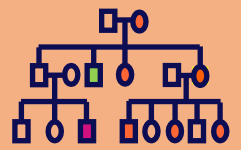
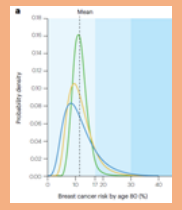
→ Le risque individuel de cancer

A un temps donné, le risque de cancer dans les années qui suivent est variable selon les personnes

Génétique

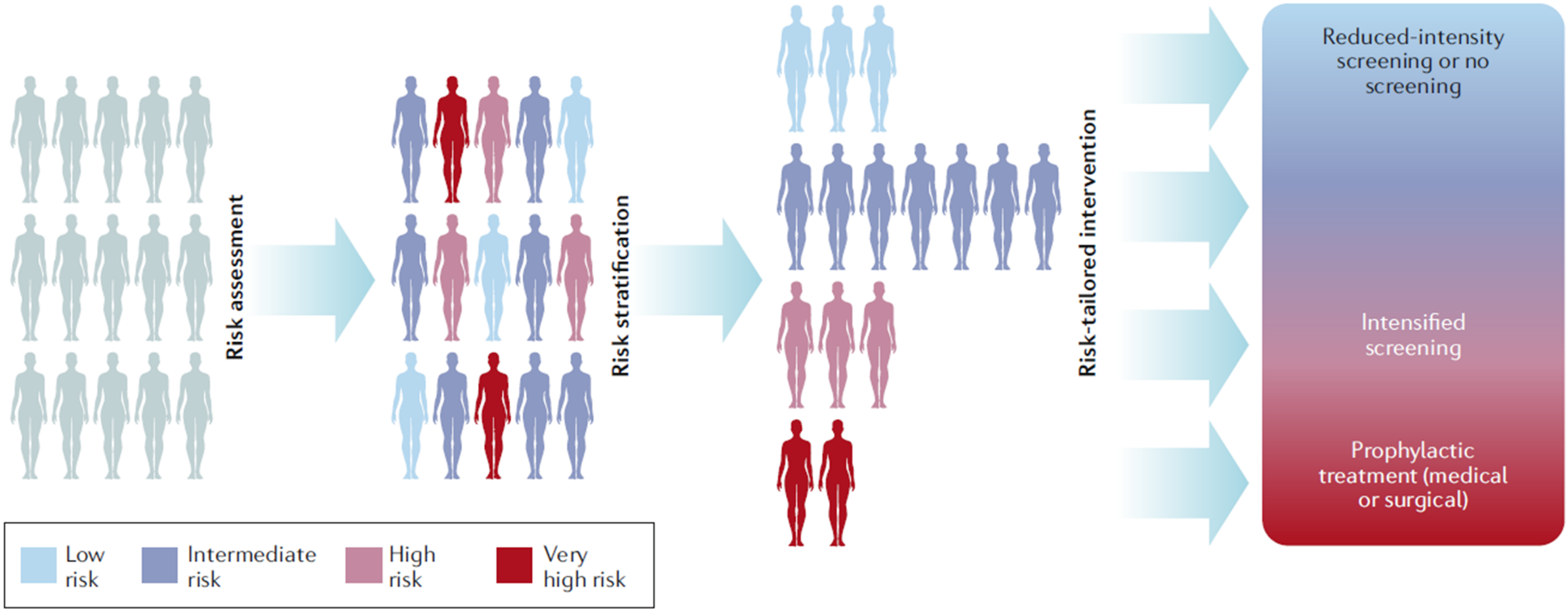




Expositions endogènes /exogènes

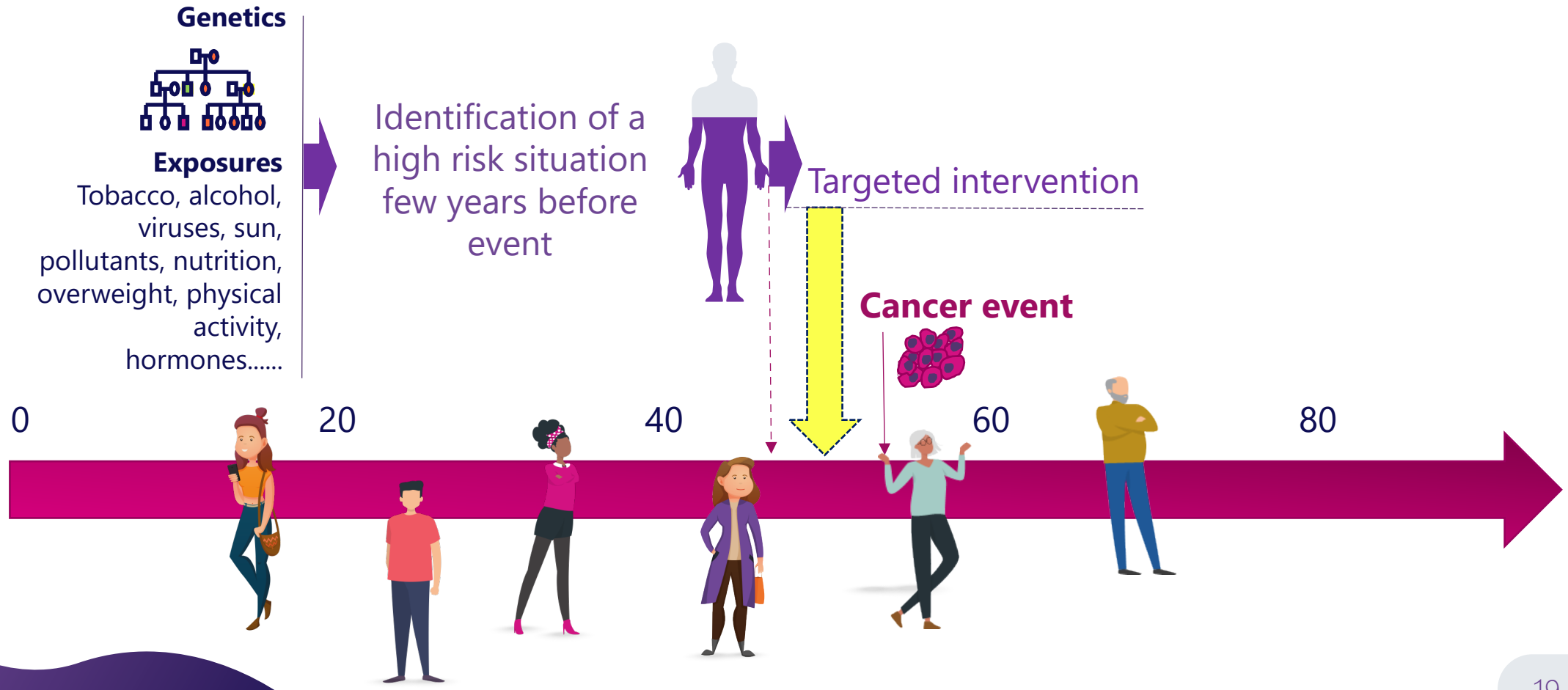
Hormones
Alimentation
Surpoids
Activité physique
Alcool
Polluants
Etc.....

Modèles de prévention et dépistage personnalisés



Pashayan et al Nature Rev Clin Oncol 2020

L’évaluation du risque individuel à un temps donné permet de mettre en œuvre des interventions adaptées



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1. Interventions de prévention primaire sur les facteurs d'exposition/mode de vie

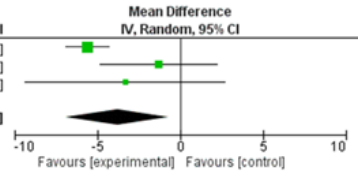
- **Beaucoup de données épidémiologiques, très peu de données d'intervention prospective**
- **Etudes avant tout sur des surrogates**

Kudiarasu Cancer 2023

Fat mass

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Ong et al. 2018	-4.6	1.5	10	1	1.4	9	49.7%	-5.60 [-6.90, -4.30]
Pasanisi et al. 2018	-1.4	11.46	110	-0.1	14.35	103	32.3%	-1.30 [-4.80, 2.20]
Schmitz et al. 2015	-2.71	16.08	77	0.6	16.56	45	18.0%	-3.31 [-9.34, 2.72]
Total (95% CI)			**197**			**157**	**100.0%**	**-3.80 [-6.92, -0.68]**

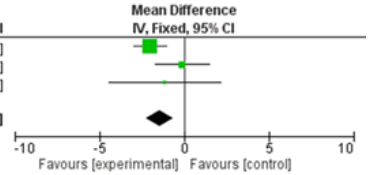
Heterogeneity: Tau² = 4.65; Chi² = 5.40, df = 2 (P = 0.07); I² = 63%
Test for overall effect: Z = 2.39 (P = 0.02)



Lean mass

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Ong et al. 2018	-2.4	1.3	10	-0.4	0.9	9	66.9%	-2.00 [-3.00, -1.00]
Pasanisi et al. 2018	-0.4	4.95	110	-0.3	6.58	103	27.0%	-0.10 [-1.67, 1.47]
Schmitz et al. 2015	-0.75	9.57	77	0.4	8.64	45	6.1%	-1.15 [-4.46, 2.16]
Total (95% CI)			**197**			**157**	**100.0%**	**-1.44 [-2.25, -0.62]**

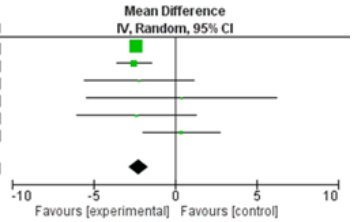
Heterogeneity: Chi² = 4.03, df = 2 (P = 0.13); I² = 50%
Test for overall effect: Z = 3.45 (P = 0.0006)



Body fat percentage

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Han et al. 2018	-1.4	0.0966	8	1	0.0966	7	65.5%	-2.40 [-2.50, -2.30]
Ong et al. 2018	-1.9	1.2	10	0.6	1.1	9	22.1%	-2.50 [-3.53, -1.47]
Pasanisi et al. 2018	-1.7	11.31	110	0.5	13.45	103	3.0%	-2.20 [-5.55, 1.15]
Rezvani et al. 2018	0.39	9.81	23	-0.01	10.3	23	1.0%	0.40 [-5.41, 6.21]
Schmitz et al. 2015	-2.16	9.79	76	0.2	9.97	45	2.5%	-2.36 [-6.01, 1.29]
Simon et al. 1997	-0.1	6.95	67	-0.5	7.4	76	5.8%	0.40 [-1.95, 2.75]
Total (95% CI)			**294**			**263**	**100.0%**	**-2.22 [-2.82, -1.63]**

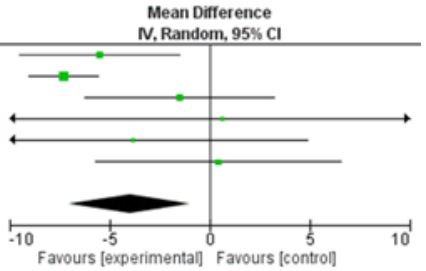
Heterogeneity: Tau² = 0.14; Chi² = 6.37, df = 5 (P = 0.27); I² = 22%
Test for overall effect: Z = 7.34 (P < 0.00001)



Body weight

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Han et al. 2018	-3.3	3.9417	8	2.2	3.9417	7	21.6%	-5.50 [-9.50, -1.50]
Ong et al. 2018	-7	2.3	10	0.3	1.5	9	31.3%	-7.30 [-9.03, -5.57]
Pasanisi et al. 2018	-1.9	15.34	110	-0.4	19.52	103	18.7%	-1.50 [-6.24, 3.24]
Rezvani et al. 2018	0.67	20.08	23	0.03	21.7	23	5.3%	0.64 [-11.44, 12.72]
Schmitz et al. 2015	-3.52	24.19	77	0.3	23.56	45	8.8%	-3.82 [-12.57, 4.93]
Simon et al. 1997	-0.63	19	67	-1.08	18.19	76	14.3%	0.45 [-5.67, 6.57]
Total (95% CI)			**295**			**263**	**100.0%**	**-3.99 [-7.00, -0.98]**

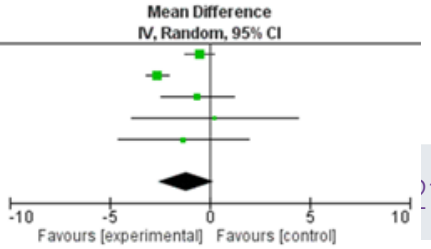
Heterogeneity: Tau² = 6.75; Chi² = 11.35, df = 5 (P = 0.04); I² = 56%
Test for overall effect: Z = 2.60 (P = 0.009)



Body mass index

Study or Subgroup	Experimental Mean	SD	Total	Control Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
Han et al. 2018	-1	0.6956	8	-0.5	0.6956	7	29.5%	-0.50 [-1.21, 0.21]
Ong et al. 2018	-2.5	0.8	10	0.1	0.5	9	30.1%	-2.60 [-3.19, -2.01]
Pasanisi et al. 2018	-0.7	6.72	110	-0.1	6.79	103	20.6%	-0.60 [-2.42, 1.22]
Rezvani et al. 2018	0.26	6.9	23	0	7.55	23	8.2%	0.26 [-3.92, 4.44]
Schmitz et al. 2015	-1.21	8.66	77	0.1	8.98	45	11.6%	-1.31 [-4.57, 1.95]
Total (95% CI)			**228**			**187**	**100.0%**	**-1.18 [-2.57, 0.20]**

Heterogeneity: Tau² = 1.58; Chi² = 22.16, df = 4 (P = 0.0002); I² = 82%
Test for overall effect: Z = 1.67 (P = 0.09)



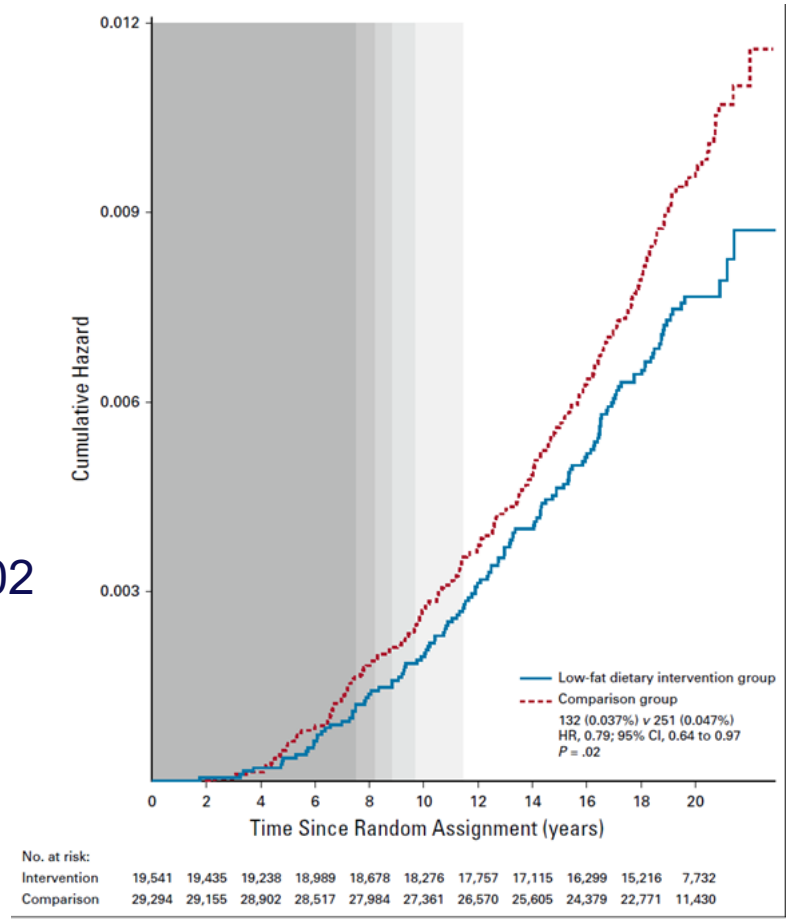
1. Interventions sur les facteurs d'exposition/mode de vie

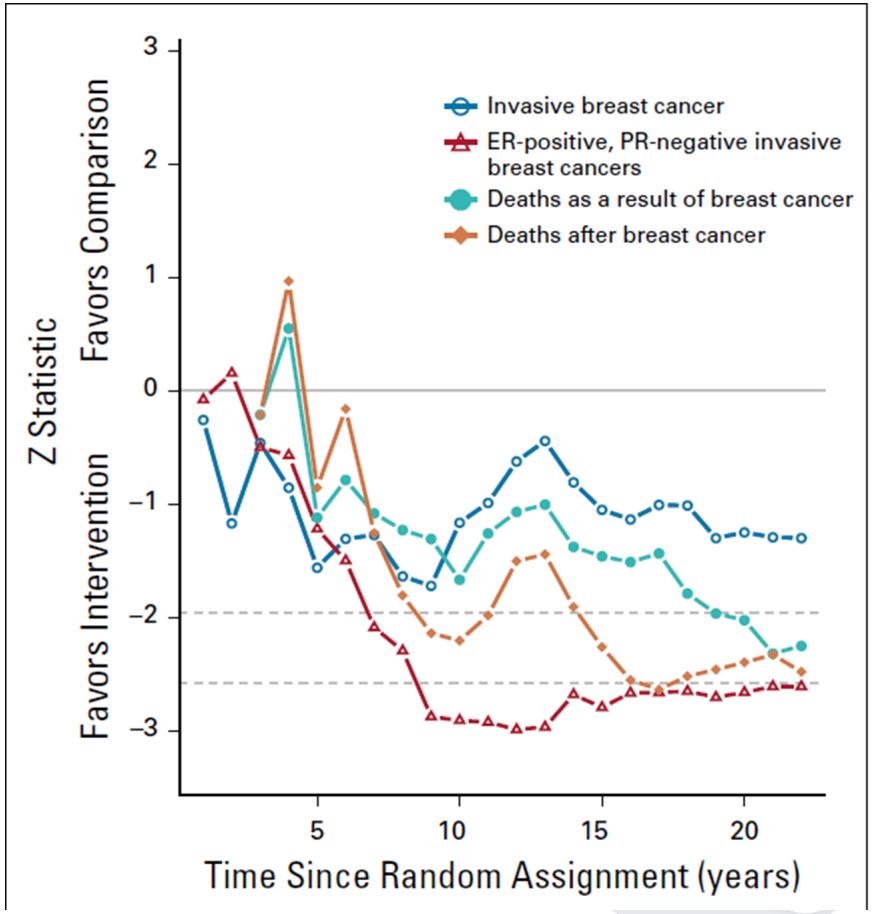
Une grande étude prospective: Women's Health Initiative (WHI) Dietary Modification (DM)

Intervention = régime hypocalorique low fat versus standard

Coprimary end points = incident invasive breast cancer and colorectal cancer, to be analyzed separately.

Risque de décès par cancer du sein
HR, 0.79; 95% CI, 0.64 to 0.97; P = .02





Chlebowski J Clin Oncol 2020

2. Prévention endocrine: SERMs ou antiaromatases

Chlebowski et al, JOP 2021

			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)

2. SERM en prévention: méta-analyse 2013 incluant les effets II

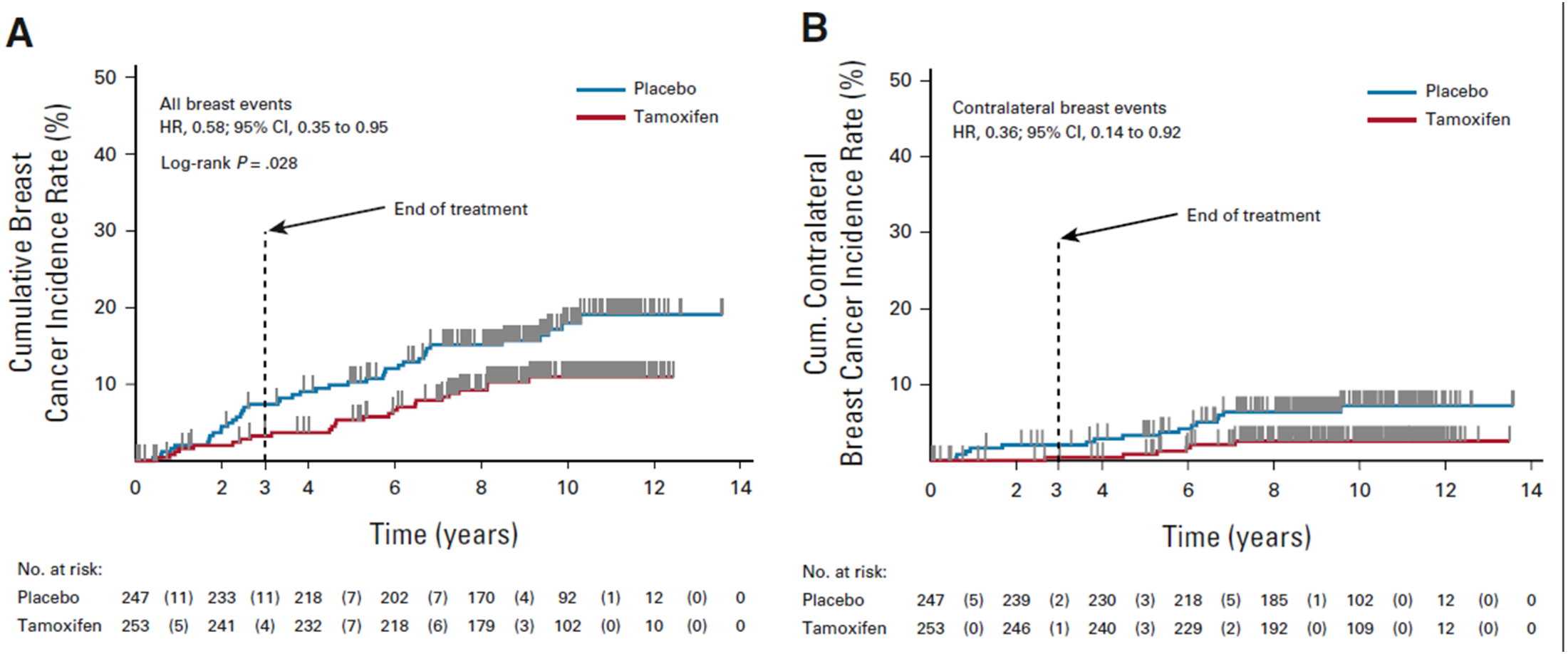
Rapport bénéfice-risque très discutable!

	Endometrial cancer	All other cancer*	Any death	Breast cancer death	Venous thrombolic events†	Cardio-vascular events‡	All fractures	Non-vertebral fractures	Vertebral fractures	Cataracts
Marsden	12 vs 5	55 vs 60	54 vs 54	12 vs 9	..	..	..	..	..	..
IBIS-I	19 vs 11	110 vs 113	65 vs 55	10 vs 12	65 vs 43	40 vs 38	229 vs 252	221 vs 244	8 vs 8	76 vs 70
NSABP-P-1	36 vs 15	101 vs 103	59 vs 71	4 vs 6	55 vs 29	90 vs 82	502 vs 539	480 vs 509	22 vs 30	578 vs 513
Italian	..	106 vs 91	36 vs 38	2 vs 2	11 vs 10	14 vs 10	..	..	..	..
MORE/CORE	6 vs 8	112 vs 132	81 vs 84	..	47 vs 25	82 vs 78	353 vs 450	214 vs 225	139 vs 225	275 vs 280
RUTH	21 vs 17	204 vs 203	548 vs 585	2 vs 0	106 vs 73	487 vs 481	529 vs 591	470 vs. 499	59 vs 92	570 vs 561
STAR§ (raloxifene vs tamoxifen)	37 vs 65	354 vs 323	202 vs 236	4 vs 11	154 vs 202	233 vs 220	1272 vs 1364	1195 vs 1299	65 vs 77	603 vs 739
PEARL (0·5 mg vs 0·25 mg vs placebo)	2 vs 2 vs 3	25 vs 20 vs 22	92 vs 73 vs 65	..	48 vs 37 vs 18	47 vs 54 vs 76	359 vs 422 vs 508	203 vs 233 vs 246	156 vs 189 vs 262	320 vs 317 vs 330
GENERATIONS	9 vs 4	74 vs 75	103 vs 98	..	43 vs 17	71 vs 64	426 vs 508	316 vs 327	110 vs 181	382 vs 400
All events	105 vs 63	787 vs 799	1038 vs 1050	29 vs 29	375 vs 215	831 vs 829	2298 vs 2848	1904 vs 2050	494 vs 798	2201 vs 2154
HR or OR (95% CI)	HR 1·56 (1·13–2·14)	HR 0·98 (0·89–1·08)	HR 0·98 (0·90–1·06)	HR 1·03 (0·55–1·92)	OR 1·73 (1·47–2·05)	OR 0·99 (0·91–1·09)	OR 0·85 (0·80–0·89)	OR 0·93 (0·87–0·99)	OR 0·66 (0·59–0·73)	OR 1·01 (0·95–1·06)

Cuzick et al Lancet 2013

2. Prévention endocrine: babyTAM?

Effet intéressant avec une excellente tolérance (mais: 70% intracanalaire et 30% de lésions atypiques)

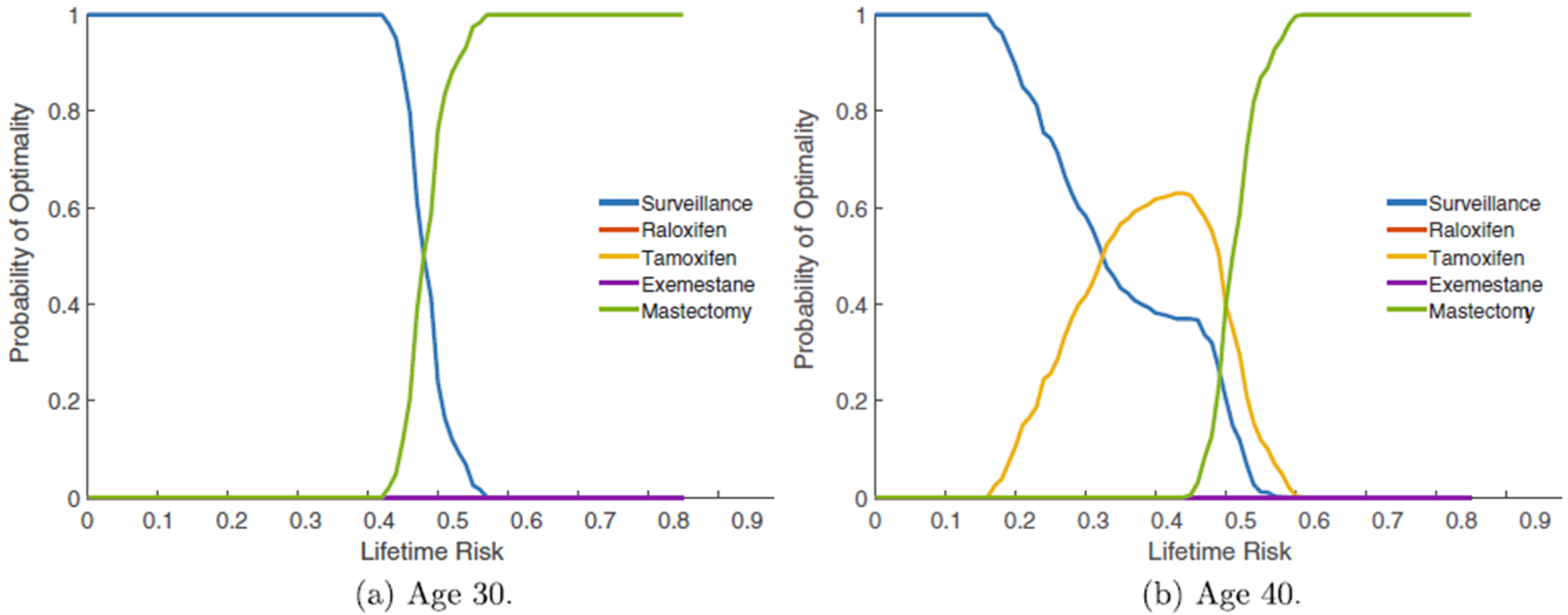


Lazzeroni et al J Clin Oncol 2023

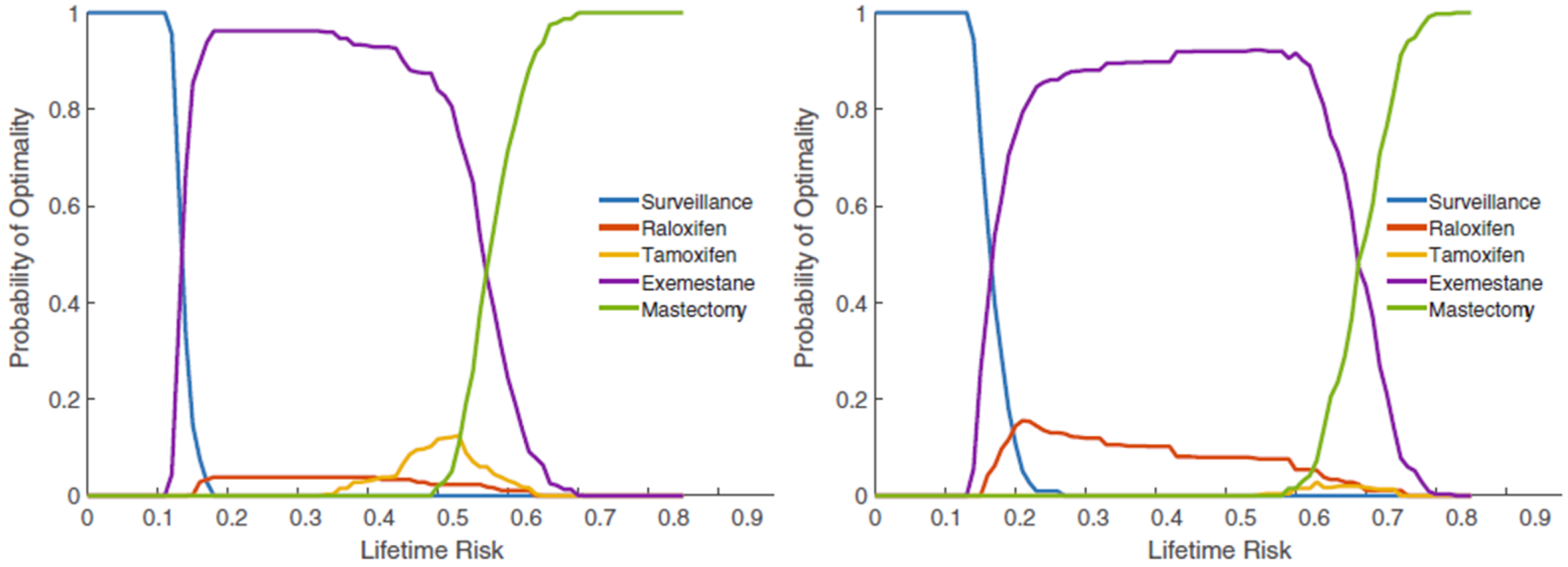
Modélisation

Quelle stratégie pour diminuer au mieux le risque de cancer du sein selon le niveau de risque et l'âge?

Ergun Health Care manag Sci 2022



(a) Age 30. (b) Age 40.



(c) Age 51. (d) Age 60.

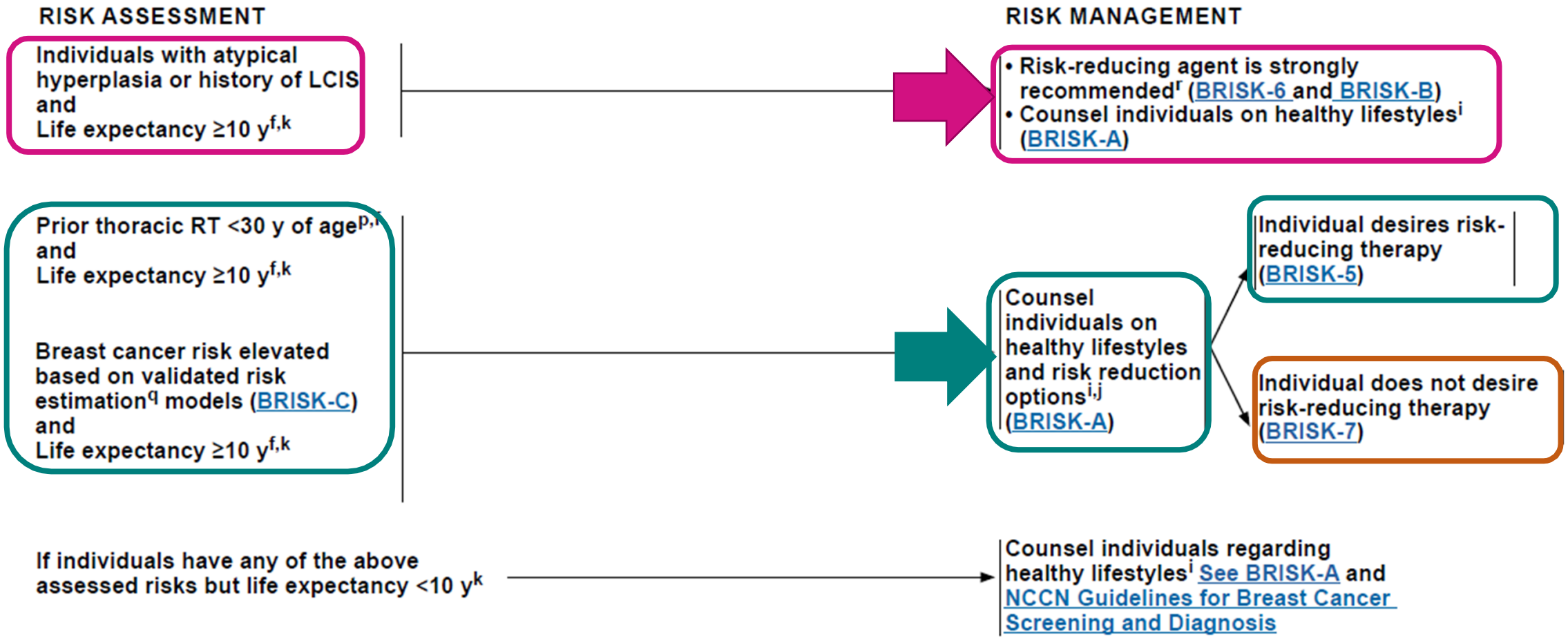
Plan

- Nouvelles données en épidémiologie et biologie
- Le modèle de la prévention personnalisée
- Les résultats d'interventions de PP
- Des recommandations internationales disparates
- Conclusions et perspectives

Recommandations internationales (hors hauts risques génétiques): NCCN 2024

National Comprehensive Cancer Network®

NCCN Guidelines Version 1.2024
Breast Cancer Risk Reduction



Recommandations internationales (hors hauts risques génétiques): NCCN 2024

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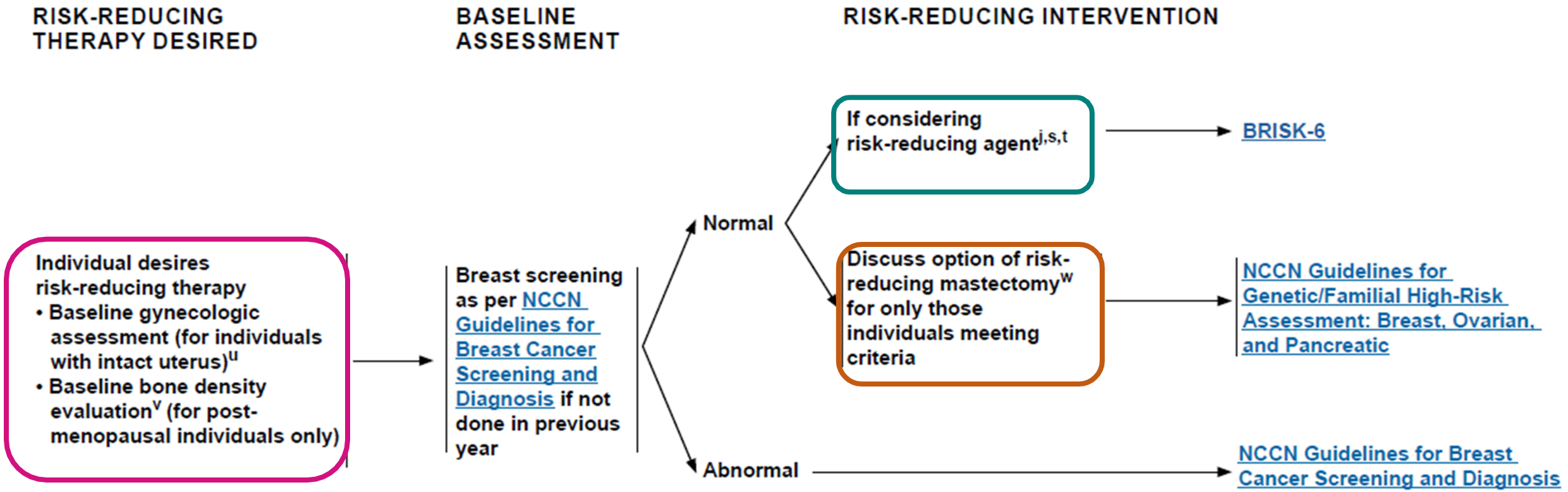
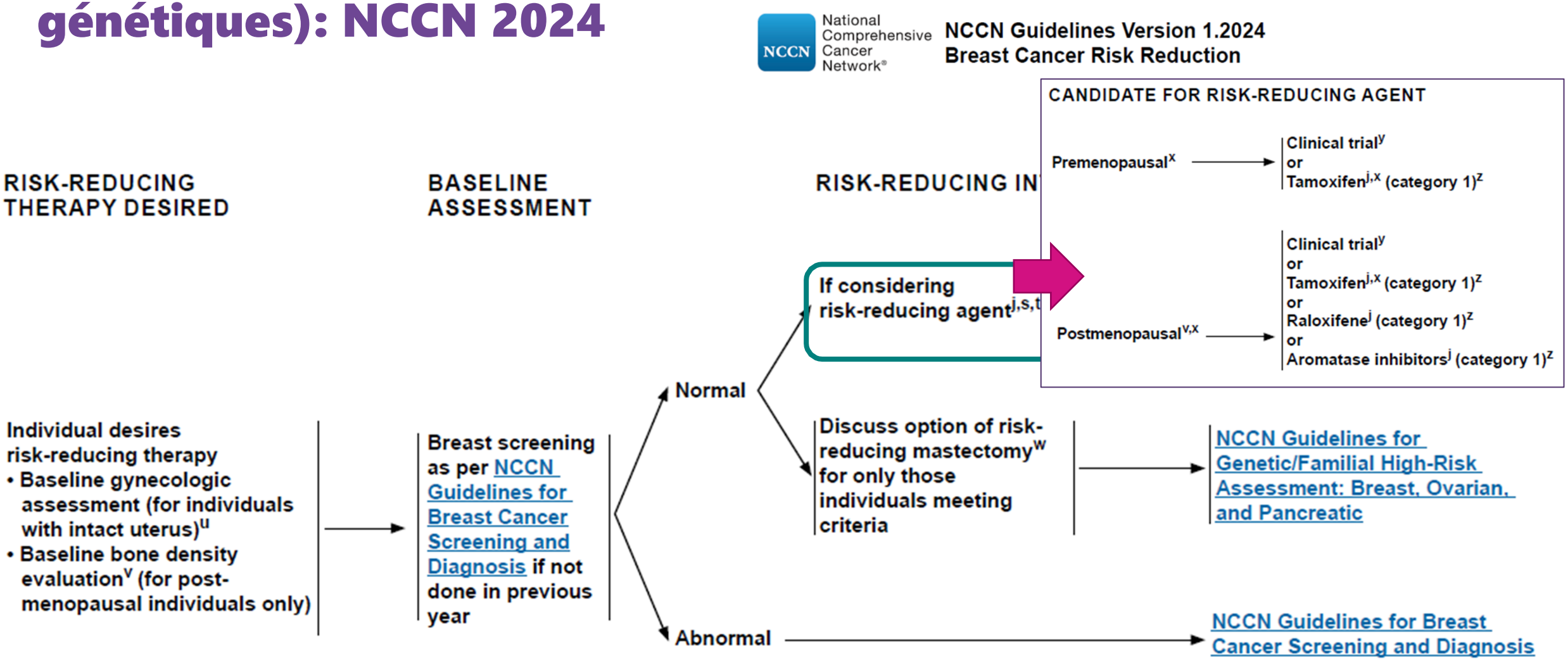
NCCN Guidelines Version 1.2024
Breast Cancer Risk Reduction



Recommandations internationales (hors hauts risques génétiques): NCCN 2024



Recommandations internationales (hors hauts risques génétiques: ASCO

Visvanathan J Clin Oncol 2019

Use of Endocrine Therapy for Breast Cancer Risk Reduction: ASCO Clinical Practice Guideline Update

Kala Visvanathan, MHS, MD[1]; Carol J. Fabian, MD[2]; Elissa Bantug, MHS[3]; Abenaa M. Brewster, MHS, MD[4]; Nancy E. Davidson, MD[5]; Andrea DeCensi, MD[6]; Justin D. Floyd, DO[7]; Judy E. Garber, MPH, MD[8]; Erin W. Hofstatter, MD[9]; Seema A. Khan, MD[10]; Maria C. Katapodi, PhD[11]; Sandhya Pruthi, MD[12]; Rachal Raab, MD[13]; Carolyn D. Runowicz, MD[14]; and Mark R. Somerfield, PhD[15]

Agent	Recommendations	Strength of Recommendation and Strength of Evidence
Tamoxifen	1.1. Should be discussed as an option to reduce the risk of invasive BC, specifically ER-positive BC, in premenopausal women who are ≥ 35 years of age with a 5-year projected absolute BC risk ≥ 1.66% or with LCIS. Risk reduction benefit continues for at least 10 years.	Strong, evidence-based recommendation. Strength of evidence: strong, based on five RCTs with a low risk of bias.
	1.2. Is not recommended for use in women with a history of deep vein thrombosis, pulmonary embolus, stroke, transient ischemic attack, or during prolonged immobilization.	
	1.3. Is not recommended for women who are pregnant, women who may become pregnant, or nursing mothers.	
	1.4. Is not recommended in combination with hormone therapy.	
	1.5. Follow-up should include a timely workup of abnormal vaginal bleeding.	
	1.6. Discussions with patients and health care providers should include both the risks and benefits of tamoxifen in the preventive setting.	
	1.7. Dosage: 20 mg/day orally for 5 years.	

Recommandations internationales (hors hauts risques génétiques: ASCO

Visvanathan J Clin Oncol 2019

Use of Endocrine Therapy for Breast Cancer Risk Reduction: ASCO Clinical Practice Guideline Update

Kala Visvanathan, MHS, MD[1]; Carol J. Fabian, MD[2]; Elissa Bantug, MHS[3]; Abenaa M. Brewster, MHS, MD[4]; Nancy E. Davidson, MD[5]; Andrea DeCensi, MD[6]; Justin D. Floyd, DO[7]; Judy E. Garber, MPH, MD[8]; Erin W. Hofstatter, MD[9]; Seema A. Khan, MD[10]; Maria C. Katapodi, PhD[11]; Sandhya Pruthi, MD[12]; Rachal Raab, MD[13]; Carolyn D. Runowicz, MD[14]; and Mark R. Somerfield, PhD[15]

Raloxifene	2.1. Should be discussed as an option to reduce the risk of invasive BC, specifically ER-positive BC, in postmenopausal women who are ≥ 35 years of age with a 5-year projected absolute BC risk ≥ 1.66% or with LCIS.	Strong, evidence-based recommendation. Strength of evidence: strong, based on four RCTs with a low risk of bias.
	2.2. May be used longer than 5 years in women with osteoporosis, in whom BC risk reduction is a secondary benefit.	
	2.3. Should not be used for BC risk reduction in premenopausal women.	
	2.4. Is not recommended for use in women with a history of deep vein thrombosis, pulmonary embolus, stroke, or transient ischemic attack, or during prolonged immobilization.	
	2.5. Discussions with patients and health care providers should include both the risks and benefits of raloxifene in the preventive setting.	
	2.6. Dosage: 60 mg/day orally for 5 years.	

Recommandations internationales (hors hauts risques génétiques: ASCO

Exemestane	3.1. Should be discussed as an alternative to tamoxifen and/or raloxifene to reduce the risk of invasive BC, specifically ER-positive BC, in postmenopausal women ≥ 35 years of age with a 5-year projected absolute BC risk ≥ 1.66% or with LCIS or atypical hyperplasia.	Moderate, evidence-based recommendation. Strength of evidence: moderate, based on one RCT with a low risk of bias.*
	3.2. Should not be used for BC risk reduction in premenopausal women.	
	3.3. Discussions with patients and health care providers should include both the risks and benefits of exemestane in the preventive setting	
	3.4. Dosage: 25 mg/day orally for 5 years.	
Anastrozole	4.1. Anastrozole (1 mg/day orally for 5 years) should be discussed as an alternative to tamoxifen, raloxifene, or exemestane to reduce the risk of invasive BC in postmenopausal women at increased risk of developing BC.	Evidence based, benefits outweigh harms; Evidence quality: high; Strength of recommendation: strong, based on one RCT with low risk of bias.
	4.2. Women most likely to benefit from endocrine therapy are those with one of more of the following: a diagnosis of atypical (ductal or lobular) hyperplasia or LCIS, an estimated 5-year risk (NCI BCRAT) of at least 3%, a 10-year risk (IBIS/Tyrer-Cuzick Risk Calculator) of at least 5%, or a relative risk of at least four times the population risk for their age group if their age is 40 to 44 years or two times the population risk for their age group if their age is 45 to 69 years.	
	4.3. Clinicians should not prescribe anastrozole, exemestane, or raloxifene for BC risk reduction in premenopausal women.	
	4.4. Discussions between patients and health care providers should include both the benefits and risks of anastrozole along with the other approved drugs for risk reduction based on menopausal status.	
	4.5. Prior to initiating an aromatase inhibitor, clinicians should	

Visvanathan J Clin Oncol 2019

NICE (UK) : tamoxifene pour les femmes à risque augmenté

NICE National Institute for Health and Care Excellence

NICE 2013 puis 2017 – update 2021

Patient decision aid

Taking tamoxifen to reduce the chance of developing breast cancer

Decision aid for premenopausal women at moderately increased risk

Table 1 How do the options compare?

-	No medicine	Tamoxifen
1. **What does this option involve?**	Taking no medicine. Depending on things such as your age and your estimated risk of cancer you may be offered regular scans to check for breast cancer.	Taking one tablet every day for 5 years. Depending on things such as your age and your estimated risk of cancer you may be offered regular scans to check for breast cancer.
2. **What difference will it make to my chance of developing breast cancer?** See pages 6–8 for more information and diagrams to help explain this.	On average, if 1000 women at moderately increased risk of developing breast cancer do not to take tamoxifen, over 10 years: • about 50 women will develop breast cancer • about 950 women will not. Your healthcare professional will explain if your personal risk is more or less than this.	On average, if 1000 women at moderately increased risk of developing breast cancer take tamoxifen, over 10 years: • about 35 women (15 fewer) will develop breast cancer • about 965 women will not. You will continue to benefit from having taken tamoxifen for at least 11 years after you stop taking tamoxifen. It is expected that the benefits will continue after this, but this has not yet been shown. **Tamoxifen has not been shown to reduce your risk of dying from breast cancer**.

NICE (UK) : tamoxifene pour les femmes à risque augmenté

NICE 2013 puis 2017 – update 2021

3. What difference will it make to my chance of getting a blood clot such as deep vein thrombosis (DVT) or a blood clot in the lungs (pulmonary embolism)? See pages 9–11 for more information and diagrams to help explain this.	If 1000 women at **average** risk of getting a blood clot do not take tamoxifen, over 5 years • about 10 women will get a blood clot • about 990 will not. Your healthcare professional will explain if your personal risk is more or less than this.	Tamoxifen increases your risk of getting a blood clot while you are taking it, but your risk returns to normal after you stop taking it. If 1000 women getting a blo 5 years: • about 20 v a blood cl • about 980 blood clot

How you feel about the options

Issue	How important is this to me?	Very important	Important	Not important	Not at all important
Taking a tablet every day for 5 years					
The difference it makes to my chance of developing breast cancer					
Knowing that it has not been shown to change my chance of dying from breast cancer					
The difference it makes to my chance of getting a blood clot					
The possibility of other side effects					
Issues if I want to try for a baby					

You can use the table to help you make a note about how important the issues are to you.

France

- Aucune recommandation spécifique
- Les SERMs et anti aromatases ne sont pas recommandés

Plan

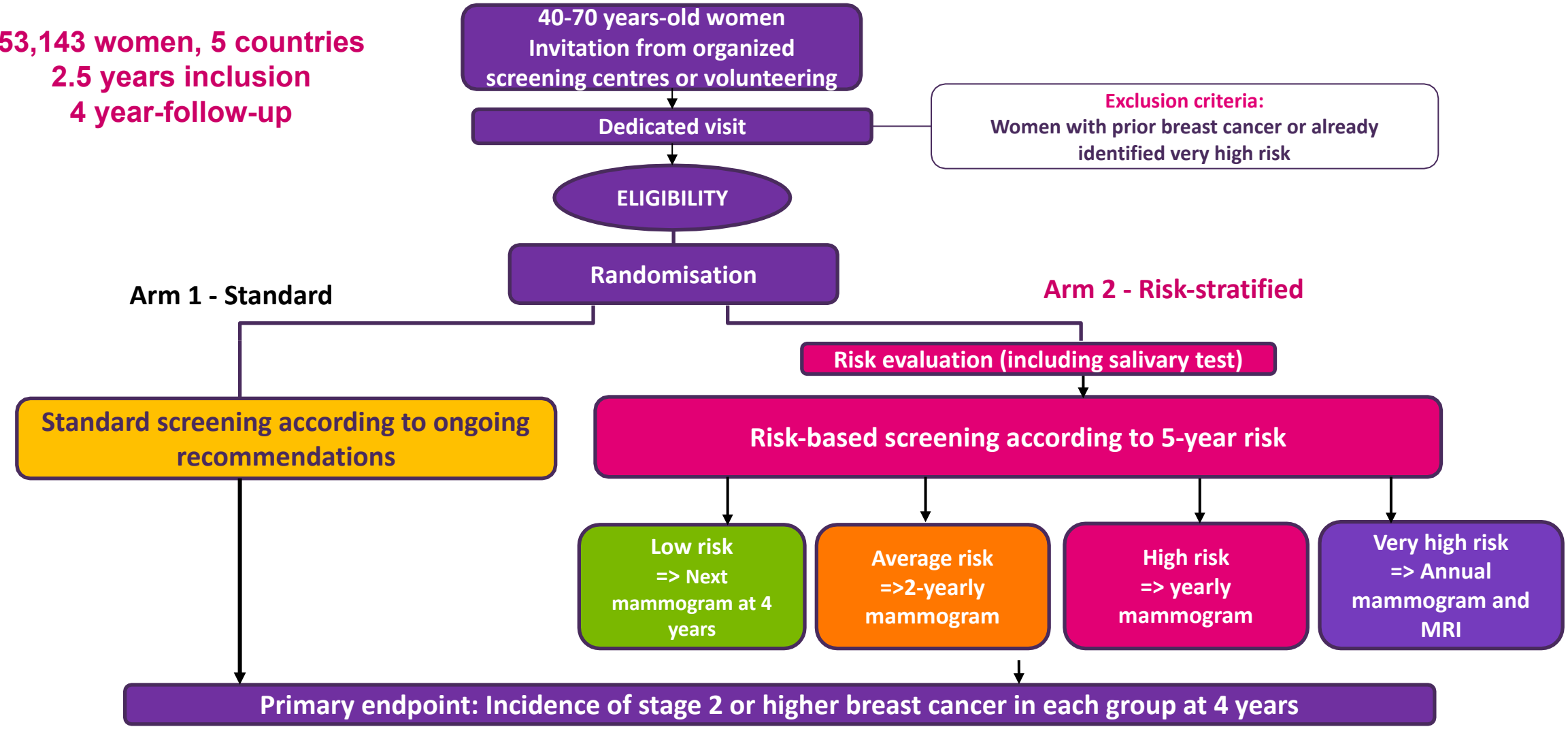
- Nouvelles données en épidémiologie et biologie
- Le modèle de la prévention personnalisée
- Les résultats d'interventions de PP
- Des recommandations internationales disparates
- Conclusions et perspectives

Conclusions

- Besoin de plus de prévention des cancers du sein!
- La prévention personnalisée est une d'avenir voie majeure (mais ne doit pas remplacer une prévention populationnelle globale!)
- Les recommandations internationales sont extrêmement disparates
- Mieux translater les données épidémiologiques vers la clinique et tester/mettre en place des interventions visant les facteurs modifiables est urgent
- Besoin de recommandations Françaises/Européennes

Preuve de concept d'un dépistage personnalisé: MyPeBS

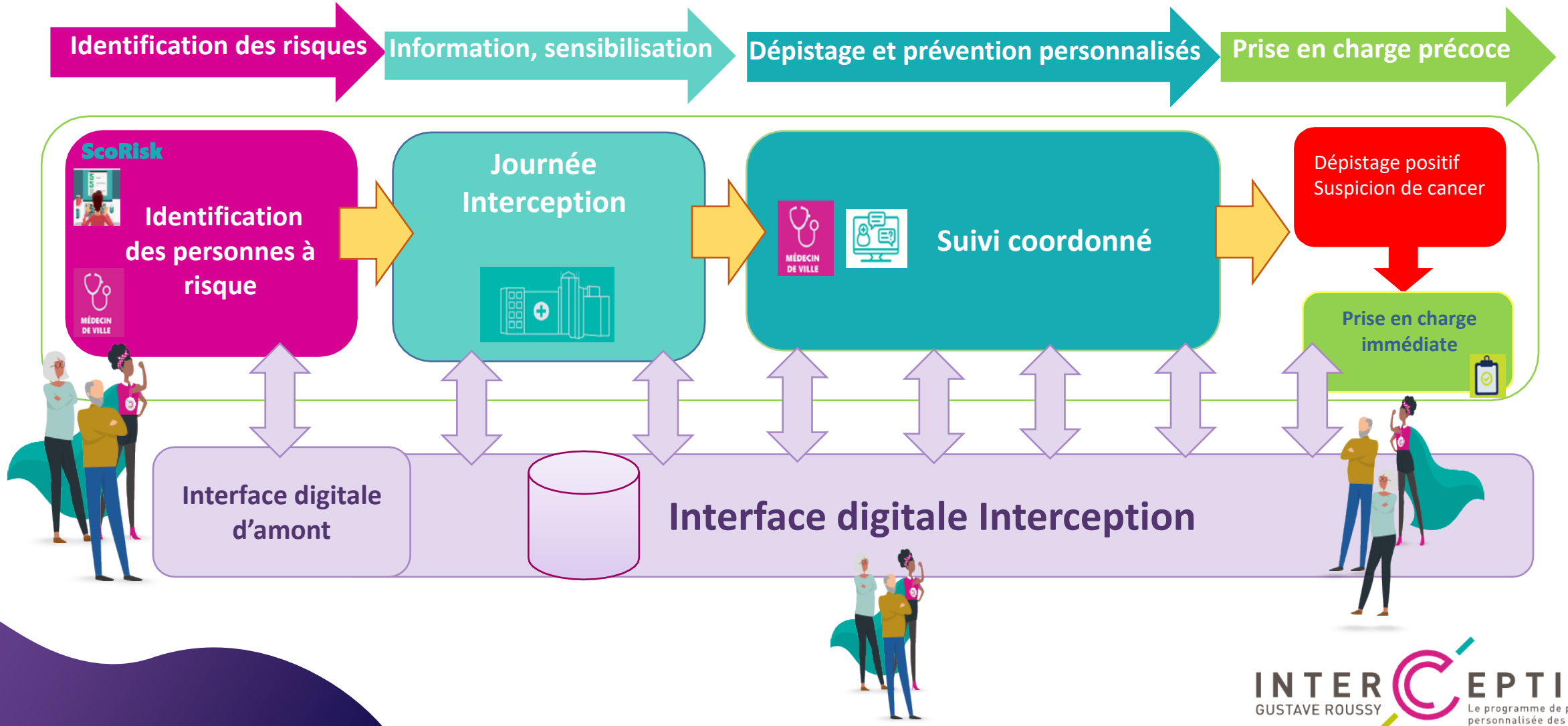
53,143 women, 5 countries
2.5 years inclusion
4 year-follow-up



Résultats de l'analyse principale = 2027!!!

AT 10 AND 15 YEARS :
LONG TERM FOLLOW-UP INCLUDING BREAST CANCER MORTALITY

Interception: un parcours pilote mixte ville-hopital physique-digital de prévention personnalisée chez les personnes à risque élevé de cancer, déployé de façon nationale



INTERCEPTION
GUSTAVE ROUSSY
Le programme de prévention personnalisée des cancers

INTERCEPTION
GUSTAVE ROUSSY
Le programme de prévention personnalisée des cancers

MERCI!

Soins

ars Agence Régionale de Santé Île-de-France
unicancer
LES HAUTS-DE-BIÈVRE COMMUNAUTÉ D'AGGLOMÉRATION
dac santé 94 OUEST
DÉPISTAGE DES CANCERS Centre de coordination Île-de-France
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Centre de Lutte contre le Cancer François Baclesse
Centre Eugène Marquis RENNES
Institut Bergonié
Sainte Catherine INSTITUT DU CANCER Avignon-Provence
Institut de Cancérologie de l'Ouest
Institut de Cancérologie de Lorraine Alexis Vautrin Ensemble, construisons l'avenir
Centre Oscar Lambret Centre Régional de Lutte contre le Cancer
ELSAN Notre Santé autrement

Digital partners

cegedim

Financements et soutiens

INSTITUT NATIONAL DU CANCER
FONDATION ARC POUR LA RECHERCHE SUR LE CANCER
FRANCE 2030
FONDATION PHILANTHROPIA
ARD ODIER
SÉCURITÉ SOCIALE L'Assurance Maladie VAL-DE-MARNE
ODYSSEA ensemble contre le cancer du sein
INSTITUT PAOLI-CALMETTES
kenclub
boulanger
GUSTAVE ROUSSY CANCER CAMPUS GRAND PARIS FONDATION

Réseaux de recherche

MyPeBS Personalising Breast Screening
ONCOBIOME Microbiota against cancer International research program
PREVALUNG-EU
4IN THE LUNG RUN
Cancer Core Europe

Associations de patients

Cancer Contribution
les seintinelles contre le cancer, tous volontaires
PATIENTS en réseau

CANCEPT

unicancer
IOT Institut d'Oncologie Thoracique
cesp
université PARIS-SACLAY
cnrs
AP-HM Assistance Publique Hôpitaux de
CNGE
Groupe hospitalier Paris Saint-Joseph

Inserm
UMR 1015
UMR 1018

LA LIGUE CONTRE LE CANCER