

SUPPLEMENTARY INFORMATION

WISDOM Randomized Trial Comparing Risk-Based Versus Annual Breast Cancer Screening:
Baseline Characteristics and Study Conduct

Fiscalini et al.

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Supplementary Table S1: Minority enrolment in WISDOM

Year-by-year rates of enrolment to WISDOM categorized by self-reported race/ethnicity

	White, NH	Black or African American	Native Hawaiian or Other Pac Islander/American Indian or Alaska Native, NH	Asian, NH	Two or More Race, NH	Hispanic or Latino	Unknown/Pref not to answer/other
Start-2019	81.4%	1.7%	0.3%	4.5%	2.7%	8.1%	1.2%
2020	74.9%	4.1%	0.4%	5.9%	3.3%	10.4%	1.0%
2021	73.4%	8.1%	0.5%	4.0%	3.1%	10.2%	0.7%
2022	67.4%	11.5%	0.6%	4.4%	3.9%	11.4%	0.7%
2023	59.4%	17.5%	0.8%	5.8%	3.1%	11.8%	1.5%
All Time	75.6%	5.6%	0.4%	4.6%	3.1%	9.6%	1.0%

Supplementary Table S2: List of clinical sites

List of WISDOM recruitment sites and years of enrolment in WISDOM 1.0

Site	Year Site Opened
Initial sites	
University of California San Francisco	2016
University of California San Diego	2016
University of California Los Angeles	2017
University of California Davis	2017
University of California Irvine	2017
Sanford Health	2017
Expansion sites	
University of Chicago	2019
University of Alabama at Birmingham	2020
Diagnostic Center of Miami	2020
Louisiana State University	2020
Veterans Health Administration*	2021

*Recruitment only through select VA centers

Supplementary Table S3: Factors affecting patient participation choices

Multivariate Analysis Comparing Participant Choice of Randomized versus Self-Selection into Annual or Personalized. NH = Non-Hispanic

	Self-Select Risk-based vs Randomized (complete cases)				Self-Select Annual vs Randomized (complete cases)			
	RR	Lower CI: 2.5%	Upper CI: 97.5%	p*	RR	Lower CI: 2.5%	Upper CI: 97.5%	p*
Age (years) at Group Selected Date								
<50	ref	ref	ref	ref	ref	ref	ref	ref
50-59	0.92	0.88	0.96	0.0001	1.27	1.06	1.51	0.0089
60-69	0.87	0.83	0.92	<0.0001	1.67	1.36	2.05	<0.0001
70-79	0.75	0.69	0.82	<0.0001	2.02	1.57	2.60	<0.0001
Race, Ethnicity								
NH White	ref	ref	ref	ref	ref	ref	ref	ref
Hispanic	1.18	1.13	1.23	<0.0001	1.42	1.19	1.70	0.0001
NH Asian	1.20	1.13	1.28	<0.0001	1.33	1.02	1.74	0.0383
NH Black or African American	1.02	0.96	1.09	0.5047	1.75	1.44	2.12	<0.0001
NH More than one race	1.16	1.08	1.25	0.0001	0.76	0.51	1.14	0.1847
NH Native Hawaiian or Other Pacific Islander/American Indian or Alaska Native	0.91	0.72	1.15	0.4357	0.85	0.33	2.22	0.7455
Other/Unknown	1.41	1.25	1.58	<0.0001	1.78	1.06	2.99	0.0294
Family History at Baseline								
No First or Second Degree Relative	ref	ref	ref	ref	ref	ref	ref	ref
First Degree Relative	1.49	1.42	1.55	<0.0001	0.96	0.81	1.14	0.6790
Second Degree Relative	1.27	1.22	1.31	<0.0001	1.01	0.89	1.16	0.8312
First and Second Degree Relative	1.58	1.51	1.65	<0.0001	1.07	0.88	1.29	0.4980
Don't Know	1.21	1.14	1.28	<0.0001	0.81	0.65	1.00	0.0544
No Response/Missing	1.29	1.14	1.45	<0.0001	0.88	0.54	1.46	0.6281
Any Atypia Biopsies[†]								
Not Biopsied	ref	ref	ref	ref	ref	ref	ref	ref
Biopsied - No ADH	1.09	1.05	1.13	<0.0001	1.09	0.95	1.24	0.2089
Biopsied - Yes ADH	1.46	1.32	1.61	<0.0001	1.32	0.78	2.23	0.2951
Biopsied - Don't know ADH	1.38	1.25	1.52	<0.0001	1.14	0.70	1.86	0.5969
Hormone Replacement Therapy Use Ever[†]								
None	ref	ref	ref	ref	ref	ref	ref	ref
One or More	1.09	1.05	1.12	<0.0001	1.12	1.00	1.26	0.0511
Age (years) at Menarche[†]								
12 to 13	ref	ref	ref	ref	ref	ref	ref	ref
Under age 12	0.96	0.93	1.00	0.0524	0.84	0.73	0.97	0.0174
14 or above	1.01	0.98	1.05	0.4902	1.03	0.91	1.17	0.6064
Age (years) at first live birth[†]								
Nulliparous	ref	ref	ref	ref	ref	ref	ref	ref
<20 years	0.94	0.88	1.00	0.0428	0.91	0.72	1.15	0.4171
20-24 years	0.95	0.91	1.00	0.0435	1.04	0.88	1.23	0.6237
25-29 years	0.98	0.94	1.02	0.3736	1.00	0.86	1.17	0.9686
30-34 years	1.04	0.99	1.08	0.1041	1.00	0.85	1.19	0.9606
>34 years	1.06	1.01	1.11	0.0166	0.98	0.81	1.19	0.8557
Baseline Area Deprivation Index[†] (ADI)								
Least Disadvantaged (1 to 3)	ref	ref	ref	ref	ref	ref	ref	ref
Middle Disadvantaged (4 to 6)	1.00	0.97	1.04	0.9654	0.98	0.86	1.11	0.7148
Most Disadvantaged (7 to 10)	0.95	0.91	0.99	0.0091	1.02	0.88	1.18	0.7951
Data suppressed/ Not geocoded	1.04	0.96	1.13	0.3284	1.24	0.94	1.63	0.1276

* Wald type III

[†] denotes imputed variable

¹ Kind & Buckingham, N. Engl. J. Med. 378, 2456–2458 (2018).

Supplementary Table S4. Risk assessment and screening recommendations

Risk:	Highest Risk	Elevated Risk	Average Risk	Lowest Risk
Criteria/ Threshold	<p>BRCA1/2, TP53, PTEN, STK11, CDH1 mutation carrier</p> <p>OR</p> <p>ATM, PALB2 or CHEK2 mutation carrier with positive family history of breast cancer</p> <p>OR</p> <p>Women with a $\geq 6\%$ 5-year risk (risk of an average BRCA carrier)</p> <p>OR</p> <p>Women with a history of mantle radiation between ages 10-30 years</p>	<p>Women aged 40-49 with extremely dense breasts</p> <p>OR</p> <p>Women at a $\geq 1\%$ 5-year risk of developing ER-breast cancer based on susceptibility SNPs</p> <p>OR</p> <p>Women in top 2.5th percentile of risk by 1-year age category</p> <p>OR</p> <p>ATM, PALB2 or CHEK2 mutation carrier without a positive family history** of breast cancer</p>	<p>Women aged 50-74</p> <p>OR</p> <p>Women aged 40-49 with a $\geq 1.3\%$ 5-year risk (risk of an average 50 year-old woman)</p>	<p>Women aged 40-49 with a $< 1.3\%$ 5-year risk of developing breast cancer</p> <p>OR</p> <p>Low risk (5-year risk $< 1.3\%$) and age ≥ 75</p> <p>OR</p> <p>Age ≥ 70, 5-year risk $\leq 2.2\%$ and co-morbidities with predicted $\geq 50\%$ risk of mortality in 10 years</p>
Screening Rec:	<p>Annual mammogram</p> <p>Adjunct MRI</p> <p>BHS active outreach</p> <p>Risk reduction consultation</p>	<p>Annual mammogram*</p> <p>BHS active outreach</p> <p>Risk reduction consultation</p>	<p>Biennial mammogram†</p>	<p>No screening until age 50</p> <p>OR</p> <p>Stop screening</p>

* If individual does not meet criteria for annual mammogram + MRI

† If individual does not meet criteria for annual mammogram or annual mammogram + MRI

** Family history is defined as a first degree relative with breast cancer, two second-degree relatives with breast cancer, or one second-degree relative diagnosed prior to age 45.

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