



**Women's Health Initiative
2025 Annual Progress Report**

Data as of: February 15, 2025

The data, if any, contained in this report/deliverable are preliminary and may contain unvalidated findings. These data are not intended for public use. Public use of these data could create erroneous conclusions which, if acted upon, could threaten public health or safety.

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I. Overview

Background

Between 1993 and 1998, forty Women's Health Initiative Clinical Centers recruited 161,808 women into the program. Of these, 68,132 women were randomized into the clinical trial component (CT) and 93,676 were enrolled into the observational study (OS) (Figure 1) with semi-annual (CT) or annual (OS) follow-up planned until 2005. During the final year of the original protocol (2004-2005), 115,407 women consented to five additional years of follow-up, representing 76.9% of the 150,076 participants who were alive and in active follow-up at that time. In 2010, participants were again offered the opportunity to continue, and 87% of the 107,706 eligible women agreed (n=93,567).

Additional details on recruitment, re-consenting by age, race/ethnicity and study component have been described in detail in prior reports available on the WHI website. Active follow-up continues for all participants consenting in 2010 unless a participant withdraws consent. Follow-up through proxy respondents is offered whenever needed, with more limited data collection. Passive follow-up through the National Death Index and linkage to Medicare data continues for all participants under the original consent.

The Extension Study

Since 2005, participants have been contacted annually by mail, telephone or more recently email (forms via RedCAP), to obtain health and selected exposure updates. The Clinical Coordinating Center (CCC) conducts annual mailings of follow-up questionnaires to all eligible participants. The Regional Centers (RC) and their collaborating centers contact non-responders and collect and submit medical records for all designated outcomes to the CCC.

In Extension Study II (2010-Present), program streamlining led to a change in outcomes documentation and adjudication.

Since 2010, WHI seeks medical records for designated health events (cardiovascular disease and hip fractures) among only those women in the Medical Records Cohort (MRC), comprised of all former hormone trial (HT) participants and all non-Hispanic Black/African American and Hispanic/Latina participants (Figure 2). WHI funded outcome data collection for the remaining participants, referred to as the Self-Report Cohort (SRC), is limited to self-report, supplemented with linkage to Medicare data, wherever possible, and the National Death

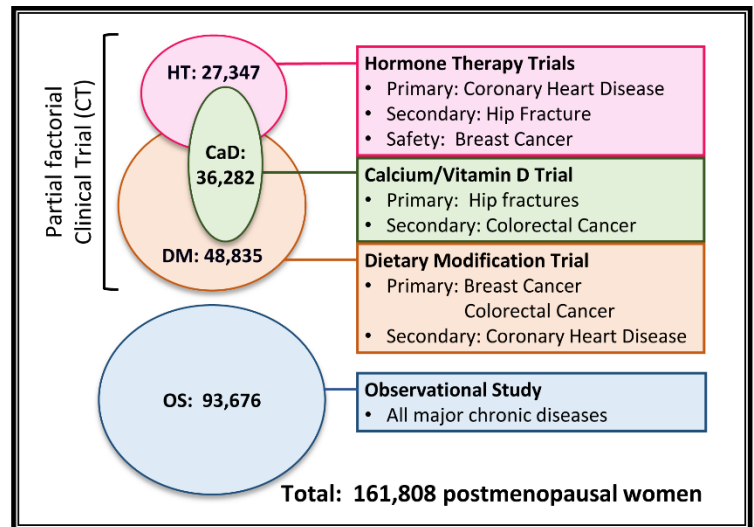


Figure 1. Original design of the WHI clinical trials and observational study, its components and outcomes.

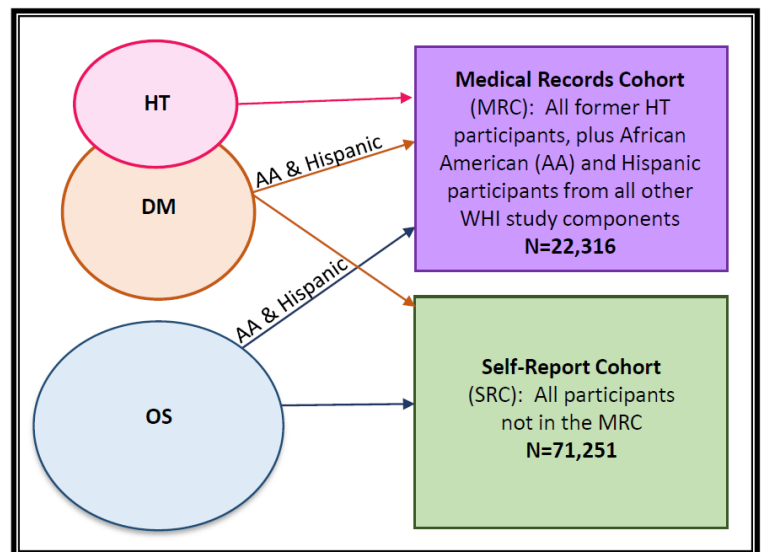


Figure 2. Extension Study II (2010—Present) design reflecting differing levels of outcomes ascertainment: MRC and SRC.

Index (NDI). The two exceptions have been incident primary cancers and stroke, where additional documentation and coding of cases have been supported by NCI and NINDS, respectively. Since October 2023, NCI supports cancer documentation only through linkage to the National Virtual Pooled Registry. As a result, cancer cases in SRC participants after June 15, 2023, have not been adjudicated by WHI, except in states not covered by the VPR. Stroke documentation and adjudication efforts are continuing, as is cancer adjudication in the MRC. WHI has now received cancer registry data through the National Virtual Pooled Registry Cancer Linkage System (VPR-CLS) from 33 registries (Section 8) and is determining how to best integrate these data with the WHI cancer outcomes. Other ancillary studies have adjudicated additional outcomes in defined subsets.

As of February 15, 2025, 42,630 women are alive and remain in active follow-up (Tables 1.2 and 1.3). Almost one third ($n = 13,220$, 31.0%) of these women are 90 years of age or older, including 574 centenarians (Figure 1.1). Among active participants, 1564 (3.7%) are Hispanic, 2834 (6.6%) are Black/African American, 1027 (2.4%) are Asian, Native Hawaiian or Pacific Islanders, and 89 (0.2%) are American Indian or Alaska Natives (Table 1.2). Fifty-nine percent ($n=95,909$) of the original cohort are now deceased (Table 1.3), with similar rates across study components.

Follow-up rates to 2024 mailings and telephone contacts (Table 1.4), while not yet complete, suggest that overall response rates remain above 70% for the collection of medical history updates and above 60% for the collection of information on daily life.

II. Clinical Outcomes

Tabulations of the designated WHI outcomes, along with annualized event rates, are provided for the cohort overall, by age at event, and by race and ethnicity. For adjudicated outcomes, these displays reflect the person-years at risk during which an event for each participant was subject to adjudication, through September 2010 (CVD and hip fracture) or June 2023 (cancer) for SRC or February 15, 2025, for MRC. Specific adjudication timeframes are included for reference in the footnotes of each outcomes table. Tabulations by race and ethnicity use the revised definitions of the WHI Race and Ethnicity Task Force rather than those collected at baseline on Form 2. Annualized event rates by age at diagnosis use the same censoring limits on adjudication.

Across all WHI components, we have identified 95,909 deaths (Tables 2.1-2.3). Of these, 71% ($n=68,127$) were identified only by NDI search. Cardiovascular disease accounts for nearly a third of deaths ($n=30,494$, 31.8%), well surpassing cancer deaths ($n=20,100$, 21.0%). Alzheimer's disease and other dementias took 14,333 lives. Accidents or other injuries, including deaths by suicide or homicide, accounted for a small proportion of total deaths ($n=2483$, 2.6%). In general, death rates by cause are similar across race and ethnicity groups and increase as expected with increasing attained age.

A new diagnosis of cancer has been adjudicated 38,434 times (Tables 2.4-2.5). Breast (invasive, $n=12,320$), lung ($n=4818$), colorectal ($n=3800$), and melanoma ($n=2988$) cancers are the most reported, followed by non-Hodgkin's lymphoma ($n=2101$), endometrial ($n=1969$), pancreatic ($n=1610$) and ovarian ($n=1434$) cancers. Tabulations by race/ethnicity and age at diagnosis are included.

Adjudicated cardiovascular disease (CVD), though adjudicated for different time intervals for MRC and SRC participants, continue to represent an increasing fraction of the morbidity and mortality of WHI participants, with 30,418 adjudicated cases during follow-up (Tables 2.6-2.7). Of these, 9760 participants have had a documented coronary heart disease (CHD) outcome, and a similar number have had selected reperfusion procedures (CABG/PCTA, $n=9381$). Strokes have been adjudicated among 8074 women.

WHI fracture data reflect a mixture of adjudicated results and self-reported events, as hip fractures continue to be adjudicated among MRC participants (Tables 2.8-2.9). Nearly 45% (n = 71,848) women have reported a fracture during WHI follow-up, including 38,161 osteoporotic fractures and 10,253 hip fractures specifically.

For much of Extension Study II (2010-Present), the number of non-death WHI outcomes has remained relatively constant over time, with reduced numbers of events more recently as the number of participants in active follow-up has decreased (Table 2.10). Deaths have increased year over year until recently, with lower numbers of deaths reported since 2020.

Self-reported outcomes in WHI capture a wide range of age-related conditions (Tables 2.11-2.12). Hypertension (n = 65,160, 40.3%), osteoarthritis (n = 55,379, 34.2%), and cataracts (n = 48,674, 30.1%), are most common among the conditions reported. Nearly 25% of women (n=28,654) participating in the extension studies reported a new diagnosis of dementia since 2005, when self-reported data on dementia was first collected, with higher rates of dementia with increasing age. More than 75% of newly diagnosed dementia cases occurred in women aged 80 or older, with age-specific annualized rates of dementia ranging from 2 to 7% for these older women.

III. Aging Indicators

Indicators of aging were assessed at the beginning of Extension Study II (2010-Present), forming a new baseline for comparison on the 93,567 women who consented to this second extension (Table 3.1). Assessed approximately 13 years later in the remaining cohort (n=34,086), using the same instruments, we see clear evidence of the decline in their health status, activities of daily living, independence, and quality of life (Table 3.2). Figures 3.1-3.2 provide visual displays demonstrating both cohort effects (by age in 2010) and the changes over 13 years in physical function (Figure 3.1) and activities of daily living (Figure 3.2).

IV. Long Life Study

In 2012-13, the WHI Long Life Study (LLS) enrolled 7,875 women in the MRC who took part in a home visit where physical frailty measures and a blood sample were collected (Table 4.1). There are currently 3498 original LLS participants who continue to be actively followed (Table 4.2). Verified outcomes occurring after the LLS visit are presented by age at LLS study visit (Table 4.4) and race and ethnicity (Table 4.3). Since the LLS visit, 2627 LLS participants have had verified cardiovascular outcomes, 1115 have had a verified cancer, and 3919 have died. Self-reported events in this cohort have also been tabulated (Tables 4.5 and 4.6).

V. Long Life Study 2

During 2022-24, the Long Life Study 2 (LLS2) repeated the LLS visit among surviving members of the LLS cohort, cancer survivors from the Life and Longevity After Cancer (LILAC) ancillary study cohort, and a subset of participants from the MRC. At time of recruitment, there were 4172 LLS participants eligible for consent into LLS2, of whom 53.1% (n=2214) consented to participate in a second home visit (Table 5.1). Additionally, 2655 LILAC participants and 2639 MRC participants consented to a home visit. Consent and visit completion rates, along with age, race, and ethnicity have been summarized for each subcohort (Table 5.1). Of the 7508 participants who consented to participate in LLS2, 5905 completed a home visit and 93% of these visits had a successful blood draw. Participant characteristics and frailty measures for participants with completed visits have been summarized by race and ethnicity

(Table 5.2) and by funding source (Table 5.3). Complete blood count (CBC) and biomarker results from LLS2 blood draws are similarly reported (Tables 5.4-5.5).

Several ancillary studies, including the WHISH trial, the LILAC cancer survivorship cohort (PIs: Garnet Anderson, Bette Caan, Electra Paskett), MsLILAC (PI: Hailey Banack), OPACH2 (PIs: Michael LaMonte and Andrea LaCroix), and an eye exam (PI: Emily Gower) will leverage these in-person visits for additional knowledge generation on aging related themes.

VI. Medicare Data

WHI has received access to Medicare claims data for WHI participants from the Centers for Medicare and Medicaid Statistics (CMS) since 2008. WHI currently has Medicare data available from 1991-2022 for Medicare Fee-For-service (FFS) components (Part A and Part B) and from 2006-2022 for Medicare supplemental drug coverage (Part D). During 1991-2022, approximately 146,000 WHI participants were enrolled in Medicare at some point after their enrollment in WHI, with 122,622 participants enrolled in Medicare FFS and 110,149 enrolled in Medicare Part D. Figure 6.1 provides CMS enrollment numbers for WHI participants by year, overall and restricted to participants with active WHI participation. At the start of 2005, almost 80,000 WHI participants were enrolled in Medicare FFS and 75% of those participants maintained continuous enrollment for at least ten years (until the end of 2014) or until their death. Continuous enrollment rates are similarly high for intervals starting in 2010 and 2015 (Table 6.1).

Medicare data is available for analysis by analysts within the WHI Clinical Coordinating Center (WHI-CCC) and more broadly by WHI investigators through the WHI Virtual Data Enclave (VDE).

VII. Data on Cancer Treatment for LILAC Participants

The WHI Life and Longevity After Cancer (LILAC) study extends the original WHI studies to examine survivorship in women diagnosed with cancer during their participation in WHI. WHI participants with one of eight selected cancers (breast, colorectal, endometrial, ovarian (including fallopian tube and primary peritoneal cancers), lung, melanoma, non-Hodgkin lymphoma, and leukemia) were eligible to participate in LILAC if the LILAC-designated cancer was the first centrally adjudicated invasive cancer during WHI follow-up and the participant had no self-reported history of cancer at WHI baseline. Cancer survivors who were still alive and participating in the second extension study were contacted for their consent to participate in LILAC. Deceased women were enrolled under a partial waiver of consent. A small number of women had multiple LILAC-designated cancers diagnosed on the same date, and cancer treatment information was collected for all diagnoses.

LILAC has enrolled 16,866 WHI participants into this cancer survivorship cohort. As part of this effort, detailed cancer treatment information is being assembled using medical record abstraction and data from Medicare claims. Of participants with documentation available about treatment received, 77% received cancer-directed surgery, 37% received chemotherapy therapy, and 39% received radiation therapy. Cancer treatment by cancer site and participant characteristics have also been tabulated (Table 7.1).

VIII. National Virtual Pooled Registry

As of June 2023, new cancer cases reported in the SRC are no longer being sent for adjudication although adjudication of cancers in the MRC continues. WHI continues the process of applying for and receiving data from individual cancer registries through the National Virtual Pooled Registry Cancer Linkage System (VPR-CLS). Phase I of this process, which involved applying to use VPR-CLS to link with individual registries and receive aggregate match counts was completed in April 2020 with 48,334

high-quality matches identified. WHI is currently in Phase II, applying to individual registries (and their IRBs) for release of individual level data identified in Phase I. As of February 15, 2025, WHI has received data from 33 registries, containing 40,256 cancer records, with approvals in place for an additional 4 registries, approval paperwork in progress for 4 registries, and 1 registry pending a Phase II application (Table 8.1).

In addition to ongoing efforts to obtain approvals and receive registry data, WHI has begun the process of evaluating the quality of data from these registries and comparing registry records to the WHI adjudicated cancer outcomes. Of the VPR records currently received, 77% ($n = 31,126$) of diagnoses occurred while participant was under active WHI follow-up and 70% ($n = 28,337$) were first occurrences of a WHI outcome during follow-up within the VPR data (Figure 8.1). Additional VPR cancer records with diagnosis dates before WHI enrollment ($n = 3229$) or after WHI follow-up ended ($n = 5889$) may provide an opportunity to supplement existing WHI cancer data. Full comparison between the VPR data and the WHI cancer data will be possible once WHI has received data from all cancer registries.

IX. Other Program Activities

The WHI program leadership recognizes the importance of drawing in new investigators to use the rich WHI resources, while also providing leadership and growth opportunities for current WHI investigators. The WHI Scientific Interest Groups (SIGs) provide an ongoing opportunity for new investigators to gain an understanding of WHI resources and move towards proposing ancillary studies and manuscripts. In a recent (March 2024) NHLBI-sponsored workshop focused on the WHI and NuMom2B Heart Health Study cohorts, five WHI mentors (Marcia Stefanick, Mike LaMonte, Nora Franceschini, Bernhard Haring, and Lesley Tinker) mentored 15 early-career scholars with the goal of submitting a WHI paper proposal. At time of publication of this report, seven have an approved proposal with another proposal currently under review. An in-person meeting for WHI investigators was held in May 2024 in Chicago, Illinois. The next in-person meeting is planned for May 2025 in Seattle, Washington.

An effort to update WHI's annual 'Activities of Daily Life' questionnaires (Forms 151A/B) was undertaken in 2024, with focus on maintaining the longitudinal usefulness of the WHI data resource while also incorporating items of relevance in WHI's aging cohort. The outcome of this effort was a new shorter annual 'Activities of Daily Life' questionnaire (Form 160) combined with a yearly Supplemental questionnaire (Form 161 in 2025, Form 162 in 2026, etc.) to allow for incorporating new questions each year. WHI began mailing these new questionnaires in March 2025.

A full listing and status of all proposed ancillary studies and manuscripts is available on the WHI website (www.whi.org). In total, 4,644 manuscript proposals have been approved and 2,474 are published or in press, including 103 publications since last year's report. Investigators using WHI data continue to present high-quality science of broad interest, with publications in the last year in many high-impact journals such as *Journal of the American Medical Association*, *Journal of Clinical Oncology*, *Journal of the American Heart Association*, *American Journal of Epidemiology*, *Cancer*, and *Cancer Epidemiology, Biomarkers and Prevention*. In addition to manuscripts addressing cardiovascular disease and cancer among WHI participants, a substantial number examine diabetes, genetics, and aging. WHI also participates in several consortia, reflecting the collaborative nature of the WHI investigators and the value of WHI data, particularly for rarer exposures and outcomes.

The cohort serves as the backbone for ancillary studies, including 6 studies funded in the last year. Many studies make use of our biorepository, which currently contains approximately 4.25 million samples of serum, plasma, buffy coat, DNA, RNA, and urine. The WHI Strong and Healthy (WHISH) trial (PIs: Marcia Stefanick, Charles Kooperberg, Andrea LaCroix), which explores the effects of physical activity

on cardiovascular conditions, ended its intervention in December 2024; papers from this study are in progress with publications of primary results expected in 2025. An ancillary study looking at the relationship between radon exposure and stroke (WHI Risk It? Study, PI: Eric Whitsel) is in the data collection phase, with home radon kits mailed to approximately 1,000 WHI participants. A newly funded study (AS729, PI: Matthew Nudy) will examine screening mammograms from early in WHI to determine the presence of breast arterial calcification using both radiologist assessment and machine-learning tools.

Harmonized GWAS data are available in dbGaP for approximately 30,000 WHI participants using several approaches, including our participation in the TOPMed program that can be linked to CVD biomarker data, providing an opportunity for outside investigators to use these resources independent of the WHI program. WHI data, including LILAC cancer survivorship data, is also regularly submitted to the NHLBI's BIOLINCC data repository.

Table 1.1
WHI Centers and Principal Investigators

Clinical Coordinating Center

Principal Investigator	Institution	Location
Garnet Anderson, PhD	Fred Hutchinson Cancer Center	Seattle, WA

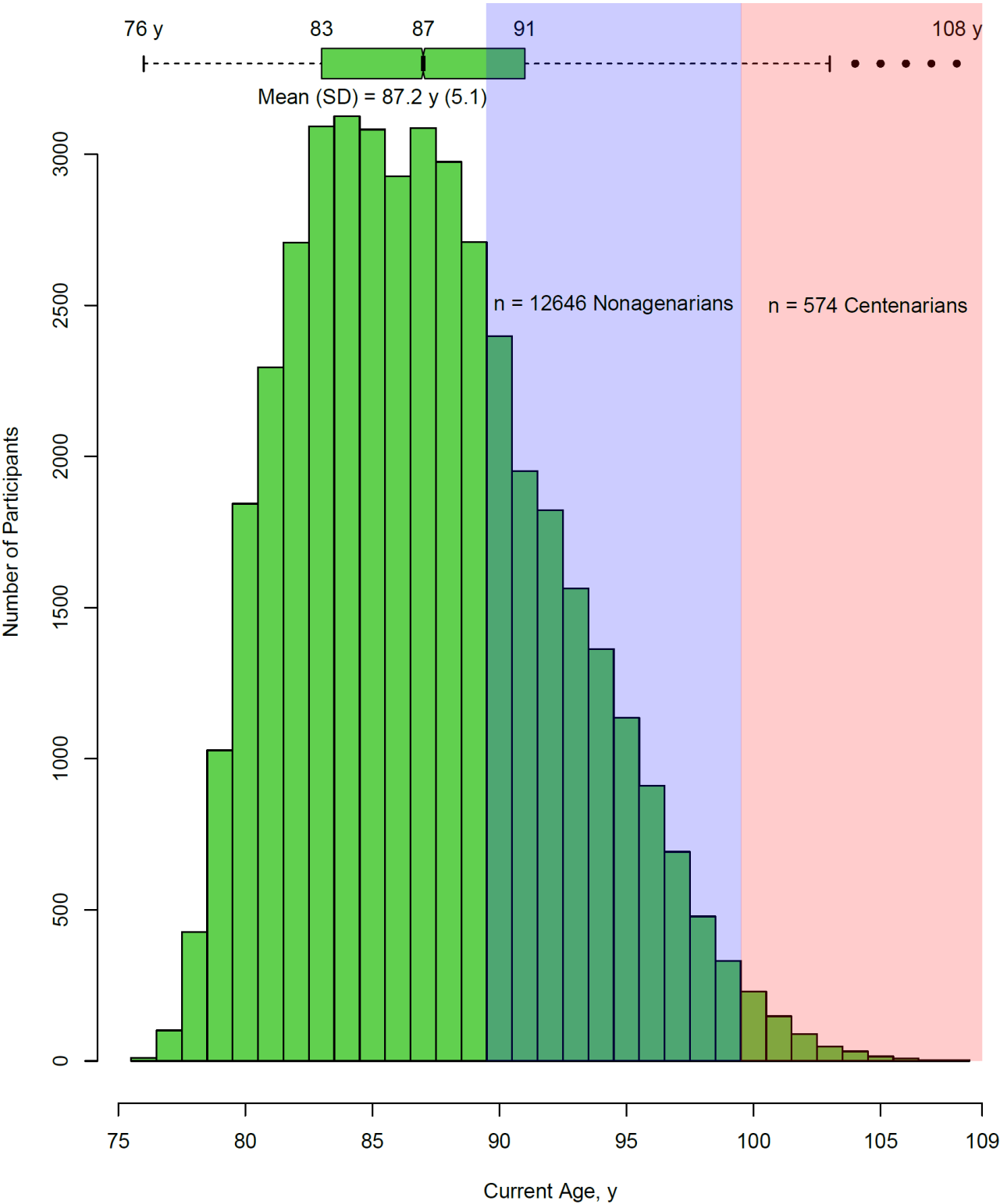
Regional Centers

Principal Investigator	Institution	Location
Electra Paskett, PhD	Ohio State University	Columbus, OH
Mara Vitolins, DrPH	Wake Forest University	Winston-Salem/Greensboro, NC
Marcia Stefanick, PhD	Stanford University	Stanford, CA
Jean Wactawski-Wende, PhD	University at Buffalo	Buffalo, NY
Associated Center		
JoAnn Manson, MD DrPH	Brigham and Women's Hospital	Boston, MA

Current WHI Committee Chairs

Investigator	Institution	Committee
Yasmin Mossavar-Rahmani, PhD	Albert Einstein College of Medicine	Chair of SIG Chairs
Nora Franceschini, MD MPH	University of North Carolina at Chapel Hill	Ancillary Studies (ASC)
Brian Silver, MD	University of Massachusetts	Outcomes Adjudications (OAC)
Charles Kooperberg, PhD	Fred Hutchinson Cancer Center	Performance Monitoring (PMC)
Amy Millen, PhD	University at Buffalo	Publications and Presentations (P&P)
Gretchen Wells, MD PhD	University of Alabama at Birmingham	Publications and Presentations (P&P)
Marian Neuhaus, PhD RD	Fred Hutchinson Cancer Center	Steering Committee (SC)

Figure 1.1
Distribution of Current Age for Participants in Active¹ Follow-Up (N = 42,630)
Data as of February 15, 2025



¹ Active participation is defined as current (Form 33 within 15 months) or recent (Form 33 between 15 and 24 months ago) follow-up.

Table 1.2
Composition of WHI Cohort over Time

Data as of: February 15, 2025

	Enrolled in WHI (N=161,808)		Active ¹ Participation as of 2/15/2025 (N=42,630)	
	N	Mean (SD) or %	N	Mean (SD) or %
Age²	161808	63.2 (7.2)	42630	87.2 (5.1)
50-54	21569	13.3		
55-59	31990	19.8		
60-64	37210	23.0		
65-69	35379	21.9		
70-74	24906	15.4		
75-79	10754	6.6	1566	3.7
80-84			13064	30.6
85-89			14780	34.7
90-94			9098	21.3
95-108			4122	9.7
Ethnicity				
Not Hispanic/Latina	153117	94.6	40967	96.1
Hispanic/Latina	7312	4.5	1564	3.7
Other/Not Reported	1379	0.9	99	0.2
Race				
American Indian/Alaska Native	540	0.3	89	0.2
Asian	4025	2.5	998	2.3
Native Hawaiian/Pacific Islander	137	0.1	29	0.1
Black/African American	14327	8.9	2834	6.6
White	137628	85.1	37711	88.5
More than one Race	1880	1.2	516	1.2
Other/Not Reported	3271	2.0	453	1.1
Education³				
0-8 years	2665	1.7	195	0.5
Some high school	5979	3.7	651	1.5
High school diploma/GED	27624	17.2	5552	13.1
School after high school	60909	37.9	14597	34.5
College degree or higher	63415	39.5	21336	50.4
Income³				
< \$10,000	6937	4.6	616	1.5
\$10,000 – \$19,999	18499	12.3	2238	5.5
\$20,000 – \$34,999	36665	24.3	6869	16.9
\$35,000 – \$49,999	30912	20.5	8197	20.2
\$50,000 – \$74,999	29948	19.8	10303	25.4
\$75,000 +	27973	18.5	12410	30.5
Study Component				
Clinical Trial	68132	42.1	18988	44.5
Observational Study	93676	57.9	23642	55.5
Medical Records Super Cohort	44174	27.3	9688	22.7
Self-Report Super Cohort	117634	72.7	32942	77.3

¹ Active participation is defined as current (Form 33 within 15 months) or recent (Form 33 between 15 and 24 months ago) follow-up.

² Age at WHI Enrollment, and on 02/15/2025.

³ Education and income reported at baseline.

Table 1.3
Participation and Vital Status of WHI Participants by Cohort

Data as of: February 15, 2025

	Total (N=161,808)		CT (N = 68,132)		OS (N = 93,676)		MRC Super Cohort¹ (N=44,174)		SRC Super Cohort² (N=117,634)	
	N	%	N	%	N	%	N	%	N	%
Participation/Vital Status										
Deceased ³	95909	59.3	39547	58	56362	60.2	25906	58.6	70003	59.5
Alive: Current Participation ⁴	40692	25.1	18056	26.5	22636	24.2	9154	20.7	31538	26.8
Alive: Recent Participation ⁵	1938	1.2	932	1.4	1006	1.1	534	1.2	1404	1.2
Stopped Follow-Up ⁶	2733	1.7	1305	1.9	1428	1.5	885	2.0	1848	1.6
Lost to Follow-Up ⁷	2140	1.3	1007	1.5	1133	1.2	773	1.7	1367	1.2
Did not consent to the WHI Extension Studies and not known to be deceased	18396	11.4	7285	10.7	11111	11.9	6922	15.7	11474	9.8

¹ The MRC Super Cohort includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS.

² The SRC Super Cohort includes all Non-Hispanic White, American Indian/Alaska Native, Asian/Pacific Islander, and Unknown race/ethnicity participants (identified from race/ethnicity collected on Form 2 at baseline) from the Dietary Modification Trial (not also in the Hormone Trial) and the Observational Study.

³ Includes deaths for non-Extension study participants after the main WHI study close-out.

⁴ Extension Study II (2010-Present) participants who have filled in a Form 33 within the last 15 months.

⁵ Extension Study II (2010-Present) participants who last filled in a Form 33 between 15 and 24 months ago.

⁶ Extension Study II (2010-Present) participants with codes 5 (no follow-up) or 8 (absolutely no follow-up) on Form 7 or 9.

⁷ Extension Study II (2010-Present) participants not in any of the above categories.

Table 1.4
Response Rates to CCC Annual Mailings and Regional Center (RC) Follow-up in 2024 by Cohort and Regional Center

Data as of: February 15, 2025

Cohort	Form ¹	Eligible for Form Collection	1st Mailing Period			2nd Mailing Period			Mail Response %	RC Follow-up			Total Response %
			Sent Mail 1	Response N	%	Sent Mail 2	Response N	%		Eligible	Response N	%	
Total	33	50407	43408	28198	65.0	10366	2394	23.1	70.5	11877	6300	53.0	73.2
	151A	43735	38345	25226	65.8	9240	2246	24.3	71.6	9752	90	0.9	63.0
Medical Record Cohort²	33	12014	9795	5584	57.0	2860	578	20.2	62.9	3483	2035	58.4	68.2
	151A	10376	8573	5017	58.5	2452	543	22.1	64.9	2899	36	1.2	53.9
Self-Report Cohort³	33	38393	33613	22614	67.3	7506	1816	24.2	72.7	8394	4265	50.8	74.8
	151A	33359	29772	20209	67.9	6788	1703	25.1	73.6	6853	54	0.8	65.9
Regional Center⁴													
Boston	33	3375	2924	1999	68.4	734	177	24.1	74.4	741	421	56.8	77.1
	151A	2688	2404	1677	69.8	584	146	25.0	75.8	542	7	1.3	68.1
Buffalo	33	10213	8661	5589	64.5	2335	550	23.6	70.9	2544	1423	55.9	74.1
	151A	8158	7109	4684	65.9	1873	467	24.9	72.5	1872	23	1.2	63.4
Columbus	33	12793	11251	7475	66.4	2489	547	22.0	71.3	2606	1406	54.0	73.7
	151A	11579	10189	6817	66.9	2336	538	23.0	72.2	2372	6	0.3	63.6
Seattle	33	6761	5798	3495	60.3	1419	300	21.1	65.5	1818	1084	59.6	72.2
	151A	5987	5194	3189	61.4	1305	297	22.8	67.1	1551	47	3.0	59.0
Stanford	33	11915	10087	6905	68.5	2093	526	25.1	73.7	2760	1125	40.8	71.9
	151A	10465	9161	6319	69.0	1948	513	26.3	74.6	2127	5	0.2	65.4
Wake Forest	33	5350	4687	2735	58.4	1296	294	22.7	64.6	1408	841	59.7	72.4
	151A	4858	4288	2540	59.2	1194	285	23.9	65.9	1288	2	0.2	58.2

¹ Form 33 = Medical History Update; Form 151A: Activities of Daily Life.

² The MRC includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS who consented to WHI Extension Study II (2010-Present).

³ The SRC includes all Non-Hispanic White, American Indian/Alaska Native, Asian/Pacific Islander, and Unknown race/ethnicity participants (identified from race/ethnicity collected on Form 2 at baseline) from the Dietary Modification Trial (not also in the Hormone Trial) and the Observational Study who consented to WHI Extension Study II (2010-Present).

⁴ Regional Center is determined based on the participant's responsible clinic at the start of the mailing window (2 months prior to the participant's mailing anniversary).

Table 2.1
Cause of Death¹ (Annualized Percentages) by Cohort

Data as of: February 15, 2025

	Total	CT	OS	MRC Super Cohort ²	SRC Super Cohort ³
Number of participants	161808	68132	93676	44174	117634
Mean person years	22.0	22.5	21.6	21.9	22.0
Total death	95909 (2.70%)	39547 (2.58%)	56362 (2.78%)	25906 (2.68%)	70003 (2.70%)
Adjudicated death	92581 (2.60%)	38204 (2.50%)	54377 (2.68%)	25313 (2.62%)	67268 (2.60%)
Centrally adjudicated death	19037 (0.54%)	13458 (0.88%)	5579 (0.28%)	11617 (1.20%)	7420 (0.29%)
Locally adjudicated death (final)	5417 (0.15%)	1 (<0.01%)	5416 (0.27%)	690 (0.07%)	4727 (0.18%)
Identified only by NDI search	68127 (1.91%)	24745 (1.62%)	43382 (2.14%)	13006 (1.34%)	55121 (2.13%)
Not yet adjudicated	573 (0.02%)	471 (0.03%)	102 (0.01%)	573 (0.06%)	0 (0.00%)
Form 120 death ⁴	2755 (0.08%)	872 (0.06%)	1883 (0.09%)	20 (<0.01%)	2735 (0.11%)
Cardiovascular					
Atherosclerotic cardiac	11437 (0.32%)	4843 (0.32%)	6594 (0.33%)	3485 (0.36%)	7952 (0.31%)
Cerebrovascular	7333 (0.21%)	3048 (0.20%)	4285 (0.21%)	2135 (0.22%)	5198 (0.20%)
Pulmonary embolism	385 (0.01%)	187 (0.01%)	198 (0.01%)	137 (0.01%)	248 (0.01%)
Other cardiovascular	11207 (0.31%)	4578 (0.30%)	6629 (0.33%)	2881 (0.30%)	8326 (0.32%)
Unknown cardiovascular	132 (<0.01%)	29 (<0.01%)	103 (0.01%)	31 (<0.01%)	101 (<0.01%)
Total cardiovascular deaths	30494 (0.86%)	12685 (0.83%)	17809 (0.88%)	8669 (0.90%)	21825 (0.84%)
Cancer					
Brain	501 (0.01%)	213 (0.01%)	288 (0.01%)	101 (0.01%)	400 (0.02%)
Breast	2408 (0.07%)	817 (0.05%)	1591 (0.08%)	595 (0.06%)	1813 (0.07%)
Colorectum	1672 (0.05%)	722 (0.05%)	950 (0.05%)	501 (0.05%)	1171 (0.05%)
Endometrium	342 (0.01%)	144 (0.01%)	198 (0.01%)	71 (0.01%)	271 (0.01%)
Leukemia	941 (0.03%)	403 (0.03%)	538 (0.03%)	224 (0.02%)	717 (0.03%)
Lung	4307 (0.12%)	1884 (0.12%)	2423 (0.12%)	1272 (0.13%)	3035 (0.12%)
Lymphoma, non-Hodgkins	1000 (0.03%)	397 (0.03%)	603 (0.03%)	229 (0.02%)	771 (0.03%)
Melanoma	235 (0.01%)	103 (0.01%)	132 (0.01%)	58 (0.01%)	177 (0.01%)
Multiple myeloma	612 (0.02%)	266 (0.02%)	346 (0.02%)	199 (0.02%)	413 (0.02%)
Ovary	1219 (0.03%)	482 (0.03%)	737 (0.04%)	264 (0.03%)	955 (0.04%)
Pancreas	1858 (0.05%)	809 (0.05%)	1049 (0.05%)	521 (0.05%)	1337 (0.05%)
Uterus	226 (0.01%)	100 (0.01%)	126 (0.01%)	66 (0.01%)	160 (0.01%)
Other cancer site	3890 (0.11%)	1639 (0.11%)	2251 (0.11%)	1036 (0.11%)	2854 (0.11%)
Unknown cancer site	889 (0.02%)	371 (0.02%)	518 (0.03%)	217 (0.02%)	672 (0.03%)
Total cancer deaths	20100 (0.56%)	8350 (0.55%)	11750 (0.58%)	5354 (0.55%)	14746 (0.57%)

¹ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

² The MRC Super Cohort includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS.

³ The SRC Super Cohort includes all Non-Hispanic White, American Indian/Alaska Native, Asian/Pacific Islander, and Unknown Race/Ethnicity participants (identified from race/ethnicity collected on Form 2 at baseline) from the Dietary Modification Trial (not also in the Hormone Trial) and the Observational Study.

⁴ Includes SRC participants and discovered deaths among non-Extension Study II (2010-Present) participants that occurred during Extension Study II (2010-Present).

Table 2.1 (continued)
Cause of Death¹ (Annualized Percentages) by Cohort

Data as of: February 15, 2025

	Total	CT	OS	MRC Super Cohort²	SRC Super Cohort³
Number of participants	161808	68132	93676	44174	117634
Mean person years	22.0	22.5	21.6	21.9	22.0
Accident/injury					
Homicide	36 (<0.01%)	15 (<0.01%)	21 (<0.01%)	17 (<0.01%)	19 (<0.01%)
Accident	2297 (0.06%)	929 (0.06%)	1368 (0.07%)	552 (0.06%)	1745 (0.07%)
Suicide	85 (<0.01%)	27 (<0.01%)	58 (<0.01%)	18 (<0.01%)	67 (<0.01%)
Other injury	65 (<0.01%)	32 (<0.01%)	33 (<0.01%)	32 (<0.01%)	33 (<0.01%)
Total accident/injury deaths	2483 (0.07%)	1003 (0.07%)	1480 (0.07%)	619 (0.06%)	1864 (0.07%)
Other					
Alzheimer's disease	7238 (0.20%)	2864 (0.19%)	4374 (0.22%)	1786 (0.18%)	5452 (0.21%)
Dementia, not Alzheimer's	7095 (0.20%)	2902 (0.19%)	4193 (0.21%)	1868 (0.19%)	5227 (0.20%)
COPD	3568 (0.10%)	1513 (0.10%)	2055 (0.10%)	953 (0.10%)	2615 (0.10%)
Pneumonia	2067 (0.06%)	896 (0.06%)	1171 (0.06%)	637 (0.07%)	1430 (0.06%)
Pulmonary fibrosis	925 (0.03%)	426 (0.03%)	499 (0.02%)	252 (0.03%)	673 (0.03%)
Renal failure	1638 (0.05%)	703 (0.05%)	935 (0.05%)	603 (0.06%)	1035 (0.04%)
Sepsis	2038 (0.06%)	896 (0.06%)	1142 (0.06%)	673 (0.07%)	1365 (0.05%)
Amyotrophic lateral sclerosis	314 (0.01%)	120 (0.01%)	194 (0.01%)	54 (0.01%)	260 (0.01%)
Parkinson's	1428 (0.04%)	561 (0.04%)	867 (0.04%)	313 (0.03%)	1115 (0.04%)
Hepatic cirrhosis	389 (0.01%)	175 (0.01%)	214 (0.01%)	129 (0.01%)	260 (0.01%)
COVID-19	206 (0.01%)	151 (0.01%)	55 (<0.01%)	162 (0.02%)	44 (<0.01%)
Other known cause	13047 (0.37%)	5057 (0.33%)	7990 (0.39%)	3104 (0.32%)	9943 (0.38%)
Unknown cause	2306 (0.06%)	774 (0.05%)	1532 (0.08%)	157 (0.02%)	2149 (0.08%)
Total other cause deaths	42259 (1.19%)	17038 (1.11%)	25221 (1.24%)	10691 (1.11%)	31568 (1.22%)

¹ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

² The MRC Super Cohort includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS.

³ The SRC Super Cohort includes all Non-Hispanic White, American Indian/Alaska Native, Asian/Pacific Islander, and Unknown Race/Ethnicity participants (identified from race/ethnicity collected on Form 2 at baseline) from the Dietary Modification Trial (not also in the Hormone Trial) and the Observational Study.

Table 2.2
Cause of Death¹ (Annualized Percentages) by Race/Ethnicity
 Data as of: February 15, 2025

	Total	Race/Ethnicity							
		American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ²	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported	
Number of participants	161808	487	4084	7312	14167	133328	1669	761	
Mean person years	22.0	20.2	23.1	23.4	21.7	21.9	22.9	19.8	
Total death	95909 (2.70%)	305 (3.09%)	1915 (2.03%)	3282 (1.92%)	7950 (2.58%)	81061 (2.77%)	936 (2.44%)	460 (3.06%)	
Adjudicated death	92581 (2.60%)	299 (3.03%)	1857 (1.97%)	3195 (1.87%)	7789 (2.53%)	78096 (2.67%)	893 (2.33%)	452 (3.00%)	
Centrally adjudicated death	19037 (0.54%)	48 (0.49%)	199 (0.21%)	855 (0.50%)	2588 (0.84%)	15070 (0.52%)	198 (0.52%)	79 (0.53%)	
Locally adjudicated death (final)	5417 (0.15%)	45 (0.46%)	112 (0.12%)	161 (0.09%)	532 (0.17%)	4505 (0.15%)	6 (0.02%)	56 (0.37%)	
Identified only by NDI search	68127 (1.91%)	206 (2.09%)	1546 (1.64%)	2179 (1.27%)	4669 (1.52%)	58521 (2.00%)	689 (1.80%)	317 (2.11%)	
Not yet adjudicated	573 (0.02%)	3 (0.03%)	10 (0.01%)	60 (0.04%)	150 (0.05%)	334 (0.01%)	12 (0.03%)	4 (0.03%)	
Form 120 death ³	2755 (0.08%)	3 (0.03%)	48 (0.05%)	27 (0.02%)	11 (<0.01%)	2631 (0.09%)	31 (0.08%)	4 (0.03%)	
Cardiovascular									
Atherosclerotic cardiac	11437 (0.32%)	46 (0.47%)	209 (0.22%)	373 (0.22%)	1200 (0.39%)	9409 (0.32%)	123 (0.32%)	77 (0.51%)	
Cerebrovascular	7333 (0.21%)	20 (0.20%)	166 (0.18%)	277 (0.16%)	674 (0.22%)	6099 (0.21%)	63 (0.16%)	34 (0.23%)	
Pulmonary embolism	385 (0.01%)	2 (0.02%)	2 (<0.01%)	11 (0.01%)	51 (0.02%)	313 (0.01%)	5 (0.01%)	1 (0.01%)	
Other cardiovascular	11207 (0.31%)	24 (0.24%)	200 (0.21%)	306 (0.18%)	888 (0.29%)	9637 (0.33%)	107 (0.28%)	45 (0.30%)	
Unknown cardiovascular	132 (<0.01%)	0 (0.00%)	4 (<0.01%)	1 (<0.01%)	19 (0.01%)	104 (<0.01%)	1 (<0.01%)	3 (0.02%)	
Total cardiovascular deaths	30494 (0.86%)	92 (0.93%)	581 (0.62%)	968 (0.57%)	2832 (0.92%)	25562 (0.87%)	299 (0.78%)	160 (1.06%)	
Cancer									
Brain	501 (0.01%)	1 (0.01%)	7 (0.01%)	13 (0.01%)	21 (0.01%)	458 (0.02%)	0 (0.00%)	1 (0.01%)	
Breast	2408 (0.07%)	4 (0.04%)	42 (0.04%)	111 (0.06%)	244 (0.08%)	1971 (0.07%)	20 (0.05%)	16 (0.11%)	
Colorectum	1672 (0.05%)	9 (0.09%)	38 (0.04%)	59 (0.03%)	179 (0.06%)	1373 (0.05%)	10 (0.03%)	4 (0.03%)	
Endometrium	342 (0.01%)	0 (0.00%)	11 (0.01%)	10 (0.01%)	26 (0.01%)	294 (0.01%)	1 (<0.01%)	0 (0.00%)	
Leukemia	941 (0.03%)	2 (0.02%)	10 (0.01%)	23 (0.01%)	71 (0.02%)	820 (0.03%)	10 (0.03%)	5 (0.03%)	
Lung cancer	4307 (0.12%)	11 (0.11%)	81 (0.09%)	107 (0.06%)	360 (0.12%)	3675 (0.13%)	53 (0.14%)	20 (0.13%)	
Lymphoma, non-Hodgkin's	1000 (0.03%)	1 (0.01%)	25 (0.03%)	42 (0.02%)	56 (0.02%)	863 (0.03%)	4 (0.01%)	9 (0.06%)	
Melanoma	235 (0.01%)	0 (0.00%)	3 (<0.01%)	8 (<0.01%)	8 (<0.01%)	212 (0.01%)	4 (0.01%)	0 (0.00%)	
Multiple myeloma	612 (0.02%)	3 (0.03%)	5 (0.01%)	26 (0.02%)	86 (0.03%)	481 (0.02%)	6 (0.02%)	5 (0.03%)	
Ovary	1219 (0.03%)	3 (0.03%)	14 (0.01%)	40 (0.02%)	78 (0.03%)	1062 (0.04%)	10 (0.03%)	12 (0.08%)	

¹ Includes deaths for non-Extension Study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

² Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

³ Includes SRC Cohort participants and discovered deaths among non-Extension Study II (2010-Present) participants that occurred during Extension Study II (2010-Present).

Table 2.2 (continued)
Cause of Death¹ (Annualized Percentages) by Race/Ethnicity
 Data as of: February 15, 2025

		Race/Ethnicity								
	Total	American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ²	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported		
Number of participants	161808	487	4084	7312	14167	133328	1669	761		
Mean person years	22.0	20.2	23.1	23.4	21.7	21.9	22.9	19.8		
Cancer (continued)										
Pancreas	1858 (0.05%)	2 (0.02%)	65 (0.07%)	63 (0.04%)	183 (0.06%)	1517 (0.05%)	19 (0.05%)	9 (0.06%)		
Uterus	226 (0.01%)	2 (0.02%)	7 (0.01%)	8 (<0.01%)	29 (0.01%)	178 (0.01%)	2 (0.01%)	0 (0.00%)		
Other cancer site	3890 (0.11%)	17 (0.17%)	91 (0.10%)	164 (0.10%)	297 (0.10%)	3272 (0.11%)	30 (0.08%)	19 (0.13%)		
Unknown cancer site	889 (0.02%)	1 (0.01%)	23 (0.02%)	21 (0.01%)	73 (0.02%)	758 (0.03%)	6 (0.02%)	7 (0.05%)		
Total cancer deaths	20100 (0.56%)	56 (0.57%)	422 (0.45%)	695 (0.41%)	1711 (0.56%)	16934 (0.58%)	175 (0.46%)	107 (0.71%)		
Accident/injury										
Homicide	36 (<0.01%)	1 (0.01%)	0 (0.00%)	1 (<0.01%)	8 (<0.01%)	26 (<0.01%)	0 (0.00%)	0 (0.00%)		
Accident	2297 (0.06%)	10 (0.10%)	46 (0.05%)	84 (0.05%)	84 (0.03%)	2049 (0.07%)	16 (0.04%)	8 (0.05%)		
Suicide	85 (<0.01%)	0 (0.00%)	3 (<0.01%)	5 (<0.01%)	1 (<0.01%)	76 (<0.01%)	0 (0.00%)	0 (0.00%)		
Other injury	65 (<0.01%)	0 (0.00%)	1 (<0.01%)	6 (<0.01%)	2 (<0.01%)	55 (<0.01%)	1 (<0.01%)	0 (0.00%)		
Total accident/ injury deaths	2483 (0.07%)	11 (0.11%)	50 (0.05%)	96 (0.06%)	95 (0.03%)	2206 (0.08%)	17 (0.04%)	8 (0.05%)		
Other										
Alzheimer's disease	7238 (0.20%)	19 (0.19%)	154 (0.16%)	283 (0.17%)	456 (0.15%)	6242 (0.21%)	59 (0.15%)	25 (0.17%)		
Dementia, not Alzheimer's ¹	7095 (0.20%)	18 (0.18%)	173 (0.18%)	184 (0.11%)	486 (0.16%)	6129 (0.21%)	76 (0.20%)	29 (0.19%)		
COPD	3568 (0.10%)	13 (0.13%)	24 (0.03%)	78 (0.05%)	185 (0.06%)	3212 (0.11%)	41 (0.11%)	15 (0.10%)		
Pneumonia	2067 (0.06%)	9 (0.09%)	66 (0.07%)	71 (0.04%)	141 (0.05%)	1752 (0.06%)	16 (0.04%)	12 (0.08%)		
Pulmonary fibrosis	925 (0.03%)	1 (0.01%)	26 (0.03%)	53 (0.03%)	42 (0.01%)	789 (0.03%)	9 (0.02%)	5 (0.03%)		
Renal failure	1638 (0.05%)	15 (0.15%)	31 (0.03%)	85 (0.05%)	281 (0.09%)	1204 (0.04%)	17 (0.04%)	5 (0.03%)		
Sepsis	2038 (0.06%)	8 (0.08%)	19 (0.02%)	64 (0.04%)	238 (0.08%)	1665 (0.06%)	26 (0.07%)	18 (0.12%)		
Amyotrophic lateral sclerosis	314 (0.01%)	2 (0.02%)	3 (<0.01%)	5 (<0.01%)	23 (0.01%)	276 (0.01%)	5 (0.01%)	0 (0.00%)		
Parkinson's	1428 (0.04%)	4 (0.04%)	34 (0.04%)	50 (0.03%)	63 (0.02%)	1259 (0.04%)	12 (0.03%)	6 (0.04%)		
Hepatic cirrhosis	389 (0.01%)	5 (0.05%)	10 (0.01%)	45 (0.03%)	25 (0.01%)	299 (0.01%)	5 (0.01%)	0 (0.00%)		
COVID-19	206 (0.01%)	0 (0.00%)	2 (<0.01%)	21 (0.01%)	49 (0.02%)	132 (<0.01%)	2 (0.01%)	0 (0.00%)		
Other known cause	13047 (0.37%)	46 (0.47%)	264 (0.28%)	483 (0.28%)	1124 (0.36%)	10926 (0.37%)	141 (0.37%)	63 (0.42%)		
Unknown cause	2306 (0.06%)	3 (0.03%)	46 (0.05%)	41 (0.02%)	49 (0.02%)	2140 (0.07%)	24 (0.06%)	3 (0.02%)		
Total other cause deaths	42259 (1.19%)	143 (1.45%)	852 (0.90%)	1463 (0.86%)	3162 (1.03%)	36025 (1.23%)	433 (1.13%)	181 (1.20%)		

¹ Includes deaths for non-Extension Study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

² Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

Table 2.3
Cause of Death¹ (Age-Specific Annualized Percentages²) by Age at Death

Data as of: February 15, 2025

	Age at Death															
	50-59		60-64		65-69		70-74		75-79		80-84		85-89		≥90	
Number of participants ³	50947		87534		122004		144974		150804		134564		95044		48984	
Mean person years ³	4.3		3.9		4.2		4.5		4.6		4.3		3.8		4.0	
Total death	441	(0.20%)	1266	(0.37%)	2905	(0.56%)	6097	(0.93%)	11895	(1.70%)	18923	(3.26%)	24369	(6.78%)	30013	(15.47%)
Adjudicated death	441	(0.20%)	1265	(0.37%)	2902	(0.56%)	6071	(0.93%)	11788	(1.69%)	18456	(3.18%)	23480	(6.53%)	28178	(14.53%)
Centrally adjudicated death	171	(0.08%)	529	(0.15%)	1273	(0.25%)	2263	(0.35%)	3403	(0.49%)	4258	(0.73%)	3900	(1.09%)	3240	(1.67%)
Locally adjudicated death (final)	222	(0.10%)	482	(0.14%)	808	(0.16%)	1174	(0.18%)	1418	(0.20%)	1045	(0.18%)	268	(0.07%)	0	(0.00%)
Identified only by NDI search	48	(0.02%)	254	(0.07%)	821	(0.16%)	2634	(0.40%)	6967	(1.00%)	13153	(2.27%)	19312	(5.37%)	24938	(12.86%)
Not yet adjudicated	0	(0.00%)	0	(0.00%)	0	(0.00%)	2	(<0.01%)	18	(<0.01%)	76	(0.01%)	164	(0.05%)	313	(0.16%)
Form 120 death ⁴	0	(0.00%)	1	(<0.01%)	3	(<0.01%)	24	(<0.01%)	89	(0.01%)	391	(0.07%)	725	(0.20%)	1522	(0.78%)
Cardiovascular																
Atherosclerotic cardiac	51	(0.02%)	135	(0.04%)	328	(0.06%)	792	(0.12%)	1405	(0.20%)	2267	(0.39%)	2945	(0.82%)	3514	(1.81%)
Cerebrovascular	20	(0.01%)	50	(0.01%)	146	(0.03%)	364	(0.06%)	837	(0.12%)	1410	(0.24%)	2027	(0.56%)	2479	(1.28%)
Pulmonary embolism	3	(<0.01%)	13	(<0.01%)	22	(<0.01%)	46	(0.01%)	67	(0.01%)	88	(0.02%)	86	(0.02%)	60	(0.03%)
Other cardiovascular	21	(0.01%)	75	(0.02%)	170	(0.03%)	366	(0.06%)	959	(0.14%)	1835	(0.32%)	2951	(0.82%)	4830	(2.49%)
Unknown cardiovascular	3	(<0.01%)	11	(<0.01%)	16	(<0.01%)	21	(<0.01%)	24	(<0.01%)	38	(0.01%)	13	(<0.01%)	6	(<0.01%)
Total cardiovascular deaths	98	(0.05%)	284	(0.08%)	682	(0.13%)	1589	(0.24%)	3292	(0.47%)	5638	(0.97%)	8022	(2.23%)	10889	(5.61%)
Cancer																
Brain	12	(0.01%)	23	(0.01%)	55	(0.01%)	104	(0.02%)	109	(0.02%)	110	(0.02%)	60	(0.02%)	28	(0.01%)
Breast	59	(0.03%)	123	(0.04%)	226	(0.04%)	290	(0.04%)	460	(0.07%)	489	(0.08%)	432	(0.12%)	329	(0.17%)
Colorectum	16	(0.01%)	62	(0.02%)	118	(0.02%)	212	(0.03%)	289	(0.04%)	327	(0.06%)	355	(0.10%)	293	(0.15%)
Endometrium	3	(<0.01%)	12	(<0.01%)	30	(0.01%)	55	(0.01%)	69	(0.01%)	74	(0.01%)	64	(0.02%)	35	(0.02%)
Leukemia	7	(<0.01%)	22	(0.01%)	68	(0.01%)	111	(0.02%)	187	(0.03%)	200	(0.03%)	192	(0.05%)	154	(0.08%)
Lung cancer	46	(0.02%)	144	(0.04%)	353	(0.07%)	689	(0.11%)	973	(0.14%)	981	(0.17%)	694	(0.19%)	427	(0.22%)
Lymphoma, non-Hodgkin’s	6	(<0.01%)	25	(0.01%)	65	(0.01%)	115	(0.02%)	193	(0.03%)	240	(0.04%)	223	(0.06%)	133	(0.07%)
Melanoma	1	(<0.01%)	15	(<0.01%)	20	(<0.01%)	35	(0.01%)	42	(0.01%)	50	(0.01%)	51	(0.01%)	21	(0.01%)
Multiple myeloma	3	(<0.01%)	14	(<0.01%)	35	(0.01%)	78	(0.01%)	129	(0.02%)	157	(0.03%)	131	(0.04%)	65	(0.03%)

¹ Includes deaths for non-Extension Study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

² Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

³ Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

⁴ Includes SRC Cohort participants and discovered deaths among non-Extension Study II (2010-Present) participants that occurred during Extension Study II (2010-Present).

Table 2.3 (continued)
Cause of Death¹ (Age-Specific Annualized Percentages²) by Age at Death

Data as of: February 15, 2025

	Age at Death															
	50-59		60-64		65-69		70-74		75-79		80-84		85-89		≥90	
Number of participants ³	50947		87534		122004		144974		150804		134564		95044		48984	
Mean person years ³	4.3		3.9		4.2		4.5		4.6		4.3		3.8		4.0	
Cancer (continued)																
Ovary	22	(0.01%)	51	(0.01%)	118	(0.02%)	213	(0.03%)	276	(0.04%)	275	(0.05%)	172	(0.05%)	92	(0.05%)
Pancreas	19	(0.01%)	56	(0.02%)	125	(0.02%)	248	(0.04%)	376	(0.05%)	461	(0.08%)	361	(0.10%)	212	(0.11%)
Uterus	1	(<0.01%)	6	(<0.01%)	23	(<0.01%)	26	(<0.01%)	44	(0.01%)	57	(0.01%)	38	(0.01%)	31	(0.02%)
Other cancer site	36	(0.02%)	94	(0.03%)	261	(0.05%)	491	(0.08%)	773	(0.11%)	876	(0.15%)	782	(0.22%)	577	(0.30%)
Unknown cancer site	9	(<0.01%)	28	(0.01%)	50	(0.01%)	108	(0.02%)	146	(0.02%)	177	(0.03%)	213	(0.06%)	158	(0.08%)
Total cancer deaths	240	(0.11%)	675	(0.20%)	1547	(0.30%)	2775	(0.43%)	4066	(0.58%)	4474	(0.77%)	3768	(1.05%)	2555	(1.32%)
Accident/injury																
Homicide	1	(<0.01%)	5	(<0.01%)	8	(<0.01%)	4	(<0.01%)	7	(<0.01%)	3	(<0.01%)	8	(<0.01%)	0	(0.00%)
Accident	19	(0.01%)	48	(0.01%)	69	(0.01%)	123	(0.02%)	253	(0.04%)	471	(0.08%)	599	(0.17%)	715	(0.37%)
Suicide	11	(0.01%)	9	(<0.01%)	16	(<0.01%)	11	(<0.01%)	17	(<0.01%)	9	(<0.01%)	8	(<0.01%)	4	(<0.01%)
Other injury	0	(0.00%)	7	(<0.01%)	5	(<0.01%)	5	(<0.01%)	10	(<0.01%)	14	(<0.01%)	11	(<0.01%)	13	(0.01%)
Total accident/ injury deaths	31	(0.01%)	69	(0.02%)	98	(0.02%)	143	(0.02%)	287	(0.04%)	497	(0.09%)	626	(0.17%)	732	(0.38%)
Other																
Alzheimer's disease	0	(0.00%)	6	(<0.01%)	15	(<0.01%)	88	(0.01%)	473	(0.07%)	1340	(0.23%)	2243	(0.62%)	3073	(1.58%)
Dementia, not Alzheimer's	0	(0.00%)	3	(<0.01%)	15	(<0.01%)	89	(0.01%)	391	(0.06%)	1131	(0.20%)	2083	(0.58%)	3383	(1.74%)
COPD	1	(<0.01%)	27	(0.01%)	72	(0.01%)	226	(0.03%)	546	(0.08%)	808	(0.14%)	947	(0.26%)	941	(0.49%)
Pneumonia	3	(<0.01%)	11	(<0.01%)	48	(0.01%)	95	(0.01%)	239	(0.03%)	441	(0.08%)	583	(0.16%)	647	(0.33%)
Pulmonary fibrosis	5	(<0.01%)	10	(<0.01%)	23	(<0.01%)	68	(0.01%)	168	(0.02%)	209	(0.04%)	270	(0.08%)	172	(0.09%)
Renal failure	5	(<0.01%)	15	(<0.01%)	33	(0.01%)	85	(0.01%)	227	(0.03%)	343	(0.06%)	421	(0.12%)	509	(0.26%)
Sepsis	5	(<0.01%)	21	(0.01%)	59	(0.01%)	121	(0.02%)	287	(0.04%)	468	(0.08%)	556	(0.15%)	521	(0.27%)
Amyotrophic lateral sclerosis	0	(0.00%)	14	(<0.01%)	32	(0.01%)	59	(0.01%)	86	(0.01%)	83	(0.01%)	29	(0.01%)	11	(0.01%)
Parkinson's	1	(<0.01%)	1	(<0.01%)	13	(<0.01%)	46	(0.01%)	176	(0.03%)	370	(0.06%)	470	(0.13%)	351	(0.18%)
Hepatic cirrhosis	9	(<0.01%)	18	(0.01%)	27	(0.01%)	61	(0.01%)	88	(0.01%)	90	(0.02%)	67	(0.02%)	29	(0.01%)
COVID-19	0	(0.00%)	0	(0.00%)	0	(0.00%)	2	(<0.01%)	16	(<0.01%)	46	(0.01%)	58	(0.02%)	84	(0.04%)
Other known cause	41	(0.02%)	96	(0.03%)	221	(0.04%)	617	(0.09%)	1434	(0.21%)	2597	(0.45%)	3476	(0.97%)	4565	(2.35%)
Unknown cause	2	(<0.01%)	16	(<0.01%)	20	(<0.01%)	31	(<0.01%)	101	(0.01%)	312	(0.05%)	586	(0.16%)	1238	(0.64%)
Total other cause deaths	72	(0.03%)	238	(0.07%)	578	(0.11%)	1588	(0.24%)	4232	(0.61%)	8238	(1.42%)	11789	(3.28%)	15524	(8.00%)

¹ Includes deaths for non-Extension Study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

² Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

³ Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

Table 2.4
Verified Cancers¹ (Annualized Percentages) by Race/Ethnicity

Data as of: February 15, 2025

	Total	Race/Ethnicity						
		American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ²	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported
Number of participants	161808	487	4084	7312	14167	133328	1669	761
Mean person years	17.9	13.7	15.8	15.0	15.1	18.5	18.8	12.6
Total cancer	38434 (1.49%)	85 (1.38%)	666 (1.14%)	1024 (1.00%)	2505 (1.27%)	33676 (1.55%)	335 (1.19%)	143 (1.65%)
Accessory sinus	16 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	15 (<0.01%)	0 (0.00%)	0 (0.00%)
Adrenal gland	19 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	2 (<0.01%)	16 (<0.01%)	0 (0.00%)	0 (0.00%)
Anus	151 (0.01%)	0 (0.00%)	2 (<0.01%)	6 (0.01%)	14 (0.01%)	129 (0.01%)	0 (0.00%)	0 (0.00%)
Appendix	53 (<0.01%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	4 (<0.01%)	45 (<0.01%)	0 (0.00%)	1 (0.01%)
Base of tongue	41 (<0.01%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	38 (<0.01%)	0 (0.00%)	1 (0.01%)
Biliary tract, parts of	225 (0.01%)	1 (0.02%)	3 (<0.01%)	16 (0.01%)	17 (0.01%)	185 (0.01%)	2 (0.01%)	1 (0.01%)
Bladder	1223 (0.04%)	1 (0.02%)	11 (0.02%)	20 (0.02%)	75 (0.04%)	1102 (0.05%)	13 (0.04%)	1 (0.01%)
Bones/joints/articular cartilage (limbs)	13 (<0.01%)	1 (0.02%)	1 (<0.01%)	0 (0.00%)	0 (0.00%)	11 (<0.01%)	0 (0.00%)	0 (0.00%)
Bones/joints/articular cartilage (other)	31 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	29 (<0.01%)	1 (<0.01%)	1 (0.01%)
Brain	444 (0.02%)	1 (0.02%)	6 (0.01%)	7 (0.01%)	14 (0.01%)	415 (0.02%)	0 (0.00%)	1 (0.01%)
Breast	14632 (0.54%)	27 (0.42%)	291 (0.48%)	419 (0.40%)	1000 (0.49%)	12717 (0.55%)	133 (0.45%)	45 (0.50%)
Invasive breast	12320 (0.45%)	24 (0.38%)	232 (0.38%)	344 (0.32%)	807 (0.39%)	10759 (0.46%)	116 (0.39%)	38 (0.42%)
In situ breast	2598 (0.09%)	4 (0.06%)	63 (0.10%)	84 (0.08%)	221 (0.10%)	2198 (0.09%)	20 (0.06%)	8 (0.08%)
Central nervous system (excludes brain)	6 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	6 (<0.01%)	0 (0.00%)	0 (0.00%)
Cervix	148 (0.01%)	0 (0.00%)	2 (<0.01%)	6 (0.01%)	21 (0.01%)	118 (<0.01%)	1 (<0.01%)	0 (0.00%)
Colorectum	3800 (0.13%)	9 (0.14%)	64 (0.10%)	109 (0.10%)	317 (0.15%)	3255 (0.14%)	33 (0.11%)	13 (0.14%)
Connective/subcutaneous/ soft tissues	237 (0.01%)	0 (0.00%)	6 (0.01%)	5 (<0.01%)	10 (<0.01%)	210 (0.01%)	5 (0.02%)	1 (0.01%)
Endocrine glands, related structures	5 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	5 (<0.01%)	0 (0.00%)	0 (0.00%)
Endometrium ³	1969 (0.12%)	3 (0.09%)	26 (0.06%)	47 (0.08%)	98 (0.10%)	1781 (0.12%)	10 (0.06%)	4 (0.07%)
Esophagus	228 (0.01%)	1 (0.02%)	1 (<0.01%)	4 (<0.01%)	10 (<0.01%)	208 (0.01%)	3 (0.01%)	1 (0.01%)
Eye and adnexa	87 (<0.01%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)	82 (<0.01%)	2 (0.01%)	0 (0.00%)

¹ Cancers are no longer adjudicated for SRC participants after 6/15/2023; cancer follow-up time for SRC participants is censored as of 6/15/2023.

² Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

³ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 2.4 (continued)
Verified Cancers¹ (Annualized Percentages) by Race/Ethnicity

Data as of: February 15, 2025

		Race/Ethnicity						
		American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ²	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported
Number of participants	161808	487	4084	7312	14167	133328	1669	761
Mean person years	17.9	13.7	15.8	15.0	15.1	18.5	18.8	12.6
Floor of Mouth	21 (<0.01%)	0 (0.00%)	1 (<0.01%)	1 (<0.01%)	2 (<0.01%)	16 (<0.01%)	0 (0.00%)	1 (0.01%)
Gallbladder	171 (0.01%)	0 (0.00%)	1 (<0.01%)	10 (0.01%)	13 (0.01%)	145 (0.01%)	2 (0.01%)	0 (0.00%)
Genital organs	194 (0.01%)	0 (0.00%)	4 (0.01%)	6 (0.01%)	6 (<0.01%)	177 (0.01%)	0 (0.00%)	1 (0.01%)
Gum	57 (<0.01%)	0 (0.00%)	1 (<0.01%)	3 (<0.01%)	2 (<0.01%)	51 (<0.01%)	0 (0.00%)	0 (0.00%)
Heart	46 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	45 (<0.01%)	0 (0.00%)	0 (0.00%)
Kidney	870 (0.03%)	7 (0.11%)	14 (0.02%)	25 (0.02%)	70 (0.03%)	742 (0.03%)	8 (0.03%)	4 (0.04%)
Larynx	58 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	6 (<0.01%)	51 (<0.01%)	0 (0.00%)	0 (0.00%)
Leukemia	1391 (0.05%)	2 (0.03%)	18 (0.03%)	31 (0.03%)	75 (0.03%)	1243 (0.05%)	15 (0.05%)	7 (0.07%)
Liver	423 (0.01%)	4 (0.06%)	20 (0.03%)	23 (0.02%)	37 (0.02%)	332 (0.01%)	3 (0.01%)	4 (0.04%)
Lung	4818 (0.17%)	12 (0.18%)	69 (0.11%)	98 (0.09%)	328 (0.15%)	4244 (0.18%)	46 (0.15%)	21 (0.22%)
Lymph nodes	4 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (<0.01%)	0 (0.00%)	0 (0.00%)
Lymphoma, Hodgkin's	88 (<0.01%)	0 (0.00%)	1 (<0.01%)	9 (0.01%)	5 (<0.01%)	71 (<0.01%)	1 (<0.01%)	1 (0.01%)
Lymphoma, non-Hodgkin's	2101 (0.07%)	1 (0.02%)	42 (0.07%)	67 (0.06%)	77 (0.04%)	1896 (0.08%)	9 (0.03%)	9 (0.10%)
Melanoma of the skin	2988 (0.11%)	2 (0.03%)	7 (0.01%)	26 (0.02%)	9 (<0.01%)	2920 (0.12%)	18 (0.06%)	6 (0.06%)
Meninges	9 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	9 (<0.01%)	0 (0.00%)	0 (0.00%)
Multiple myeloma	747 (0.03%)	3 (0.05%)	5 (0.01%)	28 (0.03%)	94 (0.04%)	605 (0.02%)	8 (0.03%)	4 (0.04%)
Mycosis fungoides	33 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (<0.01%)	29 (<0.01%)	0 (0.00%)	0 (0.00%)
Nasal cavity mid ear	22 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	21 (<0.01%)	0 (0.00%)	0 (0.00%)
Oral (mouth)	48 (<0.01%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	2 (<0.01%)	44 (<0.01%)	0 (0.00%)	0 (0.00%)
Other digestive	74 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	4 (<0.01%)	68 (<0.01%)	0 (0.00%)	1 (0.01%)
Other lip	18 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	17 (<0.01%)	0 (0.00%)	0 (0.00%)
Ovary	1434 (0.05%)	5 (0.08%)	18 (0.03%)	43 (0.04%)	80 (0.04%)	1266 (0.05%)	11 (0.04%)	11 (0.12%)
Palate	38 (<0.01%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	1 (<0.01%)	36 (<0.01%)	0 (0.00%)	0 (0.00%)
Pancreas	1610 (0.06%)	2 (0.03%)	45 (0.07%)	41 (0.04%)	143 (0.07%)	1353 (0.06%)	19 (0.06%)	7 (0.07%)
Parotid gland (Stensen's duct)	77 (<0.01%)	0 (0.00%)	2 (<0.01%)	1 (<0.01%)	8 (<0.01%)	66 (<0.01%)	0 (0.00%)	0 (0.00%)

¹ Cancers are no longer adjudicated for SRC participants after 6/15/2023; cancer follow-up time for SRC participants is censored as of 6/15/2023.

² Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

Table 2.4 (continued)
Verified Cancers¹ (Annualized Percentages) by Race/Ethnicity

Data as of: February 15, 2025

	Total	Race/Ethnicity						
		American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ²	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported
Number of participants	161808	487	4084	7312	14167	133328	1669	761
Mean person years	17.9	13.7	15.8	15.0	15.1	18.5	18.8	12.6
Peripheral nerves and autonomic nervous system	2 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	0 (0.00%)
Peritoneum	250 (0.01%)	1 (0.02%)	3 (<0.01%)	9 (0.01%)	15 (0.01%)	219 (0.01%)	2 (0.01%)	1 (0.01%)
Pharynx	34 (<0.01%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	3 (<0.01%)	30 (<0.01%)	0 (0.00%)	0 (0.00%)
Pyriform sinus	2 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	0 (0.00%)
Renal pelvis	152 (0.01%)	0 (0.00%)	2 (<0.01%)	2 (<0.01%)	10 (<0.01%)	136 (0.01%)	1 (<0.01%)	1 (0.01%)
Respiratory system, intrathoracic, other	3 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)	0 (0.00%)
Salivary glands, major (other/unspecified)	21 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	20 (<0.01%)	0 (0.00%)	0 (0.00%)
Small intestine	185 (0.01%)	0 (0.00%)	4 (0.01%)	5 (<0.01%)	16 (0.01%)	158 (0.01%)	2 (0.01%)	0 (0.00%)
Stomach	367 (0.01%)	0 (0.00%)	17 (0.03%)	14 (0.01%)	50 (0.02%)	276 (0.01%)	8 (0.03%)	2 (0.02%)
Thymus	15 (<0.01%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	0 (0.00%)	13 (<0.01%)	1 (<0.01%)	0 (0.00%)
Thyroid	536 (0.02%)	0 (0.00%)	8 (0.01%)	17 (0.02%)	38 (0.02%)	470 (0.02%)	3 (0.01%)	0 (0.00%)
Tongue, part of (other/unspecified)	102 (<0.01%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)	2 (<0.01%)	94 (<0.01%)	2 (0.01%)	1 (0.01%)
Tonsil	26 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	23 (<0.01%)	1 (<0.01%)	0 (0.00%)
Trachea	1 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Ureter	97 (<0.01%)	1 (0.02%)	3 (<0.01%)	2 (<0.01%)	2 (<0.01%)	87 (<0.01%)	2 (0.01%)	0 (0.00%)
Urinary organs (other/unspecified)	42 (<0.01%)	1 (0.02%)	2 (<0.01%)	2 (<0.01%)	4 (<0.01%)	32 (<0.01%)	1 (<0.01%)	0 (0.00%)
Uterus, not otherwise specified ³	162 (0.01%)	1 (0.03%)	4 (0.01%)	5 (0.01%)	18 (0.02%)	133 (0.01%)	1 (0.01%)	0 (0.00%)
Vagina	58 (<0.01%)	1 (0.02%)	1 (<0.01%)	1 (<0.01%)	4 (<0.01%)	50 (<0.01%)	1 (<0.01%)	0 (0.00%)
Vulva	210 (0.01%)	0 (0.00%)	2 (<0.01%)	13 (0.01%)	13 (0.01%)	180 (0.01%)	2 (0.01%)	0 (0.00%)
Other/unknown site	1652 (0.06%)	9 (0.14%)	33 (0.05%)	34 (0.03%)	102 (0.05%)	1455 (0.06%)	8 (0.03%)	11 (0.12%)

¹ Cancers are no longer adjudicated for SRC participants after 6/15/2023; cancer follow-up time for SRC participants is censored as of 6/15/2023.

² Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

³ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 2.5
Verified Cancers¹ (Age-Specific Annualized Percentages²) by Age at Diagnosis

Data as of: February 15, 2025

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85384	113870	128398	125573	104231	68392	33358
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.2	3.7	3.9
Total cancer	1698 (0.82%)	3366 (1.10%)	5634 (1.32%)	7883 (1.58%)	8283 (1.71%)	6306 (1.77%)	3598 (1.83%)	1666 (1.71%)
Accessory sinus	0 (0.00%)	0 (0.00%)	1 (<0.01%)	5 (<0.01%)	3 (<0.01%)	4 (<0.01%)	2 (<0.01%)	1 (<0.01%)
Adrenal gland	2 (<0.01%)	5 (<0.01%)	2 (<0.01%)	3 (<0.01%)	3 (<0.01%)	1 (<0.01%)	1 (<0.01%)	2 (<0.01%)
Anus	1 (<0.01%)	7 (<0.01%)	13 (<0.01%)	29 (0.01%)	42 (0.01%)	36 (0.01%)	14 (0.01%)	9 (0.01%)
Appendix	0 (0.00%)	5 (<0.01%)	5 (<0.01%)	12 (<0.01%)	9 (<0.01%)	14 (<0.01%)	7 (<0.01%)	1 (<0.01%)
Base of tongue	1 (<0.01%)	6 (<0.01%)	4 (<0.01%)	5 (<0.01%)	8 (<0.01%)	14 (<0.01%)	1 (<0.01%)	2 (<0.01%)
Biliary tract, parts of	2 (<0.01%)	12 (<0.01%)	25 (0.01%)	48 (0.01%)	53 (0.01%)	50 (0.01%)	26 (0.01%)	9 (0.01%)
Bladder	33 (0.02%)	73 (0.02%)	109 (0.02%)	206 (0.04%)	277 (0.05%)	256 (0.06%)	166 (0.07%)	103 (0.09%)
Bones/joints/articular cartilage (limbs)	1 (<0.01%)	1 (<0.01%)	3 (<0.01%)	2 (<0.01%)	3 (<0.01%)	3 (<0.01%)	0 (0.00%)	0 (0.00%)
Bones/joints/articular cartilage (other)	1 (<0.01%)	0 (0.00%)	3 (<0.01%)	6 (<0.01%)	7 (<0.01%)	6 (<0.01%)	5 (<0.01%)	3 (<0.01%)
Brain	15 (0.01%)	31 (0.01%)	63 (0.01%)	96 (0.02%)	88 (0.02%)	87 (0.02%)	40 (0.02%)	24 (0.02%)
Breast	903 (0.43%)	1651 (0.53%)	2474 (0.56%)	3192 (0.61%)	3140 (0.61%)	2020 (0.52%)	924 (0.42%)	328 (0.30%)
Invasive breast	721 (0.34%)	1341 (0.43%)	1989 (0.45%)	2629 (0.50%)	2669 (0.51%)	1778 (0.45%)	862 (0.39%)	331 (0.30%)
In situ breast	187 (0.09%)	323 (0.10%)	506 (0.11%)	615 (0.11%)	550 (0.10%)	308 (0.07%)	89 (0.04%)	20 (0.02%)
Central nervous system (excludes brain)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	2 (<0.01%)	1 (<0.01%)	1 (<0.01%)	0 (0.00%)	1 (<0.01%)
Cervix	18 (0.01%)	24 (0.01%)	16 (<0.01%)	21 (<0.01%)	29 (0.01%)	24 (0.01%)	8 (<0.01%)	8 (0.01%)
Colorectum	111 (0.05%)	258 (0.08%)	481 (0.11%)	723 (0.13%)	783 (0.14%)	698 (0.17%)	478 (0.20%)	268 (0.23%)
Connective/subcutaneous/soft tissues	10 (<0.01%)	15 (<0.01%)	24 (0.01%)	37 (0.01%)	45 (0.01%)	49 (0.01%)	31 (0.01%)	26 (0.02%)
Endocrine glands, related structures	0 (0.00%)	0 (0.00%)	1 (<0.01%)	2 (<0.01%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	0 (0.00%)
Endometrium ⁴	97 (0.08%)	205 (0.11%)	371 (0.14%)	440 (0.14%)	407 (0.13%)	288 (0.12%)	114 (0.08%)	47 (0.07%)
Esophagus	3 (<0.01%)	12 (<0.01%)	21 (<0.01%)	30 (0.01%)	51 (0.01%)	47 (0.01%)	44 (0.02%)	20 (0.02%)
Eye and adnexa	5 (<0.01%)	3 (<0.01%)	17 (<0.01%)	21 (<0.01%)	17 (<0.01%)	13 (<0.01%)	7 (<0.01%)	4 (<0.01%)

¹ Cancers are no longer adjudicated for SRC participants after 6/15/2023; cancer follow-up time for SRC participants is censored as of 6/15/2023.

² Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

³ Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

⁴ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 2.5 (continued)
Verified Cancers¹ (Age-Specific Annualized Percentages²) by Age at Diagnosis

Data as of: February 15, 2025

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85384	113870	128398	125573	104231	68392	33358
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.2	3.7	3.9
Floor of Mouth	2 (<0.01%)	1 (<0.01%)	3 (<0.01%)	4 (<0.01%)	2 (<0.01%)	3 (<0.01%)	4 (<0.01%)	2 (<0.01%)
Gallbladder	2 (<0.01%)	5 (<0.01%)	16 (<0.01%)	32 (0.01%)	36 (0.01%)	48 (0.01%)	22 (0.01%)	10 (0.01%)
Genital organs	5 (<0.01%)	12 (<0.01%)	20 (<0.01%)	32 (0.01%)	40 (0.01%)	51 (0.01%)	26 (0.01%)	8 (0.01%)
Gum	0 (0.00%)	3 (<0.01%)	4 (<0.01%)	9 (<0.01%)	17 (<0.01%)	10 (<0.01%)	9 (<0.01%)	5 (<0.01%)
Heart	0 (0.00%)	1 (<0.01%)	5 (<0.01%)	10 (<0.01%)	9 (<0.01%)	9 (<0.01%)	8 (<0.01%)	4 (<0.01%)
Kidney	27 (0.01%)	65 (0.02%)	110 (0.02%)	152 (0.03%)	222 (0.04%)	163 (0.04%)	84 (0.04%)	47 (0.04%)
Larynx	2 (<0.01%)	10 (<0.01%)	10 (<0.01%)	8 (<0.01%)	11 (<0.01%)	6 (<0.01%)	10 (<0.01%)	1 (<0.01%)
Leukemia	20 (0.01%)	69 (0.02%)	176 (0.04%)	235 (0.04%)	300 (0.05%)	272 (0.06%)	201 (0.08%)	118 (0.10%)
Liver	4 (<0.01%)	16 (0.01%)	26 (0.01%)	68 (0.01%)	90 (0.02%)	89 (0.02%)	86 (0.04%)	44 (0.04%)
Lung	89 (0.04%)	257 (0.08%)	552 (0.12%)	929 (0.17%)	1149 (0.21%)	977 (0.23%)	581 (0.24%)	284 (0.24%)
Lymph nodes	0 (0.00%)	0 (0.00%)	1 (<0.01%)	2 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)
Lymphoma, Hodgkin's	2 (<0.01%)	5 (<0.01%)	12 (<0.01%)	17 (<0.01%)	21 (<0.01%)	18 (<0.01%)	11 (<0.01%)	2 (<0.01%)
Lymphoma, non-Hodgkin's	51 (0.02%)	122 (0.04%)	253 (0.06%)	413 (0.08%)	485 (0.09%)	397 (0.09%)	273 (0.12%)	107 (0.09%)
Melanoma of the skin	127 (0.06%)	220 (0.07%)	402 (0.09%)	576 (0.11%)	706 (0.13%)	509 (0.12%)	328 (0.14%)	120 (0.10%)
Meninges	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	2 (<0.01%)	2 (<0.01%)	2 (<0.01%)	1 (<0.01%)
Multiple myeloma	16 (0.01%)	29 (0.01%)	84 (0.02%)	151 (0.03%)	167 (0.03%)	172 (0.04%)	94 (0.04%)	34 (0.03%)
Mycosis fungoides	7 (<0.01%)	3 (<0.01%)	3 (<0.01%)	6 (<0.01%)	4 (<0.01%)	4 (<0.01%)	5 (<0.01%)	1 (<0.01%)
Nasal cavity mid ear	0 (0.00%)	0 (0.00%)	2 (<0.01%)	4 (<0.01%)	8 (<0.01%)	5 (<0.01%)	1 (<0.01%)	2 (<0.01%)
Oral (mouth)	1 (<0.01%)	1 (<0.01%)	3 (<0.01%)	8 (<0.01%)	9 (<0.01%)	7 (<0.01%)	9 (<0.01%)	10 (0.01%)
Other digestive	0 (0.00%)	0 (0.00%)	4 (<0.01%)	8 (<0.01%)	17 (<0.01%)	17 (<0.01%)	14 (0.01%)	14 (0.01%)
Other lip	0 (0.00%)	0 (0.00%)	3 (<0.01%)	2 (<0.01%)	2 (<0.01%)	4 (<0.01%)	2 (<0.01%)	5 (<0.01%)
Ovary	61 (0.03%)	124 (0.04%)	244 (0.05%)	291 (0.05%)	282 (0.05%)	229 (0.05%)	145 (0.06%)	58 (0.05%)
Palate	2 (<0.01%)	1 (<0.01%)	5 (<0.01%)	6 (<0.01%)	7 (<0.01%)	12 (<0.01%)	3 (<0.01%)	2 (<0.01%)
Pancreas	26 (0.01%)	68 (0.02%)	138 (0.03%)	240 (0.04%)	340 (0.06%)	371 (0.09%)	280 (0.12%)	147 (0.12%)
Parotid gland (Stensen's duct)	0 (0.00%)	7 (<0.01%)	11 (<0.01%)	17 (<0.01%)	21 (<0.01%)	13 (<0.01%)	7 (<0.01%)	1 (<0.01%)

¹ Cancers are no longer adjudicated for SRC participants after 6/15/2023; cancer follow-up time for SRC participants is censored as of 6/15/2023.

² Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

³ Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

Table 2.5 (continued)
Verified Cancers¹ (Age-Specific Annualized Percentages²) by Age at Diagnosis

Data as of: February 15, 2025

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85384	113870	128398	125573	104231	68392	33358
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.2	3.7	3.9
Peripheral nerves and autonomic nervous system	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Peritoneum	7 (<0.01%)	14 (<0.01%)	36 (0.01%)	65 (0.01%)	49 (0.01%)	48 (0.01%)	27 (0.01%)	4 (<0.01%)
Pharynx	1 (<0.01%)	1 (<0.01%)	5 (<0.01%)	9 (<0.01%)	2 (<0.01%)	7 (<0.01%)	5 (<0.01%)	4 (<0.01%)
Pyriform sinus	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Renal pelvis	5 (<0.01%)	6 (<0.01%)	15 (<0.01%)	23 (<0.01%)	35 (0.01%)	45 (0.01%)	16 (0.01%)	7 (0.01%)
Respiratory system, intrathoracic, other	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Salivary glands, major (other/unspecified)	2 (<0.01%)	2 (<0.01%)	0 (0.00%)	7 (<0.01%)	2 (<0.01%)	4 (<0.01%)	1 (<0.01%)	3 (<0.01%)
Small intestine	4 (<0.01%)	8 (<0.01%)	27 (0.01%)	30 (0.01%)	45 (0.01%)	37 (0.01%)	24 (0.01%)	10 (0.01%)
Stomach	7 (<0.01%)	22 (0.01%)	28 (0.01%)	65 (0.01%)	84 (0.02%)	84 (0.02%)	48 (0.02%)	29 (0.02%)
Thymus	0 (0.00%)	1 (<0.01%)	3 (<0.01%)	1 (<0.01%)	5 (<0.01%)	4 (<0.01%)	0 (0.00%)	1 (<0.01%)
Thyroid	28 (0.01%)	65 (0.02%)	91 (0.02%)	130 (0.02%)	120 (0.02%)	69 (0.02%)	25 (0.01%)	8 (0.01%)
Tongue, part of (other/unspecified)	6 (<0.01%)	3 (<0.01%)	10 (<0.01%)	23 (<0.01%)	22 (<0.01%)	16 (<0.01%)	17 (0.01%)	5 (<0.01%)
Tonsil	2 (<0.01%)	0 (0.00%)	3 (<0.01%)	6 (<0.01%)	6 (<0.01%)	3 (<0.01%)	4 (<0.01%)	2 (<0.01%)
Trachea	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Ureter	2 (<0.01%)	4 (<0.01%)	5 (<0.01%)	18 (<0.01%)	30 (0.01%)	19 (<0.01%)	14 (0.01%)	5 (<0.01%)
Urinary organs (other/unspecified)	2 (<0.01%)	2 (<0.01%)	4 (<0.01%)	6 (<0.01%)	8 (<0.01%)	13 (<0.01%)	6 (<0.01%)	1 (<0.01%)
Uterus, not otherwise specified ⁴	1 (<0.01%)	4 (<0.01%)	15 (0.01%)	21 (0.01%)	32 (0.01%)	41 (0.02%)	22 (0.02%)	26 (0.04%)
Vagina	0 (0.00%)	2 (<0.01%)	9 (<0.01%)	4 (<0.01%)	16 (<0.01%)	14 (<0.01%)	10 (<0.01%)	3 (<0.01%)
Vulva	11 (0.01%)	11 (<0.01%)	23 (0.01%)	42 (0.01%)	39 (0.01%)	43 (0.01%)	27 (0.01%)	14 (0.01%)
Other/unknown site	27 (0.01%)	71 (0.02%)	122 (0.03%)	268 (0.05%)	302 (0.05%)	312 (0.07%)	312 (0.13%)	238 (0.20%)

¹ Cancers are no longer adjudicated for SRC participants after 6/15/2023; cancer follow-up time for SRC participants is censored as of 6/15/2023.

² Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

³ Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

⁴ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 2.6
Verified Cardiovascular Outcomes (Annualized Percentages) by Race/Ethnicity

Data as of: February 15, 2025

		Race/Ethnicity						
	Total	American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ¹	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported
Number of participants	161808	487	4084	7312	14167	133328	1669	761
Mean person years	17.9	13.7	15.8	15.0	15.1	18.5	18.8	12.6
Cardiovascular outcomes ²								
CHD	9760 (0.47%)	29 (0.56%)	129 (0.28%)	347 (0.34%)	1201 (0.57%)	7908 (0.46%)	99 (0.42%)	47 (0.62%)
CHD death ³	4119 (0.19%)	16 (0.31%)	48 (0.10%)	143 (0.14%)	687 (0.32%)	3147 (0.18%)	45 (0.19%)	33 (0.43%)
Clinical MI	6809 (0.32%)	19 (0.37%)	98 (0.21%)	245 (0.24%)	680 (0.32%)	5672 (0.33%)	67 (0.29%)	28 (0.37%)
Angina ⁴	5247 (0.41%)	26 (0.75%)	70 (0.22%)	187 (0.34%)	534 (0.50%)	4356 (0.41%)	51 (0.38%)	23 (0.44%)
CABG/PTCA	9381 (0.45%)	26 (0.51%)	103 (0.23%)	353 (0.35%)	782 (0.38%)	8000 (0.48%)	86 (0.37%)	31 (0.41%)
Carotid artery disease	1658 (0.08%)	10 (0.19%)	13 (0.03%)	37 (0.04%)	102 (0.05%)	1471 (0.09%)	17 (0.07%)	8 (0.11%)
Heart failure ⁵	3746 (0.52%)	10 (0.64%)	24 (0.29%)	239 (0.26%)	933 (0.45%)	2474 (0.63%)	53 (0.53%)	13 (0.56%)
Recurrent heart failure ⁶	1243 (9.57%)	5 (13.15%)	3 (3.34%)	63 (7.13%)	313 (9.09%)	836 (10.07%)	19 (10.45%)	4 (8.42%)
Stroke ⁷	8074 (0.28%)	26 (0.39%)	124 (0.19%)	345 (0.32%)	1067 (0.51%)	6385 (0.26%)	87 (0.28%)	40 (0.42%)
PAD	1737 (0.08%)	6 (0.11%)	17 (0.04%)	48 (0.05%)	268 (0.13%)	1370 (0.08%)	23 (0.10%)	5 (0.07%)
DVT ⁸	1577 (0.22%)	6 (0.39%)	2 (0.02%)	107 (0.11%)	431 (0.21%)	1006 (0.25%)	19 (0.19%)	6 (0.26%)
Pulmonary embolism ⁸	1297 (0.18%)	5 (0.32%)	3 (0.04%)	65 (0.07%)	398 (0.19%)	805 (0.20%)	15 (0.15%)	6 (0.26%)
DVT/PE ⁸	2311 (0.32%)	9 (0.59%)	4 (0.05%)	145 (0.15%)	680 (0.33%)	1435 (0.36%)	29 (0.29%)	9 (0.39%)
Aortic aneurysm ⁹	93 (0.04%)	0 (0.00%)	2 (0.08%)	6 (0.02%)	24 (0.04%)	57 (0.04%)	4 (0.12%)	0 (0.00%)
Valvular heart disease ⁹	713 (0.31%)	0 (0.00%)	4 (0.15%)	68 (0.24%)	96 (0.15%)	533 (0.40%)	9 (0.26%)	3 (0.42%)
Total cardiovascular disease ¹⁰	30418 (1.55%)	99 (2.10%)	388 (0.87%)	1224 (1.26%)	3899 (2.04%)	24337 (1.52%)	334 (1.53%)	137 (1.93%)

¹ Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

² Cardiovascular events are adjudicated through 2010 for SRC participants and through the present for MRC participants. To calculate annualized event rates, person-years at risk are limited to the time intervals during which events for each participant were subject to adjudication.

³ "CHD death" includes definite and possible CHD death.

⁴ Angina is not a verified outcome in the WHI Extension Studies. Reported counts and event rates are limited to participation during the original program (1993-2005).

⁵ Definite or possible decompensated heart failure adjudicated by UNC.

⁶ Recurrent definite or possible decompensated heart failure adjudicated by UNC among participants with a first event.

⁷ Starting on 2/1/2021 all new stroke self-reports are adjudicated for SRC participants. Adjudications for stroke cases among SRC participants between October 1, 2010 and January 31, 2021 are approximately 97% complete. These stroke cases are not included in the above table counts. When adjudication is complete, SRC strokes in Extension Study II (2010-Present) will be added to the WHI datasets.

⁸ DVT and PE are only adjudicated and reported for MRC Super Cohort participants.

⁹ Aortic aneurysm and valvular heart disease are new adjudicated outcomes during WHI Extension Study II (2010-Present). To calculate annualized event rates, person-years at risk are limited to MRC participants with time during Extension Study II (2010-Present).

¹⁰ Total CVD does not include aortic aneurysm or valvular heart disease.

Table 2.7
Verified Cardiovascular Outcomes (Age-Specific Annualized Percentages¹) by Age at Diagnosis

Data as of: February 15, 2025

	Age at Diagnosis															
	50-59		60-64		65-69		70-74		75-79		80-84		85-89		≥90	
Number of participants ²	50943		85384		113870		128398		125573		104231		68392		33358	
Mean person years ²	4.1		3.7		4.0		4.3		4.4		4.2		3.7		3.9	
Cardiovascular Outcomes ³																
CHD	220	(0.10%)	551	(0.17%)	1157	(0.26%)	1791	(0.37%)	2213	(0.54%)	1972	(0.77%)	1167	(1.08%)	689	(1.74%)
CHD death ⁴	49	(0.02%)	124	(0.04%)	273	(0.06%)	542	(0.11%)	788	(0.19%)	939	(0.35%)	771	(0.68%)	633	(1.49%)
Clinical MI	180	(0.09%)	451	(0.14%)	950	(0.21%)	1397	(0.29%)	1666	(0.41%)	1306	(0.51%)	636	(0.59%)	223	(0.56%)
Angina ⁵	349	(0.17%)	702	(0.26%)	1181	(0.41%)	1435	(0.55%)	1115	(0.63%)	425	(0.63%)	40	(0.50%)	0	(0.00%)
CABG/PTCA	286	(0.14%)	789	(0.25%)	1678	(0.38%)	2393	(0.50%)	2375	(0.59%)	1367	(0.55%)	425	(0.41%)	68	(0.17%)
Carotid artery disease	52	(0.02%)	109	(0.03%)	270	(0.06%)	463	(0.09%)	427	(0.10%)	259	(0.10%)	67	(0.06%)	11	(0.03%)
Heart failure ⁶	70	(0.11%)	150	(0.17%)	259	(0.22%)	494	(0.36%)	697	(0.53%)	836	(0.86%)	718	(1.34%)	522	(1.99%)
Recurrent heart failure ⁷	18	(12.20%)	28	(6.51%)	70	(8.14%)	126	(8.17%)	224	(9.06%)	293	(9.64%)	285	(11.04%)	199	(10.40%)
Stroke ⁸	136	(0.06%)	355	(0.11%)	808	(0.18%)	1467	(0.27%)	1914	(0.35%)	1706	(0.40%)	1068	(0.44%)	620	(0.50%)
PAD	40	(0.02%)	102	(0.03%)	247	(0.05%)	369	(0.08%)	455	(0.11%)	351	(0.13%)	126	(0.11%)	47	(0.11%)
DVT ⁹	37	(0.06%)	82	(0.09%)	196	(0.16%)	274	(0.20%)	343	(0.26%)	322	(0.33%)	203	(0.37%)	120	(0.44%)
Pulmonary embolism ⁹	27	(0.04%)	60	(0.07%)	139	(0.11%)	238	(0.17%)	293	(0.22%)	259	(0.26%)	187	(0.34%)	94	(0.34%)
DVT/PE ⁹	51	(0.08%)	115	(0.13%)	270	(0.22%)	416	(0.31%)	517	(0.40%)	456	(0.47%)	310	(0.57%)	176	(0.65%)
Aortic aneurysm ¹⁰	--	--	0	(0.00%)	1	(0.01%)	6	(0.02%)	18	(0.03%)	36	(0.06%)	20	(0.04%)	12	(0.04%)
Valvular heart disease ¹⁰	--	--	0	(0.00%)	7	(0.07%)	39	(0.12%)	127	(0.22%)	208	(0.34%)	203	(0.45%)	129	(0.48%)
Total cardiovascular disease ¹¹	937	(0.45%)	2177	(0.70%)	4323	(1.00%)	6434	(1.41%)	7017	(1.87%)	5258	(2.34%)	2683	(3.00%)	1589	(5.04%)

¹ Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

² Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

³ Cardiovascular events are adjudicated through 2010 for SRC participants and through the present for MRC participants. To calculate annualized event rates, person-years at risk are limited to the time intervals during which events for each participant were subject to adjudication.

⁴ "CHD death" includes definite and possible CHD death.

⁵ Angina is not a verified outcome in the WHI Extension Studies. Reported counts and event rates are limited to participation during the original program (1993-2005).

⁶ Definite or possible decompensated heart failure adjudicated by UNC.

⁷ Recurrent definite or possible decompensated heart failure adjudicated by UNC among participants with a first event.

⁸ Starting on 2/1/2021 all new stroke self-reports are adjudicated for SRC participants. Adjudications for stroke cases among SRC participants between October 1, 2010 and January 31, 2021 are approximately 97% complete. These stroke cases are not included in the above table counts. When adjudication is complete, SRC strokes in Extension Study II (2010-Present) will be added to the WHI datasets.

⁹ DVT and PE are only adjudicated and reported for MRC Super Cohort participants.

¹⁰ Aortic aneurysm and valvular heart disease are new adjudicated outcomes during WHI Extension Study II (2010-Present). To calculate annualized event rates, person-years at risk are limited to MRC participants with time during Extension Study II (2010-Present).

¹¹ Total CVD does not include aortic aneurysm or valvular heart disease.

Table 2.8
Fracture Outcomes (Annualized Percentages) by Race/Ethnicity

Data as of: February 15, 2025

	Total	Race/Ethnicity						
		American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ¹	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported
Number of participants	161808	487	4084	7312	14167	133328	1669	761
Mean person years	17.9	13.7	15.8	15.0	15.1	18.5	18.8	12.6
Fracture site²								
Elbow	3411 (0.12%)	7 (0.11%)	39 (0.06%)	107 (0.10%)	101 (0.05%)	3121 (0.13%)	27 (0.09%)	9 (0.09%)
Foot	9974 (0.36%)	24 (0.37%)	129 (0.21%)	276 (0.26%)	494 (0.24%)	8905 (0.38%)	117 (0.39%)	29 (0.31%)
Hand	3000 (0.10%)	6 (0.09%)	39 (0.06%)	128 (0.12%)	122 (0.06%)	2665 (0.11%)	30 (0.10%)	10 (0.11%)
Hip	10253 (0.36%)	11 (0.17%)	109 (0.17%)	158 (0.15%)	179 (0.08%)	9666 (0.40%)	101 (0.33%)	29 (0.31%)
Knee	4917 (0.17%)	19 (0.29%)	120 (0.19%)	229 (0.21%)	263 (0.12%)	4207 (0.17%)	60 (0.19%)	19 (0.20%)
Lower arm	15322 (0.56%)	34 (0.53%)	242 (0.39%)	488 (0.46%)	515 (0.25%)	13860 (0.60%)	137 (0.46%)	46 (0.51%)
Lower leg	11005 (0.40%)	29 (0.45%)	149 (0.24%)	325 (0.31%)	625 (0.30%)	9720 (0.41%)	123 (0.41%)	34 (0.37%)
Pelvis	5438 (0.19%)	8 (0.12%)	66 (0.10%)	110 (0.10%)	110 (0.05%)	5090 (0.21%)	44 (0.14%)	10 (0.11%)
Spine	12349 (0.44%)	21 (0.32%)	214 (0.34%)	292 (0.27%)	215 (0.10%)	11446 (0.48%)	129 (0.42%)	32 (0.34%)
Tailbone	1834 (0.06%)	3 (0.05%)	30 (0.05%)	59 (0.05%)	56 (0.03%)	1648 (0.07%)	30 (0.10%)	8 (0.08%)
Upper arm	9901 (0.35%)	14 (0.21%)	109 (0.17%)	362 (0.34%)	320 (0.15%)	8965 (0.37%)	103 (0.34%)	28 (0.30%)
Upper leg	4866 (0.17%)	11 (0.17%)	61 (0.10%)	94 (0.09%)	110 (0.05%)	4536 (0.19%)	39 (0.13%)	15 (0.16%)
Other	34236 (1.34%)	97 (1.71%)	603 (1.03%)	1179 (1.20%)	1596 (0.81%)	30250 (1.40%)	388 (1.42%)	123 (1.42%)
Osteoporotic ³	38161 (1.48%)	70 (1.12%)	582 (0.98%)	1075 (1.07%)	1103 (0.54%)	34860 (1.61%)	364 (1.29%)	107 (1.24%)
Any fracture	71848 (3.35%)	177 (3.57%)	1251 (2.39%)	2304 (2.66%)	3350 (1.86%)	63812 (3.57%)	716 (3.06%)	238 (3.14%)

¹ Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

² Hip fracture includes adjudicated hip fracture for MRC participants through Extension Study II (2010-Present) and adjudicated hip fracture for SRC participants through Extension Study I (2005-2010) plus self-reported hip fracture for SRC participants during Extension Study II (2010-Present). All other fracture sites are obtained from self-reported data.

³ Osteoporotic fractures include spine, upper arm, lower arm and hip.

Table 2.9
Fracture Outcomes (Age-Specific Annualized Percentages¹) by Age at Diagnosis

Data as of: February 15, 2025

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants²	50943	85308	113774	128266	125417	104089	68316	33355
Mean person years²	4.1	3.7	4.0	4.3	4.4	4.2	3.7	3.9
Fracture site³								
Elbow	157 (0.07%)	272 (0.09%)	456 (0.10%)	602 (0.11%)	722 (0.13%)	566 (0.13%)	426 (0.17%)	210 (0.17%)
Foot	727 (0.35%)	1155 (0.37%)	1719 (0.39%)	1995 (0.38%)	1874 (0.35%)	1467 (0.36%)	717 (0.30%)	320 (0.26%)
Hand	98 (0.05%)	189 (0.06%)	370 (0.08%)	553 (0.10%)	651 (0.12%)	542 (0.13%)	398 (0.16%)	199 (0.16%)
Hip	61 (0.03%)	144 (0.05%)	346 (0.08%)	861 (0.16%)	1764 (0.32%)	2672 (0.64%)	2505 (1.06%)	1900 (1.63%)
Knee	140 (0.07%)	281 (0.09%)	533 (0.12%)	879 (0.16%)	1118 (0.21%)	1084 (0.26%)	601 (0.25%)	281 (0.23%)
Lower arm	599 (0.29%)	1154 (0.37%)	1978 (0.45%)	2826 (0.54%)	3335 (0.64%)	2720 (0.68%)	1768 (0.79%)	942 (0.84%)
Lower leg	766 (0.37%)	1199 (0.38%)	1761 (0.40%)	2071 (0.39%)	2080 (0.39%)	1673 (0.41%)	945 (0.40%)	510 (0.43%)
Pelvis	62 (0.03%)	121 (0.04%)	269 (0.06%)	583 (0.11%)	954 (0.17%)	1347 (0.32%)	1219 (0.50%)	883 (0.72%)
Spine	162 (0.08%)	397 (0.13%)	943 (0.21%)	1687 (0.31%)	2663 (0.50%)	3116 (0.76%)	2208 (0.96%)	1173 (1.02%)
Tailbone	50 (0.02%)	78 (0.02%)	128 (0.03%)	199 (0.04%)	336 (0.06%)	395 (0.09%)	386 (0.16%)	262 (0.21%)
Upper arm	197 (0.09%)	460 (0.15%)	852 (0.19%)	1491 (0.28%)	2104 (0.39%)	2213 (0.53%)	1653 (0.70%)	931 (0.79%)
Upper leg	33 (0.02%)	98 (0.03%)	220 (0.05%)	482 (0.09%)	799 (0.15%)	1186 (0.28%)	1178 (0.48%)	870 (0.70%)
Other	2077 (1.01%)	3257 (1.08%)	4888 (1.16%)	6279 (1.27%)	6841 (1.43%)	5717 (1.60%)	3340 (1.71%)	1837 (1.92%)
Osteoporotic ⁴	993 (0.48%)	2047 (0.66%)	3802 (0.88%)	6109 (1.20%)	8180 (1.67%)	8167 (2.30%)	5703 (3.04%)	3160 (3.68%)
Any fracture	4366 (2.19%)	6977 (2.45%)	10516 (2.74%)	13554 (3.14%)	14499 (3.70%)	11795 (4.45%)	6773 (5.21%)	3368 (6.07%)

¹ Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

² Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

³ Hip fracture includes adjudicated hip fracture for MRC participants through Extension Study II (2010-Present) and adjudicated hip fracture for SRC participants through Extension Study I (2005-2010) plus self-reported hip fracture for SRC participants during Extension Study II (2010-Present). All other fracture sites are obtained from self-reported data.

⁴ Osteoporotic fractures include spine, upper arm, lower arm and hip.

Table 2.10
WHI Outcomes by Calendar Year and Cohort

Data as of: February 15, 2025

	Calendar Year													
	1993-2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
MRC Super Cohort¹														
Number of participants with any WHI follow-up time in the interval	44174	22185	21777	21221	20652	19953	19149	18357	17425	16457	15377	14077	12755	11388
Any cancer	6068	287	314	285	268	269	241	218	204	229	166	183	154	146
Total cardiovascular disease ²	8310	394	451	433	441	444	422	440	403	421	381	405	352	342
CHD ³	2369	128	151	175	150	167	179	178	156	148	144	155	118	105
DVT/PE	1230	88	113	102	107	84	76	74	63	74	75	69	63	61
Stroke	1814	126	137	131	148	150	147	167	159	180	152	158	127	126
Heart failure ⁴	1873	120	142	175	181	207	169	170	140	139	83	115	102	104
Hip fracture ⁵	894	75	74	83	108	99	98	98	94	94	81	97	112	80
Any fracture ⁶	11654	602	495	442	417	365	347	336	322	303	228	234	236	229
Number of participants with WHI or NDI⁷ follow-up time in the interval	44174	37021	36015	34857	33701	32464	31108	29813	28361	26895	25383	23556	21889	20280
Death ⁸	7153	1006	1158	1156	1237	1356	1295	1452	1466	1512	1827	1667	1609	1384
SRC Super Cohort^{9,10}														
Number of participants with any WHI follow-up time in the interval	117634	70831	69649	68086	66332	64328	61993	59364	56526	53363	50087	46368	42654	38698
Any cancer ¹¹	19458	1060	1002	1008	872	874	866	819	736	726	629	547	497	224
Hip fracture ¹²	2958	340	338	333	367	338	368	385	362	410	350	433	366	400
Any fracture ⁶	37410	2376	1755	1723	1656	1411	1362	1317	1190	1119	839	907	810	809
Number of participants with WHI or NDI⁷ follow-up time in the interval	117634	99103	96416	93465	90263	86926	83353	79531	75601	71436	67245	62605	58283	53960
Death ⁸	18531	2687	2951	3202	3337	3573	3822	3930	4165	4191	4640	4322	4323	4265

¹ The MRC Super Cohort, or Medical Records Super Cohort, includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS.

² Includes MI, angina, heart failure, CABG/PTCA, carotid artery disease, PAD, stroke, DVT, PE and CVD death.

³ CHD includes MI and definite and possible CHD death.

⁴ Definite or possible decompensated heart failure adjudicated by UNC.

⁵ Includes adjudicated hip fracture through Extension Study II (2010-Present).

⁶ All non-hip fracture sites are obtained from self-reported data.

⁷ Includes follow-up time after the main study period for non-Extension study participants based on NDI searches.

⁸ Includes deaths identified through NDI searches for non-Extension study participants after the main WHI study close-out.

⁹ Cardiovascular events are not adjudicated for SRC participants in Extension Study II (2010-Present).

¹⁰ The SRC Super Cohort includes all Non-Hispanic White, American Indian/Alaska Native, Asian/Pacific Islander, and Unknown race/ethnicity participants (identified from race/ethnicity collected on Form 2 at baseline) from the Dietary Modification Trial (not also in the Hormone Trial) and the Observational Study.

¹¹ Cancers are no longer adjudicated for SRC participants after 6/15/2023.

¹² Includes adjudicated hip fracture through Extension Study I (2005-2010) plus self-reported hip fracture during Extension Study II (2010-Present).

Table 2.11
Self-Reported Outcomes¹ (Annualized Percentages) by Race/Ethnicity

Data as of: February 15, 2025

		Race/Ethnicity						
		American Indian/ Alaska Native	Asian or Native Hawaiian/ Other Pacific Islander ²	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race	Other/ Not Reported
Number of participants	161808	487	4084	7312	14167	133328	1669	761
Mean person years	17.9	13.7	15.8	15.0	15.1	18.5	18.8	12.6
Self-reported outcomes								
Cataracts ³	48674 (5.46%)	127 (5.25%)	1087 (5.06%)	2014 (4.91%)	3803 (4.85%)	40865 (5.56%)	581 (6.12%)	197 (5.44%)
Gallbladder disease ³	10921 (1.08%)	37 (1.48%)	163 (0.60%)	528 (1.32%)	769 (0.84%)	9259 (1.11%)	120 (1.15%)	45 (1.08%)
Glaucoma ³	16048 (1.40%)	51 (1.70%)	395 (1.42%)	740 (1.52%)	1919 (2.10%)	12670 (1.33%)	195 (1.61%)	78 (1.68%)
Kidney stones ³	4194 (0.35%)	22 (0.70%)	82 (0.28%)	244 (0.49%)	433 (0.43%)	3334 (0.34%)	56 (0.44%)	23 (0.47%)
Osteoporosis ³	35417 (3.44%)	83 (2.87%)	997 (4.05%)	1589 (3.58%)	1921 (2.01%)	30316 (3.58%)	357 (3.19%)	154 (3.77%)
Rheumatoid arthritis ³	8598 (0.74%)	37 (1.24%)	168 (0.59%)	806 (1.71%)	1299 (1.41%)	6097 (0.63%)	120 (0.99%)	71 (1.57%)
Diabetes (treated)	29521 (1.16%)	88 (1.78%)	761 (1.38%)	1446 (1.60%)	3057 (1.88%)	23672 (1.08%)	368 (1.42%)	129 (1.60%)
Hypertension treated w/pills	65160 (4.87%)	171 (6.36%)	1424 (4.79%)	2847 (5.46%)	4366 (7.44%)	55415 (4.70%)	712 (5.64%)	225 (5.08%)
Intestinal polyps	42506 (1.98%)	101 (1.96%)	887 (1.84%)	1617 (1.91%)	3543 (2.22%)	35723 (1.97%)	477 (2.09%)	158 (2.15%)
Lupus	2757 (0.10%)	11 (0.17%)	43 (0.07%)	145 (0.14%)	282 (0.13%)	2218 (0.09%)	46 (0.15%)	12 (0.13%)
Osteoarthritis	55379 (4.81%)	130 (5.10%)	1405 (4.45%)	2519 (5.36%)	4180 (4.82%)	46335 (4.79%)	610 (5.28%)	200 (4.77%)
Dementia ^{4,5}	28654 (1.91%)	53 (1.81%)	488 (1.56%)	1012 (2.03%)	1752 (1.78%)	24939 (1.92%)	329 (2.03%)	81 (2.00%)
Macular degeneration ⁴	28044 (1.98%)	46 (1.65%)	371 (1.22%)	832 (1.71%)	1132 (1.16%)	25301 (2.08%)	295 (1.88%)	67 (1.71%)
Parkinson's disease ⁴	3500 (0.22%)	7 (0.23%)	65 (0.20%)	110 (0.21%)	175 (0.17%)	3085 (0.23%)	50 (0.29%)	8 (0.19%)
COPD ⁶	12696 (1.39%)	27 (1.57%)	138 (0.70%)	394 (1.28%)	809 (1.41%)	11138 (1.41%)	165 (1.73%)	25 (1.04%)

¹ Excludes participants with a prevalent condition at baseline.

² Native Hawaiian/Other Pacific Islander participants (n=119) are combined with Asian participants for reporting purposes due to small numbers.

³ Data not collected during WHI Extension Studies I and II (2005-Present). Reported counts and event rates are limited to participation during the original program (1993-2005).

⁴ Data only collected during WHI Extension Studies I and II (2005-Present). Reported counts and event rates are limited to participation during WHI Extension Studies I and II (2005-Present).

⁵ During Extension Study I (2005-2010), women were asked to report "Moderate or severe memory problems (for example, dementia or Alzheimer's)". During Extension Study II (2010-Present), women could report either "Moderate or severe memory problems" or "Dementia or Alzheimer's" and both responses are combined into this Dementia outcome.

⁶ Data only collected during WHI Extension Study II (2010-Present). Reported counts and event rates are limited to participation during WHI Extension Study II (2010-Present).

Table 2.12
Self-Reported Outcomes¹ (Age-Specific Annualized Percentages²) by Age at Diagnosis

Data as of: February 15, 2025

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85308	113774	128266	125417	104089	68316	33355
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.2	3.7	3.9
Self-reported outcomes								
Cataracts ⁴	2598 (1.32%)	7920 (3.50%)	13196 (6.26%)	13231 (8.60%)	8607 (10.81%)	2886 (13.22%)	236 (12.97%)	0 (0.00%)
Gallbladder disease ⁴	1734 (0.97%)	2295 (1.07%)	2650 (1.17%)	2227 (1.10%)	1455 (1.08%)	508 (1.01%)	52 (0.97%)	0 (0.00%)
Glaucoma ⁴	1480 (0.74%)	2838 (1.15%)	3826 (1.47%)	3791 (1.66%)	2781 (1.87%)	1182 (2.18%)	149 (2.67%)	1 (16.00%)
Kidney stones ⁴	514 (0.26%)	801 (0.32%)	959 (0.36%)	917 (0.38%)	628 (0.39%)	324 (0.52%)	51 (0.76%)	0 (0.00%)
Osteoporosis ⁴	3618 (1.87%)	6255 (2.73%)	8400 (3.58%)	8552 (4.28%)	6050 (4.83%)	2300 (5.27%)	242 (5.61%)	0 (0.00%)
Rheumatoid arthritis	1315 (0.67%)	1704 (0.70%)	1907 (0.73%)	1744 (0.74%)	1304 (0.83%)	550 (0.94%)	74 (1.18%)	0 (0.00%)
Diabetes (treated)	1343 (0.67%)	2517 (0.85%)	4093 (0.99%)	5221 (1.07%)	5849 (1.22%)	5159 (1.42%)	3327 (1.62%)	2012 (1.94%)
Hypertension treated w/pills	5016 (3.19%)	8531 (4.15%)	12365 (4.86%)	13933 (5.28%)	12793 (5.76%)	8010 (5.71%)	3339 (5.07%)	1173 (4.02%)
Intestinal polyps	2700 (1.38%)	5533 (2.01%)	9019 (2.46%)	10107 (2.47%)	8624 (2.26%)	4614 (1.66%)	1525 (0.98%)	384 (0.48%)
Lupus	274 (0.13%)	403 (0.13%)	508 (0.11%)	552 (0.10%)	509 (0.09%)	305 (0.07%)	151 (0.06%)	55 (0.04%)
Osteoarthritis	3887 (2.68%)	6918 (3.74%)	10037 (4.48%)	11409 (5.04%)	10723 (5.78%)	7296 (6.40%)	3492 (6.83%)	1617 (7.84%)
Dementia ^{5,6}	2 (0.15%)	97 (0.06%)	446 (0.18%)	1431 (0.41%)	4075 (1.01%)	7329 (2.05%)	8163 (3.77%)	7111 (6.92%)
Macular degeneration ⁵	2 (0.15%)	216 (0.14%)	1015 (0.41%)	2948 (0.87%)	5676 (1.47%)	7887 (2.37%)	6543 (3.37%)	3757 (4.36%)
Parkinson's disease ⁵	1 (0.07%)	38 (0.03%)	171 (0.07%)	423 (0.12%)	886 (0.21%)	1021 (0.27%)	686 (0.29%)	274 (0.22%)
COPD ⁷	-- --	11 (1.57%)	295 (0.84%)	1432 (1.12%)	2865 (1.31%)	3568 (1.48%)	2911 (1.62%)	1614 (1.48%)

¹ Excludes participants with a prevalent condition at baseline.

² Age specific annualized percentages are calculated as the number with an event in the age interval divided by the total person years of all participants with time in the interval.

³ Number of participants or mean person years in the age interval for all participants with any follow-up time in the age interval.

⁴ Data not collected during WHI Extension Studies I and II (2005-Present). Reported counts and event rates are limited to participation during the original program (1993-2005).

⁵ Data only collected during WHI Extension Studies I and II (2005-Present). Reported counts and event rates are limited to participation during WHI Extension Studies I and II (2005-Present).

⁶ During Extension Study I (2005-2010), women were asked to report "Moderate or severe memory problems (for example, dementia or Alzheimer's)". During Extension Study II (2010-Present), women could report either "Moderate or severe memory problems" or "Dementia or Alzheimer's" and both responses are combined into this Dementia outcome.

⁷ Data only collected during WHI Extension Study II (2010-Present). Reported counts and event rates are limited to participation during WHI Extension Study II (2010-Present).

Table 3.1
Aging Indicators at Start¹ (September 30, 2010) of WHI Extension Study II (2010-Present) by Age

Data as of: February 15, 2025

	Total (N = 93,567)		Age on September 30, 2010									
			<65 (N = 1,014)		65-69 (N = 15,267)		70-79 (N = 46,380)		80-89 (N = 28,699)		≥90 (N = 2,207)	
	N	%	N	%	N	%	N	%	N	%	N	%
Never completed Form 151/155	14	<0.1	1	0.1	2	<0.1	6	<0.1	5	<0.1	0	0.0
Age on 9/30/2010, mean (SD)	76.3	(6.6)	63.7	(0.6)	67.4	(1.3)	74.5	(2.8)	83.4	(2.6)	91.1	(1.2)
Perceived Health Status												
Excellent	11077	12.2	201	20.2	2770	18.4	5907	13.1	2062	7.5	137	6.6
Very good	37968	41.8	439	44.1	7035	46.8	19886	44.0	9953	36.1	655	31.4
Good	32646	35.9	270	27.1	4316	28.7	15608	34.5	11570	42.0	882	42.2
Fair	8341	9.2	74	7.4	817	5.4	3528	7.8	3554	12.9	368	17.6
Poor	850	0.9	11	1.1	79	0.5	310	0.7	404	1.5	46	2.2
Activities of Daily Living Dependencies												
No limitations	80281	88.3	940	95.4	14266	95.9	41525	92.0	22363	80.4	1187	56.1
Eating	434	0.5	1	0.1	29	0.2	153	0.3	209	0.8	42	2.0
Transferring	922	1.0	5	0.5	52	0.4	304	0.7	468	1.7	93	4.4
Dressing	1558	1.7	3	0.3	98	0.7	504	1.1	794	2.9	159	7.6
Bathing	2563	2.8	5	0.5	124	0.8	740	1.6	1389	5.0	305	14.6
Taking Medication	2733	3.0	4	0.4	117	0.8	722	1.6	1569	5.7	321	15.3
Grocery Shopping	8570	9.5	32	3.3	430	2.9	2751	6.1	4527	16.4	830	40.0
Independence												
Supportive services availability	11464	13.2	49	5.0	880	6.0	4230	9.7	5511	21.3	794	41.9
Supportive services use	4084	36.7	9	18.8	102	12.0	889	21.7	2543	47.5	541	70.4
Need for nursing care	2154	2.3	6	0.6	130	0.9	754	1.6	1102	3.9	162	7.6
Use of walking aid ²	11898	13.1	41	4.1	618	4.1	3872	8.5	6356	23.0	1011	49.7
Lives alone ³	31579	41.4	240	27.2	4016	30.0	14858	37.7	11682	54.7	783	61.7
Falls⁴												
None	58944	64.1	690	68.7	10390	68.7	30145	65.8	16591	59.4	1128	54.5
One	19182	20.9	182	18.1	2770	18.3	9306	20.3	6463	23.1	461	22.3
Two	8851	9.6	90	9.0	1327	8.8	4160	9.1	3002	10.8	272	13.1
Three or more	4929	5.4	43	4.3	628	4.2	2185	4.8	1863	6.7	210	10.1
Aging Indicators, mean (SD)⁵												
Perceived Health Status	63.8	(21.4)	68.7	(22.5)	69.3	(20.7)	65.2	(20.9)	58.8	(21.3)	55.6	(22.2)
Quality of Life	79.4	(16.2)	81.8	(15.1)	82.6	(14.9)	80.6	(15.6)	76.1	(17.0)	72.2	(18.9)
Activities of Daily Living ⁶	98.1	(8.1)	99.6	(2.6)	99.4	(4.8)	98.8	(6.2)	96.6	(10.5)	90.6	(16.7)
Physical Functioning (RAND-36)	72.3	(25.9)	83.7	(21.9)	82.5	(20.9)	75.4	(24.0)	62.6	(27.1)	47.4	(28.4)

¹ Based on Form 151 (99.9%) or Form 155 (0.1%) most proximal to 9/30/2010; unless otherwise indicated.

² Cane, crutches, walker, or wheelchair.

³ Collected on Form 155 only.

⁴ Falls data were collected on Form 33.

⁵ Aging indicators summarized as continuous variables. Perceived health status, quality of life and ADL were rescaled; all indicators are scaled 0 (worst) to 100 (best).

⁶ Includes eating, transferring, dressing, bathing, taking medication and grocery shopping.

Table 3.2
Aging Indicators Approximately 13 Years Later¹ (September 30, 2023) by Age

Data as of: February 15, 2025

	Total (N = 93,567)		Age on September 30, 2010									
			<65 (N = 1,014)		65-69 (N = 15,267)		70-79 (N = 46,380)		80-89 (N = 28,699)		≥90 (N = 2,207)	
	N	%	N	%	N	%	N	%	N	%	N	%
Completed Form 151/151AB	34086	36.4	698	68.8	10042	65.8	19780	42.6	3533	12.3	33	1.5
Never completed Form 151/151AB after 9/30/2023	17190	18.4	196	19.3	2943	19.3	10282	22.2	3699	12.9	70	3.2
Deceased before 9/30/2023	42291	45.2	120	11.8	2282	14.9	16318	35.2	21467	74.8	2104	95.3
Age completed form, mean (SD)	86.1	(5.1)	77.3	(0.7)	80.9	(1.4)	87.3	(2.7)	95.6	(2.1)	104.2	(1.4)
Perceived Health Status²												
Excellent	854	6.5	31	12.1	299	8.3	463	6.0	60	3.6	1	7.1
Very good	4680	35.4	115	44.7	1553	43.3	2594	33.8	417	24.8	1	7.1
Good	5386	40.8	80	31.1	1319	36.8	3255	42.5	726	43.2	6	42.9
Fair	1952	14.8	29	11.3	382	10.6	1143	14.9	394	23.4	4	28.6
Poor	334	2.5	2	0.8	34	0.9	212	2.8	84	5.0	2	14.3
Activities of Daily Living Dependencies												
No Limitations	23282	70.3	619	90.2	8401	85.3	13179	68.6	1076	32.2	7	24.1
Eating	781	2.4	5	0.7	119	1.2	422	2.2	229	6.9	6	20.7
Transferring	1398	4.2	7	1.0	192	2.0	759	4.0	430	13.0	10	34.5
Dressing	2012	6.1	12	1.8	252	2.6	1115	5.8	623	18.8	10	37.0
Bathing	3223	9.8	18	2.6	357	3.6	1832	9.6	1000	30.2	16	55.2
Taking Medication	3292	10.0	18	2.6	360	3.7	1889	9.9	1009	30.6	16	55.2
Grocery Shopping	8812	26.9	55	8.0	1237	12.6	5414	28.5	2085	63.8	21	72.4
Independence												
Supportive services availability ²	3921	31.2	30	12.1	575	16.5	2393	32.9	916	59.6	7	58.3
Supportive services use ²	2279	60.7	10	35.7	194	35.3	1370	59.4	700	80.6	5	83.3
Need for nursing care ²	787	6.1	2	0.8	91	2.6	452	6.0	239	14.7	3	21.4
Use of walking aid ³	7343	36.2	49	11.4	1120	18.0	4626	39.7	1535	77.6	13	68.4
Lives alone ⁴	5961	50.8	85	35.0	1493	43.8	3655	53.3	724	60.1	4	50.0
Falls⁵												
None	25308	58.2	547	66.6	7405	62.9	14542	57.3	2785	51.4	29	47.5
One	9798	22.5	156	19.0	2466	21.0	5907	23.3	1253	23.1	16	26.2
Two	4670	10.7	69	8.4	1127	9.6	2789	11.0	673	12.4	12	19.7
Three or more	3692	8.5	49	6.0	770	6.5	2158	8.5	711	13.1	4	6.6
Aging Indicators, Mean (SD)⁶												
Perceived Health Status ²	57.1	(22.1)	64.0	(21.8)	61.9	(20.7)	56.4	(22.0)	49.6	(22.7)	41.1	(27.0)
Quality of Life	75.3	(17.7)	79.8	(15.8)	78.7	(15.5)	74.7	(17.7)	68.0	(20.8)	65.0	(24.2)
Activities of Daily Living ⁷	93.1	(16.9)	98.0	(9.8)	97.1	(11.3)	93.1	(16.3)	79.5	(25.7)	65.1	(33.6)
Physical Functioning (RAND-36)	55.8	(29.4)	72.4	(24.2)	66.6	(26.2)	53.4	(28.6)	32.2	(26.9)	33.8	(33.7)

¹ Based on Form 151B (36.4%), 151A (60.4%), or 151 (3.2%) most proximal and subsequent to 9/30/2023; unless otherwise indicated. Due to the form ascertainment schedule, a 13-year snapshot was used as data was incomplete for 14 years.

² Collected on Form 151 and F151B only, missing if most proximal form was Form 151A.

³ Cane, crutches, walker, or wheelchair. Collected on Form 151 and F151A only, missing if most proximal form was Form 151B.

⁴ Collected on Form 151B only; missing if most proximal form was Form 151A or Form 151.

⁵ Falls data were collected on Form 33.

⁶ Aging indicators summarized as continuous variables. Perceived health status, quality of life and ADL were rescaled; all indicators are scaled 0 (worst) to 100 (best).

⁷ Includes eating, transferring, dressing, bathing, taking medication and grocery shopping.

Figure 3.1
Mean Physical Functioning by Visit Year (panel A) and by Age at Assessment (panel B) During WHI Extension Study II (2010-Present)

Data as of: February 15, 2025

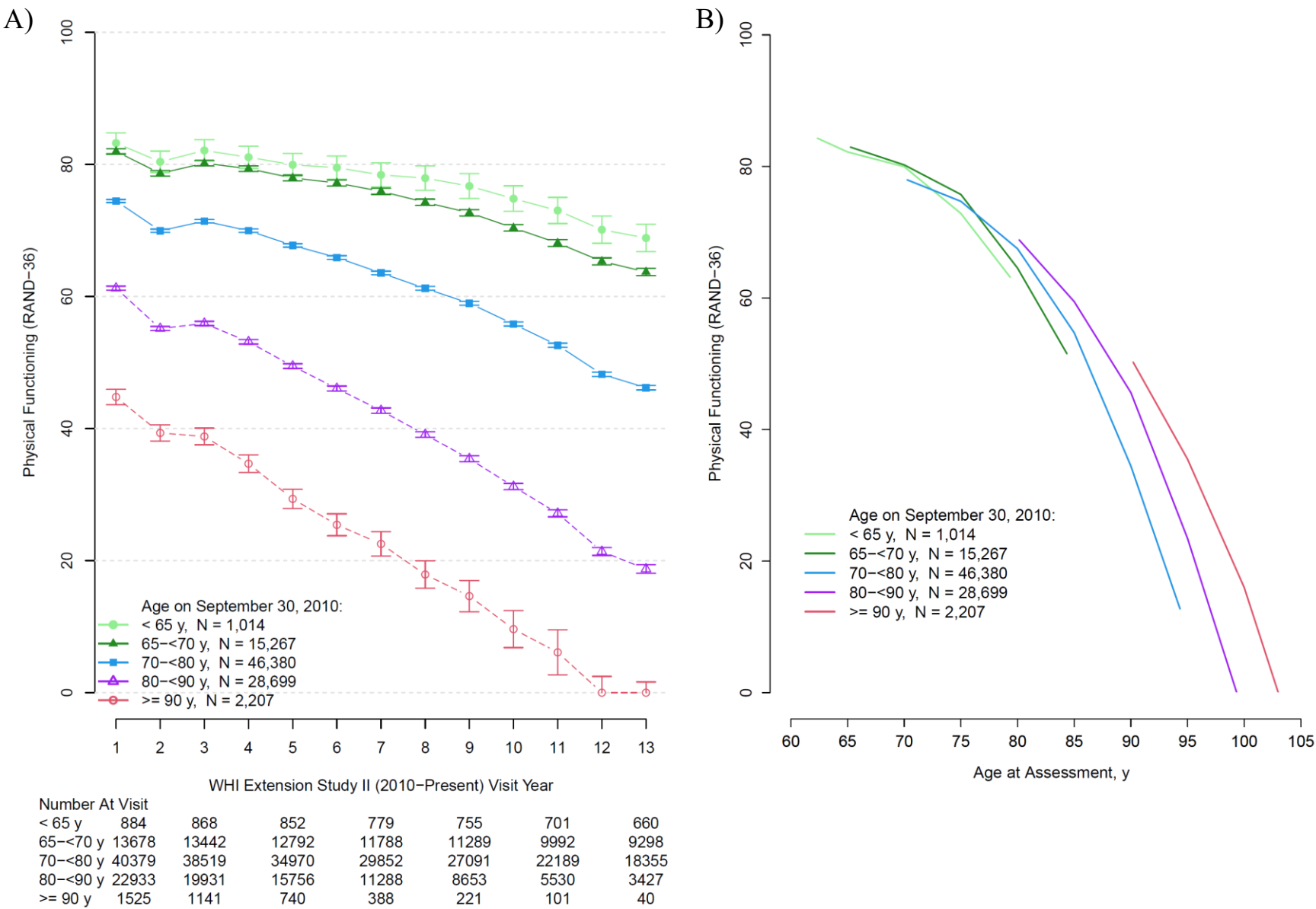
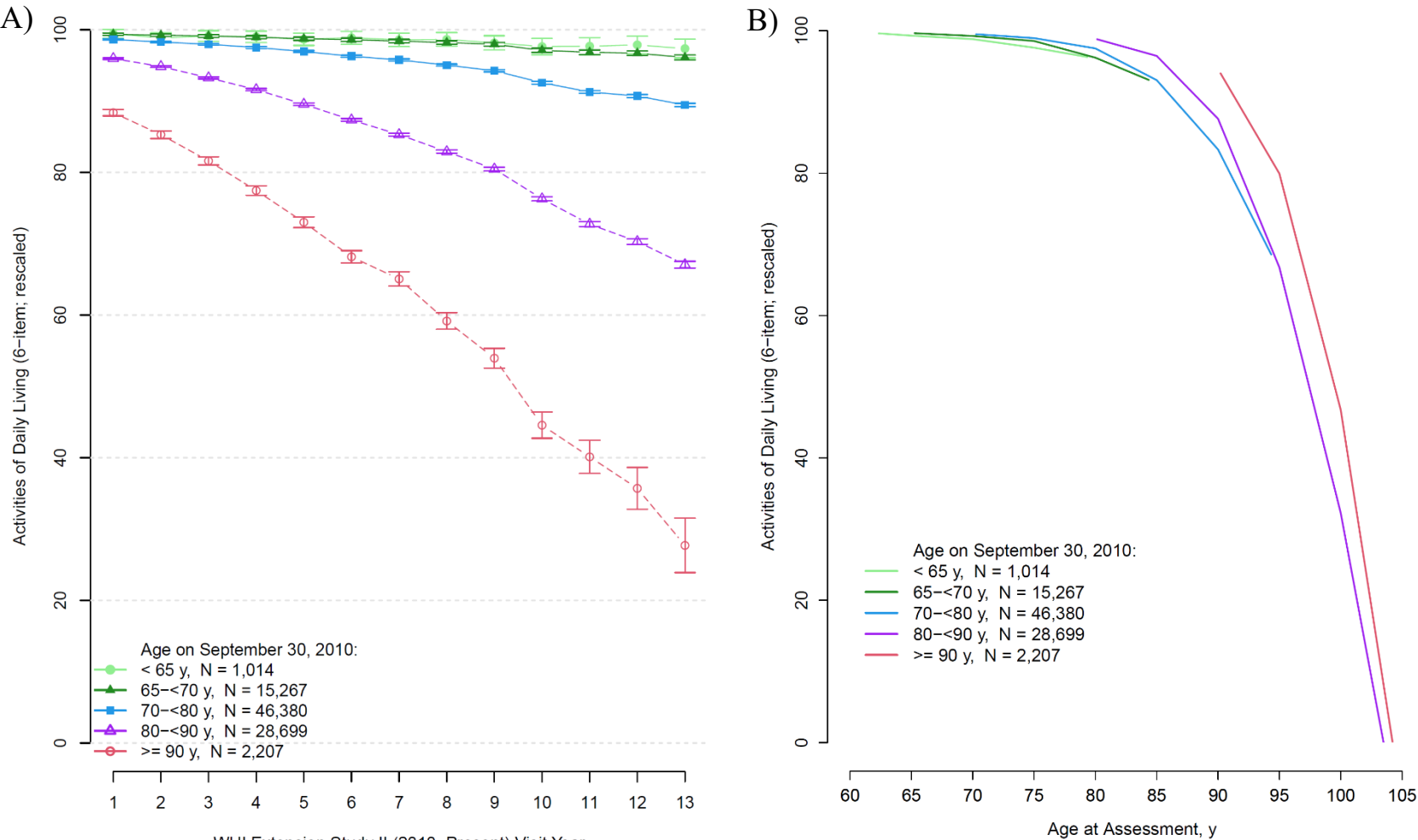


Figure 3.2
Mean Activities of Daily Living¹ by Visit Year (panel A) and by Age at Assessment (panel B) During WHI Extension Study II (2010-Present)

Data as of: February 15, 2025



WHI Extension Study II (2010-Present) Visit Year							
Number At Visit							
< 65 y	905	902	897	826	808	729	703
65- < 70 y	14104	13924	13562	12696	12123	10664	9942
70- < 80 y	42475	40920	38221	33415	30276	24347	20291
80- < 90 y	24956	21914	18014	13247	9930	6142	3889
>= 90 y	1709	1271	830	433	249	111	46

¹Includes eating, transferring, dressing, bathing, taking medication and grocery shopping.

Table 4.1
Participant Characteristics for Long Life Study (LLS) Participants by Race/Ethnicity¹

Data as of: March 6, 2021

	Race/Ethnicity									
	Total ²		Hispanic/ Latina		Non-Hispanic Black/African American		Non-Hispanic White		More than one Race	
	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %
Total LLS Participants	7875		1277		2483		3978		110	
Blood draw completed	7475	94.9	1238	96.9	2284	92.0	3827	96.2	101	91.8
Age at visit, years	7875	79.2 (6.8)	1277	75.4 (6.1)	2483	75.9 (6.0)	3978	82.5 (5.8)	110	77.8 (6.3)
63-69	724	9.2	236	18.5	379	15.3	97	2.4	9	8.2
70-79	3050	38.7	717	56.1	1433	57.7	829	20.8	60	54.5
80-89	3689	46.8	305	23.9	620	25.0	2717	68.3	35	31.8
≥90	412	5.2	19	1.5	51	2.1	335	8.4	6	5.5
Education	7826	--	1266	--	2461	--	3962	--	110	--
0-8 years	112	1.4	71	5.6	24	1.0	17	0.4	0	0.0
Some high school	286	3.7	76	6.0	112	4.6	96	2.4	1	0.9
High school diploma/GED	1288	16.5	199	15.7	280	11.4	794	20.0	10	9.1
School after high school	3041	38.9	543	42.9	915	37.2	1530	38.6	46	41.8
College degree or higher	3099	39.6	377	29.8	1130	45.9	1525	38.5	53	48.2
Body-mass Index (BMI), kg/m ²	7775	28.2 (5.9)	1265	28.0 (5.6)	2448	29.9 (6.2)	3928	27.3 (5.5)	107	28.3 (6.7)
< 18.5	112	1.4	13	1.0	23	0.9	72	1.8	3	2.8
18.5 - 24.9	2378	30.6	415	32.8	513	21.0	1410	35.9	31	29.0
25.0 - 29.9	2799	36.0	467	36.9	868	35.5	1419	36.1	39	36.4
30.0 - 34.9	1505	19.4	233	18.4	577	23.6	664	16.9	22	20.6
35.0 - 39.9	633	8.1	88	7.0	300	12.3	240	6.1	4	3.7
≥ 40	348	4.5	49	3.9	167	6.8	123	3.1	8	7.5

¹ Long Life Study participants are a subset of the Medical Records Cohort (MRC) which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines.

² Separate columns for American Indian/Alaska Native (n=4), Asian or Native Hawaiian/Other Pacific Islander (n=1) and Other/Not Reported (n=22) race/ethnicities are not displayed due to small numbers, however these participants are included in the Total column.

Table 4.1 (continued)
Participant Characteristics for Long Life Study (LLS) Participants by Race/Ethnicity¹

Data as of: March 6, 2021

	Race/Ethnicity									
	Total ²		Hispanic/ Latina		Non-Hispanic Black/African American		Non-Hispanic White		More than one Race	
	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %
Systolic blood pressure, mmHg	7864	125.9 (14.6)	1276	123.8 (13.7)	2478	127.1 (14.4)	3973	125.7 (14.8)	110	127.1 (16.8)
≤120	2962	37.7	566	44.4	851	34.3	1499	37.7	36	32.7
120 - 140	3796	48.3	564	44.2	1246	50.3	1918	48.3	56	50.9
>140	1106	14.1	146	11.4	381	15.4	556	14.0	18	16.4
Diastolic blood pressure, mmHg	7862	72.6 (8.9)	1275	72.2 (8.2)	2479	74.0 (8.8)	3971	71.8 (9.1)	110	73.3 (9.4)
<80	6073	77.2	1037	81.3	1807	72.9	3125	78.7	83	75.5
80-89	1535	19.5	209	16.4	567	22.9	730	18.4	24	21.8
≥90	254	3.2	29	2.3	105	4.2	116	2.9	3	2.7
Grip strength, kg	7274	17.8 (7.0)	1154	18.0 (6.3)	2329	20.0 (7.3)	3662	16.4 (6.7)	102	19.0 (7.2)
Repeated chair stands, #stands/sec	6949	0.35 (0.13)	1182	0.37 (0.1)	2178	0.34 (0.1)	3468	0.35 (0.1)	98	0.34 (0.1)
Walking pace, m/sec	6911	0.65 (0.29)	1124	0.73 (0.3)	2164	0.62 (0.3)	3502	0.65 (0.3)	97	0.60 (0.3)
Look AHEAD SPPB ³	7022	1.3 (0.5)	1147	1.4 (0.5)	2238	1.4 (0.5)	3517	1.2 (0.5)	97	1.2 (0.5)
EPESE SPPB ⁴	7102	7.9 (2.7)	1159	8.7 (2.6)	2260	7.8 (2.6)	3560	7.8 (2.8)	99	7.4 (2.7)

¹ Long Life Study participants are a subset of the Medical Records Cohort (MRC) which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines.

² Separate columns for American Indian/Alaska Native (n=4), Asian or Native Hawaiian/Other Pacific Islander (n=1) and Other/Not Reported (n=22) race/ethnicities are not displayed due to small numbers, however these participants are included in the Total column.

³ The Look AHEAD Short Physical Performance Battery (SPPB) ranges from 0 to 3, with higher scores indicating better physical performance.

⁴ The Established Populations for the Epidemiologic Studies of the Eldery (EPESE) Short Physical Performance Battery (SPPB) ranges from 0 to 12, with higher scores indicating better physical performance.

Table 4.2
Current Participation and Vital Status for Long Life Study (LLS) Participants

Data as of: February 15, 2025

Vital Status/Participation	LLS Participants (N=7,875)	
	N	%
Deceased	3919	49.8
Alive: Current Participation ¹	3330	42.3
Alive: Recent Participation ²	168	2.1
Stopped Follow-Up ³	247	3.1
Lost to Follow-Up ⁴	211	2.7

¹ Participants who have filled in a Form 33 within the last 15 months.

² Participants who last filled in a Form 33 between 15 and 24 months ago.

³ Participants with codes 5 (no follow-up) or 8 (absolutely no follow-up) on Form 7 or 9.

⁴ Participants not in any of the above categories.

Table 4.3
Verified Outcomes¹ (Annualized Percentages) After Long Life Study (LLS) Visit
by Race/Ethnicity² for LLS Participants

Data as of: February 15, 2025

	Total	Race/Ethnicity			
		Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race
Number enrolled	7875	1277	2483	3978	110
Mean person years post LLS study visit	9.1	10.1	9.7	8.4	8.8
Cardiovascular outcomes					
CHD ³	753 (1.07%)	86 (0.67%)	181 (0.76%)	472 (1.45%)	12 (1.27%)
CHD death ⁴	477 (0.67%)	45 (0.35%)	107 (0.44%)	314 (0.94%)	10 (1.04%)
Clinical MI	352 (0.52%)	46 (0.37%)	85 (0.37%)	217 (0.70%)	3 (0.33%)
CABG/PTCA	275 (0.39%)	39 (0.31%)	70 (0.30%)	163 (0.50%)	2 (0.21%)
Carotid artery disease	28 (0.04%)	1 (0.01%)	9 (0.04%)	18 (0.05%)	0 (0.00%)
Heart failure ⁵	800 (1.15%)	70 (0.55%)	186 (0.79%)	534 (1.67%)	8 (0.85%)
Stroke	703 (1.03%)	95 (0.76%)	182 (0.80%)	411 (1.29%)	12 (1.34%)
PAD	86 (0.12%)	8 (0.06%)	35 (0.15%)	42 (0.13%)	1 (0.10%)
DVT	260 (0.38%)	30 (0.24%)	98 (0.42%)	130 (0.41%)	2 (0.21%)
Pulmonary embolism	209 (0.30%)	19 (0.15%)	86 (0.37%)	98 (0.30%)	6 (0.63%)
DVT/PE	386 (0.55%)	42 (0.33%)	155 (0.67%)	183 (0.56%)	6 (0.63%)
Aortic aneurysm	24 (0.03%)	3 (0.02%)	8 (0.03%)	12 (0.04%)	1 (0.10%)
Valvular heart disease	244 (0.35%)	33 (0.26%)	33 (0.14%)	175 (0.53%)	3 (0.32%)
Total cardiovascular disease⁶	2627 (4.05%)	289 (2.39%)	686 (3.12%)	1614 (5.44%)	31 (3.50%)
Cancers					
Breast cancer	301 (0.45%)	50 (0.41%)	124 (0.56%)	124 (0.40%)	2 (0.22%)
Invasive breast cancer	262 (0.39%)	44 (0.36%)	103 (0.46%)	112 (0.36%)	2 (0.22%)
In situ breast cancer	41 (0.06%)	6 (0.05%)	22 (0.09%)	13 (0.04%)	0 (0.00%)
Ovarian cancer	34 (0.05%)	6 (0.05%)	8 (0.03%)	20 (0.06%)	0 (0.00%)
Endometrial cancer ⁷	24 (0.06%)	3 (0.05%)	6 (0.06%)	15 (0.07%)	0 (0.00%)
Colorectal cancer	106 (0.15%)	9 (0.07%)	26 (0.11%)	70 (0.21%)	1 (0.10%)
Other cancer ⁸	703 (1.01%)	87 (0.69%)	216 (0.92%)	376 (1.16%)	19 (2.10%)
Total cancer	1115 (1.64%)	148 (1.20%)	365 (1.60%)	577 (1.83%)	19 (2.10%)
Fractures					
Hip Fracture	455 (0.66%)	36 (0.28%)	44 (0.18%)	369 (1.19%)	5 (0.53%)
Deaths					
Cardiovascular deaths	1419 (1.98%)	127 (0.98%)	312 (1.29%)	958 (2.87%)	19 (1.97%)
Cancer deaths	611 (0.85%)	76 (0.59%)	190 (0.79%)	331 (0.99%)	12 (1.25%)
Other known cause	383 (0.53%)	48 (0.37%)	82 (0.34%)	241 (0.72%)	9 (0.93%)
Unknown cause	21 (0.03%)	2 (0.02%)	6 (0.02%)	13 (0.04%)	0 (0.00%)
Not yet adjudicated	229 (0.32%)	21 (0.16%)	76 (0.32%)	124 (0.37%)	6 (0.62%)
Total death	3919 (5.47%)	400 (3.09%)	929 (3.86%)	2513 (7.53%)	64 (6.64%)

¹ Excludes participants with a prevalent condition at LLS exam.

² Long Life Study participants were selected from MRC participants which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines. Outcome counts for American Indian/Alaska Native (n=4), Asian or Native Hawaiian/Other Pacific Islander (n=1) and Other/Not Reported (n=22) race/ethnicities are not displayed due to small numbers.

³ CHD includes clinical MI and CHD death.

⁴ CHD death includes definite and possible CHD death.

⁵ Definite or possible decompensated heart failure adjudicated by UNC.

⁶ Total CVD does not include aortic aneurysm or valvular heart disease.

⁷ Only women without a hysterectomy prior to the LLS exam are used to compute the annual rates of endometrial cancer.

⁸ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin cancer.

Table 4.4
Verified Outcomes¹ (Annualized Percentages) After Long Life Study (LLS) Visit
by Age at Visit for LLS Participants

Data as of: February 15, 2025

	Age at Long Life Study Visit			
	63-69	70-79	80-89	≥90
Number enrolled	723	3052	3688	412
Mean person years post LLS study visit	10.8	10.2	8.2	6.1
Cardiovascular outcomes				
CHD ²	29 (0.38%)	187 (0.61%)	472 (1.61%)	65 (2.62%)
CHD death ³	13 (0.17%)	95 (0.30%)	314 (1.04%)	55 (2.18%)
Clinical MI	18 (0.24%)	106 (0.35%)	207 (0.73%)	21 (0.90%)
CABG/PTCA	19 (0.25%)	122 (0.40%)	129 (0.44%)	5 (0.20%)
Carotid artery disease	1 (0.01%)	10 (0.03%)	16 (0.05%)	1 (0.04%)
Heart failure, UNC ⁴	20 (0.26%)	190 (0.62%)	525 (1.82%)	65 (2.70%)
Stroke	31 (0.41%)	194 (0.65%)	421 (1.48%)	57 (2.42%)
PAD	1 (0.01%)	33 (0.11%)	48 (0.16%)	4 (0.16%)
DVT	18 (0.24%)	99 (0.33%)	132 (0.46%)	11 (0.46%)
Pulmonary embolism	15 (0.20%)	83 (0.27%)	102 (0.35%)	9 (0.37%)
DVT/PE	27 (0.35%)	152 (0.50%)	190 (0.65%)	17 (0.70%)
Aortic aneurysm	2 (0.03%)	9 (0.03%)	12 (0.04%)	1 (0.04%)
Valvular heart disease	12 (0.15%)	71 (0.23%)	143 (0.48%)	18 (0.73%)
Total cardiovascular disease⁵	107 (1.45%)	739 (2.59%)	1560 (5.84%)	221 (9.74%)
Cancers				
Breast cancer	39 (0.53%)	162 (0.57%)	96 (0.34%)	4 (0.17%)
Invasive breast cancer	30 (0.41%)	143 (0.50%)	85 (0.30%)	4 (0.17%)
In situ breast cancer	9 (0.12%)	19 (0.06%)	13 (0.04%)	0 (0.00%)
Ovarian cancer	2 (0.03%)	15 (0.05%)	15 (0.05%)	2 (0.08%)
Endometrial cancer ⁶	0 (0.00%)	13 (0.08%)	11 (0.06%)	0 (0.00%)
Colorectal cancer	4 (0.05%)	28 (0.09%)	72 (0.24%)	2 (0.08%)
Other cancer ⁷	48 (0.63%)	293 (0.96%)	341 (1.16%)	21 (0.85%)
Total cancer	92 (1.25%)	486 (1.65%)	508 (1.77%)	29 (1.18%)
Fractures				
Hip fracture	12 (0.16%)	72 (0.23%)	324 (1.16%)	47 (2.14%)
Deaths				
Cardiovascular deaths	28 (0.36%)	259 (0.83%)	953 (3.16%)	179 (7.10%)
Cancer deaths	28 (0.36%)	218 (0.70%)	344 (1.14%)	21 (0.83%)
Other known cause	12 (0.15%)	79 (0.25%)	249 (0.83%)	43 (1.71%)
Unknown cause	2 (0.03%)	5 (0.02%)	11 (0.04%)	3 (0.12%)
Not yet adjudicated	9 (0.12%)	70 (0.22%)	141 (0.47%)	9 (0.36%)
Total death	108 (1.39%)	901 (2.88%)	2531 (8.40%)	379 (15.04%)

¹ Excludes participants with a prevalent condition at LLS exam.

² CHD includes clinical MI and CHD death.

³ CHD death includes definite and possible CHD death.

⁴ Definite or possible decompensated heart failure adjudicated by UNC.

⁵ Total CVD does not include aortic aneurysm or valvular heart disease.

⁶ Only women without a hysterectomy prior to the LLS exam are used to compute the annual rates of endometrial cancer.

⁷ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin cancer.

Table 4.5
Self-Reported Outcomes¹ (Annualized Percentages) After Long Life Study (LLS) Visit
by Race/Ethnicity² for LLS Participants

Data as of: February 15, 2025

		Race/Ethnicity			
	Total	Hispanic/ Latina	Non-Hispanic Black/African American	Non-Hispanic White	More than one Race
Number enrolled	7875	1277	2483	3978	110
Mean person years post LLS study visit	9.1	10.1	9.7	8.4	8.8
Self-reported outcomes					
Diabetes (treated)	950 (1.80%)	160 (1.73%)	323 (2.03%)	449 (1.68%)	13 (2.00%)
Hypertension treated w/pills	772 (4.63%)	186 (4.79%)	170 (5.00%)	401 (4.38%)	12 (7.27%)
Intestinal polyps	576 (1.34%)	144 (1.87%)	228 (1.68%)	199 (0.96%)	5 (0.83%)
Lupus	37 (0.05%)	8 (0.06%)	12 (0.05%)	17 (0.05%)	0 (0.00%)
Osteoarthritis	1148 (7.23%)	185 (6.74%)	382 (7.48%)	565 (7.28%)	11 (5.89%)
Dementia ³	2147 (3.36%)	326 (2.83%)	549 (2.51%)	1235 (4.21%)	29 (3.45%)
Macular degeneration	1479 (2.55%)	228 (2.10%)	358 (1.70%)	868 (3.46%)	19 (2.28%)
Parkinson's disease	148 (0.21%)	31 (0.24%)	43 (0.18%)	72 (0.22%)	2 (0.21%)
COPD	948 (1.47%)	140 (1.19%)	304 (1.42%)	494 (1.65%)	10 (1.11%)

¹ Excludes participants with a prevalent condition at LLS exam.

² Long Life Study participants were selected from MRC participants which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines. Outcome counts for American Indian/Alaska Native (n=4), Asian or Native Hawaiian/Other Pacific Islander (n=1) and Other/Not Reported (n=22) race/ethnicities are not displayed due to small numbers.

³ Includes report of "Moderate or severe memory problems" or "Dementia or Alzheimer's".

Table 4.6
Self-Reported Outcomes¹ (Annualized Percentages) After Long Life Study (LLS) Visit
by Age at Visit for LLS Participants

Data as of: February 15, 2025

	Age at Long Life Study Visit			
	63-69	70-79	80-89	≥90
Number enrolled	723	3052	3688	412
Mean person years post LLS study visit	10.8	10.2	8.2	6.1
Self-reported outcomes				
Diabetes (treated)	95 (1.71%)	436 (1.99%)	389 (1.67%)	30 (1.43%)
Hypertension treated w/pills	100 (4.75%)	339 (4.64%)	308 (4.56%)	25 (4.88%)
Intestinal polyps	122 (2.71%)	314 (1.74%)	136 (0.73%)	4 (0.24%)
Lupus	4 (0.05%)	19 (0.06%)	13 (0.04%)	1 (0.04%)
Osteoarthritis	138 (6.43%)	532 (7.28%)	434 (7.32%)	44 (8.92%)
Dementia ²	90 (1.22%)	682 (2.38%)	1234 (4.78%)	141 (6.73%)
Macular degeneration	80 (1.12%)	519 (1.94%)	804 (3.57%)	76 (4.91%)
Parkinson's disease	10 (0.13%)	64 (0.21%)	70 (0.24%)	4 (0.16%)
COPD	85 (1.20%)	370 (1.32%)	464 (1.73%)	29 (1.24%)

¹ Excludes participants with a prevalent condition at LLS exam.

² Includes report of "Moderate or severe memory problems" or "Dementia or Alzheimer's".

Table 5.1
Long Life Study 2 (LLS2) Consent Status by Cohort

Data as of: February 15, 2025

	Cohort ¹							
	Total		LLS		LILAC		Non-LLS/LILAC MRC	
	N	%	N	%	N	%	N	%
Number eligible	15855	--	4172	--	5104	--	6579	--
Consented²	7508	47.4	2214	53.1	2655	52.0	2639	40.1
Completed visit³	5905	78.6	1837	83.0	2029	76.4	2039	77.3
Age at visit⁴								
75-79	722	12.2	263	14.3	206	10.2	253	12.4
80-84	2162	36.6	605	32.9	743	36.6	814	39.9
85-89	1835	31.1	445	24.2	696	34.3	694	34.0
90-94	878	14.9	366	19.9	287	14.1	225	11.0
95-99	278	4.7	141	7.7	91	4.5	46	2.3
100+	30	0.5	17	0.9	6	0.3	7	0.3
Race^{4,5}								
American Indian/Alaska Native	8	0.1	2	0.1	2	0.1	4	0.2
Asian	53	0.9	0	0.0	17	0.8	36	1.8
Native Hawaiian/Pacific Islander	2	0.0	0	0.0	0	0.0	2	0.1
Black/African American	1053	17.8	743	40.4	25	1.2	285	14.0
White	4581	77.6	969	52.7	1959	96.6	1653	81.1
More than one race	80	1.4	34	1.9	19	0.9	27	1.3
Unknown/Not reported	128	2.2	89	4.8	7	0.3	32	1.6
Ethnicity^{4,5}								
Not Hispanic/Latina	5409	91.6	1464	79.7	2007	98.9	1938	95.0
Hispanic/Latina	492	8.3	373	20.3	20	1.0	99	4.9
Unknown/Not reported	4	0.1	0	0.0	2	0.1	2	0.1
Completed blood draw⁴	5509	93.3	1708	93.0	1883	92.8	1918	94.1

¹ LLS and LILAC participants were recruited first. Due to low numbers, non-LLS/LILAC MRC participants were additionally recruited.

² Percentage of eligible.

³ Percentage of consented.

⁴ Percentage of completed visit.

⁵ Long Life Study 2 participants are a subset of the Medical Records Cohort (MRC) which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race and ethnicity are presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines.

Table 5.2
Participant Characteristics for Long Life Study 2 (LLS2) Participants¹ by Race/Ethnicity

Data as of: February 15, 2025

	Race/Ethnicity									
	Total ²		Hispanic/ Latina		Non-Hispanic Black/African American		Non-Hispanic White		More than one Race	
	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %
LLS2 participants with completed visits	5905		492		1045		4230		65	
Blood draw completed	5509	93.3	467	94.9	939	89.9	3979	94.1	57	87.7
Vision exam completed ³	3694	99.2	170	98.3	352	99.4	3100	99.3	29	100.0
Age at visit, years	5095	85.2 (5.1)	492	83.6 (5.1)	1045	84.0 (5.0)	4230	85.7 (5.0)	65	85.3 (5.2)
75-79	722	12.2	112	22.8	197	18.9	391	9.2	13	20.0
80-84	2162	36.6	195	39.6	414	39.6	1507	35.6	15	23.1
85-89	1835	31.1	115	23.4	284	27.2	1391	32.9	25	38.5
90-94	878	14.9	54	11.0	111	10.6	695	16.4	8	12.3
≥95	308	5.2	16	3.3	39	3.7	246	5.8	4	6.2
Education	5870	--	486	--	1039	--	4208	--	65	--
0-8 years	29	0.5	8	1.6	9	0.9	12	0.3	0	0.0
Some high school	91	1.6	16	3.3	41	3.9	32	0.8	2	3.1
High school diploma/GED	688	11.7	67	13.8	105	10.1	505	12.0	7	10.8
School after high school	2029	34.6	213	43.8	379	36.5	1394	33.1	28	43.1
College degree or higher	3033	51.7	182	37.4	505	48.6	2265	53.8	28	43.1
Body-mass Index (BMI), kg/m ²	5441	27.1 (5.6)	462	27.0 (4.9)	943	28.7 (6.0)	3913	26.7 (5.5)	56	27.8 (6.9)
< 18.5	135	2.5	6	1.3	14	1.5	112	2.9	2	3.6
18.5 - 24.9	2014	37.0	173	37.4	252	26.7	1536	39.3	17	30.4
25.0 - 29.9	1931	35.5	173	37.4	352	37.3	1358	34.7	22	39.3
30.0 - 34.9	897	16.5	83	18.0	195	20.7	607	15.5	8	14.3
35.0 - 39.9	312	5.7	18	3.9	80	8.5	209	5.3	5	8.9
≥ 40	152	2.8	9	1.9	50	5.3	91	2.3	2	3.6

¹ Long Life Study 2 participants are a subset of the Medical Records Cohort (MRC) which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines.

² Separate columns for American Indian/Alaska Native (n= 5), Asian or Native Hawaiian/Other Pacific Islander (n= 53) and Other/Not Reported (n= 15) race/ethnicities are not displayed due to small numbers, however these participants are included in the Total column.

³ Vision screening was not included in the exam until Form 301, version 5, with implementation in the field beginning on 6/21/2023. The number of participants eligible to be screened is n = 3722 overall (n = 173 for Hispanic/Latina, n = 354 for Non-Hispanic Black/African American, n = 3123 for Non-Hispanic White, and n = 29 for More than one Race).

Table 5.2 (continued)
Participant Characteristics for Long Life Study 2 (LLS2) Participants¹ by Race/Ethnicity

Data as of: February 15, 2025

	Race/Ethnicity									
	Total ²		Hispanic/ Latina		Non-Hispanic Black/African American		Non-Hispanic White		More than one Race	
	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %
Kyphosis	5544	--	467	--	962	--	3989	--	56	--
No kyphosis (0)	1855	33.5	202	43.3	322	33.5	1283	32.2	16	28.6
Slight kyphosis (1)	2587	46.7	209	44.8	457	47.5	1872	46.9	23	41.1
Moderate kyphosis (2)	958	17.3	48	10.3	150	15.6	733	18.4	15	26.8
Severe kyphosis (3)	144	2.6	8	1.7	33	3.4	101	2.5	2	3.6
Systolic blood pressure, mmHg	5830	128.1 (15.7)	490	126.9 (14.7)	1026	131.5 (15.5)	4177	127.4 (15.8)	64	124.4 (15.2)
≤120	1888	32.4	171	34.9	228	22.2	1439	34.5	26	40.6
120 - 140	2833	48.6	239	48.8	550	53.6	1984	47.5	27	42.2
>140	1109	19.0	80	16.3	248	24.2	754	18.1	11	17.2
Diastolic blood pressure, mmHg	5830	72.9 (9.0)	490	71.8 (8.1)	1026	73.4 (9.5)	4177	72.8 (8.9)	64	73.8 (10.0)
<80	4473	76.7	399	81.4	745	72.6	3229	77.3	49	76.6
80-89	1162	19.9	86	17.6	236	23.0	814	19.5	10	15.6
≥90	195	3.3	5	1.0	45	4.4	134	3.2	5	7.8
Grip strength, kg	5619	13.7 (6.0)	475	13.3 (5.3)	973	15.4 (6.7)	4041	13.3 (5.9)	60	13.1 (5.9)
Repeated chair stands, #stands/sec	4515	0.37 (0.20)	411	0.39 (0.20)	752	0.33 (0.17)	3249	0.38 (0.20)	42	0.32 (0.17)
Walking pace, m/sec	4859	0.58 (0.24)	421	0.60 (0.24)	755	0.48 (0.24)	3576	0.59 (0.23)	44	0.53 (0.22)
Assistive device used on walk test	518	10.7	34	8.1	70	9.3	404	11.3	5	11.6
Look AHEAD SPPB ³	4083	1.6 (0.5)	365	1.6 (0.5)	644	1.4 (0.5)	2985	1.6 (0.5)	32	1.4 (0.5)
EPESE SPPB ⁴	4391	7.5 (2.6)	393	7.7 (2.5)	689	6.8 (2.7)	3209	7.6 (2.6)	40	6.4 (2.6)

¹ Long Life Study 2 participants are a subset of the Medical Records Cohort (MRC) which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines.

² Separate columns for American Indian/Alaska Native (n=5), Asian or Native Hawaiian/Other Pacific Islander (n= 53) and Other/Not Reported (n= 15) race/ethnicities are not displayed due to small numbers, however these participants are included in the Total column.

³ The Look AHEAD Short Physical Performance Battery (SPPB) ranges from 0 to 3, with higher scores indicating better physical performance.

⁴ The Established Populations for the Epidemiologic Studies of the Elderly (EPESE) Short Physical Performance Battery (SPPB) ranges from 0 to 12, with higher scores indicating better physical performance.

Table 5.3
Participant Characteristics for Long Life Study 2 (LLS2) Participants by Funding Source

Data as of: February 15, 2025

	Total		Funding Source			
			WHI Funded		LILAC Funded	
	N	Mean (SD) or %	N	Mean (SD) or %	N	Mean (SD) or %
LLS2 participants with completed visits	5905		3876		2029	
Blood draw completed	5509	93.3	3626	93.6	1883	92.8
Vision exam completed ¹	3694	99.2	2185	99.2	1509	99.3
Age at visit, years	5095	85.2 (5.1)	3876	85.2 (5.2)	2029	85.4 (4.8)
75-79	722	12.2	516	13.3	206	10.2
80-84	2162	36.6	1419	36.6	743	36.6
85-89	1835	31.1	1139	29.4	696	34.3
90-94	878	14.9	591	15.2	287	14.1
≥95	308	5.2	211	5.4	97	4.8
Education	5870	--	3854	--	2016	--
0-8 years	29	0.5	27	0.7	2	0.1
Some high school	91	1.6	79	2.0	12	0.6
High school diploma/GED	688	11.7	523	13.6	165	8.2
School after high school	2029	34.6	1448	37.6	581	28.8
College degree or higher	3033	51.7	1777	46.1	1256	62.3
Body-mass Index (BMI), kg/m ²	5441	27.1 (5.6)	3559	27.5 (5.7)	1882	26.3 (5.3)
< 18.5	135	2.5	84	2.4	51	2.7
18.5 - 24.9	2014	37.0	1215	34.1	799	42.5
25.0 - 29.9	1931	35.5	1283	36.0	648	34.4
30.0 - 34.9	897	16.5	635	17.8	262	13.9
35.0 - 39.9	312	5.7	225	6.3	87	4.6
≥ 40	152	2.8	117	3.3	35	1.9
Kyphosis	5544	--	3626	--	1918	--
No kyphosis (0)	1855	33.5	1239	34.2	616	32.1
Slight kyphosis (1)	2587	46.7	1676	46.2	911	47.5
Moderate kyphosis (2)	958	17.3	621	17.1	337	17.6
Severe kyphosis (3)	144	2.6	90	2.5	54	2.8
Systolic blood pressure, mmHg	5830	128.1	3828	128.5	2002	127.3
≤120	1888	32.4	1206	31.5	682	34.1
120 - 140	2833	48.6	1878	49.1	955	47.7
>140	1109	19.0	744	19.4	365	18.2
Diastolic blood pressure, mmHg	5830	72.9	3828	72.9	2002	72.7
<80	4473	76.7	2931	76.6	1542	77.0
80-89	1162	19.9	770	20.1	392	19.6
≥90	195	3.3	127	3.3	68	3.4
Grip strength, kg	5619	13.7	3687	13.8	1932	13.5
Repeated chair stands, #stands/sec	4515	0.37	2935	0.37	1580	0.38
Walking pace, m/sec	4859	0.58	3126	0.56	1733	0.60
Assistive device used on walk test	518	10.7	337	10.8	181	10.5
Look AHEAD SPPB ²	4083	1.6 (0.5)	2619	1.5 (0.5)	1464	1.6 (0.5)
EPESE SPPB ³	4391	7.5 (2.6)	2831	7.3 (2.7)	1560	7.8 (2.6)

¹ Vision screening was not included in the exam until Form 301, version 5, with implementation in the field beginning on 6/21/2023. The number of participants eligible to be screened is n = 3722 overall (n = 2202 for WHI funded participants, and n = 1520 for LILAC funded participants).

² The Look AHEAD Short Physical Performance Battery (SPPB) ranges from 0 to 3, with higher scores indicating better physical performance.

³ The Established Populations for the Epidemiologic Studies of the Eldery (EPESE) Short Physical Performance Battery (SPPB) ranges from 0 to 12, with higher scores indicating better physical performance.

Table 5.4
CBC and Biomarker Results for Long Life Study 2 (LLS2) Participants¹ at the LLS2 Visit by Race/Ethnicity

Data as of: February 15, 2025

	Total ²			Race/Ethnicity											
				Hispanic/ Latina			Non-Hispanic Black/African American			Non-Hispanic White			More than one Race		
	N	Mean	(SD)	N	Mean	(SD)	N	Mean	(SD)	N	Mean	(SD)	N	Mean	(SD)
CBC															
Hemoglobin, g/dL	5173	13.0	(1.3)	434	12.9	(1.3)	886	12.3	(1.3)	3737	13.1	(1.3)	53	12.8	(1.3)
Hematocrit, %	5174	39.8	(3.8)	434	39.4	(3.8)	886	38.3	(3.8)	3738	40.2	(3.7)	53	39.2	(3.9)
Red Blood Cell Count, 10 ⁶ /ul	5171	4.3	(0.5)	434	4.3	(0.5)	886	4.3	(0.5)	3735	4.3	(0.5)	53	4.3	(0.5)
Platelet Count, 10 ³ /ul [^]	5174	228.8	(66.1)	434	232.9	(65.5)	886	228.8	(67.2)	3738	228.4	(66.0)	53	216.9	(67.6)
White Blood Cell Count, 10 ³ /ul [^]	5174	5.9	(1.8)	434	5.8	(1.6)	886	5.4	(1.8)	3738	6.1	(1.8)	53	6.1	(1.7)
Neutrophil Count, 10 ³ /ul [^]	5161	3.3	(1.6)	433	3.1	(1.5)	883	2.7	(1.6)	3729	3.4	(1.5)	53	3.4	(1.5)
Neutrophil, %	5167	56.7	(11.8)	433	55.4	(11.7)	883	51.8	(12.6)	3735	58.0	(11.3)	53	57.9	(12.1)
Basophil Count, 10 ³ /ul	5167	0.1	(0.0)	433	0.1	(0.0)	883	0.0	(0.0)	3735	0.1	(0.0)	53	0.0	(0.0)
Basophil, %	5167	1.0	(0.6)	433	1.0	(0.5)	883	0.9	(0.7)	3735	1.0	(0.6)	53	0.9	(0.6)
Eosinophil Count, 10 ³ /ul	5167	0.2	(0.2)	433	0.2	(0.2)	883	0.2	(0.1)	3735	0.2	(0.2)	53	0.2	(0.1)
Eosinophil, %	5167	3.1	(2.4)	433	3.4	(3.3)	883	3.1	(2.4)	3735	3.1	(2.2)	53	2.8	(2.0)
Monocyte Count, 10 ³ /ul [^]	5165	0.5	(0.2)	433	0.5	(0.2)	883	0.5	(0.2)	3733	0.6	(0.2)	53	0.5	(0.2)
Monocyte, %	5167	9.6	(2.9)	433	9.2	(2.6)	883	9.6	(3.2)	3735	9.7	(2.9)	53	9.3	(2.2)
Immature Granulocyte Count, 10 ³ /ul	5167	0.0	(0.0)	433	0.0	(0.1)	883	0.0	(0.0)	3735	0.0	(0.0)	53	0.0	(0.0)
Immature Granulocyte Fraction, %	5167	0.6	(0.9)	433	0.8	(1.1)	883	0.6	(0.9)	3735	0.6	(0.9)	53	0.6	(0.9)
Lymphocyte Count, 10 ³ /ul [^]	5167	1.6	(0.7)	433	1.7	(0.6)	883	1.7	(0.7)	3735	1.6	(0.7)	53	1.6	(0.7)
Lymphocyte, % [^]	5167	27.1	(9.8)	433	28.9	(9.2)	883	32.2	(10.8)	3735	25.8	(9.2)	53	26.4	(11.1)
Nucleated RBC Count, 10 ³ /ul	5151	0.0	(0.1)	434	0.0	(0.0)	881	0.0	(0.2)	3720	0.0	(0.0)	53	0.0	(0.0)
Nucleated RBC, %	5151	0.0	(0.4)	434	0.0	(0.1)	881	0.0	(1.0)	3720	0.0	(0.1)	53	0.0	(0.0)
Mean Corpuscular Hemoglobin, pg	5166	30.2	(2.2)	432	30.1	(2.1)	886	29.0	(2.5)	3732	30.5	(2.0)	53	30.3	(2.6)
Mean Corpuscular Hemoglobin, g/dL	5166	32.6	(1.1)	432	32.6	(1.1)	886	32.3	(1.2)	3732	32.7	(1.0)	53	32.7	(1.1)
Mean Corpuscular Volume, fL	5166	92.6	(5.5)	432	92.3	(5.2)	886	89.9	(6.6)	3732	93.4	(5.0)	53	92.8	(7.1)
Mean Platelet Volume, fL	5110	11.3	(1.0)	432	11.5	(1.0)	865	11.6	(1.0)	3700	11.2	(1.0)	52	11.3	(0.9)
Red Cell Distribution Width - CV, % [^]	5167	13.7	(1.2)	432	13.7	(1.3)	886	14.2	(1.4)	3733	13.6	(1.2)	53	13.8	(1.2)
Red Cell Distribution Width – Std. Deviation	5171	46.3	(4.2)	434	46.2	(4.4)	885	46.2	(4.4)	3736	46.4	(4.2)	53	46.7	(5.0)

¹ Long Life Study 2 participants are a subset of the Medical Records Cohort (MRC) which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines.

² Separate columns for American Indian/Alaska Native, Asian or Native Hawaiian/Other Pacific Islander and Other/Not Reported race/ethnicities are not displayed due to small numbers, however these participants are included in the Total column.

[^] Geometric mean and SD.

Table 5.4 (continued)
CBC and Biomarker Results for Long Life Study 2 (LLS2) Participants¹ at the LLS2 Visit by Race/Ethnicity

Data as of: February 15, 2025

				Race/Ethnicity											
				Hispanic/ Latina			Non-Hispanic Black/African American			Non-Hispanic White			More than one Race		
	N	Mean	(SD)	N	Mean	(SD)	N	Mean	(SD)	N	Mean	(SD)	N	Mean	(SD)
Inflammatory, lipids and other biomarkers															
C-reactive protein (high sensitivity), mg/L^	5438	1.9	(2.0)	460	1.8	(1.9)	929	2.1	(2.5)	3928	1.8	(1.9)	57	1.8	(2.1)
Creatinine, mg/dL^	5436	0.9	(0.2)	460	0.9	(0.2)	930	1.0	(0.3)	3925	0.9	(0.2)	57	0.9	(0.2)
Insulin, pmol/L^	5330	67.1	(55.1)	455	77.1	(62.1)	908	82.6	(73.8)	3849	62.9	(50.0)	57	77.6	(73.7)
Glucose, mg/dL^	5432	99.0	(22.5)	460	102.7	(27.4)	930	101.2	(26.5)	3921	98.0	(20.9)	57	100.0	(22.5)
HDL cholesterol, mg/dL	5436	65.4	(17.1)	460	63.1	(17.9)	930	65.7	(16.4)	3925	65.5	(17.2)	57	63.6	(15.8)
LDL cholesterol, mg/dL	5415	98.3	(34.8)	452	95.2	(35.0)	930	97.9	(34.8)	3913	98.6	(34.7)	57	99.6	(41.2)
Total Cholesterol, mg/dL	5436	185.4	(40.6)	460	183.1	(42.8)	930	181.9	(40.7)	3925	186.3	(40.2)	57	185.7	(45.7)
Triglyceride, mg/dL^	5433	99.1	(41.9)	460	111.9	(53.2)	930	84.4	(33.7)	3922	101.3	(41.6)	57	103.9	(41.3)

¹ Long Life Study 2 participants are a subset of the Medical Records Cohort (MRC) which includes all WHI Hormone Trial participants and all Non-Hispanic Black/African American and Hispanic/Latina participants (identified from race/ethnicity collected on Form 2 at baseline) from the CT and OS. However, race/ethnicity is presented using the imputed Form 41 data and following the WHI Race/Ethnicity Task Force guidelines.

² Separate columns for American Indian/Alaska Native, Asian or Native Hawaiian/Other Pacific Islander and Other/Not Reported race/ethnicities are not displayed due to small numbers, however these participants are included in the Total column.

[^] Geometric mean and SD.

Table 5.5
CBC and Biomarker Results for Long Life Study 2 (LLS2) Participants at the LLS2 Visit by Funding Source

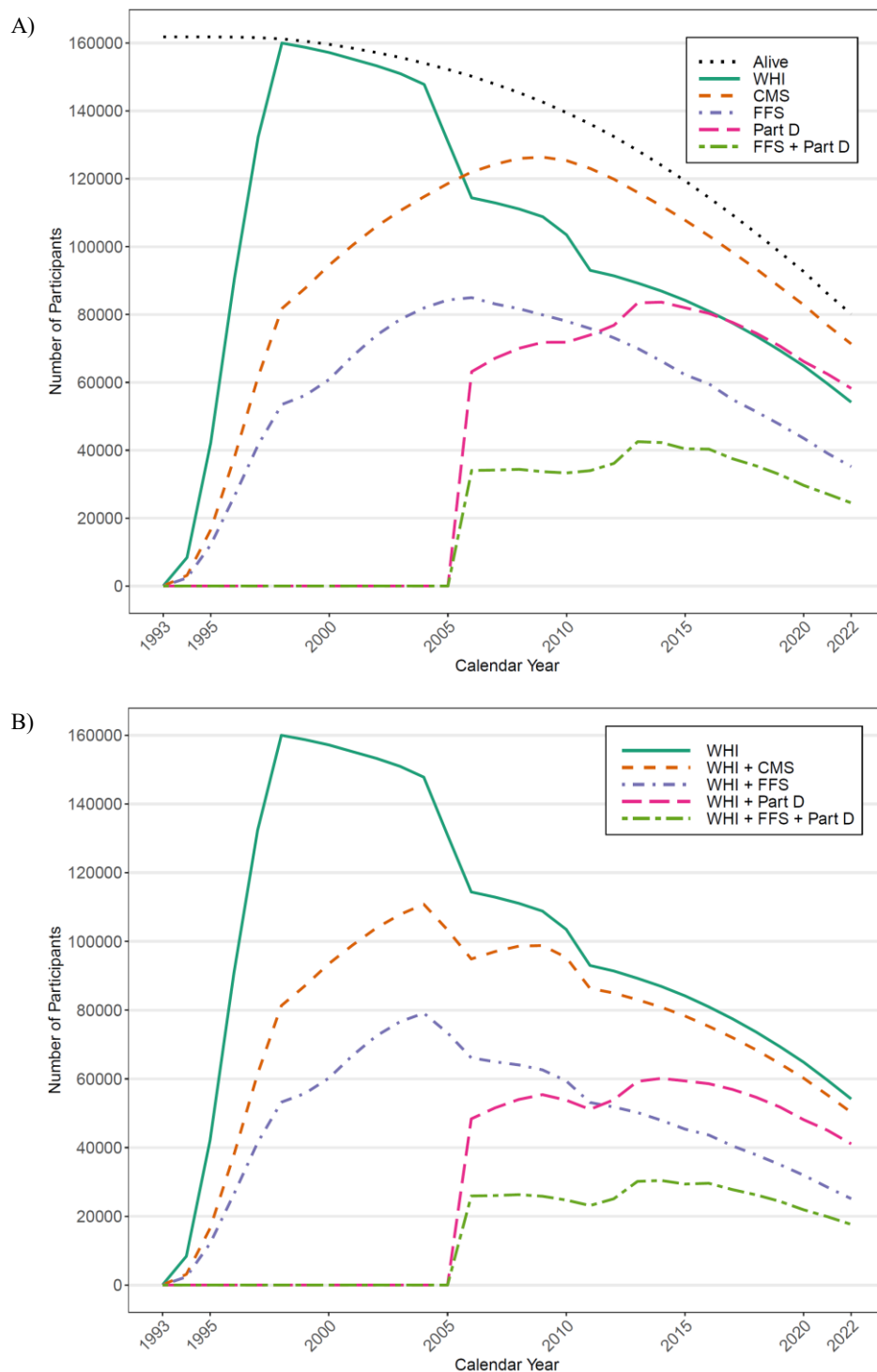
Data as of: February 15, 2025

	Total			Funding Source					
				WHI Funded			LILAC Funded		
	N	Mean	(SD)	N	Mean	(SD)	N	Mean	(SD)
CBC									
Hemoglobin, g/dL	5173	13.0	(1.3)	3398	12.9	(1.4)	1775	13.2	(1.3)
Hematocrit, %	5174	39.8	(3.8)	3398	39.5	(3.9)	1776	40.2	(3.7)
Red Blood Cell Count, 10 ⁶ /ul	5171	4.3	(0.5)	3397	4.3	(0.5)	1774	4.3	(0.5)
Platelet Count, 10 ³ /ul [^]	5174	228.8	(66.1)	3398	229.9	(66.3)	1776	226.9	(65.6)
White Blood Cell Count, 10 ³ /ul [^]	5174	5.9	(1.8)	3398	5.9	(1.8)	1776	6.0	(1.8)
Neutrophil Count, 10 ³ /ul [^]	5161	3.3	(1.6)	3387	3.2	(1.6)	1774	3.4	(1.5)
Neutrophil, %	5167	56.7	(11.8)	3392	55.9	(12.1)	1775	58.3	(11.0)
Basophil Count, 10 ³ /ul	5167	0.1	(0.0)	3392	0.1	(0.0)	1775	0.1	(0.0)
Basophil, %	5167	1.0	(0.6)	3392	1.0	(0.6)	1775	1.0	(0.6)
Eosinophil Count, 10 ³ /ul	5167	0.2	(0.2)	3392	0.2	(0.2)	1775	0.2	(0.2)
Eosinophil, %	5167	3.1	(2.4)	3392	3.1	(2.3)	1775	3.2	(2.4)
Monocyte Count, 10 ³ /ul [^]	5165	0.5	(0.2)	3391	0.5	(0.2)	1774	0.6	(0.2)
Monocyte, %	5167	9.6	(2.9)	3392	9.5	(2.9)	1775	9.8	(3.0)
Immature Granulocyte Count, 10 ³ /ul	5167	0.0	(0.0)	3392	0.0	(0.1)	1775	0.0	(0.0)
Immature Granulocyte Fraction, %	5167	0.6	(0.9)	3392	0.6	(1.0)	1775	0.6	(0.9)
Lymphocyte Count, 10 ³ /ul [^]	5167	1.6	(0.7)	3392	1.6	(0.7)	1775	1.5	(0.7)
Lymphocyte, % [^]	5167	27.1	(9.8)	3392	28.0	(10.1)	1775	25.4	(9.0)
Nucleated RBC Count, 10 ³ /ul	5151	0.0	(0.1)	3383	0.0	(0.1)	1768	0.0	(0.0)
Nucleated RBC, %	5151	0.0	(0.4)	3383	0.0	(0.5)	1768	0.0	(0.1)
Mean Corpuscular Hemoglobin, pg	5166	30.2	(2.2)	3393	30.0	(2.2)	1773	30.6	(2.1)
Mean Corpuscular Hemoglobin, g/dL	5166	32.6	(1.1)	3393	32.6	(1.1)	1773	32.7	(1.0)
Mean Corpuscular Volume, fL	5166	92.6	(5.5)	3393	92.2	(5.6)	1773	93.5	(5.3)
Mean Platelet Volume, fL	5110	11.3	(1.0)	3358	11.4	(1.0)	1752	11.2	(1.0)
Red Cell Distribution Width - CV, % [^]	5167	13.7	(1.2)	3393	13.8	(1.3)	1774	13.6	(1.2)
Red Cell Distribution Width – Std. Deviation	5171	46.3	(4.2)	3396	46.2	(4.2)	1775	46.5	(4.2)
Inflammatory, lipids and other biomarkers									
C-reactive protein (high sensitivity), mg/L [^]	5438	1.9	(2.0)	3585	1.9	(2.0)	1853	1.8	(2.0)
Creatinine, mg/dL [^]	5436	0.9	(0.2)	3586	0.9	(0.3)	1850	0.9	(0.2)
Insulin, pmol/L [^]	5330	67.1	(55.1)	3516	68.8	(57.5)	1814	64.0	(50.4)
Glucose, mg/dL [^]	5432	99.0	(22.5)	3583	99.7	(23.8)	1849	97.6	(19.8)
HDL cholesterol, mg/dL	5436	65.4	(17.1)	3586	64.9	(16.9)	1850	66.3	(17.4)
LDL cholesterol, mg/dL	5415	98.3	(34.8)	3569	98.3	(34.9)	1846	98.2	(34.8)
Total Cholesterol, mg/dL	5436	185.4	(40.6)	3586	184.7	(40.7)	1850	186.7	(40.5)
Triglyceride, mg/dL [^]	5433	99.1	(41.9)	3583	97.7	(41.6)	1850	101.9	(42.3)

[^] Geometric mean and SD.

Figure 6.1
CMS Enrollment¹ for WHI Participants by Calendar Year²
for All CMS-Enrolled Participants (panel A) and Restricted to Participants with Active WHI Participation³ (panel B)

Data as of December 31, 2022



¹ Enrollments broken down by CMS component: CMS = enrollment in any Medicare component (Part A, Part B, or Part C), FFS = enrollment in both fee-for-service components (Part A + Part B), Part D = enrollment in supplemental drug coverage (Part D).

² Participation for WHI and enrollment counts for CMS are based on a participant having any coverage or participation within the given calendar year.

³ Active participation is defined as current (Form 33 within 15 months) or recent (Form 33 between 15 and 24 months ago) follow-up.

Table 6.1
Available CMS Follow-Up for WHI Participants in 5 Year Increments

Data as of: December 31, 2022

Medicare Fee-For-Service A+B						Medicare Part D					
Interval ¹	Enrolled at Interval Start	Continuous Enrollment ²		Continuous Enrollment to End of Interval ³		Interval ¹	Enrolled at Interval Start	Continuous Enrollment ²		Continuous Enrollment to End of Interval ³	
	N	N	%	N	%		N	N	%	N	%
2005 - 2009	79621	66868	84.0	59867	75.2	2006 ⁴ - 2009	43475	41055	94.4	37298	85.8
2005 - 2014		59484	74.7	42755	53.7	2006 ⁴ - 2014		38876	89.4	28793	66.2
2005 - 2019		53869	67.7	26261	33.0	2006 ⁴ - 2019		37986	87.4	20133	46.3
2010 - 2014	75901	66944	88.2	56017	73.8	2010 - 2014	69656	66516	95.5	56184	80.7
2010 - 2019		59230	78.0	36080	47.5	2010 - 2019		64609	92.8	41240	59.2
2015 - 2019	61368	53739	87.6	40501	66.0	2015 - 2019	81063	78237	96.5	60391	74.5

¹Follow-up interval defined as January 1st of the interval start year to December 31st of the interval end year.

²Calculated as the number and percentage of participants enrolled at the start of the interval through the minimum of death and the end of the interval.

³Calculated as the number and percentage of participants enrolled for the entire duration of the interval.

⁴Medicare Part D became available for enrollment on 1/1/2006.

Table 7.1
Life and Longevity After Cancer (LILAC) Study Participants and Cancer Treatments Received by Cancer Site and Selected Characteristics

Data as of: February 15, 2025

	Total N	Cancer-Directed Surgery				Chemotherapy/Targeted Therapy				Radiation Therapy			
		Surgery Documentation Available ¹	Derived from CMS ²		Surgery Performed	Chemotherapy Documentation Available ¹	Derived from CMS ²		Chemotherapy Received	Radiation Documentation Available ¹	Derived from CMS ²		Radiation Received
			N	%			N	%			N	%	
Total participants	16866	15710	34	12154	77.4	15176	37	5618	37.0	15114	37	5894	39.0
Cancer³													
Breast ^{4,5}	7668	6873	42	6642	96.6	6603	46	1790	27.1	6581	46	4194	63.7
Colorectal	1987	1934	32	1772	91.6	1863	35	715	38.4	1865	35	139	7.5
Endometrial	1244	1163	16	1121	96.4	1112	21	195	17.5	1107	21	371	33.5
Ovarian/FT/PP ⁶	941	909	32	747	82.2	882	34	762	86.4	859	35	26	3.0
Lung	2365	2277	25	809	35.5	2215	28	1032	46.6	2207	28	919	41.6
Melanoma	873	831	32	811	97.6	813	33	52	6.4	815	33	17	2.1
NHL/MF ⁷	1165	1116	34	260	23.3	1101	36	770	69.9	1077	37	223	20.7
Leukemia	647	--	--	--	--	608	28	314	51.6	623	28	9	1.4
Age at diagnosis													
50-64	2013	1499	2	1315	87.7	1392	4	677	48.6	1377	4	721	52.4
65-69	2647	2493	44	2090	83.8	2434	47	1061	43.6	2412	48	1062	44.0
70-74	3887	3724	41	3020	81.1	3629	43	1447	39.9	3617	43	1559	43.1
75-79	3871	3750	38	2918	77.8	3638	41	1265	34.8	3619	41	1400	38.7
80-84	2723	2624	32	1891	72.1	2518	35	779	30.9	2522	35	821	32.6
85-89	1313	1235	30	742	60.1	1199	32	324	27.0	1197	32	258	21.6
≥90	412	385	22	178	46.2	366	25	65	17.8	370	24	73	19.7
Year of diagnosis													
<2000	1812	1137	90	1004	88.3	1152	90	415	36.0	1149	90	526	45.8
2000-2004	5049	4918	35	4038	82.1	4584	40	1839	40.1	4531	40	1999	44.1
2005-2009	4076	3967	35	3012	75.9	3874	37	1525	39.4	3873	37	1488	38.4
2010-2014	3227	3155	19	2356	74.7	3110	20	1037	33.3	3112	21	1109	35.6
2015-2019	2103	1963	28	1344	68.5	1912	30	646	33.8	1910	30	607	31.8
2020-2022	599	570	19	400	70.2	544	22	156	28.7	539	21	165	30.6

¹ Documentation about whether the participant received surgery, chemotherapy, or radiation as part of their cancer treatment was available from Medical Record Abstraction or CMS Medicare fee-for-service A+B claims data.

² CMS is the U.S. Centers for Medicare and Medicaid Services.

³ Total number of cancers is greater than the total number of participants because some women were diagnosed with more than one LILAC-designated cancer on the same date.

⁴ Medical record abstraction will be completed for approximately 500 additional breast cancer survivors by August 31, 2025.

⁵ Of N=4029 hormone-receptor positive breast cancer survivors with Medical Record Abstraction 73 or Medicare Part D claims 27, N=3315 83 received endocrine-targeted/hormonal therapy.

⁶ Includes ovarian, fallopian tube FT, and primary peritoneal PP cancers.

⁷ Includes non-Hodgkin lymphoma NHL and mycosis fungoides MF.

Table 7.1 (continued)
Life and Longevity After Cancer (LILAC) Study Participants and Cancer Treatments Received by Cancer Site and Selected Characteristics

Data as of: February 15, 2025

	Total N	Cancer-Directed Surgery				Chemotherapy/Targeted Therapy				Radiation Therapy			
		Surgery Documentation Available ¹		Derived from CMS ² Claims		Chemotherapy Documentation Available ¹		Derived from CMS ² Claims		Radiation Documentation Available ¹		Derived from CMS ² Claims	
		N	%	N	%	N	%	N	%	N	%	N	%
Summary stage													
Localized	9306	8573	37	8086	94.3	8273	40	1268	15.3	8258	40	3694	44.7
Regional	3668	3418	37	2984	87.3	3283	39	1914	58.3	3268	40	1467	44.9
Distant	3372	3256	25	954	29.3	3168	27	2214	69.9	3138	27	573	18.3
Unknown	520	463	37	130	28.1	452	39	222	49.1	450	39	160	35.6
Enrollment type													
Consent enrollment	9573	8740	28	7732	88.5	8604	30	2613	30.4	8593	30	3682	42.8
Partial waiver of consent ³	7293	6970	42	4422	63.4	6572	46	3005	45.7	6521	46	2212	33.9
Race ⁴													
Asian	255	232	26	180	77.6	221	29	94	42.5	224	29	98	43.8
Black/African American	900	836	34	617	73.8	779	38	373	47.9	768	39	311	40.5
White	15344	14302	35	11098	77.6	13853	37	4999	36.1	13800	37	5350	38.8
More than one race	168	155	25	118	76.1	149	26	64	43.0	148	27	61	41.2
Other/Not reported	150	138	30	106	76.8	130	33	67	51.5	131	34	56	42.7
Ethnicity													
Not Hispanic/Latina	16399	15286	34	11824	77.4	14778	37	5439	36.8	14712	37	5745	39.0
Hispanic/Latina	393	354	28	277	78.2	334	31	140	41.9	338	31	128	37.9
Unknown/Not reported	74	70	36	53	75.7	64	39	39	60.9	64	39	21	32.8

¹ Documentation about whether the participant received surgery, chemotherapy, or radiation as part of their cancer treatment was available from Medical Record Abstraction or CMS Medicare fee-for-service A+B claims data.

² CMS is the U.S. Centers for Medicare and Medicaid Services

³ Only deceased participants were eligible for a partial waiver of consent.

⁴ Separate rows for American Indian/Alaska Native n= 37 and Native Hawaiian/Other Pacific Islander n= 12 are not displayed due to small numbers, however these participants are included in the other data items included in the table.

Table 8.1
Status of Virtual Pooled Registry (VPR) Progress

Data as of: February 15, 2025

Status	Registries			High Quality Matches ¹		Records Received ²
	Number of Registries	% of Registries	State Abbreviations	N	%	N
Received data	33	76.7	AL, AK, AZ, CA, CO, CT, GA, ID, IN, IA, KY, LA, ME, MD, MA, MI, MT, NE, NJ, NM, NY, ND, OH, OK, OR, PR, RI, SC, TN, VA, WA (Seattle) ³ , WI, WY	40639	84.1	40256
Approvals in place	4	9.3				
Waiting to receive data	1	2.3	HI	1131	2.3	
DUA pending at FHCC	2	4.7	AR, NC	2773	5.7	
DUA pending at registry	1	2.3	TX	2000	4.1	
Approvals under review by external registry/IRB	3	7.0	MS, NH, PA	1626	3.4	
Initial paperwork in progress at WHI CCC	1	2.3	MO	78	0.2	
Not yet started approval process	1	2.3	UT	41	0.1	
Denied	1	2.3	WV	46	0.1	
Total	43	100.0		48334	100.0	40256

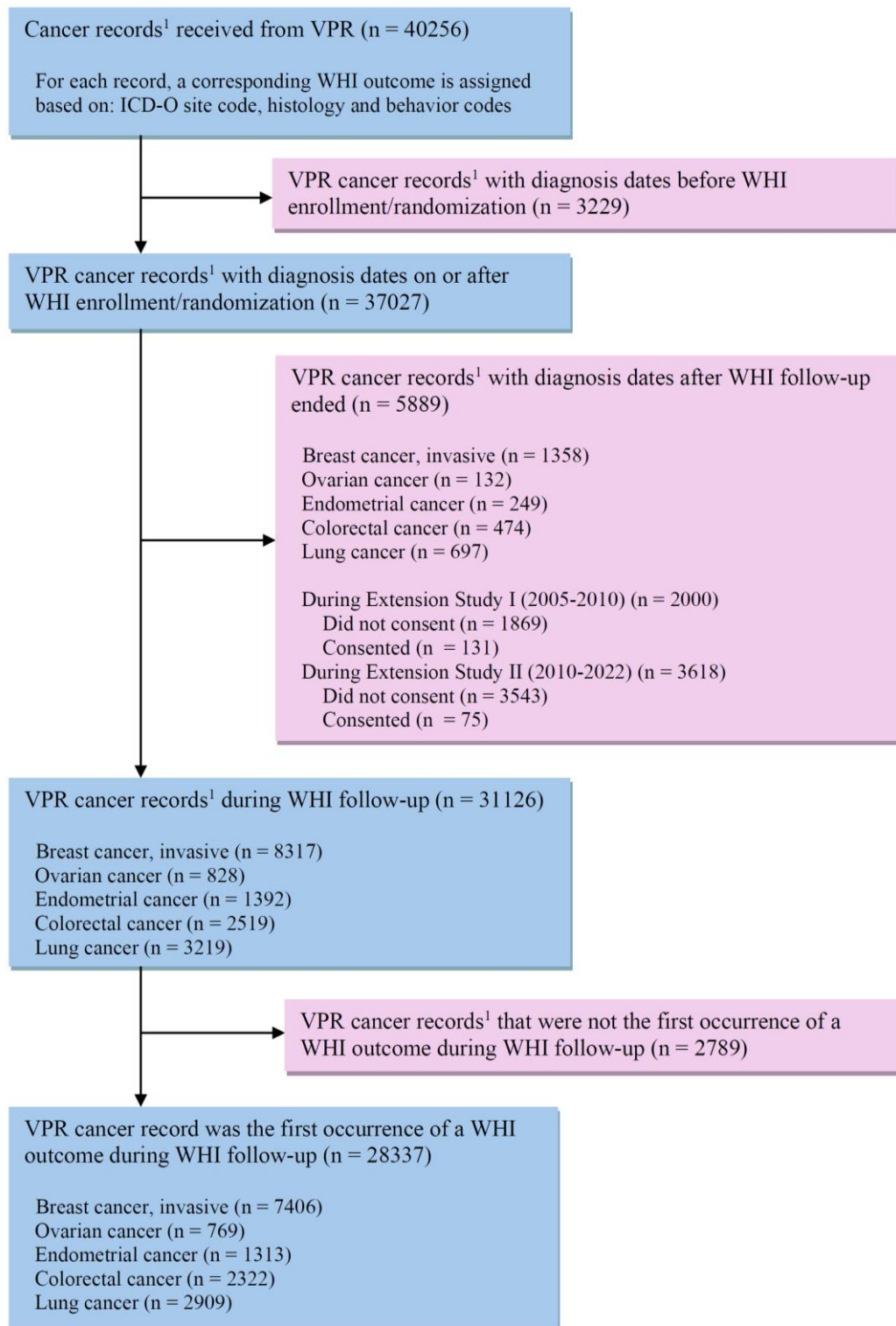
¹ High Quality Matches refer to match counts generated by registries in Phase I of VPR process based on linkage file submitted to VPR-CLS by WHI.

² Actual records received may differ from High Quality Matches if additional matches are identified during manual review during Phase II when the individual-level data is released to WHI. Additionally, “non-matches” and “uncertain” matches are removed, which may reduce the number of records received.

³ Washington has multiple cancer registries, data in VPR is provided by the Seattle SEER Registry.

Figure 8.1
Virtual Pooled Registry (VPR) Process Flow

Data as of February 15, 2025



¹Cancer records may include multiple primaries and sites per participant