



**Women's Health Initiative
2024 Annual Progress Report**

Data as of: February 17, 2024

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 of the designated outcomes to the CCC.

In Extension Study II (2010-2025), 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

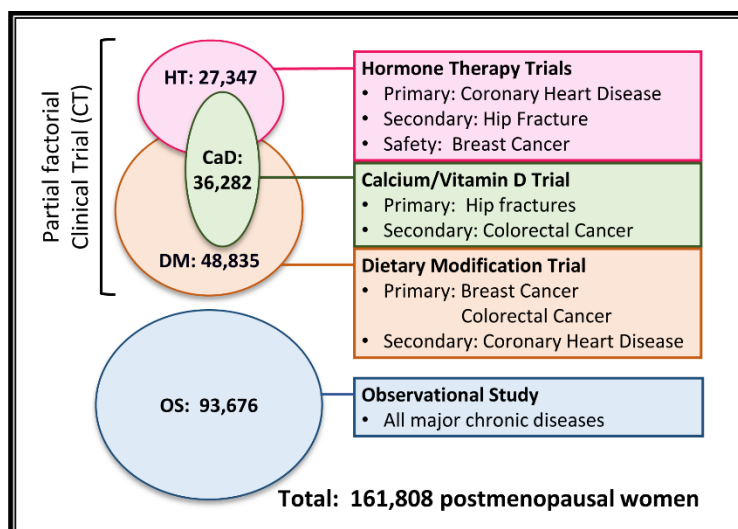


Figure 1. Original design of the WHI clinical trials and observational study, its components and outcomes.

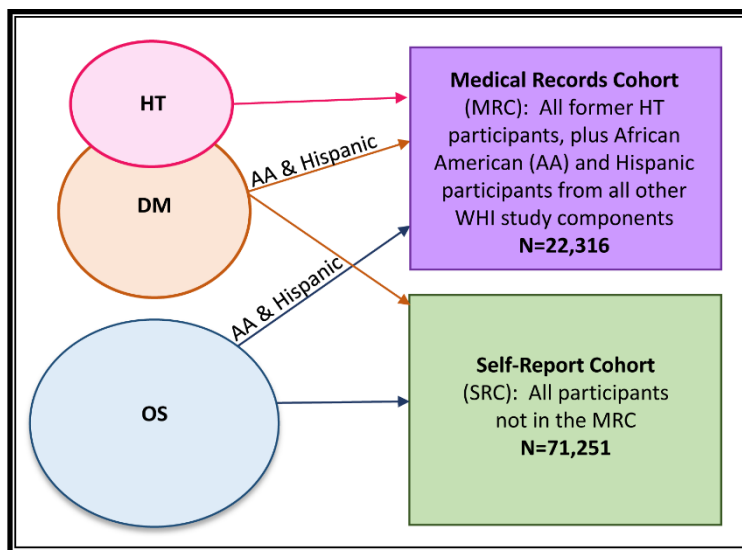


Figure 2. 2010–2020 Extension Study design reflecting differing levels of outcomes ascertainment: MRC and SRC.

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. Beginning in October 2023, NCI has indicated that they will support cancer documentation only through linkage to the National Virtual Pooled Registry. As a result, newly reported cancer cases in SRC participants have stopped being sent for adjudication as of June 15, 2023. Stroke documentation and adjudication efforts are continuing, as is cancer adjudication in the MRC. WHI is in the process of receiving and evaluating cancer registry data through the National Virtual Pooled Registry Cancer Linkage System (VPR-CLS) (Section 6). Other ancillary studies have adjudicated additional outcomes in defined subsets.

As of February 17, 2024, 46,624 women were alive and remain in active follow-up (Tables 1.2 and 1.3). Approximately 13,000 (27.8%) of these women are 90 years of age or older, including 3892 who are between 95 and 107 years of age (Table 1.2). Among active participants, 1662 (3.6%) are Hispanic, 3081 (6.6%) are Black/African American, 1101 (2.4%) are Asian, Native Hawaiian or Pacific Islanders, and 101 (0.2%) are American Indian or Alaska Natives. Fifty-six percent (n=90,173) of the original cohort are now deceased (Table 1.3), with similar rates across study components.

Follow-up rates to 2023 mailings and telephone contacts (Table 1.4), while not yet complete, suggest that overall response rates remain above 70%.

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 17, 2024, 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 90,173 deaths. (Tables 2.1-2.3). Approximately 70% (n=62,821) were identified only by NDI search. Cardiovascular disease accounts for nearly a third of deaths (n=28,564, 31.7%), well surpassing cancer deaths (n=19,405, 21.5%). Alzheimer's disease and other dementias took over 13,000 lives. Only 200 deaths have been directly attributed to COVID-19. Accidents or other injuries, including deaths by suicide or homicide, accounted for a small proportion of total deaths (n=2316, 2.6%). In general, death rates by cause are similar across race and ethnicity groups and increase as expected with increasing age at death.

A new diagnosis of cancer has been adjudicated 38,082 times (Tables 2.4-2.5). Breast (invasive, n=12,260), lung (n=4744), colorectal (n=3759), and melanoma (n=2977) cancers are the most reported, followed by non-Hodgkin's lymphoma (n=2079), endometrial (n=1970), pancreatic (n=1568) and ovarian (n=1416) 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 30,013 adjudicated cases during follow-up (Tables 2.6-2.7). Of these, 9645 participants have had a documented coronary heart disease (CHD) outcome and a similar number have had selected reperfusion procedures (CABG/PCTA, n=9347). Strokes have been adjudicated among 7908 women.

WHI fracture data reflect a mixture of adjudicated results and self-reported events, as hip fractures continue to be adjudicated among the same participants as for CVD (Tables 2.8-2.9). Nearly 71,000 women have reported a fracture, including 37,296 osteoporotic fractures and 9806 hip fractures specifically.

Self-reported outcomes in WHI capture a wide range of age-related conditions (Tables 2.10-2.11). Hypertension, osteoarthritis, cataracts, and intestinal polyps are most common among the conditions reported, ranging from over 64,000 to 42,000 newly diagnosed women. Over 23% of women (n=27,005) participating in the extension studies reported a new diagnosis of dementia since 2005, when self-reported data on dementia was first collected, with increasing rates of dementia at increasing ages. 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 the Extension Study II (2010-2025), forming a new baseline for comparison on the 93,567 women who consented to this second extension (Table 3.1). Assessed approximately 12 years later in the remaining cohort (n=37,683), 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 12 years in physical function (3.1) and activities of daily living (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 3873 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, 2441 LLS participants have had verified cardiovascular outcomes, 1048 have had a verified cancer, and 3512 have died. Self-reported events in this cohort have also been tabulated (Tables 4.5 and 4.6). We note around 25% of LLS participants (n=1992) have reported a new diagnosis of dementia since their LLS visit.

V. Long Life Study 2

In 2022-24, the Long Life Study 2 (LLS2) aims to repeat the LLS visit among surviving members of the LLS cohort. At time of recruitment, there were 4172 LLS participants eligible for consent into LLS2, of whom 52.7% (n=2200) have consented to participate in a second home visit (Table 5.1). Additionally, over 2600 cancer survivors from the Life and Longevity After Cancer (LILAC) ancillary study cohort were recruited for the LLS2 home visit. Due to lower-than-expected numbers of consents, an additional 2600 participants were recruited from the remaining MRC. Consent rates (overall and by subcohort) have been tabulated by age, race, and ethnicity (Table 5.1). LLS2 visits are underway, with all visits scheduled to be completed this spring. As of February 17, 2024, there have been 5225 completed visits, of which 93% have had a successful blood draw. Participant characteristics and frailty measures for these completed visits have been summarized (Table 5.2). 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. 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 is in the process of applying for and receiving data from individual state cancer registries through the National Virtual Pooled Registry Cancer Linkage System (VPR-CLS). Phase I of this process, which involves applying to use VPR-CLS to link with individual registries and receive aggregate match counts is complete as of April 2020 with 48,334 high-quality matches identified. WHI is currently in Phase II, which involves application to individual registries (and their IRBs) for release of individual level data identified in Phase I. As of March 4, 2024, we have received data from 16 registries, containing 18,654 cancer records, with approvals in place for an additional 7 registries, approval paperwork in progress for 13 registries, and 6 registries pending Phase II applications (Table 6.1). In addition to ongoing efforts to put approvals in place 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.

VII. Other Program Activities

The WHI program leadership recognizes the importance of drawing in new investigators to use the rich WHI resources, and also providing leadership and growth opportunities. The WHI Scientific Interest Groups (SIGs) are an active opportunity to provide an entryway into understanding WHI resources and proposing ancillary studies and manuscripts. An in-person meeting was held in May 2023 in Seattle, Washington, celebrating the 30th anniversary of the initiation of recruitment. Another in-person meeting is planned for May 2024 in Chicago, Illinois.

A full listing and status of all proposed ancillary studies and manuscripts is available on the WHI website (www.whi.org). In total, 4,455 manuscript proposals have been approved and 2,368 are published or in press, including 94 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 *JAMA*, *Annals of Internal Medicine*, *American Journal of Epidemiology*, *Cancer*, *JAMA Cardiology* and *JAMA Internal Medicine*. In addition to manuscripts addressing cardiovascular disease and cancer among WHI participants, a substantial number examine diabetes, genetics, and aging. WHI also participates in a number of consortia, reflecting the collaborative nature of the WHI investigators and the value of WHI data, particularly for rarer exposures and outcomes.

An effort is underway to increase the dissemination and implementation of study results with a particular focus on the original clinical trials. Two recent papers to highlight in this regard: one reports on the long-term results of the calcium and vitamin D (CaD) trial (Thomson et al, *Annals of Internal Medicine*, 2024¹) while another summarizes the key findings of the WHI trials, including long-term follow-up, emphasizing implications for clinical practice (Manson et al, *JAMA*, to appear²).

The cohort serves as the backbone for ancillary studies, including 11 studies funded in the last year. The WHI Strong and Healthy (WHISH) trial (PIs: Marcia Stefanick, Charles Kooperberg, Andrea LaCroix), which explores the effects of physical activity on cardiovascular conditions, is ending in 2024, with publication of results anticipated in summer of 2025. A newly funded ancillary study (WHI Risk It?

¹ Long-Term Effect of Randomization to Calcium and Vitamin D Supplementation on Health in Older Women: Postintervention Follow-up of a Randomized Clinical Trial. Thomson CA, Aragaki AK, Prentice RL, Stefanick ML, Manson JE, Wactawski-Wende J, Watts NB, Van Horn L, Shikany JM, Rohan TE, Lane DS, Wild RA, Robles-Morales R, Shadyab AH, Saquib N, Cauley J. *Ann Intern Med*. 2024 Mar 12. doi: <https://www.acpjournals.org/doi/10.7326/M23-2598>

² The Women's Health Initiative Randomized Trials and Clinical Practice: A Review. Manson JE, Crandall CJ, Rossouw JE, Chlebowski RT, Anderson GL, Stefanick ML, Aragaki AK, Cauley JA, Wells GL, LaCroix AZ, Thomason CA, Neuhouser ML, Van Horn L, Kooperberg C, Howard BV, Tinker LF, Wactawski-Wende J, Shumaker SA, Prentice RL. *JAMA*. To appear.

Study, PI: Eric Whitsel) will look at the relationship between radon exposure and incident stroke, including the collection of home radon concentrations for approximately 1,000 WHI participants.

Numerous studies have made use of our biorepository. Because of the cost of maintaining such a large repository (more than 5 million vials stored), the CCC recently completed a streamlining and consolidation process by which approximately 20% of specimens in storage that we considered to be in very low demand (predominately citrate plasma and extra DNA samples) were efficiently destroyed and reorganized to reduce storage needs. The current repository now consists of approximately 4.2 million samples of serum, plasma, buffy coat, DNA, RNA, and urine.

Harmonized GWAS data are available in dbGaP for approximately 30,000 WHI participants using a number of 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 cancer survivorship data, has been 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 Neuhouser, PhD RD	Fred Hutchinson Cancer Center	Steering Committee (SC)

Table 1.2
Composition of WHI Cohort over Time

Data as of: February 17, 2024

	Enrolled in WHI (N=161,808)		Active ¹ Participation as of 2/17/2024 (N=46,624)	
	N	Mean (SD) or %	N	Mean (SD) or %
Age²	161808	63.2 (7.2)	46624	86.5 (5.3)
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	3487	7.5
80-84			14892	31.9
85-89			15243	32.7
90-94			9110	19.5
95-107			3892	8.3
Ethnicity				
Not Hispanic/Latina	153117	94.6	44857	96.2
Hispanic/Latina	7312	4.5	1662	3.6
Other/Not Reported	1379	0.9	105	0.2
Race				
American Indian/Alaska Native	540	0.3	101	0.2
Asian	4025	2.5	1069	2.3
Native Hawaiian/Pacific Islander	137	0.1	32	0.1
Black/African American	14327	8.9	3081	6.6
White	137628	85.1	41304	88.6
More than one Race	1880	1.2	567	1.2
Other/Not Reported	3271	2.0	470	1.0
Education³				
0-8 years	2665	1.7	216	0.5
Some high school	5979	3.7	765	1.7
High school diploma/GED	27624	17.2	6184	13.4
School after high school	60909	37.9	16067	34.7
College degree or higher	63415	39.5	23065	49.8
Income³				
< \$10,000	6937	4.6	687	1.5
\$10,000 – \$19,999	18499	12.3	2575	5.8
\$20,000 – \$34,999	36665	24.3	7801	17.6
\$35,000 – \$49,999	30912	20.5	9058	20.4
\$50,000 – \$74,999	29948	19.8	11144	25.1
\$75,000 +	27973	18.5	13136	29.6
Study Component				
Clinical Trial	68132	42.1	20709	44.4
Observational Study	93676	57.9	25915	55.6
Medical Records Super Cohort	44174	27.3	10591	22.7
Self-Report Super Cohort	117634	72.7	36033	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 02/17/2024.

³ Education and income reported at baseline.

Table 1.3
Participation and Vital Status of WHI Participants by Cohort

Data as of: February 17, 2024

	Total (N=161,808)		CT (N = 68,132)		OS (N = 93,676)		MRC Super Cohort ¹ (N=44,174)		SRC Super Cohort ² (N=117,634)	
	N	%	N	%	N	%	N	%	N	%
Participation/Vital Status										
Deceased ³	90173	55.7	37076	54.4	53097	56.7	24428	55.3	65745	55.9
Alive: Current Participation ⁴	44736	27.6	19820	29.1	24916	26.6	10002	22.6	34734	29.5
Alive: Recent Participation ⁵	1888	1.2	889	1.3	999	1.1	589	1.3	1299	1.1
Stopped Follow-Up ⁶	2737	1.7	1288	1.9	1449	1.5	869	2.0	1868	1.6
Lost to Follow-Up ⁷	2334	1.4	1148	1.7	1186	1.3	858	1.9	1476	1.3
Did not consent to the WHI Extension Studies and not known to be deceased	19940	12.3	7911	11.6	12029	12.8	7428	16.8	12512	10.6

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 (2010-2025) participants who have filled in a Form 33 within the last 15 months.

⁵ Extension Study II (2010-2025) participants who last filled in a Form 33 between 15 and 24 months ago.

⁶ Extension Study II (2010-2025) participants with codes 5 (no follow-up) or 8 (absolutely no follow-up) on Form 7 or 9.

⁷ Extension Study II (2010-2025) participants not in any of the above categories.

Table 1.4
Response Rates to CCC Annual Mailings and Regional Center (RC) Follow-up in 2023 by Cohort and Regional Center

Data as of: February 17, 2024

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	54618	47775	31807	66.6	11025	2551	23.1	71.9	12399	6641	53.6	75.1
	151B	46380	40942	27368	66.8	8890	2526	28.4	73.0	10072	145	1.4	64.8
Medical Record Cohort²	33	13035	10876	6426	59.1	3058	613	20.0	64.7	3653	2116	57.9	70.3
	151B	10937	9143	5487	60.0	2334	584	25.0	66.4	3014	59	2.0	56.0
Self-Report Cohort³	33	41583	36899	25381	68.8	7967	1938	24.3	74.0	8746	4525	51.7	76.6
	151B	35443	31799	21881	68.8	6556	1942	29.6	74.9	7058	86	1.2	67.5
Regional Center⁴													
Boston	33	3688	3233	2244	69.4	757	195	25.8	75.4	771	420	54.5	77.6
	151B	2984	2690	1879	69.9	651	193	29.6	77.0	566	6	1.1	69.7
Buffalo	33	11033	9516	6359	66.8	2350	562	23.9	72.7	2591	1551	59.9	76.8
	151B	8877	7815	5273	67.5	1906	544	28.5	74.5	1977	28	1.4	65.9
Columbus	33	13830	12280	8376	68.2	2605	634	24.3	73.4	2739	1472	53.7	75.8
	151B	11916	10518	7215	68.6	2020	613	30.3	74.4	2321	11	0.5	65.8
Seattle	33	7332	6414	4007	62.5	1535	341	22.2	67.8	1885	1055	56.0	73.7
	151B	6235	5504	3465	63.0	1231	332	27.0	69.0	1536	65.0	4.2	62.0
Stanford	33	12934	11221	7732	68.9	2458	558	22.7	73.9	2851	1250	43.8	73.8
	151B	11318	9962	6805	68.3	2103	591	28.1	74.2	2334	28	1.2	65.6
Wake Forest	33	5801	5111	3089	60.4	1320	261	19.8	65.5	1562	893	57.2	73.2
	151B	5050	4453	2728	61.3	979	253	25.8	66.9	1338	7	0.5	59.2

¹ Form 33 = Medical History Update; Form 151B: 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 (2010-2025).

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 (2010-2025).

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 17, 2024

	Total	CT	OS	MRC Super Cohort ²	SRC Super Cohort ³
Number of participants	161808	68132	93676	44174	117634
Mean person years	21.4	21.9	21.1	21.3	21.5
Total death	90173 (2.60%)	37076 (2.49%)	53097 (2.69%)	24428 (2.60%)	65745 (2.60%)
Adjudicated death	86938 (2.51%)	35750 (2.40%)	51188 (2.59%)	23922 (2.55%)	63016 (2.50%)
Centrally adjudicated death	18700 (0.54%)	13177 (0.88%)	5523 (0.28%)	11280 (1.20%)	7420 (0.29%)
Locally adjudicated death (final)	5417 (0.16%)	1 (<0.01%)	5416 (0.27%)	690 (0.07%)	4727 (0.19%)
Identified only by NDI search	62821 (1.81%)	22572 (1.51%)	40249 (2.04%)	11952 (1.27%)	50869 (2.01%)
Not yet adjudicated	500 (0.01%)	426 (0.03%)	74 (<0.01%)	500 (0.05%)	0 (0.00%)
Form 120 death ⁴	2735 (0.08%)	900 (0.06%)	1835 (0.09%)	6 (<0.01%)	2729 (0.11%)
Cardiovascular					
Atherosclerotic cardiac	10911 (0.31%)	4620 (0.31%)	6291 (0.32%)	3329 (0.35%)	7582 (0.30%)
Cerebrovascular	6840 (0.20%)	2833 (0.19%)	4007 (0.20%)	1993 (0.21%)	4847 (0.19%)
Pulmonary embolism	370 (0.01%)	181 (0.01%)	189 (0.01%)	132 (0.01%)	238 (0.01%)
Other cardiovascular	10315 (0.30%)	4204 (0.28%)	6111 (0.31%)	2679 (0.29%)	7636 (0.30%)
Unknown cardiovascular	128 (<0.01%)	27 (<0.01%)	101 (0.01%)	31 (<0.01%)	97 (<0.01%)
Total cardiovascular deaths	28564 (0.82%)	11865 (0.80%)	16699 (0.85%)	8164 (0.87%)	20400 (0.81%)
Cancer					
Brain	490 (0.01%)	209 (0.01%)	281 (0.01%)	98 (0.01%)	392 (0.02%)
Breast	2322 (0.07%)	783 (0.05%)	1539 (0.08%)	571 (0.06%)	1751 (0.07%)
Colorectum	1609 (0.05%)	691 (0.05%)	918 (0.05%)	480 (0.05%)	1129 (0.04%)
Endometrium	329 (0.01%)	141 (0.01%)	188 (0.01%)	69 (0.01%)	260 (0.01%)
Leukemia	907 (0.03%)	391 (0.03%)	516 (0.03%)	218 (0.02%)	689 (0.03%)
Lung	4183 (0.12%)	1823 (0.12%)	2360 (0.12%)	1248 (0.13%)	2935 (0.12%)
Lymphoma, non-Hodgkins	961 (0.03%)	384 (0.03%)	577 (0.03%)	223 (0.02%)	738 (0.03%)
Melanoma	231 (0.01%)	102 (0.01%)	129 (0.01%)	58 (0.01%)	173 (0.01%)
Multiple myeloma	590 (0.02%)	255 (0.02%)	335 (0.02%)	189 (0.02%)	401 (0.02%)
Ovary	1191 (0.03%)	466 (0.03%)	725 (0.04%)	259 (0.03%)	932 (0.04%)
Pancreas	1800 (0.05%)	782 (0.05%)	1018 (0.05%)	509 (0.05%)	1291 (0.05%)
Uterus	213 (0.01%)	92 (0.01%)	121 (0.01%)	60 (0.01%)	153 (0.01%)
Other cancer site	3727 (0.11%)	1569 (0.11%)	2158 (0.11%)	990 (0.11%)	2737 (0.11%)
Unknown cancer site	852 (0.02%)	353 (0.02%)	499 (0.03%)	206 (0.02%)	646 (0.03%)
Total cancer deaths	19405 (0.56%)	8041 (0.54%)	11364 (0.58%)	5178 (0.55%)	14227 (0.56%)

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 (2010-2025) participants that occurred during Extension Study II (2010-2025).

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

Data as of: February 17, 2024

	Total	CT	OS	MRC Super Cohort²	SRC Super Cohort³
Number of participants	161808	68132	93676	44174	117634
Mean person years	21.4	21.9	21.1	21.3	21.5
Accident/injury					
Homicide	36 (<0.01%)	15 (<0.01%)	21 (<0.01%)	17 (<0.01%)	19 (<0.01%)
Accident	2131 (0.06%)	857 (0.06%)	1274 (0.06%)	512 (0.05%)	1619 (0.06%)
Suicide	84 (<0.01%)	28 (<0.01%)	56 (<0.01%)	19 (<0.01%)	65 (<0.01%)
Other injury	65 (<0.01%)	32 (<0.01%)	33 (<0.01%)	33 (<0.01%)	32 (<0.01%)
Total accident/injury deaths	2316 (0.07%)	932 (0.06%)	1384 (0.07%)	581 (0.06%)	1735 (0.07%)
Other					
Alzheimer's disease	6696 (0.19%)	2632 (0.18%)	4064 (0.21%)	1670 (0.18%)	5026 (0.20%)
Dementia, not Alzheimer's	6556 (0.19%)	2659 (0.18%)	3897 (0.20%)	1721 (0.18%)	4835 (0.19%)
COPD	3395 (0.10%)	1440 (0.10%)	1955 (0.10%)	914 (0.10%)	2481 (0.10%)
Pneumonia	1975 (0.06%)	852 (0.06%)	1123 (0.06%)	605 (0.06%)	1370 (0.05%)
Pulmonary fibrosis	874 (0.03%)	400 (0.03%)	474 (0.02%)	245 (0.03%)	629 (0.02%)
Renal failure	1514 (0.04%)	647 (0.04%)	867 (0.04%)	559 (0.06%)	955 (0.04%)
Sepsis	1930 (0.06%)	841 (0.06%)	1089 (0.06%)	641 (0.07%)	1289 (0.05%)
Amyotrophic lateral sclerosis	311 (0.01%)	119 (0.01%)	192 (0.01%)	54 (0.01%)	257 (0.01%)
Parkinson's	1311 (0.04%)	516 (0.03%)	795 (0.04%)	290 (0.03%)	1021 (0.04%)
Hepatic cirrhosis	379 (0.01%)	170 (0.01%)	209 (0.01%)	127 (0.01%)	252 (0.01%)
COVID-19	200 (0.01%)	149 (0.01%)	51 (<0.01%)	155 (0.02%)	45 (<0.01%)
Other known cause	11938 (0.34%)	4589 (0.31%)	7349 (0.37%)	2869 (0.31%)	9069 (0.36%)
Unknown cause	2309 (0.07%)	798 (0.05%)	1511 (0.08%)	155 (0.02%)	2154 (0.09%)
Total other cause deaths	39388 (1.14%)	15812 (1.06%)	23576 (1.19%)	10005 (1.07%)	29383 (1.16%)

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 17, 2024

	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	21.4	19.6	22.2	22.4	21.0	21.4	22.3	19.1	
Total death	90173 (2.60%)	287 (3.00%)	1781 (1.96%)	3044 (1.85%)	7487 (2.51%)	76266 (2.68%)	865 (2.32%)	443 (3.05%)	
Adjudicated death	86938 (2.51%)	280 (2.93%)	1739 (1.92%)	2970 (1.81%)	7366 (2.47%)	73322 (2.57%)	827 (2.22%)	434 (2.98%)	
Centrally adjudicated death	18700 (0.54%)	48 (0.50%)	197 (0.22%)	814 (0.50%)	2508 (0.84%)	14860 (0.52%)	194 (0.52%)	79 (0.54%)	
Locally adjudicated death (final)	5417 (0.16%)	45 (0.47%)	112 (0.12%)	161 (0.10%)	532 (0.18%)	4505 (0.16%)	6 (0.02%)	56 (0.39%)	
Identified only by NDI search	62821 (1.81%)	187 (1.96%)	1430 (1.58%)	1995 (1.22%)	4326 (1.45%)	53957 (1.89%)	627 (1.68%)	299 (2.06%)	
Not yet adjudicated	500 (0.01%)	1 (0.01%)	4 (<0.01%)	53 (0.03%)	117 (0.04%)	312 (0.01%)	10 (0.03%)	3 (0.02%)	
Form 120 death ³	2735 (0.08%)	6 (0.06%)	38 (0.04%)	21 (0.01%)	4 (<0.01%)	2632 (0.09%)	28 (0.08%)	6 (0.04%)	
Cardiovascular									
Atherosclerotic cardiac	10911 (0.31%)	42 (0.44%)	201 (0.22%)	350 (0.21%)	1146 (0.38%)	8986 (0.32%)	112 (0.30%)	74 (0.51%)	
Cerebrovascular	6840 (0.20%)	19 (0.20%)	154 (0.17%)	247 (0.15%)	632 (0.21%)	5698 (0.20%)	56 (0.15%)	34 (0.23%)	
Pulmonary embolism	370 (0.01%)	1 (0.01%)	2 (<0.01%)	11 (0.01%)	48 (0.02%)	303 (0.01%)	5 (0.01%)	0 (0.00%)	
Other cardiovascular	10315 (0.30%)	21 (0.22%)	181 (0.20%)	282 (0.17%)	829 (0.28%)	8863 (0.31%)	99 (0.27%)	40 (0.28%)	
Unknown cardiovascular	128 (<0.01%)	0 (0.00%)	4 (<0.01%)	1 (<0.01%)	19 (0.01%)	100 (<0.01%)	1 (<0.01%)	3 (0.02%)	
Total cardiovascular deaths	28564 (0.82%)	83 (0.87%)	542 (0.60%)	891 (0.54%)	2674 (0.90%)	23950 (0.84%)	273 (0.73%)	151 (1.04%)	
Cancer									
Brain	490 (0.01%)	1 (0.01%)	7 (0.01%)	14 (0.01%)	19 (0.01%)	448 (0.02%)	0 (0.00%)	1 (0.01%)	
Breast	2322 (0.07%)	4 (0.04%)	41 (0.05%)	102 (0.06%)	234 (0.08%)	1906 (0.07%)	19 (0.05%)	16 (0.11%)	
Colorectum	1609 (0.05%)	9 (0.09%)	38 (0.04%)	54 (0.03%)	173 (0.06%)	1321 (0.05%)	10 (0.03%)	4 (0.03%)	
Endometrium	329 (0.01%)	0 (0.00%)	10 (0.01%)	10 (0.01%)	24 (0.01%)	284 (0.01%)	1 (<0.01%)	0 (0.00%)	
Leukemia	907 (0.03%)	2 (0.02%)	9 (0.01%)	21 (0.01%)	71 (0.02%)	789 (0.03%)	10 (0.03%)	5 (0.03%)	
Lung cancer	4183 (0.12%)	11 (0.12%)	78 (0.09%)	105 (0.06%)	351 (0.12%)	3568 (0.13%)	50 (0.13%)	20 (0.14%)	
Lymphoma, non-Hodgkins	961 (0.03%)	1 (0.01%)	23 (0.03%)	41 (0.02%)	54 (0.02%)	829 (0.03%)	4 (0.01%)	9 (0.06%)	
Melanoma	231 (0.01%)	0 (0.00%)	3 (<0.01%)	8 (<0.01%)	8 (<0.01%)	209 (0.01%)	3 (0.01%)	0 (0.00%)	
Multiple myeloma	590 (0.02%)	3 (0.03%)	4 (<0.01%)	26 (0.02%)	80 (0.03%)	467 (0.02%)	6 (0.02%)	4 (0.03%)	
Ovary	1191 (0.03%)	3 (0.03%)	13 (0.01%)	39 (0.02%)	77 (0.03%)	1037 (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 (2010-2025) participants that occurred during Extension Study II (2010-2025).

Table 2.2 (continued)
Cause of Death¹ (Annualized Percentages) by Race/Ethnicity
 Data as of: February 17, 2024

		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	21.4	19.6	22.2	22.4	21.0	21.4	22.3	19.1	
Cancer (continued)									
Pancreas	1800 (0.05%)	2 (0.02%)	62 (0.07%)	62 (0.04%)	178 (0.06%)	1469 (0.05%)	18 (0.05%)	9 (0.06%)	
Uterus	213 (0.01%)	2 (0.02%)	7 (0.01%)	7 (<0.01%)	27 (0.01%)	168 (0.01%)	2 (0.01%)	0 (0.00%)	
Other cancer site	3727 (0.11%)	16 (0.17%)	88 (0.10%)	153 (0.09%)	288 (0.10%)	3133 (0.11%)	30 (0.08%)	19 (0.13%)	
Unknown cancer site	852 (0.02%)	1 (0.01%)	22 (0.02%)	20 (0.01%)	73 (0.02%)	724 (0.03%)	5 (0.01%)	7 (0.05%)	
Total cancer deaths	19405 (0.56%)	55 (0.58%)	405 (0.45%)	662 (0.40%)	1657 (0.56%)	16352 (0.57%)	168 (0.45%)	106 (0.73%)	
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	2131 (0.06%)	10 (0.10%)	46 (0.05%)	78 (0.05%)	78 (0.03%)	1898 (0.07%)	13 (0.03%)	8 (0.06%)	
Suicide	84 (<0.01%)	0 (0.00%)	3 (<0.01%)	4 (<0.01%)	1 (<0.01%)	75 (<0.01%)	1 (<0.01%)	0 (0.00%)	
Other injury	65 (<0.01%)	0 (0.00%)	1 (<0.01%)	6 (<0.01%)	5 (<0.01%)	53 (<0.01%)	0 (0.00%)	0 (0.00%)	
Total accident/ injury deaths	2316 (0.07%)	11 (0.12%)	50 (0.06%)	89 (0.05%)	92 (0.03%)	2052 (0.07%)	14 (0.04%)	8 (0.06%)	
Other									
Alzheimer's disease	6696 (0.19%)	17 (0.18%)	137 (0.15%)	265 (0.16%)	424 (0.14%)	5778 (0.20%)	51 (0.14%)	24 (0.17%)	
Dementia, not Alzheimer's ¹	6556 (0.19%)	16 (0.17%)	163 (0.18%)	162 (0.10%)	448 (0.15%)	5668 (0.20%)	70 (0.19%)	29 (0.20%)	
COPD	3395 (0.10%)	13 (0.14%)	23 (0.03%)	74 (0.05%)	176 (0.06%)	3057 (0.11%)	37 (0.10%)	15 (0.10%)	
Pneumonia	1975 (0.06%)	8 (0.08%)	63 (0.07%)	65 (0.04%)	132 (0.04%)	1681 (0.06%)	15 (0.04%)	11 (0.08%)	
Pulmonary fibrosis	874 (0.03%)	1 (0.01%)	26 (0.03%)	50 (0.03%)	41 (0.01%)	742 (0.03%)	9 (0.02%)	5 (0.03%)	
Renal failure	1514 (0.04%)	15 (0.16%)	30 (0.03%)	77 (0.05%)	257 (0.09%)	1113 (0.04%)	17 (0.05%)	5 (0.03%)	
Sepsis	1930 (0.06%)	8 (0.08%)	17 (0.02%)	60 (0.04%)	225 (0.08%)	1580 (0.06%)	22 (0.06%)	18 (0.12%)	
Amyotrophic lateral sclerosis	311 (0.01%)	2 (0.02%)	3 (<0.01%)	5 (<0.01%)	23 (0.01%)	273 (0.01%)	5 (0.01%)	0 (0.00%)	
Parkinson's	1311 (0.04%)	4 (0.04%)	31 (0.03%)	45 (0.03%)	58 (0.02%)	1155 (0.04%)	12 (0.03%)	6 (0.04%)	
Hepatic cirrhosis	379 (0.01%)	5 (0.05%)	9 (0.01%)	43 (0.03%)	25 (0.01%)	292 (0.01%)	5 (0.01%)	0 (0.00%)	
COVID-19	200 (0.01%)	0 (0.00%)	2 (<0.01%)	19 (0.01%)	49 (0.02%)	128 (<0.01%)	2 (0.01%)	0 (0.00%)	
Other known cause	11938 (0.34%)	41 (0.43%)	246 (0.27%)	446 (0.27%)	1053 (0.35%)	9965 (0.35%)	130 (0.35%)	57 (0.39%)	
Unknown cause	2309 (0.07%)	7 (0.07%)	30 (0.03%)	38 (0.02%)	36 (0.01%)	2168 (0.08%)	25 (0.07%)	5 (0.03%)	
Total other cause deaths	39388 (1.14%)	137 (1.43%)	780 (0.86%)	1349 (0.82%)	2947 (0.99%)	33600 (1.18%)	400 (1.07%)	175 (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 17, 2024

	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		144973		150670		129977		88899		44371	
Mean person years ³	4.3		3.9		4.2		4.5		4.6		4.2		3.7		3.8	
Total death	441	(0.20%)	1266	(0.37%)	2906	(0.56%)	6096	(0.93%)	11764	(1.71%)	18173	(3.30%)	22793	(6.90%)	26734	(15.88%)
Adjudicated death	441	(0.20%)	1265	(0.37%)	2903	(0.56%)	6071	(0.93%)	11629	(1.69%)	17716	(3.22%)	21895	(6.63%)	25018	(14.86%)
Centrally adjudicated death	171	(0.08%)	529	(0.15%)	1274	(0.25%)	2262	(0.35%)	3395	(0.49%)	4215	(0.76%)	3800	(1.15%)	3054	(1.81%)
Locally adjudicated death (final)	222	(0.10%)	482	(0.14%)	808	(0.16%)	1174	(0.18%)	1418	(0.21%)	1045	(0.19%)	268	(0.08%)	0	(0.00%)
Identified only by NDI search	48	(0.02%)	254	(0.07%)	821	(0.16%)	2635	(0.40%)	6816	(0.99%)	12456	(2.26%)	17827	(5.40%)	21964	(13.04%)
Not yet adjudicated	0	(0.00%)	0	(0.00%)	0	(0.00%)	1	(<0.01%)	15	(<0.01%)	84	(0.02%)	149	(0.05%)	251	(0.15%)
Form 120 death ⁴	0	(0.00%)	1	(<0.01%)	3	(<0.01%)	24	(<0.01%)	120	(0.02%)	373	(0.07%)	749	(0.23%)	1465	(0.87%)
Cardiovascular																
Atherosclerotic cardiac	51	(0.02%)	135	(0.04%)	328	(0.06%)	792	(0.12%)	1398	(0.20%)	2203	(0.40%)	2804	(0.85%)	3200	(1.90%)
Cerebrovascular	20	(0.01%)	50	(0.01%)	146	(0.03%)	364	(0.06%)	830	(0.12%)	1354	(0.25%)	1881	(0.57%)	2195	(1.30%)
Pulmonary embolism	3	(<0.01%)	13	(<0.01%)	22	(<0.01%)	46	(0.01%)	66	(0.01%)	87	(0.02%)	78	(0.02%)	55	(0.03%)
Other cardiovascular	21	(0.01%)	75	(0.02%)	170	(0.03%)	366	(0.06%)	939	(0.14%)	1760	(0.32%)	2761	(0.84%)	4223	(2.51%)
Unknown cardiovascular	3	(<0.01%)	11	(<0.01%)	16	(<0.01%)	21	(<0.01%)	24	(<0.01%)	38	(0.01%)	14	(<0.01%)	1	(<0.01%)
Total cardiovascular deaths	98	(0.05%)	284	(0.08%)	682	(0.13%)	1589	(0.24%)	3257	(0.47%)	5442	(0.99%)	7538	(2.28%)	9674	(5.74%)
Cancer																
Brain	12	(0.01%)	23	(0.01%)	55	(0.01%)	104	(0.02%)	108	(0.02%)	104	(0.02%)	56	(0.02%)	28	(0.02%)
Breast	59	(0.03%)	123	(0.04%)	226	(0.04%)	290	(0.04%)	450	(0.07%)	477	(0.09%)	401	(0.12%)	296	(0.18%)
Colorectum	16	(0.01%)	62	(0.02%)	118	(0.02%)	212	(0.03%)	287	(0.04%)	316	(0.06%)	331	(0.10%)	267	(0.16%)
Endometrium	3	(<0.01%)	12	(<0.01%)	30	(0.01%)	55	(0.01%)	69	(0.01%)	70	(0.01%)	58	(0.02%)	32	(0.02%)
Leukemia	7	(<0.01%)	22	(0.01%)	68	(0.01%)	111	(0.02%)	184	(0.03%)	191	(0.03%)	185	(0.06%)	139	(0.08%)
Lung cancer	46	(0.02%)	144	(0.04%)	353	(0.07%)	689	(0.11%)	968	(0.14%)	948	(0.17%)	646	(0.20%)	389	(0.23%)
Lymphoma, non-Hodgkins	6	(<0.01%)	25	(0.01%)	65	(0.01%)	115	(0.02%)	191	(0.03%)	232	(0.04%)	214	(0.06%)	113	(0.07%)
Melanoma	1	(<0.01%)	15	(<0.01%)	20	(<0.01%)	35	(0.01%)	42	(0.01%)	48	(0.01%)	50	(0.02%)	20	(0.01%)
Multiple myeloma	3	(<0.01%)	14	(<0.01%)	35	(0.01%)	78	(0.01%)	127	(0.02%)	152	(0.03%)	123	(0.04%)	58	(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 (2010-2025) participants that occurred during Extension Study II (2010-2025).

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

Data as of: February 17, 2024

	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		144973		150670		129977		88899		44371	
Mean person years ³	4.3		3.9		4.2		4.5		4.6		4.2		3.7		3.8	
Cancer (continued)																
Ovary	22	(0.01%)	51	(0.01%)	118	(0.02%)	213	(0.03%)	273	(0.04%)	269	(0.05%)	166	(0.05%)	79	(0.05%)
Pancreas	19	(0.01%)	56	(0.02%)	125	(0.02%)	248	(0.04%)	372	(0.05%)	444	(0.08%)	342	(0.10%)	194	(0.12%)
Uterus	1	(<0.01%)	6	(<0.01%)	23	(<0.01%)	26	(<0.01%)	44	(0.01%)	53	(0.01%)	34	(0.01%)	26	(0.02%)
Other cancer site	36	(0.02%)	94	(0.03%)	261	(0.05%)	491	(0.08%)	766	(0.11%)	844	(0.15%)	725	(0.22%)	510	(0.30%)
Unknown cancer site	9	(<0.01%)	28	(0.01%)	50	(0.01%)	108	(0.02%)	144	(0.02%)	171	(0.03%)	205	(0.06%)	137	(0.08%)
Total cancer deaths	240	(0.11%)	675	(0.20%)	1547	(0.30%)	2775	(0.43%)	4025	(0.59%)	4319	(0.78%)	3536	(1.07%)	2288	(1.36%)
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%)	251	(0.04%)	453	(0.08%)	539	(0.16%)	629	(0.37%)
Suicide	11	(0.01%)	9	(<0.01%)	16	(<0.01%)	11	(<0.01%)	17	(<0.01%)	10	(<0.01%)	7	(<0.01%)	3	(<0.01%)
Other injury	0	(0.00%)	7	(<0.01%)	5	(<0.01%)	5	(<0.01%)	11	(<0.01%)	13	(<0.01%)	11	(<0.01%)	13	(0.01%)
Total accident/ injury deaths	31	(0.01%)	69	(0.02%)	98	(0.02%)	143	(0.02%)	286	(0.04%)	479	(0.09%)	565	(0.17%)	645	(0.38%)
Other																
Alzheimer's disease	0	(0.00%)	6	(<0.01%)	15	(<0.01%)	88	(0.01%)	460	(0.07%)	1271	(0.23%)	2095	(0.63%)	2761	(1.64%)
Dementia, not Alzheimer's	0	(0.00%)	3	(<0.01%)	15	(<0.01%)	89	(0.01%)	385	(0.06%)	1076	(0.20%)	1963	(0.59%)	3025	(1.80%)
COPD	1	(<0.01%)	27	(0.01%)	72	(0.01%)	226	(0.03%)	539	(0.08%)	784	(0.14%)	894	(0.27%)	852	(0.51%)
Pneumonia	3	(<0.01%)	11	(<0.01%)	48	(0.01%)	95	(0.01%)	240	(0.03%)	432	(0.08%)	563	(0.17%)	583	(0.35%)
Pulmonary fibrosis	5	(<0.01%)	10	(<0.01%)	23	(<0.01%)	68	(0.01%)	166	(0.02%)	200	(0.04%)	251	(0.08%)	151	(0.09%)
Renal failure	5	(<0.01%)	15	(<0.01%)	34	(0.01%)	85	(0.01%)	221	(0.03%)	325	(0.06%)	377	(0.11%)	452	(0.27%)
Sepsis	5	(<0.01%)	21	(0.01%)	59	(0.01%)	121	(0.02%)	282	(0.04%)	448	(0.08%)	524	(0.16%)	470	(0.28%)
Amyotrophic lateral sclerosis	0	(0.00%)	14	(<0.01%)	32	(0.01%)	59	(0.01%)	85	(0.01%)	83	(0.02%)	28	(0.01%)	10	(0.01%)
Parkinson's	1	(<0.01%)	1	(<0.01%)	13	(<0.01%)	46	(0.01%)	169	(0.02%)	344	(0.06%)	426	(0.13%)	311	(0.18%)
Hepatic cirrhosis	9	(<0.01%)	18	(0.01%)	27	(0.01%)	61	(0.01%)	88	(0.01%)	89	(0.02%)	61	(0.02%)	26	(0.02%)
COVID-19	0	(0.00%)	0	(0.00%)	0	(0.00%)	1	(<0.01%)	16	(<0.01%)	48	(0.01%)	53	(0.02%)	82	(0.05%)
Other known cause	41	(0.02%)	96	(0.03%)	221	(0.04%)	618	(0.09%)	1399	(0.20%)	2440	(0.44%)	3184	(0.96%)	3939	(2.34%)
Unknown cause	2	(<0.01%)	16	(<0.01%)	20	(<0.01%)	31	(<0.01%)	131	(0.02%)	309	(0.06%)	586	(0.18%)	1214	(0.72%)
Total other cause deaths	72	(0.03%)	238	(0.07%)	579	(0.11%)	1588	(0.24%)	4181	(0.61%)	7849	(1.42%)	11005	(3.33%)	13876	(8.24%)

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 17, 2024

	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	17.6	13.6	15.5	14.7	14.9	18.2	18.5	12.5
Total cancer	38082 (1.49%)	85 (1.39%)	658 (1.13%)	1005 (1.00%)	2447 (1.25%)	33414 (1.55%)	332 (1.18%)	141 (1.63%)
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	150 (0.01%)	0 (0.00%)	2 (<0.01%)	6 (0.01%)	13 (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	40 (<0.01%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)	37 (<0.01%)	0 (0.00%)	1 (0.01%)
Biliary tract, parts of	222 (0.01%)	1 (0.02%)	3 (<0.01%)	15 (0.01%)	17 (0.01%)	183 (0.01%)	2 (0.01%)	1 (0.01%)
Bladder	1209 (0.04%)	1 (0.02%)	11 (0.02%)	20 (0.02%)	71 (0.03%)	1092 (0.05%)	13 (0.04%)	1 (0.01%)
Bones/joints/articular cartilage (limbs)	14 (<0.01%)	1 (0.02%)	1 (<0.01%)	0 (0.00%)	0 (0.00%)	12 (<0.01%)	0 (0.00%)	0 (0.00%)
Bones/joints/articular cartilage (other)	37 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	1 (<0.01%)	33 (<0.01%)	1 (<0.01%)	1 (0.01%)
Brain	437 (0.02%)	1 (0.02%)	6 (0.01%)	8 (0.01%)	14 (0.01%)	407 (0.02%)	0 (0.00%)	1 (0.01%)
Breast	14569 (0.54%)	27 (0.43%)	291 (0.48%)	413 (0.40%)	978 (0.48%)	12684 (0.56%)	131 (0.45%)	45 (0.50%)
Invasive breast	12260 (0.45%)	24 (0.38%)	232 (0.38%)	338 (0.32%)	790 (0.39%)	10724 (0.46%)	114 (0.39%)	38 (0.42%)
In situ breast	2591 (0.09%)	4 (0.06%)	63 (0.10%)	84 (0.08%)	216 (0.10%)	2196 (0.09%)	20 (0.07%)	8 (0.09%)
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	145 (0.01%)	0 (0.00%)	2 (<0.01%)	6 (0.01%)	21 (0.01%)	115 (<0.01%)	1 (<0.01%)	0 (0.00%)
Colorectum	3759 (0.13%)	9 (0.14%)	64 (0.10%)	108 (0.10%)	312 (0.15%)	3220 (0.13%)	33 (0.11%)	13 (0.14%)
Connective/subcutaneous/ soft tissues	232 (0.01%)	0 (0.00%)	6 (0.01%)	5 (<0.01%)	10 (<0.01%)	205 (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	1970 (0.12%)	3 (0.09%)	26 (0.06%)	47 (0.08%)	99 (0.11%)	1780 (0.12%)	11 (0.07%)	4 (0.07%)
Esophagus	219 (0.01%)	1 (0.02%)	1 (<0.01%)	3 (<0.01%)	10 (<0.01%)	200 (0.01%)	3 (0.01%)	1 (0.01%)
Eye and adnexa	88 (<0.01%)	0 (0.00%)	0 (0.00%)	4 (<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 17, 2024

	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	17.6	13.6	15.5	14.7	14.9	18.2	18.5	12.5
Floor of Mouth	20 (<0.01%)	0 (0.00%)	1 (<0.01%)	1 (<0.01%)	2 (<0.01%)	15 (<0.01%)	0 (0.00%)	1 (0.01%)
Gallbladder	167 (0.01%)	0 (0.00%)	1 (<0.01%)	10 (0.01%)	11 (0.01%)	143 (0.01%)	2 (0.01%)	0 (0.00%)
Genital organs	190 (0.01%)	0 (0.00%)	4 (0.01%)	6 (0.01%)	6 (<0.01%)	173 (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	862 (0.03%)	7 (0.11%)	14 (0.02%)	24 (0.02%)	70 (0.03%)	735 (0.03%)	8 (0.03%)	4 (0.04%)
Larynx	57 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	6 (<0.01%)	51 (<0.01%)	0 (0.00%)	0 (0.00%)
Leukemia	1362 (0.05%)	2 (0.03%)	17 (0.03%)	30 (0.03%)	74 (0.04%)	1217 (0.05%)	15 (0.05%)	7 (0.07%)
Liver	410 (0.01%)	4 (0.06%)	18 (0.03%)	23 (0.02%)	33 (0.02%)	325 (0.01%)	3 (0.01%)	4 (0.04%)
Lung	4744 (0.17%)	12 (0.18%)	69 (0.11%)	95 (0.09%)	318 (0.15%)	4185 (0.17%)	44 (0.14%)	21 (0.22%)
Lymph nodes	3 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)	0 (0.00%)
Lymphoma, Hodgkins	87 (<0.01%)	0 (0.00%)	1 (<0.01%)	9 (0.01%)	5 (<0.01%)	70 (<0.01%)	1 (<0.01%)	1 (0.01%)
Lymphoma, non-Hodgkins	2079 (0.07%)	1 (0.02%)	42 (0.07%)	66 (0.06%)	75 (0.04%)	1877 (0.08%)	9 (0.03%)	9 (0.10%)
Melanoma of the skin	2977 (0.11%)	2 (0.03%)	7 (0.01%)	25 (0.02%)	9 (<0.01%)	2910 (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	728 (0.03%)	3 (0.05%)	5 (0.01%)	26 (0.02%)	92 (0.04%)	591 (0.02%)	8 (0.03%)	3 (0.03%)
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	23 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	22 (<0.01%)	0 (0.00%)	0 (0.00%)
Oral (mouth)	46 (<0.01%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	2 (<0.01%)	42 (<0.01%)	0 (0.00%)	0 (0.00%)
Other digestive	72 (<0.01%)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	4 (<0.01%)	66 (<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	1416 (0.05%)	5 (0.08%)	17 (0.03%)	42 (0.04%)	77 (0.04%)	1253 (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	1568 (0.06%)	1 (0.02%)	43 (0.07%)	40 (0.04%)	134 (0.06%)	1326 (0.05%)	18 (0.06%)	6 (0.06%)
Parotid gland (Stensen's duct)	76 (<0.01%)	0 (0.00%)	2 (<0.01%)	1 (<0.01%)	8 (<0.01%)	65 (<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 17, 2024

		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	17.6	13.6	15.5	14.7	14.9	18.2	18.5	12.5
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	246 (0.01%)	1 (0.02%)	3 (<0.01%)	8 (0.01%)	15 (0.01%)	216 (0.01%)	2 (0.01%)	1 (0.01%)
Pharynx	33 (<0.01%)	0 (0.00%)	0 (0.00%)	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	151 (0.01%)	0 (0.00%)	2 (<0.01%)	2 (<0.01%)	10 (<0.01%)	135 (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)	20 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	20 (<0.01%)	0 (0.00%)	0 (0.00%)
Small intestine	183 (0.01%)	0 (0.00%)	4 (0.01%)	5 (<0.01%)	14 (0.01%)	158 (0.01%)	2 (0.01%)	0 (0.00%)
Stomach	359 (0.01%)	0 (0.00%)	16 (0.03%)	13 (0.01%)	49 (0.02%)	271 (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	537 (0.02%)	0 (0.00%)	8 (0.01%)	17 (0.02%)	38 (0.02%)	471 (0.02%)	3 (0.01%)	0 (0.00%)
Tongue, part of (other/unspecified)	99 (<0.01%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)	2 (<0.01%)	91 (<0.01%)	2 (0.01%)	1 (0.01%)
Tonsil	25 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (<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	96 (<0.01%)	1 (0.02%)	3 (<0.01%)	2 (<0.01%)	2 (<0.01%)	86 (<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	152 (0.01%)	1 (0.03%)	4 (0.01%)	5 (0.01%)	17 (0.02%)	124 (0.01%)	1 (0.01%)	0 (0.00%)
Vagina	56 (<0.01%)	1 (0.02%)	1 (<0.01%)	1 (<0.01%)	4 (<0.01%)	48 (<0.01%)	1 (<0.01%)	0 (0.00%)
Vulva	207 (0.01%)	0 (0.00%)	2 (<0.01%)	13 (0.01%)	13 (0.01%)	177 (0.01%)	2 (0.01%)	0 (0.00%)
Other/unknown site	1589 (0.06%)	9 (0.14%)	35 (0.06%)	32 (0.03%)	99 (0.05%)	1396 (0.06%)	7 (0.02%)	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 17, 2024

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85384	113869	128390	125532	102008	65026	30868
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.1	3.6	3.7
Total cancer	1698 (0.82%)	3366 (1.10%)	5633 (1.32%)	7884 (1.58%)	8256 (1.71%)	6226 (1.77%)	3477 (1.82%)	1542 (1.66%)
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%)	35 (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%)	13 (<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%)	49 (0.01%)	25 (0.01%)	8 (0.01%)
Bladder	33 (0.02%)	73 (0.02%)	109 (0.02%)	206 (0.04%)	276 (0.05%)	254 (0.06%)	162 (0.07%)	96 (0.08%)
Bones/joints/articular cartilage (limbs)	1 (<0.01%)	1 (<0.01%)	3 (<0.01%)	2 (<0.01%)	4 (<0.01%)	3 (<0.01%)	0 (0.00%)	0 (0.00%)
Bones/joints/articular cartilage (other)	1 (<0.01%)	0 (0.00%)	4 (<0.01%)	10 (<0.01%)	8 (<0.01%)	7 (<0.01%)	4 (<0.01%)	3 (<0.01%)
Brain	15 (0.01%)	31 (0.01%)	63 (0.01%)	96 (0.02%)	87 (0.02%)	82 (0.02%)	39 (0.02%)	24 (0.02%)
Breast	903 (0.43%)	1651 (0.53%)	2473 (0.56%)	3193 (0.61%)	3130 (0.61%)	2003 (0.52%)	903 (0.43%)	313 (0.30%)
Invasive breast	721 (0.34%)	1341 (0.43%)	1988 (0.45%)	2630 (0.50%)	2660 (0.51%)	1762 (0.45%)	841 (0.39%)	317 (0.30%)
In situ breast	187 (0.09%)	323 (0.10%)	506 (0.11%)	615 (0.11%)	549 (0.10%)	306 (0.07%)	87 (0.04%)	18 (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%)	28 (0.01%)	23 (0.01%)	7 (<0.01%)	8 (0.01%)
Colorectum	111 (0.05%)	258 (0.08%)	481 (0.11%)	723 (0.13%)	781 (0.14%)	690 (0.17%)	463 (0.20%)	252 (0.23%)
Connective/subcutaneous/soft tissues	10 (<0.01%)	15 (<0.01%)	24 (0.01%)	37 (0.01%)	45 (0.01%)	48 (0.01%)	30 (0.01%)	23 (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%)	206 (0.11%)	373 (0.14%)	443 (0.14%)	407 (0.13%)	285 (0.12%)	114 (0.09%)	45 (0.07%)
Esophagus	3 (<0.01%)	12 (<0.01%)	21 (<0.01%)	30 (0.01%)	51 (0.01%)	46 (0.01%)	40 (0.02%)	16 (0.01%)
Eye and adnexa	5 (<0.01%)	3 (<0.01%)	18 (<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 17, 2024

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85384	113869	128390	125532	102008	65026	30868
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.1	3.6	3.7
Floor of Mouth	2 (<0.01%)	1 (<0.01%)	3 (<0.01%)	4 (<0.01%)	2 (<0.01%)	3 (<0.01%)	4 (<0.01%)	1 (<0.01%)
Gallbladder	2 (<0.01%)	5 (<0.01%)	16 (<0.01%)	32 (0.01%)	36 (0.01%)	44 (0.01%)	22 (0.01%)	10 (0.01%)
Genital organs	5 (<0.01%)	12 (<0.01%)	20 (<0.01%)	32 (0.01%)	39 (0.01%)	51 (0.01%)	23 (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%)	162 (0.04%)	81 (0.03%)	43 (0.04%)
Larynx	2 (<0.01%)	10 (<0.01%)	10 (<0.01%)	8 (<0.01%)	11 (<0.01%)	6 (<0.01%)	10 (<0.01%)	0 (0.00%)
Leukemia	20 (0.01%)	69 (0.02%)	175 (0.04%)	233 (0.04%)	299 (0.05%)	263 (0.06%)	196 (0.08%)	107 (0.09%)
Liver	4 (<0.01%)	16 (0.01%)	26 (0.01%)	68 (0.01%)	90 (0.02%)	88 (0.02%)	80 (0.03%)	38 (0.03%)
Lung	89 (0.04%)	257 (0.08%)	552 (0.12%)	929 (0.17%)	1147 (0.21%)	956 (0.23%)	553 (0.24%)	261 (0.23%)
Lymph nodes	0 (0.00%)	0 (0.00%)	1 (<0.01%)	2 (<0.01%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Lymphoma, Hodgkins	2 (<0.01%)	5 (<0.01%)	12 (<0.01%)	17 (<0.01%)	21 (<0.01%)	18 (<0.01%)	10 (<0.01%)	2 (<0.01%)
Lymphoma, non-Hodgkins	51 (0.02%)	122 (0.04%)	254 (0.06%)	415 (0.08%)	483 (0.09%)	391 (0.09%)	267 (0.12%)	96 (0.09%)
Melanoma of the skin	127 (0.06%)	220 (0.07%)	402 (0.09%)	576 (0.11%)	707 (0.13%)	509 (0.12%)	321 (0.14%)	115 (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%)	81 (0.02%)	148 (0.03%)	161 (0.03%)	171 (0.04%)	91 (0.04%)	31 (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%)	3 (<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%)	8 (0.01%)
Other digestive	0 (0.00%)	0 (0.00%)	4 (<0.01%)	8 (<0.01%)	17 (<0.01%)	17 (<0.01%)	13 (0.01%)	13 (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%)	280 (0.05%)	224 (0.05%)	142 (0.06%)	50 (0.04%)
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%)	338 (0.06%)	360 (0.09%)	264 (0.11%)	134 (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%)	6 (<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 17, 2024

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85384	113869	128390	125532	102008	65026	30868
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.1	3.6	3.7
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%)	46 (0.01%)	27 (0.01%)	2 (<0.01%)
Pharynx	1 (<0.01%)	1 (<0.01%)	5 (<0.01%)	9 (<0.01%)	2 (<0.01%)	7 (<0.01%)	5 (<0.01%)	3 (<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%)	6 (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%)	2 (<0.01%)
Small intestine	4 (<0.01%)	8 (<0.01%)	27 (0.01%)	30 (0.01%)	44 (0.01%)	36 (0.01%)	24 (0.01%)	10 (0.01%)
Stomach	7 (<0.01%)	22 (0.01%)	28 (0.01%)	65 (0.01%)	83 (0.02%)	83 (0.02%)	45 (0.02%)	26 (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%)	70 (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%)	15 (<0.01%)	16 (0.01%)	4 (<0.01%)
Tonsil	2 (<0.01%)	0 (0.00%)	3 (<0.01%)	6 (<0.01%)	6 (<0.01%)	3 (<0.01%)	4 (<0.01%)	1 (<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%)	18 (<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%)	38 (0.02%)	19 (0.01%)	22 (0.03%)
Vagina	0 (0.00%)	2 (<0.01%)	9 (<0.01%)	4 (<0.01%)	16 (<0.01%)	13 (<0.01%)	9 (<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%)	11 (0.01%)
Other/unknown site	27 (0.01%)	70 (0.02%)	119 (0.03%)	265 (0.05%)	297 (0.05%)	301 (0.07%)	297 (0.13%)	213 (0.19%)

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 17, 2024

	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	17.6	13.6	15.5	14.7	14.9	18.2	18.5	12.5
Cardiovascular outcomes²								
CHD	9645 (0.46%)	29 (0.56%)	126 (0.28%)	334 (0.33%)	1169 (0.57%)	7846 (0.46%)	95 (0.41%)	46 (0.61%)
CHD death ³	4024 (0.19%)	16 (0.31%)	46 (0.10%)	137 (0.13%)	659 (0.31%)	3092 (0.18%)	42 (0.18%)	32 (0.42%)
Clinical MI	6765 (0.32%)	19 (0.37%)	96 (0.21%)	238 (0.24%)	671 (0.32%)	5648 (0.33%)	65 (0.28%)	28 (0.37%)
Angina ⁴	5248 (0.41%)	26 (0.75%)	70 (0.22%)	188 (0.35%)	534 (0.50%)	4356 (0.41%)	51 (0.38%)	23 (0.44%)
CABG/PTCA	9347 (0.45%)	26 (0.51%)	103 (0.23%)	348 (0.35%)	774 (0.38%)	7980 (0.48%)	85 (0.37%)	31 (0.42%)
Carotid artery disease	1657 (0.08%)	10 (0.19%)	13 (0.03%)	37 (0.04%)	102 (0.05%)	1470 (0.09%)	17 (0.07%)	8 (0.11%)
Heart failure ⁵	3627 (0.51%)	10 (0.65%)	23 (0.28%)	227 (0.25%)	914 (0.45%)	2388 (0.61%)	52 (0.53%)	13 (0.57%)
Recurrent heart failure ⁶	1200 (9.57%)	5 (13.15%)	2 (2.25%)	62 (7.45%)	300 (8.97%)	809 (10.10%)	19 (10.77%)	3 (6.39%)
Stroke ⁷	7908 (0.28%)	26 (0.40%)	123 (0.20%)	327 (0.31%)	1035 (0.50%)	6275 (0.26%)	83 (0.27%)	39 (0.42%)
PAD	1727 (0.08%)	6 (0.12%)	17 (0.04%)	46 (0.04%)	264 (0.13%)	1366 (0.08%)	23 (0.10%)	5 (0.07%)
DVT ⁸	1520 (0.21%)	6 (0.40%)	2 (0.02%)	95 (0.10%)	418 (0.20%)	974 (0.25%)	19 (0.19%)	6 (0.26%)
Pulmonary embolism ⁸	1245 (0.17%)	5 (0.32%)	3 (0.04%)	59 (0.06%)	384 (0.19%)	774 (0.20%)	14 (0.14%)	6 (0.26%)
DVT/PE ⁸	2222 (0.31%)	9 (0.60%)	4 (0.05%)	130 (0.14%)	657 (0.32%)	1385 (0.36%)	28 (0.29%)	9 (0.40%)
Aortic aneurysm ⁹	90 (0.04%)	0 (0.00%)	2 (0.08%)	5 (0.02%)	23 (0.04%)	56 (0.04%)	4 (0.12%)	0 (0.00%)
Valvular heart disease ⁹	673 (0.30%)	0 (0.00%)	4 (0.16%)	62 (0.23%)	91 (0.15%)	505 (0.39%)	9 (0.28%)	2 (0.29%)
Total cardiovascular disease¹⁰	30013 (1.53%)	99 (2.11%)	384 (0.86%)	1175 (1.23%)	3809 (2.02%)	24083 (1.51%)	327 (1.50%)	136 (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 73% complete.

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 (2010-2025). To calculate annualized event rates, person-years at risk are limited to MRC participants with time during Extension Study II (2010-2025).

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 17, 2024

	Age at Diagnosis															
	50-59		60-64		65-69		70-74		75-79		80-84		85-89		≥90	
Number of participants ²	50943		85384		113869		128390		125532		102008		65026		30868	
Mean person years ²	4.1		3.7		4.0		4.3		4.4		4.1		3.6		3.7	
Cardiovascular Outcomes ³																
CHD	220	(0.10%)	551	(0.17%)	1157	(0.26%)	1791	(0.37%)	2210	(0.54%)	1952	(0.77%)	1130	(1.08%)	634	(1.73%)
CHD death ⁴	49	(0.02%)	124	(0.04%)	273	(0.06%)	542	(0.11%)	789	(0.19%)	926	(0.35%)	741	(0.67%)	580	(1.48%)
Clinical MI	180	(0.09%)	451	(0.14%)	950	(0.21%)	1397	(0.29%)	1662	(0.41%)	1293	(0.51%)	623	(0.60%)	209	(0.57%)
Angina ⁵	349	(0.17%)	702	(0.26%)	1182	(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%)	2371	(0.59%)	1354	(0.55%)	415	(0.41%)	61	(0.17%)
Carotid artery disease	52	(0.02%)	109	(0.03%)	270	(0.06%)	463	(0.09%)	427	(0.10%)	259	(0.10%)	66	(0.06%)	11	(0.03%)
Heart failure ⁶	70	(0.11%)	150	(0.17%)	259	(0.22%)	494	(0.36%)	693	(0.53%)	817	(0.87%)	672	(1.34%)	472	(2.01%)
Recurrent heart failure ⁷	18	(12.20%)	28	(6.51%)	70	(8.14%)	126	(8.17%)	223	(9.09%)	288	(9.77%)	272	(11.16%)	175	(10.18%)
Stroke ⁸	136	(0.06%)	355	(0.11%)	808	(0.18%)	1464	(0.27%)	1900	(0.35%)	1677	(0.41%)	1015	(0.45%)	553	(0.50%)
PAD	40	(0.02%)	102	(0.03%)	247	(0.05%)	369	(0.08%)	455	(0.11%)	347	(0.13%)	121	(0.11%)	46	(0.12%)
DVT ⁹	37	(0.06%)	82	(0.09%)	196	(0.16%)	274	(0.20%)	339	(0.26%)	303	(0.32%)	187	(0.36%)	102	(0.41%)
Pulmonary embolism ⁹	27	(0.04%)	60	(0.07%)	139	(0.11%)	238	(0.17%)	287	(0.22%)	240	(0.25%)	172	(0.33%)	82	(0.33%)
DVT/PE ⁹	51	(0.08%)	115	(0.13%)	270	(0.22%)	416	(0.31%)	509	(0.39%)	427	(0.45%)	285	(0.56%)	149	(0.62%)
Aortic aneurysm ¹⁰	--	--	--	--	1	(0.01%)	6	(0.02%)	18	(0.03%)	36	(0.06%)	18	(0.04%)	11	(0.04%)
Valvular heart disease ¹⁰	--	--	--	--	7	(0.07%)	39	(0.12%)	122	(0.22%)	196	(0.34%)	193	(0.47%)	116	(0.48%)
Total cardiovascular disease ¹¹	937	(0.45%)	2177	(0.70%)	4324	(1.00%)	6431	(1.41%)	6992	(1.87%)	5178	(2.33%)	2559	(2.95%)	1415	(4.83%)

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 73% complete.

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 (2010-2025). To calculate annualized event rates, person-years at risk are limited to MRC participants with time during Extension Study II (2010-2025).

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 17, 2024

	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	17.6	13.5	15.4	14.7	14.9	18.2	18.5	12.4
Fracture site²								
Elbow	3334 (0.12%)	7 (0.11%)	36 (0.06%)	104 (0.10%)	101 (0.05%)	3052 (0.13%)	26 (0.08%)	8 (0.09%)
Foot	9837 (0.36%)	24 (0.38%)	126 (0.20%)	269 (0.26%)	491 (0.24%)	8784 (0.38%)	115 (0.39%)	28 (0.31%)
Hand	2929 (0.10%)	6 (0.09%)	38 (0.06%)	125 (0.12%)	119 (0.06%)	2603 (0.11%)	28 (0.09%)	10 (0.11%)
Hip	9806 (0.35%)	11 (0.17%)	105 (0.17%)	149 (0.14%)	167 (0.08%)	9250 (0.39%)	97 (0.32%)	27 (0.29%)
Knee	4828 (0.17%)	19 (0.29%)	117 (0.19%)	225 (0.21%)	259 (0.12%)	4129 (0.17%)	60 (0.20%)	19 (0.20%)
Lower arm	15057 (0.56%)	34 (0.54%)	236 (0.39%)	476 (0.46%)	506 (0.25%)	13629 (0.60%)	131 (0.44%)	45 (0.50%)
Lower leg	10836 (0.40%)	28 (0.44%)	144 (0.23%)	320 (0.31%)	621 (0.30%)	9567 (0.41%)	122 (0.41%)	34 (0.37%)
Pelvis	5265 (0.19%)	8 (0.12%)	62 (0.10%)	103 (0.10%)	104 (0.05%)	4935 (0.21%)	44 (0.14%)	9 (0.10%)
Spine	11981 (0.43%)	21 (0.32%)	204 (0.33%)	277 (0.26%)	210 (0.10%)	11115 (0.47%)	124 (0.42%)	30 (0.33%)
Tailbone	1765 (0.06%)	3 (0.05%)	27 (0.04%)	56 (0.05%)	54 (0.03%)	1587 (0.07%)	30 (0.10%)	8 (0.09%)
Upper arm	9631 (0.35%)	13 (0.20%)	104 (0.17%)	352 (0.34%)	315 (0.15%)	8721 (0.37%)	100 (0.33%)	26 (0.28%)
Upper leg	4616 (0.16%)	11 (0.17%)	58 (0.09%)	87 (0.08%)	106 (0.05%)	4302 (0.18%)	38 (0.12%)	14 (0.15%)
Other	33724 (1.34%)	97 (1.73%)	596 (1.04%)	1163 (1.21%)	1583 (0.81%)	29782 (1.40%)	381 (1.42%)	122 (1.43%)
Osteoporotic ³	37296 (1.47%)	69 (1.12%)	564 (0.96%)	1043 (1.05%)	1079 (0.53%)	34086 (1.59%)	353 (1.27%)	102 (1.19%)
Any fracture	70966 (3.35%)	175 (3.55%)	1229 (2.38%)	2276 (2.66%)	3324 (1.87%)	63023 (3.56%)	706 (3.05%)	233 (3.11%)

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 (2010-2025) 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 (2010-2025). 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 17, 2024

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants²	50943	85308	113773	128258	125376	101866	64950	30862
Mean person years²	4.1	3.7	4.0	4.3	4.4	4.1	3.6	3.7
Fracture site³								
Elbow	157 (0.07%)	272 (0.09%)	456 (0.10%)	602 (0.11%)	718 (0.13%)	548 (0.13%)	394 (0.17%)	187 (0.17%)
Foot	727 (0.35%)	1155 (0.37%)	1719 (0.39%)	1995 (0.38%)	1863 (0.35%)	1410 (0.36%)	671 (0.30%)	297 (0.27%)
Hand	98 (0.05%)	189 (0.06%)	370 (0.08%)	553 (0.10%)	649 (0.12%)	529 (0.13%)	367 (0.16%)	174 (0.15%)
Hip	61 (0.03%)	144 (0.05%)	346 (0.08%)	863 (0.16%)	1755 (0.32%)	2581 (0.64%)	2357 (1.06%)	1699 (1.63%)
Knee	140 (0.07%)	281 (0.09%)	533 (0.12%)	879 (0.16%)	1115 (0.21%)	1043 (0.26%)	578 (0.25%)	259 (0.23%)
Lower arm	599 (0.29%)	1154 (0.37%)	1978 (0.45%)	2826 (0.54%)	3319 (0.64%)	2656 (0.69%)	1667 (0.79%)	858 (0.85%)
Lower leg	766 (0.37%)	1199 (0.38%)	1761 (0.40%)	2071 (0.39%)	2072 (0.40%)	1615 (0.41%)	887 (0.40%)	465 (0.43%)
Pelvis	62 (0.03%)	121 (0.04%)	269 (0.06%)	583 (0.11%)	948 (0.17%)	1307 (0.32%)	1152 (0.51%)	823 (0.75%)
Spine	162 (0.08%)	397 (0.13%)	943 (0.21%)	1687 (0.31%)	2647 (0.50%)	3009 (0.76%)	2076 (0.96%)	1060 (1.03%)
Tailbone	50 (0.02%)	78 (0.02%)	128 (0.03%)	199 (0.04%)	331 (0.06%)	378 (0.09%)	363 (0.16%)	238 (0.21%)
Upper arm	197 (0.09%)	460 (0.15%)	852 (0.19%)	1491 (0.28%)	2094 (0.39%)	2140 (0.54%)	1553 (0.70%)	844 (0.80%)
Upper leg	33 (0.02%)	98 (0.03%)	220 (0.05%)	483 (0.09%)	793 (0.15%)	1136 (0.28%)	1093 (0.48%)	760 (0.69%)
Other	2077 (1.01%)	3257 (1.08%)	4888 (1.16%)	6279 (1.27%)	6814 (1.43%)	5564 (1.61%)	3178 (1.73%)	1667 (1.94%)
Osteoporotic ⁴	993 (0.48%)	2047 (0.66%)	3802 (0.88%)	6109 (1.20%)	8149 (1.68%)	7941 (2.31%)	5399 (3.07%)	2856 (3.70%)
Any fracture	4366 (2.19%)	6977 (2.45%)	10516 (2.74%)	13554 (3.14%)	14460 (3.71%)	11526 (4.47%)	6476 (5.27%)	3091 (6.16%)

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 (2010-2025) 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 (2010-2025). All other fracture sites are obtained from self-reported data.

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

Table 2.10
Self-Reported Outcomes¹ (Annualized Percentages) by Race/Ethnicity

Data as of: February 17, 2024

			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	17.6		13.5		15.4		14.7		14.9		18.2		18.5		12.4	
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)	28746	(1.14%)	86	(1.75%)	739	(1.36%)	1423	(1.60%)	3016	(1.87%)	22994	(1.06%)	362	(1.42%)	126	(1.58%)
Hypertension treated w/pills	64699	(4.88%)	171	(6.41%)	1408	(4.79%)	2829	(5.47%)	4349	(7.45%)	55010	(4.72%)	708	(5.67%)	224	(5.09%)
Intestinal polyps	42314	(2.00%)	100	(1.96%)	883	(1.86%)	1610	(1.92%)	3536	(2.24%)	35553	(1.98%)	474	(2.11%)	158	(2.17%)
Lupus	2757	(0.10%)	11	(0.17%)	43	(0.07%)	145	(0.14%)	282	(0.14%)	2218	(0.09%)	46	(0.15%)	12	(0.13%)
Osteoarthritis	54839	(4.80%)	130	(5.13%)	1392	(4.45%)	2499	(5.36%)	4149	(4.82%)	45867	(4.77%)	606	(5.28%)	196	(4.70%)
Dementia ^{4,5}	27005	(1.85%)	53	(1.84%)	447	(1.48%)	960	(1.98%)	1640	(1.71%)	23516	(1.86%)	313	(1.99%)	76	(1.93%)
Macular degeneration ⁴	27245	(1.98%)	46	(1.68%)	355	(1.21%)	805	(1.71%)	1091	(1.15%)	24599	(2.08%)	283	(1.85%)	66	(1.73%)
Parkinson's disease ⁴	3396	(0.22%)	7	(0.23%)	64	(0.20%)	106	(0.21%)	167	(0.17%)	2997	(0.23%)	47	(0.28%)	8	(0.19%)
COPD ⁶	12316	(1.42%)	26	(1.57%)	135	(0.73%)	380	(1.31%)	786	(1.44%)	10806	(1.44%)	160	(1.76%)	23	(1.01%)

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 (2005-2025). 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 (2005-2025). Reported counts and event rates are limited to participation during WHI Extension Studies I and II (2005-2025).

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 (2010-2025), 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 (2010-2025). Reported counts and event rates are limited to participation during WHI Extension Study II (2010-2025).

Table 2.11
Self-Reported Outcomes¹ (Age-Specific Annualized Percentages²) by Age at Diagnosis

Data as of: February 17, 2024

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Number of participants³	50943	85308	113773	128258	125376	101866	64950	30862
Mean person years³	4.1	3.7	4.0	4.3	4.4	4.1	3.6	3.7
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%)	5804 (1.22%)	4914 (1.40%)	3074 (1.59%)	1780 (1.90%)
Hypertension treated w/pills	5016 (3.19%)	8531 (4.15%)	12365 (4.86%)	13933 (5.28%)	12757 (5.78%)	7843 (5.78%)	3183 (5.15%)	1071 (4.10%)
Intestinal polyps	2700 (1.38%)	5533 (2.01%)	9020 (2.46%)	10106 (2.47%)	8603 (2.27%)	4526 (1.67%)	1471 (1.00%)	355 (0.49%)
Lupus	274 (0.13%)	403 (0.13%)	508 (0.11%)	552 (0.10%)	509 (0.09%)	305 (0.07%)	151 (0.07%)	55 (0.05%)
Osteoarthritis	3887 (2.68%)	6918 (3.74%)	10038 (4.48%)	11409 (5.05%)	10683 (5.78%)	7107 (6.39%)	3310 (6.79%)	1487 (7.87%)
Dementia ^{5,6}	2 (0.15%)	97 (0.06%)	446 (0.18%)	1431 (0.41%)	4032 (1.01%)	6973 (2.03%)	7590 (3.72%)	6434 (6.92%)
Macular degeneration ⁵	2 (0.15%)	216 (0.14%)	1015 (0.41%)	2948 (0.87%)	5649 (1.47%)	7678 (2.40%)	6263 (3.44%)	3474 (4.46%)
Parkinson's disease ⁵	1 (0.07%)	38 (0.03%)	171 (0.07%)	423 (0.12%)	883 (0.22%)	980 (0.27%)	647 (0.29%)	253 (0.22%)
COPD ⁷	-- --	11 (1.57%)	295 (0.84%)	1432 (1.12%)	2856 (1.33%)	3440 (1.52%)	2788 (1.67%)	1494 (1.53%)

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 (2005-2025). 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 (2005-2025). Reported counts and event rates are limited to participation during WHI Extension Studies I and II (2005-2025).

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 (2010-2025), 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 (2010-2025). Reported counts and event rates are limited to participation during WHI Extension Study II (2010-2025).

Table 3.1
Aging Indicators at Start¹ (September 30, 2010) of WHI Extension Study II (2010-2025) by Age

Data as of: February 17, 2024

	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	<0.0	1	0.1	2	<0.0	6	<0.0	5	<0.0	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)
Years from 9/30/2010, mean (SD)	-0.0	(0.5)	-0.0	(0.5)	-0.0	(0.5)	-0.0	(0.5)	-0.0	(0.5)	-0.1	(0.6)
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	19887	44.0	9952	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	8340	9.2	74	7.4	817	5.4	3527	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	80280	88.3	940	95.4	14266	95.9	41524	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	2734	3.0	4	0.4	117	0.8	723	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	3873	8.5	6355	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	58940	64.1	690	68.7	10389	68.7	30143	65.8	16590	59.4	1128	54.5
One	19181	20.9	182	18.1	2770	18.3	9305	20.3	6463	23.1	461	22.3
Two	8852	9.6	90	9.0	1327	8.8	4161	9.1	3002	10.8	272	13.1
Three or more	4928	5.4	43	4.3	628	4.2	2184	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 12 Years Later¹ (September 30, 2022) by Age

Data as of: February 17, 2024

	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	37683	40.3	728	71.8	10534	69.0	21882	47.2	4486	15.6	53	2.4
Never completed Form 151/151AB after 9/30/2022	17974	19.2	180	17.8	2792	18.3	10421	22.5	4481	15.6	100	4.5
Deceased before 9/30/2022	37910	40.5	106	10.5	1941	12.7	14077	30.4	19732	68.8	2054	93.1
Age completed form, mean (SD)	85.4	(5.2)	76.3	(0.7)	79.9	(1.4)	86.4	(2.8)	94.7	(2.2)	103.2	(1.3)
Years from 9/30/2010, mean (SD)	12.5	(0.3)	12.5	(0.3)	12.5	(0.3)	12.5	(0.3)	12.5	(0.3)	12.5	(0.3)
Perceived Health Status²												
Excellent	1615	7.0	46	10.6	607	9.3	851	6.4	109	4.1	2	6.5
Very good	8624	37.6	177	40.9	2887	44.4	4807	36.2	744	27.8	9	29.0
Good	9168	40.0	168	38.8	2305	35.5	5508	41.5	1174	43.9	13	41.9
Fair	3048	13.3	38	8.8	632	9.7	1843	13.9	530	19.8	5	16.1
Poor	455	2.0	4	0.9	64	1.0	266	2.0	119	4.4	2	6.5
Activities of Daily Living Dependencies												
No Limitations	26017	71.4	647	90.1	8828	85.8	15028	71.0	1506	35.7	8	17.4
Eating	852	2.3	3	0.4	90	0.9	462	2.2	287	6.9	10	21.7
Transferring	1476	4.1	7	1.0	161	1.6	784	3.7	507	12.2	17	37.8
Dressing	2208	6.1	9	1.3	238	2.3	1201	5.7	741	17.7	19	41.3
Bathing	3353	9.3	10	1.4	337	3.3	1821	8.7	1160	27.9	25	54.3
Taking Medication	3494	9.6	15	2.1	348	3.4	1923	9.1	1184	28.3	24	52.2
Grocery Shopping	9343	25.9	57	8.0	1210	11.8	5506	26.2	2533	61.3	37	80.4
Independence												
Supportive services availability ²	6112	27.9	44	10.4	946	15.0	3749	29.6	1351	54.7	22	75.9
Supportive services use ²	3298	56.7	11	27.5	273	30.1	1965	55.2	1033	80.2	16	84.2
Need for nursing care ²	1043	4.6	5	1.2	132	2.1	612	4.7	289	11.1	5	16.7
Use of walking aid ³	5069	35.2	32	11.0	601	15.6	3031	36.5	1388	71.4	17	85.0
Lives alone ⁴	10615	50.1	153	36.3	2603	41.4	6563	53.1	1283	60.7	13	54.2
Falls⁵												
None	28187	59.3	547	65.6	7722	63.2	16332	59.1	3540	52.6	46	46.9
One	10516	22.1	172	20.6	2583	21.1	6174	22.3	1567	23.3	20	20.4
Two	5001	10.5	65	7.8	1141	9.3	2918	10.6	864	12.8	13	13.3
Three or more	3819	8.0	50	6.0	778	6.4	2207	8.0	765	11.4	19	19.4
Aging Indicators, Mean (SD)⁶												
Perceived Health Status ²	58.6	(21.7)	62.9	(20.8)	62.9	(20.8)	57.8	(21.5)	51.8	(22.5)	53.2	(24.8)
Quality of Life	75.2	(17.7)	80.0	(15.5)	78.7	(15.6)	74.8	(17.6)	68.3	(20.4)	67.1	(21.0)
Activities of Daily Living ⁷	93.4	(16.5)	98.4	(7.6)	97.5	(9.8)	93.6	(15.9)	81.0	(25.2)	62.0	(33.0)
Physical Functioning (RAND-36)	57.2	(29.3)	73.3	(24.0)	68.5	(25.7)	55.1	(28.5)	34.5	(27.5)	28.2	(32.0)

¹ Based on Form 151B (58.7%), 151A (38.0%), or 151 (3.3%) most proximal and subsequent to 9/30/2022; unless otherwise indicated. Due to the form ascertainment schedule, a 12-year snapshot was used as data was incomplete for 13 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 (2010-2025)

Data as of: February 17, 2024

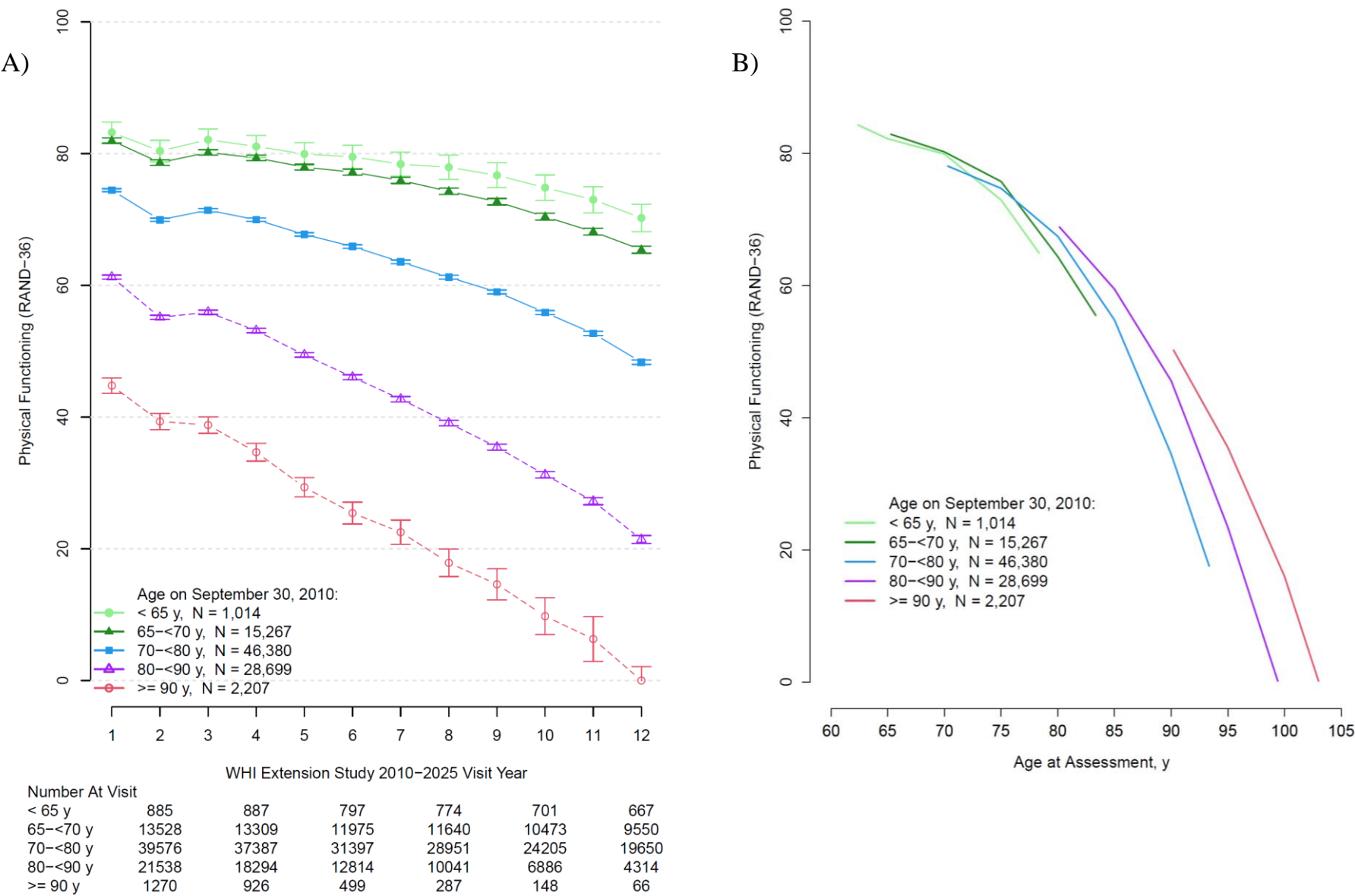


Figure 3.2
Mean Activities of Daily Living by Visit Year (panel A) and by Age at Assessment (panel B) During WHI Extension Study II (2010-2025)

Data as of: February 17, 2024

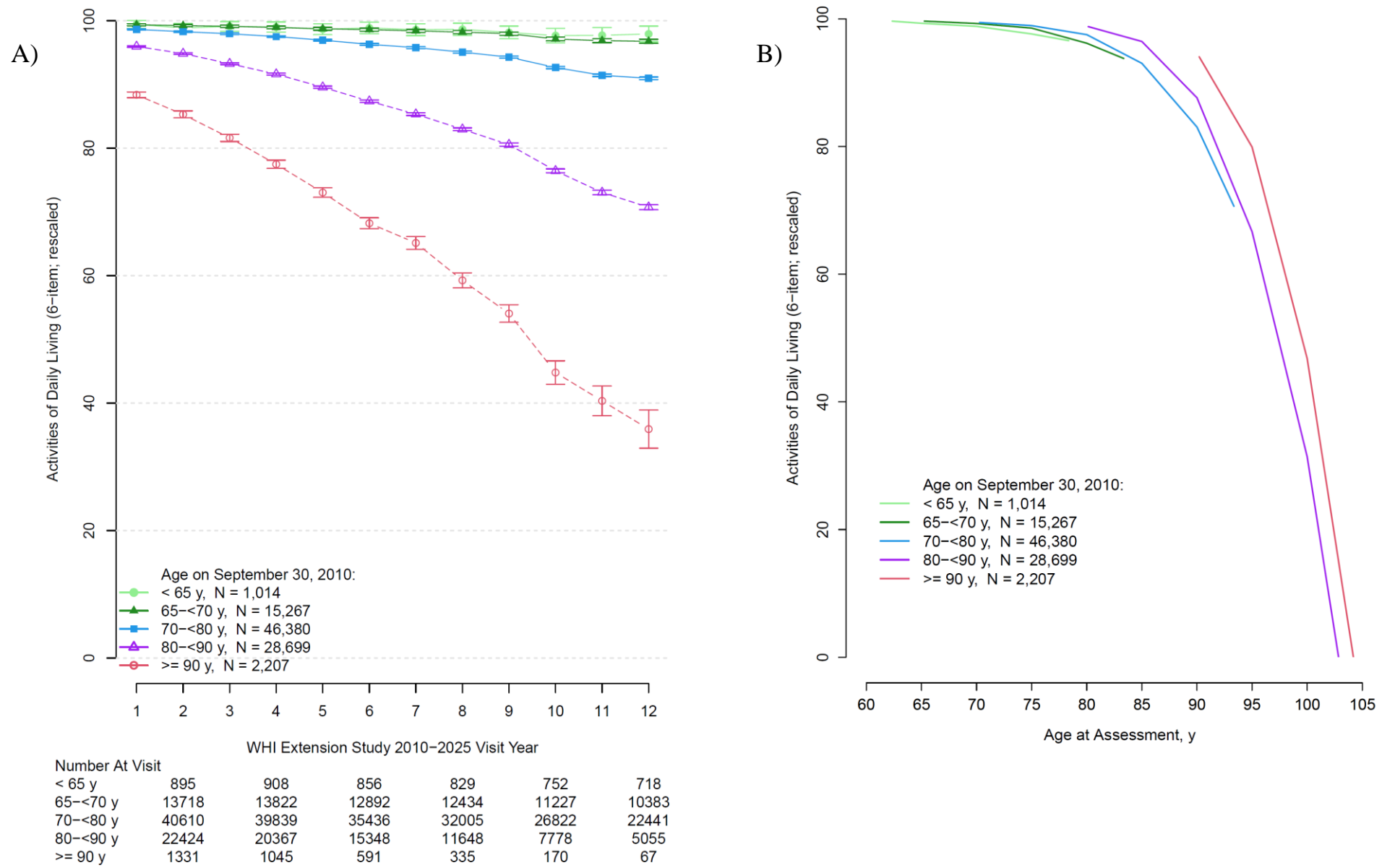


Table 4.1
Participant Characteristics for Long Life Study (LLS) Participants¹ by Race/Ethnicity

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) Participants¹ by Race/Ethnicity

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 17, 2024

Vital Status/Participation	LLS Participants (N=7,875)	
	N	%
Deceased	3512	44.6
Alive: Current Participation ¹	3661	46.5
Alive: Recent Participation ²	212	2.7
Stopped Follow-Up ³	235	3.0
Lost to Follow-Up ⁴	255	3.2

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 17, 2024

	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	8.6	9.4	9.1	8.0	8.3
Cardiovascular outcomes					
CHD ³	707 (1.07%)	76 (0.64%)	166 (0.75%)	453 (1.46%)	11 (1.24%)
CHD death ⁴	442 (0.65%)	41 (0.34%)	95 (0.42%)	297 (0.93%)	9 (0.99%)
Clinical MI	339 (0.53%)	40 (0.34%)	82 (0.38%)	213 (0.72%)	3 (0.35%)
CABG/PTCA	262 (0.40%)	34 (0.29%)	67 (0.30%)	158 (0.51%)	2 (0.22%)
Carotid artery disease	28 (0.04%)	1 (0.01%)	9 (0.04%)	18 (0.06%)	0 (0.00%)
Heart failure, UNC ⁵	752 (1.15%)	62 (0.52%)	174 (0.79%)	506 (1.66%)	8 (0.90%)
Stroke	653 (1.01%)	86 (0.73%)	169 (0.79%)	384 (1.27%)	11 (1.31%)
PAD	80 (0.12%)	7 (0.06%)	32 (0.14%)	40 (0.13%)	1 (0.11%)
DVT	238 (0.37%)	24 (0.20%)	91 (0.42%)	121 (0.40%)	2 (0.22%)
Pulmonary embolism	191 (0.29%)	16 (0.13%)	79 (0.36%)	91 (0.29%)	5 (0.56%)
DVT/PE	352 (0.54%)	34 (0.29%)	143 (0.66%)	170 (0.55%)	5 (0.56%)
Aortic aneurysm	22 (0.03%)	2 (0.02%)	8 (0.04%)	11 (0.03%)	1 (0.11%)
Valvular heart disease	221 (0.33%)	30 (0.25%)	30 (0.13%)	158 (0.51%)	3 (0.34%)
Total cardiovascular disease⁶	2441 (3.98%)	258 (2.28%)	638 (3.10%)	1511 (5.32%)	28 (3.35%)
Cancers					
Breast cancer	279 (0.45%)	46 (0.41%)	111 (0.53%)	119 (0.40%)	2 (0.24%)
Invasive breast cancer	242 (0.38%)	40 (0.35%)	92 (0.44%)	107 (0.36%)	2 (0.24%)
In situ breast cancer	39 (0.06%)	6 (0.05%)	20 (0.09%)	13 (0.04%)	0 (0.00%)
Ovarian cancer	31 (0.05%)	5 (0.04%)	7 (0.03%)	19 (0.06%)	0 (0.00%)
Endometrial cancer ⁷	23 (0.07%)	3 (0.05%)	6 (0.07%)	14 (0.07%)	0 (0.00%)
Colorectal cancer	104 (0.15%)	9 (0.07%)	26 (0.12%)	68 (0.22%)	1 (0.11%)
Other cancer ⁸	654 (0.99%)	81 (0.68%)	199 (0.90%)	353 (1.14%)	17 (1.98%)
Total cancer	1048 (1.63%)	138 (1.20%)	337 (1.58%)	551 (1.83%)	17 (1.98%)
Fractures					
Hip Fracture	424 (0.65%)	34 (0.29%)	37 (0.17%)	349 (1.18%)	4 (0.45%)
Deaths					
Cardiovascular deaths	1285 (1.90%)	113 (0.94%)	275 (1.22%)	877 (2.76%)	18 (1.98%)
Cancer deaths	561 (0.83%)	67 (0.56%)	177 (0.79%)	304 (0.96%)	11 (1.21%)
Other known cause	328 (0.49%)	40 (0.33%)	68 (0.30%)	210 (0.66%)	7 (0.77%)
Unknown cause	29 (0.04%)	5 (0.04%)	4 (0.02%)	20 (0.06%)	0 (0.00%)
Not yet adjudicated	197 (0.29%)	28 (0.23%)	51 (0.23%)	114 (0.36%)	3 (0.33%)
Total death	3512 (5.20%)	353 (2.93%)	806 (3.59%)	2287 (7.19%)	55 (6.05%)

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 17, 2024

	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	10.0	9.5	7.8	6.0
Cardiovascular outcomes				
CHD ²	26 (0.36%)	169 (0.59%)	448 (1.60%)	64 (2.63%)
CHD death ³	13 (0.18%)	84 (0.29%)	291 (1.01%)	54 (2.19%)
Clinical MI	15 (0.21%)	99 (0.35%)	204 (0.76%)	21 (0.92%)
CABG/PTCA	17 (0.24%)	115 (0.40%)	125 (0.45%)	5 (0.21%)
Carotid artery disease	1 (0.01%)	10 (0.03%)	16 (0.06%)	1 (0.04%)
Heart failure, UNC ⁴	17 (0.24%)	171 (0.60%)	499 (1.81%)	65 (2.75%)
Stroke	31 (0.44%)	178 (0.64%)	392 (1.45%)	52 (2.25%)
PAD	1 (0.01%)	28 (0.10%)	47 (0.17%)	4 (0.16%)
DVT	16 (0.23%)	89 (0.32%)	122 (0.44%)	11 (0.47%)
Pulmonary embolism	12 (0.17%)	72 (0.25%)	98 (0.35%)	9 (0.38%)
DVT/PE	23 (0.33%)	135 (0.48%)	177 (0.63%)	17 (0.72%)
Aortic aneurysm	2 (0.03%)	7 (0.02%)	12 (0.04%)	1 (0.04%)
Valvular heart disease	7 (0.10%)	64 (0.22%)	132 (0.47%)	18 (0.74%)
Total cardiovascular disease⁵	98 (1.43%)	673 (2.52%)	1460 (5.70%)	210 (9.42%)
Cancers				
Breast cancer	37 (0.55%)	147 (0.55%)	91 (0.34%)	4 (0.17%)
Invasive breast cancer	28 (0.41%)	128 (0.48%)	82 (0.30%)	4 (0.17%)
In situ breast cancer	9 (0.13%)	19 (0.07%)	11 (0.04%)	0 (0.00%)
Ovarian cancer	1 (0.01%)	14 (0.05%)	14 (0.05%)	2 (0.08%)
Endometrial cancer ⁶	0 (0.00%)	12 (0.08%)	11 (0.07%)	0 (0.00%)
Colorectal cancer	4 (0.06%)	28 (0.10%)	70 (0.24%)	2 (0.08%)
Other cancer ⁷	47 (0.67%)	260 (0.92%)	326 (1.16%)	21 (0.86%)
Total cancer	88 (1.28%)	441 (1.61%)	490 (1.78%)	29 (1.20%)
Fractures				
Hip fracture	12 (0.17%)	61 (0.21%)	307 (1.14%)	44 (2.04%)
Deaths				
Cardiovascular deaths	26 (0.36%)	224 (0.77%)	867 (3.01%)	168 (6.81%)
Cancer deaths	24 (0.33%)	193 (0.66%)	323 (1.12%)	21 (0.85%)
Other known cause	9 (0.12%)	62 (0.21%)	217 (0.75%)	40 (1.62%)
Unknown cause	3 (0.04%)	3 (0.01%)	18 (0.06%)	5 (0.20%)
Not yet adjudicated	5 (0.07%)	60 (0.21%)	118 (0.41%)	14 (0.57%)
Total death	92 (1.28%)	763 (2.63%)	2292 (7.97%)	365 (14.79%)

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 17, 2024

		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	8.6	9.4	9.1	8.0	8.3
Self-reported outcomes					
Diabetes (treated)	900 (1.80%)	151 (1.74%)	301 (2.01%)	431 (1.68%)	13 (2.12%)
Hypertension treated w/pills	743 (4.67%)	177 (4.82%)	161 (4.98%)	391 (4.46%)	11 (7.18%)
Intestinal polyps	565 (1.39%)	139 (1.92%)	225 (1.77%)	196 (0.99%)	5 (0.88%)
Lupus	37 (0.06%)	8 (0.07%)	12 (0.06%)	17 (0.05%)	0 (0.00%)
Osteoarthritis	1094 (7.17%)	178 (6.77%)	367 (7.51%)	534 (7.11%)	10 (5.72%)
Dementia ³	1992 (3.29%)	299 (2.76%)	498 (2.42%)	1161 (4.12%)	27 (3.37%)
Macular degeneration	1428 (2.60%)	220 (2.16%)	344 (1.75%)	841 (3.50%)	17 (2.15%)
Parkinson's disease	141 (0.21%)	29 (0.24%)	40 (0.18%)	70 (0.22%)	2 (0.23%)
COPD	921 (1.52%)	134 (1.22%)	296 (1.48%)	482 (1.69%)	9 (1.06%)

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 17, 2024

	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	10.0	9.5	7.8	6.0
Self-reported outcomes				
Diabetes (treated)	89 (1.73%)	407 (1.98%)	374 (1.68%)	30 (1.46%)
Hypertension treated w/pills	89 (4.51%)	327 (4.71%)	302 (4.66%)	25 (4.92%)
Intestinal polyps	120 (2.84%)	306 (1.81%)	135 (0.76%)	4 (0.24%)
Lupus	4 (0.06%)	19 (0.07%)	13 (0.05%)	1 (0.04%)
Osteoarthritis	131 (6.44%)	502 (7.20%)	417 (7.22%)	44 (8.98%)
Dementia ²	81 (1.18%)	608 (2.27%)	1166 (4.69%)	137 (6.64%)
Macular degeneration	74 (1.12%)	498 (1.98%)	780 (3.60%)	76 (5.02%)
Parkinson's disease	10 (0.14%)	60 (0.21%)	67 (0.24%)	4 (0.16%)
COPD	82 (1.25%)	354 (1.35%)	457 (1.78%)	28 (1.22%)

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 Rates by Cohort, Age, Race, and Ethnicity

Data as of February: 17, 2024

	Total		Cohort ¹					
			LLS		LILAC		Non-LLS/LILAC MRC	
	Eligible N	Consented N (%)	Eligible N	Consented N (%)	Eligible N	Consented N (%)	Eligible N	Consented N (%)
Overall	15855	7442 (46.9)	4172	2200 (52.7)	5104	2642 (51.8)	6579	2600 (39.5)
Age at LLS2 eligibility								
70-79	2089	1088 (52.1)	556	350 (62.9)	610	352 (57.7)	923	386 (41.8)
80-89	10102	4951 (49.0)	2151	1222 (56.8)	3402	1837 (54.0)	4549	1892 (41.6)
90-99	3550	1373 (38.7)	1408	609 (43.3)	1064	448 (42.1)	1078	316 (29.3)
100+	114	30 (26.3)	57	19 (33.3)	28	5 (17.9)	29	6 (20.7)
Race								
American Indian/Alaska Native	39	12 (30.8)	3	2 (66.7)	9	3 (33.3)	27	7 (25.9)
Asian	220	72 (32.7)	1	0 (0.0)	102	27 (26.5)	117	45 (38.5)
Native Hawaiian/Pacific Islander	20	2 (10.0)	0	0 (0.0)	3	0 (0.0)	17	2 (11.8)
Black/African American	3366	1269 (37.7)	1652	856 (51.8)	102	31 (30.4)	1612	382 (23.7)
White	11584	5819 (50.2)	2236	1190 (53.2)	4814	2544 (52.8)	4534	2085 (46.0)
More than one race	253	107 (42.3)	82	41 (50.0)	49	27 (55.1)	122	39 (32.0)
Unknown/Not reported	373	161 (43.2)	198	111 (56.1)	25	10 (40.0)	150	40 (26.7)
Ethnicity								
Not Hispanic/Latina	14481	6841 (47.2)	3382	1760 (52.0)	5029	2614 (52.0)	6070	2467 (40.6)
Hispanic/Latina	1352	597 (44.2)	790	440 (55.7)	61	26 (42.6)	501	131 (26.1)
Unknown/Not reported	22	4 (18.2)	0	0 (0.0)	14	2 (14.3)	8	2 (25.0)

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

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

Data as of: February 17, 2024

	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 ³	5225		469		992		3640		60	
Blood draw completed	4882	93.4	446	95.1	893	90.0	3430	94.2	53	88.3
Vision exam completed ⁴	2892	99.2	147	99.3	271	99.3	2416	99.1	23	100.0
Age at visit, years	5225	85.2 (5.1)	469	83.6 (5.2)	992	84.0 (5.0)	3640	85.8 (5.0)	60	85.3 (5.3)
75-79	659	12.6	106	22.6	189	19.1	344	9.5	12	20.0
80-84	1891	36.2	185	39.4	394	39.7	1271	34.9	15	25.0
85-89	1608	30.8	110	23.5	267	26.9	1192	32.7	21	35.0
90-94	785	15.0	53	11.3	105	10.6	609	16.7	8	13.3
≥95	282	5.4	15	3.2	37	3.7	224	6.2	4	6.7
Education	5195	--	463	--	988	--	3621	--	60	--
0-8 years	23	0.4	7	1.5	6	0.6	10	0.3	0	0.0
Some high school	85	1.6	15	3.2	38	3.8	30	0.8	2	3.3
High school diploma/GED	607	11.7	65	14.0	101	10.2	430	11.9	7	11.7
School after high school	1816	35.0	206	44.5	363	36.7	1210	33.4	24	40.0
College degree or higher	2664	51.3	170	36.7	480	48.6	1941	53.6	27	45.0
Body-mass Index (BMI), kg/m ²	4750	27.0 (5.6)	441	27.1 (5.0)	889	28.7 (6.1)	3309	26.6 (5.5)	52	27.9 (7.1)
< 18.5	122	2.6	6	1.4	13	1.5	101	3.1	2	3.8
18.5 - 24.9	1773	37.3	163	37.0	245	27.6	1316	39.8	16	30.8
25.0 - 29.9	1681	35.4	166	37.6	326	36.7	1146	34.6	19	36.5
30.0 - 34.9	771	16.2	79	17.9	183	20.6	499	15.1	8	15.4
35.0 - 39.9	265	5.6	18	4.1	72	8.1	170	5.1	5	9.6
≥ 40	138	2.9	9	2.0	50	5.6	77	2.3	2	3.8

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= 3), Asian or Native Hawaiian/Other Pacific Islander (n= 47) and Other/Not Reported (n= 14) race/ethnicities are not displayed due to small numbers, however these participants are included in the Total column.

³ LLS2 visits are ongoing. Numbers presented here represent completed visits as of 2/17/2024.

⁴ 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 = 2916 overall (n = 148 for Hispanic/Latina, n = 273 for Non-Hispanic Black/African American, n = 2437 for Non-Hispanic White, and n = 23 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 17, 2024

	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	4846	--	445	--	907	--	3380	--	53	--
No kyphosis (0)	1588	32.8	192	43.1	300	33.1	1053	31.2	16	30.2
Slight kyphosis (1)	2301	47.5	199	44.7	434	47.9	1623	48.0	21	39.6
Moderate kyphosis (2)	831	17.1	47	10.6	142	15.7	618	18.3	14	26.4
Severe kyphosis (3)	126	2.6	7	1.6	31	3.4	86	2.5	2	3.8
Systolic blood pressure, mmHg	5092	128.3 (15.7)	467	126.7 (14.6)	970	131.2 (15.3)	3533	127.7 (15.8)	58	124.5 (15.6)
≤120	1616	31.7	165	35.3	219	22.6	1187	33.6	23	39.7
120 - 140	2502	49.1	227	48.6	519	53.5	1703	48.2	25	43.1
>140	974	19.1	75	16.1	232	23.9	643	18.2	10	17.2
Diastolic blood pressure, mmHg	5092	72.9 (9.0)	467	71.8 (8.1)	970	73.4 (9.5)	3533	72.8 (8.9)	58	74.1 (10.3)
<80	3903	76.6	379	81.2	704	72.6	2730	77.3	44	75.9
80-89	1023	20.1	83	17.8	224	23.1	693	19.6	9	15.5
≥90	166	3.3	5	1.1	42	4.3	110	3.1	5	8.6
Grip strength, kg	4905	13.7 (6.1)	452	13.3 (5.4)	917	15.4 (6.7)	3419	13.2 (6.0)	56	13.3 (6.0)
Repeated chair stands, #stands/sec	3956	0.37 (0.19)	390	0.38 (0.20)	706	0.33 (0.17)	2768	0.38 (0.20)	39	0.33 (0.17)
Walking pace, m/sec	4228	0.57 (0.24)	399	0.59 (0.24)	709	0.48 (0.24)	3023	0.59 (0.23)	41	0.54 (0.25)
Assistive device used on walk test	440	10.4	33	8.3	64	9.1	333	11.0	5	12.5
Look AHEAD SPPB ³	3552	1.5 (0.5)	344	1.6 (0.5)	606	1.4 (0.6)	2523	1.6 (0.5)	29	1.4 (0.5)
EPESE SPPB ⁴	3846	7.4 (2.7)	372	7.6 (2.6)	651	6.7 (2.8)	2733	7.5 (2.7)	37	6.3 (2.7)

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=3), Asian or Native Hawaiian/Other Pacific Islander (n= 47) and Other/Not Reported (n= 14) 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 6.1
Status of Virtual Pooled Registry (VPR) Progress

Data as of: March 4, 2024

Status	Registries			High Quality Matches ¹		Records Received ²
	Number of Registries	% of Registries	State Abbreviations	N	%	N
Received data	16	37.2	AK, GA, IA, ID, MA, MI, MT, NM, NY, OH, PR, WA (Seattle) ³ , SC, TN, VA, WY	18588	38.4	18654
Approvals in place	7	16.3		6948	14.4	
Waiting to receive data	3	7.0	OR, RI, WI	4618	9.6	
DUA pending at FHCC	1	2.3	MD	1169	2.4	
DUA pending at registry	1	2.3	HI	1131	2.3	
Not yet started post-approval documents	2	4.7	LA, ND	30	0.1	
Approvals under review by external registry/IRB	4	9.3	AZ, CA, KY, NC	14722	30.5	
Initial paperwork in progress at WHI CCC	9	20.9	AL, AR, CO, CT, IN, MO, NJ, PA, TX	7557	15.6	
Not yet started approval process	6	14.0	ME, MS, NE, NH, OK, UT	473	1.0	
Denied	1	2.3	WV	46	0.1	
Total	43	100.0		48334	100.0	18654

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.

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