



**Women's Health Initiative
2017 Annual Progress Report**

Data as of: February 28, 2017

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.



**Women's Health Initiative
2017 Annual Progress Report**

Data as of: February 28, 2017

**Prepared by
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1. Overview

1.0 Background

Between 1993 and 1997, WHI investigators at 40 Clinical Centers recruited 161,808 women into the overall program; 68,132 were randomized into one or more arms of the clinical trial component (CT) and 93,676 were enrolled into the observational study (OS) (Figure 1). During 2004-2005, the close-out period for the original program, 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 this time. At the end of the first extension period in 2010, participants were again offered the opportunity to continue and 86.9% of the 107,706 eligible women agreed (n=93,567).

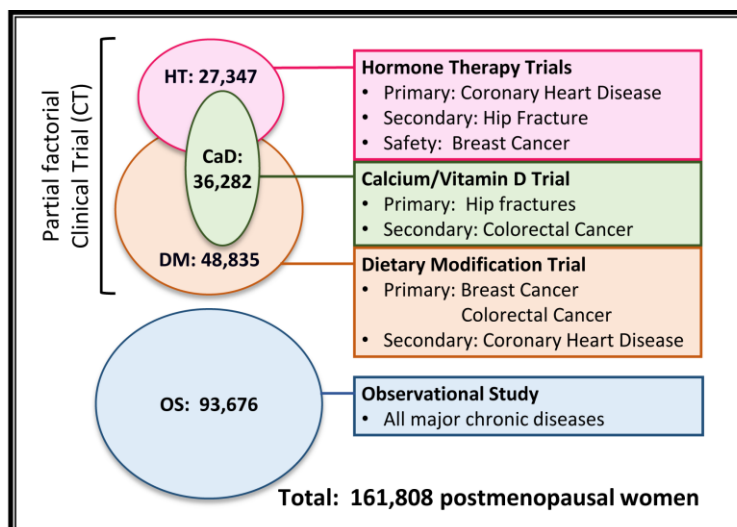


Figure 1. Original design of the WHI clinical trials and observational study, its components and outcomes.

1.1 The 2010-2020 Extension Study

The follow-up protocol for 2015-2020 is essentially unchanged from the protocol for the previous 5 years (2010-2015). All participants are contacted annually, primarily by mail, for health and selected exposure updates. For reports of designated health events, the effort to obtain documentation has been reduced to a subset. Continuing in 2015-2020, cardiovascular events and hip fractures are only documented in a subset of participants referred to as the Medical Records Cohort (MRC). The MRC is comprised of former hormone trial (HT) participants and all African American and Hispanic participants, regardless of their previous enrollment status (Figure 2). Active outcome data collection for the remaining participants (the Self-Report Cohort or SRC) is limited to self-report with the exception

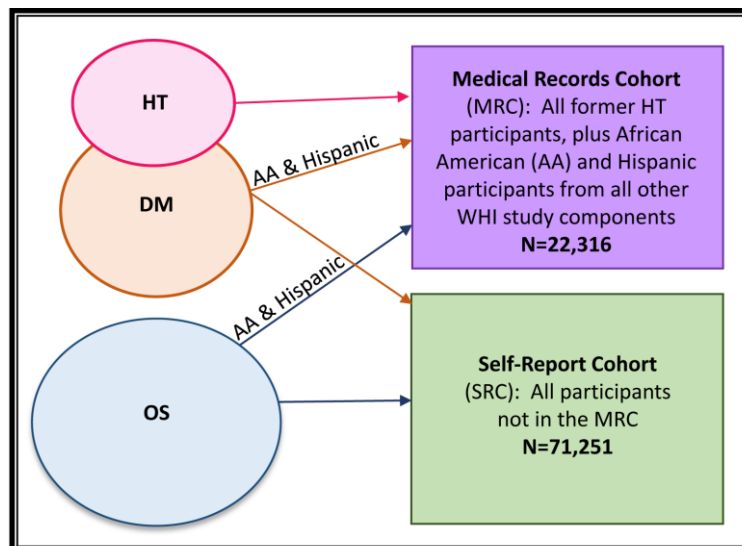


Figure 2. 2010–2020 Extension Study design reflecting differing levels of outcomes ascertainment: MRC and SRC.

of cancer, for which NCI is supporting the documentation and coding of all incident primary cancers.

The CCC conducts annual mailings of follow-up questionnaires to all eligible participants. The RCs and their collaborating centers contact non-responders, collect and submit medical records for all of the designated outcomes to the CCC, and participate in a range of scientific endeavors. The CCC fulfills the RC role for two former Field Centers (Seattle and LaJolla). As of February 2017, 75,420 women remain in active follow-up (Table 1.4), 60.3% of whom are 80 or older.

1.2 Progress on primary study objectives

This report provides an update on study status through February 2017. Though follow-up rates have remained excellent, there has been a gradual drop in initial and overall response rates in the last two years. Year 5 mailing response was 86.9% after 2 mailings, and the overall response was 91.4% including phone follow-up (Tables 1.5-1.6). To date, the year 6 initial mailing response rate is 74.5%, reaching 88.5% when including phone follow-up. Given there was not a need to re-consent participants prior to this phase of the study, it is somewhat expected that we would see this attrition over time.

For the designated WHI outcomes, clinical event rates using the fully adjudicated outcomes through February 2017 are presented by original study component, age and race (Sections 2-4). Using the newer study cohorts and extending those criteria back in time, we present data for the MRC and SRC, and women who would have been in those groups had they participated in the 2010-2020 Extension Study to comprise the MRC Supercohort and SRC Supercohort. Fully adjudicated events available through September 2016 are provided for the MRC Supercohort. For the SRC Supercohort, fully adjudicated events are provided for the interval from enrollment to September 2010 or September 2016 as appropriate. A large proportion of the cohort is deceased: 14.7% of Extension Study 2010-2020 participants had died as of February 2017 (Table 2.1).

Section 5 provides a current summary of the agreement rates between self-reported events and the centrally adjudicated events among MRC participants. In general, 50% to 70% of self-reported cardiovascular outcomes are confirmed as the reported diagnosis. Often, however, a related diagnosis is found.

The WHI Long Life Study (LLS), which consisted of an in-person visit with 7,875 of the oldest women in the MRC (details in Section 6), now has post-LLS blood draw outcomes available for analyses. Women were preferentially sampled based on availability of GWAS data, CVD biomarkers and older ages. Verified and self-reported outcomes are available (Tables 6.2-6.4) stratified by age at randomization and race. So far, 496 LLS participants have had verified cardiovascular outcomes, 351 have had a verified cancer, and 784 have died after the LLS blood draw. The most frequent self-reported outcomes after the draw so far are: macular degeneration (N=673), Alzheimer's disease (N=571), osteoarthritis (N=518) and COPD (N=464).

1.3 Engaging investigators

Section 7 addresses publications. To streamline this report, we include only those manuscripts published in the last year. A full listing and status of all proposed ancillary

studies and manuscripts is available on the WHI website (www.whi.org). 2,635 manuscript proposals have been approved and 1,491 are published or in press (Table 8.1). 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 *Circulation*, *JNCI*, *Nature Genetics*, and *Journal of Clinical Oncology*. In addition to manuscripts addressing cardiovascular disease among WHI participants, there have been a substantial number in cancer, diabetes, genetics, and aging.

The cohort continues to serve as the critical backbone for ancillary studies large and small. The COcoa Supplement and Multivitamin Outcomes Study (COSMOS) trial (PIs: JoAnn Manson and Howard Sesso) and the WHI Strong and Healthy (WHISH) trial (PIs: Marcia Stefanick, Charles Kooperberg, Andrea LaCroix,) both successfully launched in 2015. In addition, five ancillary studies to these trials have been funded (COSMOS – Mind, COSMOS – Web, COSMOS – Eye, and WHISH 2 Prevent Heart Failure, and WHISHStar).

Various core studies have generated genetic data for over 30,000 WHI participants using a number of approaches (genome-wide association studies, exome sequencing, typing of ancestry informative markers, metabochip typing), along with CVD biomarker data. These data are shared through dbGaP and BIOLINCC, providing an opportunity for outside investigators to use these resources. Whole genome sequencing for more than 11,000 WHI participants through the TopMED program has been completed, and those data will be available through dbGaP in the coming year. Two projects ancillary to TopMED have been funded and will provide additional molecular data, including gene methylation, metabolomics, and RNAseq data.

Table 1.1
WHI Centers and Principal Investigators

Clinical Coordinating Center

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

Field Centers

Principal Investigator	Institution	Location
Rebecca Jackson, MD	Ohio State University	Columbus, OH
Lewis Kuller, MD DrPH	University of Pittsburgh	Pittsburgh, PA
Marian Limacher, MD	University of Florida	Gainesville, FL
JoAnn Manson, MD DrPH	Brigham and Women's Hospital	Boston, MA
Sally Shumaker, PhD	Wake Forest University	Winston-Salem/Greensboro, NC
Marcia Stefanick, PhD	Stanford University	San Jose, CA
Cynthia Thomson, PhD RD	University of Arizona	Tucson, AZ
Jean Wactawski-Wende, PhD	University at Buffalo	Buffalo, NY
Jennifer Robinson, MD MPH	University of Iowa	Iowa City/ Bettendorf, IA

Former Principal Investigators

Principal Investigator	Institution	Location
Shirley Beresford, PhD	Fred Hutchinson Cancer Research Center	Seattle, WA
Robert Brunner, PhD	University of Nevada	Reno, NV
Robert Brzyski, MD	University of Texas	San Antonio, TX
Bette Caan, DrPH	Kaiser Foundation Research Institute	Oakland, CA
Rowan Chlebowski, MD PhD	University of California, Los Angeles	Torrance, CA
J. David Curb, MD	University of Hawaii	Honolulu, HI
Charles Eaton, MD	Memorial Hospital of Rhode Island	Pawtucket, RI
Gerardo Heiss, MD MPH	University of North Carolina, Chapel Hill	Chapel Hill, NC
Barbara Howard, PhD	MedStar Research Institute	Washington, D.C.
Allen Hubbell, MD	University of California, Irvine	Irvine, CA
Karen Johnson, MD MPH	University of Tennessee	Memphis, TN
Jane Kotchen, MD MPH	Medical College of Wisconsin	Milwaukee, WI
Andrea LaCroix, PhD	FHCRC for UCSD/La Jolla	Seattle, WA
Dorothy Lane, MD MPH	Research Foundation SUNY, Stony Brook	Stony Brook, NY
Norman Lasser, MD PhD	University of Medicine and Dentistry	Newark, NJ
Erin LeBlanc, MD	Oregon Health & Science University	Portland, OR
Cora Lewis, MD MSPH	University of Alabama at Birmingham	Birmingham, AL
Karen Margolis, MD	University of Minnesota	Minneapolis, MN
Lisa Martin, MD FACC	George Washington University	Washington, DC
Lauren Nathan, MD	University of California, Los Angeles	Los Angeles, CA
Mary-Jo O'Sullivan, MD	University of Miami	Miami, FL
Judith Ockene, PhD	University of Massachusetts	Worcester, MA
Larry Phillips, MD	Emory University	Atlanta, GA
Lynda Powell, PhD	Rush University Medical Center	Chicago, IL
Ross Prentice, PhD	Fred Hutchinson Cancer Research Center	Seattle, WA
Haleh Sangi-Haghpeykar, PhD	Baylor College of Medicine	Houston, TX

Table 1.1 (continued)
WHI Centers and Principal Investigators

Former Principal Investigators

Principal Investigator	Institution	Location
John Robbins, MD	University of California, Davis	Sacramento, CA
Gloria Sarto, MD	University of Wisconsin	Madison, WI
Michael Simon, MD	Wayne State University	Detroit, MI
Michael Thomas, MD	University of Cincinnati	Cincinnati, OH
Linda Van Horn, PhD RD	Northwestern University	Chicago/Evanston, IL
Mara Vitolins, PhD	Wake Forest University	Winston-Salem/Greensboro, NC
Robert Wallace, MD MSc	University of Iowa	Iowa City/Bettendorf, IA
Sylvia Wassertheil-Smoller, PhD	Albert Einstein College of Medicine	Bronx, NY

Table 1.2
Consent Status by Study Component and Arm

Data as of: February 28, 2017

WHI Enrollment	Enrolled in WHI	Eligible for extension 2005-2010¹	Consented	
			N	%
Hormone Therapy	27347	25194	20433	81.1
With Uterus	16608	15408	12788	83.0
E+P	8506	7878	6545	83.1
Placebo	8102	7530	6243	82.9
Without Uterus	10739	9786	7645	78.1
E-alone	5310	4851	3778	77.9
Placebo	5429	4935	3867	78.4
Dietary Modification	48835	45560	37858	83.1
Intervention	19541	18207	14769	81.1
Comparison	29294	27353	23089	84.4
Calcium and Vitamin D	36282	34447	29862	86.7
Active	18176	17280	15025	87.0
Placebo	18106	17167	14837	86.4
Clinical Trial Total	68132	63332	52176	82.4
Observational Study	93676	86744	63231	72.9
Total	161808	150076	115407	76.9

WHI Enrollment	Enrolled in extension 2005-2010	Eligible for extension 2010-2020¹	Consented	
			N	%
Hormone Therapy	20433	18794	15584	82.9
With Uterus	12788	11789	9891	83.9
E+P	6545	6048	5047	83.4
Placebo	6243	5741	4844	84.4
Without Uterus	7645	7005	5693	81.3
E-alone	3778	3479	2834	81.5
Placebo	3867	3526	2859	81.1
Dietary Modification	37858	35594	30690	86.2
Intervention	14769	13922	12014	86.3
Comparison	23089	21672	18676	86.2
Calcium and Vitamin D	29862	27975	24231	86.6
Active	15025	14083	12242	86.9
Placebo	14837	13892	11989	86.3
Clinical Trial Total	52176	48697	41499	85.2
Observational Study	63231	59009	52068	88.2
Total	115407	107706	93567	86.9

¹ Eligibility defined as alive at the beginning of consent and willing to be contacted.

Table 1.3
Consent Status by Age at Enrollment and Race/Ethnicity

Data as of: February 28, 2017

WHI Enrollment	Clinical Trial				Observational Study			
	Enrolled in WHI	Eligible for extension 2005-2010 ¹	Consented		Enrolled in WHI	Eligible for extension 2005-2010 ¹	Consented	
			N	%			N	%
Total	68132	63332	52176	82.4	93676	86744	63231	72.9
Age								
50-54	9188	8754	7237	82.7	12381	11969	8996	76.9
55-59	14661	13940	11724	84.1	17329	16565	12732	74.2
60-69	31389	29290	24528	83.7	41200	38502	28582	65.6
70-79	12894	11348	8687	76.6	22766	19708	12921	72.9
Race/Ethnicity								
American	292	260	185	71.2	421	372	217	58.3
Indian/Alaska Native								
Asian/Pacific Islander	1519	1414	1105	78.1	2671	2444	1291	52.8
Black/African American	6983	6423	4769	74.2	7635	6868	3585	52.2
Hispanic/Latina	2875	2686	1791	66.7	3609	3333	1598	47.9
White	55525	51682	43680	84.5	78016	72504	55767	76.9
Unknown	938	867	646	74.5	1324	1223	773	63.2

WHI Enrollment	Clinical Trial				Observational Study			
	Enrolled in extension 2005-2010	Eligible for extension 2010-2020 ¹	Consented		Enrolled in extension 2005-2010	Eligible for extension 2010-2020 ¹	Consented	
			N	%			N	%
Total	52176	48697	41499	85.2	63231	59009	52068	88.2
Age								
50-54	7237	7068	6249	88.4	8996	8802	8225	93.4
55-59	11724	11329	10055	88.8	12732	12400	11481	92.6
60-69	24528	22940	19642	85.6	28582	26820	23716	88.4
70-79	8687	7360	5553	75.4	12921	10987	8646	78.7
Race/Ethnicity								
American	185	174	147	84.5	217	204	171	83.8
Indian/Alaska Native								
Asian/Pacific Islander	1105	1050	845	80.5	1291	1224	1035	84.6
Black/African American	4769	4459	3420	76.7	3585	3358	2716	80.9
Hispanic/Latina	1791	1701	1226	72.1	1598	1527	1246	81.6
White	43680	40704	35363	86.9	55767	51969	46296	89.1
Unknown	646	609	498	81.8	773	727	604	83.1

¹ Eligibility defined as alive at the beginning of consent and willing to be contacted.

Table 1.4
Counts of Participants with Active¹ Participation by Current Age, Race/Ethnicity and Cohort

Data as of: February 28, 2017

	Clinical Trial (N=33,528)		Observational Study (N=41,892)		MRC Super Cohort (N=17,508)		SRC Super Cohort (N=57,912)		Total (N=75,420)	
	N	%	N	%	N	%	N	%	N	%
Age on 2/28/2017										
<75	3899	11.6	5872	14.0	2482	14.2	7289	12.6	9771	13.0
75-79	9427	28.1	10879	26.0	4869	27.8	15437	26.7	20306	26.9
80-84	9584	28.6	10856	25.9	4644	26.5	15796	27.3	20440	27.1
85-89	6934	20.7	8913	21.3	3540	20.2	12307	21.3	15847	21.0
90-94	3039	9.1	4360	10.4	1603	9.2	5796	10.0	7399	9.8
95+	645	1.9	1012	2.4	370	2.1	1287	2.2	1657	2.2
Race/Ethnicity										
American Indian/Alaska Native	119	0.4	132	0.3	48	0.3	203	0.4	251	0.3
Asian/Pacific Islander	725	2.2	881	2.1	196	1.1	1410	2.4	1606	2.1
Black/African American	2678	8.0	2136	5.1	4814	27.5	0	0.0	4814	6.4
Hispanic/Latina	1028	3.1	1039	2.5	2067	11.8	0	0.0	2067	2.7
White	28574	85.2	37228	88.9	10225	58.4	55577	96.0	65802	87.2
Unknown	404	1.2	476	1.1	158	0.9	722	1.2	880	1.2

Age² Distribution by Race/Ethnicity for Active¹ WHI Extension Study 2010-2020 Participants

Data as of: February 28, 2017

	Total (N = 75,420)		American Indian/ Alaskan Native (N = 251)		Asian/Pacific Islander (N = 1,606)		Black/African American (N = 4,814)		Hispanic/ Latina (N = 2,067)		White (N = 65,802)		Unknown (N = 880)	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Age on 2/28/2017														
<75	9771	13.0	54	21.5	290	18.1	914	19.0	467	22.6	7905	12.0	141	16.0
75-79	20306	26.9	76	30.3	446	27.8	1475	30.6	661	32.0	17442	26.5	206	23.4
80-84	20440	27.1	63	25.1	388	24.2	1304	27.1	484	23.4	17969	27.3	232	26.4
85-89	15847	21.0	38	15.1	318	19.8	774	16.1	331	16.0	14195	21.6	191	21.7
90-94	7399	9.8	18	7.2	125	7.8	271	5.6	109	5.3	6797	10.3	79	9.0
95+	1657	2.2	2	0.8	39	2.4	76	1.6	15	0.7	1494	2.3	31	3.5

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

² Age on February 28, 2017

Table 1.5
Response Rates to CCC Annual Mailings
Extension Study 2010-2020, Follow-up Years 5 and 6

Data as of: February 28, 2017

Study	1st Mailing Period				2nd Mailing Period					Cumulative Response
	Form ¹	Sent Mail 1	Response		Past 2 nd mailing period	Sent Mail 2	Response			
Year 5										
Total	33	81713	65342	80.0%	81713	14448	17.7%	4870	33.7%	86.9%
	151	81712	64757	79.3%	81712	15000	18.4%	5197	34.7%	86.5%
	157	81721	64568	79.0%	81721	15266	18.7%	5311	34.8%	86.5%
	521	4704	3596	76.5%	4704	797	16.9%	273	34.3%	83.0%
HT	33	13245	10169	76.8%	13245	2675	20.2%	841	31.4%	84.2%
	151	13245	10067	76.0%	13245	2764	20.9%	887	32.1%	83.7%
	157	13245	10042	75.8%	13245	2803	21.2%	894	31.9%	83.7%
	521	1156	847	73.3%	1156	218	18.9%	71	32.6%	80.5%
DM	33	27016	21423	79.3%	27016	4939	18.3%	1678	34.0%	86.6%
	151	27016	21246	78.6%	27016	5100	18.9%	1770	34.7%	86.2%
	157	27018	21163	78.3%	27018	5207	19.3%	1820	35.0%	86.1%
	521	1689	1261	74.7%	1689	294	17.4%	101	34.4%	81.4%
CaD	33	21267	16863	79.3%	21267	3917	18.4%	1270	32.4%	86.4%
	151	21267	16731	78.7%	21267	4036	19.0%	1350	33.5%	86.0%
	157	21269	16662	78.3%	21269	4127	19.4%	1387	33.6%	85.9%
	521	1503	1131	75.3%	1503	257	17.1%	79	30.7%	81.4%
OS	33	45560	36874	80.9%	45560	7679	16.9%	2634	34.3%	87.7%
	151	45559	36534	80.2%	45559	8010	17.6%	2837	35.4%	87.3%
	157	45566	36451	80.0%	45566	8138	17.9%	2892	35.5%	87.3%
	521	2233	1764	79.0%	2233	350	15.7%	126	36.0%	85.4%
Year 6										
Total	33	77797	57944	74.5%	77797	17720	22.8%	5198	29.3%	82.3%
	151	77797	57286	73.6%	77797	18422	23.7%	5583	30.3%	81.8%
	521	71576	52646	73.6%	71576	16930	23.7%	5270	31.1%	82.0%
HT	33	12515	8807	70.4%	12515	3266	26.1%	863	26.4%	78.6%
	151	12515	8716	69.6%	12515	3360	26.9%	920	27.4%	78.2%
	521	12073	8468	70.1%	12073	3180	26.3%	923	29.0%	78.9%
DM	33	25750	19054	74.0%	25750	5956	23.1%	1759	29.5%	82.1%
	151	25750	18811	73.1%	25750	6223	24.2%	1905	30.6%	81.6%
	521	23485	17102	72.8%	23485	5681	24.2%	1769	31.1%	81.6%
CaD	33	20255	14922	73.7%	20255	4713	23.3%	1350	28.6%	81.5%
	151	20255	14755	72.9%	20255	4903	24.2%	1449	29.6%	81.0%
	521	18766	13671	72.9%	18766	4518	24.1%	1375	30.4%	81.3%
OS	33	43411	32788	75.5%	43411	9527	22.0%	2863	30.1%	83.1%
	151	43411	32433	74.7%	43411	9900	22.8%	3064	31.0%	82.7%
	521	39753	29671	74.6%	39753	9065	22.8%	2886	31.8%	82.9%

¹ Form 33 = Medical History Update; Form 151 = Activities of Daily Living (ADL); Form 157 = Supplemental Questionnaire 2014-2015; Form 521 = Physical Activity Questionnaire.

Table 1.6
Response Rates to Regional Center Follow-up and Cumulative Response
Extension Study 2010-2020, Follow-up Years 5 and 6

Data as of: February 28, 2017

Study	Form¹	Eligible for RC Follow-up	Respondents		Total Estimated Response Rate
Year 5					
Total	33	12510	7569	60.5%	91.4%
	151	13289	4642	34.9%	87.6%
	157	14143	73	0.5%	82.2%
	521	3923	2	0.1%	43.2%
HT	33	2445	1732	70.8%	90.8%
	151	2657	1005	37.8%	85.2%
	157	2832	13	0.5%	78.1%
	521	899	0	0.0%	44.1%
DM	33	4278	2661	62.2%	91.7%
	151	4521	1704	37.7%	87.9%
	157	4847	28	0.6%	81.9%
	521	1408	0	0.0%	44.2%
CaD	33	3384	2239	66.2%	91.9%
	151	3594	1377	38.3%	87.7%
	157	3849	21	0.6%	81.6%
	521	1139	0	0.0%	46.0%
OS	33	6547	3717	56.8%	91.3%
	151	6937	2247	32.4%	87.9%
	157	7340	36	0.5%	83.3%
	521	1892	2	0.1%	42.6%
Year 6					
Total	33	8848	5141	58.1%	88.5%
	151	9295	2998	32.3%	83.3%
	521	8543	22	0.3%	76.1%
HT	33	1809	1167	64.5%	87.4%
	151	1915	609	31.8%	80.1%
	521	1843	1	0.1%	73.1%
DM	33	3124	1887	60.4%	89.0%
	151	3282	1128	34.4%	83.7%
	521	3054	4	0.1%	75.5%
CaD	33	2452	1554	63.4%	89.2%
	151	2593	881	34.0%	83.3%
	521	2418	3	0.1%	75.9%
OS	33	4504	2472	54.9%	88.4%
	151	4719	1459	30.9%	83.8%
	521	4245	17	0.4%	77.2%

¹ Form 33 = Medical History Update; Form 151 = Activities of Daily Living (ADL); Form 157 = Supplemental Questionnaire 2014-2015; Form 521 = Physical Activity Questionnaire.

Table 1.7
Response Rates to CCC Annual Mailings, Extension Study 2010-2020, Follow-up Year 5 by Cohort and Regional Center

Data as of: February 28, 2017

Cohort	1st Mailing Period				2nd Mailing Period					Cumulative Response
	Form ¹	Sent Mail 1	Response	Past 2 nd mailing period	Sent Mail 2	Response	Response	Response		
Total	33	81713	65342	80.0%	81713	14448	17.7%	4870	33.7%	86.9%
	151	81712	64757	79.3%	81712	15000	18.4%	5197	34.7%	86.5%
	157	81721	64568	79.0%	81721	15266	18.7%	5311	34.8%	86.5%
	521	4704	3596	76.5%	4704	797	16.9%	273	34.3%	83.0%
Medical Record Cohort	33	18962	14117	74.5%	18962	4174	22.0%	1279	30.6%	82.4%
	151	18962	13978	73.7%	18962	4307	22.7%	1352	31.4%	81.9%
	157	18963	13941	73.5%	18963	4368	23.0%	1365	31.3%	81.9%
	521	1696	1189	70.1%	1696	344	20.3%	110	32.0%	77.4%
Self Report Cohort	33	62751	51225	81.6%	62751	10274	16.4%	3591	35.0%	88.3%
	151	62750	50779	80.9%	62750	10693	17.0%	3845	36.0%	87.9%
	157	62758	50627	80.7%	62758	10898	17.4%	3946	36.2%	87.9%
	521	3008	2407	80.0%	3008	453	15.1%	163	36.0%	86.2%
Regional Center										
Boston	33	8952	7027	78.5%	8952	1538	17.2%	513	33.4%	85.1%
	151	8952	6960	77.8%	8952	1602	17.9%	541	33.8%	84.7%
	157	8952	6943	77.6%	8952	1632	18.2%	563	34.5%	84.7%
	521	267	197	73.8%	267	25	9.4%	11	44.0%	79.4%
Buffalo	33	12792	10120	79.1%	12792	2270	17.8%	801	35.3%	86.6%
	151	12792	10017	78.3%	12792	2371	18.5%	865	36.5%	86.3%
	157	12792	9989	78.1%	12792	2422	18.9%	876	36.2%	86.2%
	521	731	515	70.5%	731	127	17.4%	43	33.9%	77.7%
Columbus	33	9456	7635	80.7%	9456	1550	16.4%	591	38.1%	87.8%
	151	9456	7556	79.9%	9456	1626	17.2%	629	38.7%	87.4%
	157	9457	7545	79.8%	9457	1640	17.3%	625	38.1%	87.4%
	521	494	351	71.1%	494	69	14.0%	34	49.3%	78.1%
Gainesville	33	7485	5670	75.8%	7485	1718	23.0%	471	27.4%	83.5%
	151	7485	5600	74.8%	7485	1789	23.9%	516	28.8%	82.7%
	157	7486	5593	74.7%	7486	1806	24.1%	524	29.0%	82.7%
	521	340	246	72.4%	340	87	25.6%	24	27.6%	80.3%
Iowa	33	7878	6518	82.7%	7878	1240	15.7%	502	40.5%	89.9%
	151	7878	6458	82.0%	7878	1288	16.4%	536	41.6%	89.6%
	157	7879	6439	81.7%	7879	1307	16.6%	545	41.7%	89.5%
	521	384	310	80.7%	384	62	16.2%	18	29.0%	86.5%
Pittsburgh	33	3564	2850	80.0%	3564	638	17.9%	229	35.9%	87.1%
	151	3564	2837	79.6%	3564	649	18.2%	237	36.5%	87.0%
	157	3567	2826	79.2%	3567	661	18.5%	237	35.9%	86.7%
	521	151	127	84.1%	151	21	13.9%	7	33.3%	88.7%
Seattle	33	3854	3144	81.6%	3854	627	16.3%	208	33.2%	88.5%
	151	3853	3117	80.9%	3853	656	17.0%	229	34.9%	87.7%
	157	3854	3106	80.6%	3854	669	17.4%	237	35.4%	87.6%
	521	260	212	81.5%	260	41	15.8%	12	29.3%	86.5%
Stanford	33	13847	11553	83.4%	13847	2107	15.2%	735	34.9%	89.5%
	151	13847	11480	82.9%	13847	2169	15.7%	777	35.8%	89.3%
	157	13849	11438	82.6%	13849	2228	16.1%	811	36.4%	89.2%
	521	982	802	81.7%	982	156	15.9%	54	34.6%	88.0%
Tucson	33	5446	4228	77.6%	5446	1126	20.7%	327	29.0%	84.6%
	151	5446	4193	77.0%	5446	1160	21.3%	344	29.7%	84.3%
	157	5446	4178	76.7%	5446	1177	21.6%	356	30.3%	84.2%
	521	552	419	75.9%	552	122	22.1%	47	38.5%	85.0%
Wake Forest	33	8439	6597	78.2%	8439	1634	19.4%	493	30.2%	85.1%
	151	8439	6539	77.5%	8439	1690	20.0%	523	31.0%	84.7%
	157	8439	6511	77.2%	8439	1724	20.4%	537	31.2%	84.6%
	521	543	417	76.8%	543	87	16.0%	23	26.4%	81.4%

¹ Form 33 = Medical History Update; Form 151 = Activities of Daily Living; Form 157 = Supplemental Questionnaire 2014-2015; Form 521 = Physical Activity Questionnaire.

Table 1.7 (continued for year 6)
Response Rates to CCC Annual Mailings, Extension Study 2010-2020, Follow-up Year 6 by Cohort and Regional Center

Data as of: February 28, 2017

Cohort	1st Mailing Period				2nd Mailing Period					Cumulative Response
	Form ¹	Sent Mail 1	Response	Past 2 nd mailing period	Sent Mail 2	Response				
Total	33	77797	57944	74.5%	77797	17720	22.8%	5198	29.3%	82.3%
	151	77797	57286	73.6%	77797	18422	23.7%	5583	30.3%	81.8%
	521	71576	52646	73.6%	71576	16930	23.7%	5270	31.1%	82.0%
Medical Record Cohort	33	18016	12187	67.7%	18016	5158	28.6%	1342	26.0%	76.5%
	151	18015	12047	66.9%	18015	5302	29.4%	1428	26.9%	76.1%
	521	17248	11617	67.4%	17248	4980	28.9%	1408	28.3%	76.8%
Self Report Cohort	33	59781	45757	76.5%	59781	12562	21.0%	3856	30.7%	84.0%
	151	59782	45239	75.7%	59782	13120	22.0%	4155	31.7%	83.6%
	521	54328	41029	75.5%	54328	11950	22.0%	3862	32.3%	83.7%
Regional Center										
Boston	33	8503	6178	72.7%	8503	1923	22.6%	556	28.9%	80.3%
	151	8503	6108	71.8%	8503	2003	23.6%	595	29.7%	79.9%
	521	7959	5697	71.6%	7959	1882	23.7%	577	30.7%	79.9%
Buffalo	33	12283	9009	73.4%	12283	2930	23.9%	823	28.1%	81.5%
	151	12283	8910	72.5%	12283	3045	24.8%	881	28.9%	81.1%
	521	11533	8358	72.5%	11533	2879	25.0%	867	30.1%	81.4%
Columbus	33	9009	6856	76.1%	9009	1850	20.5%	619	33.5%	83.9%
	151	9009	6775	75.2%	9009	1931	21.4%	658	34.1%	83.3%
	521	8338	6255	75.0%	8338	1774	21.3%	633	35.7%	83.4%
Gainesville	33	7146	4876	68.2%	7146	2090	29.3%	489	23.4%	76.6%
	151	7147	4814	67.4%	7147	2146	30.0%	511	23.8%	75.8%
	521	6727	4560	67.8%	6727	2013	29.9%	507	25.2%	76.6%
Iowa	33	7482	5876	78.5%	7482	1510	20.2%	511	33.8%	86.2%
	151	7482	5815	77.7%	7482	1582	21.1%	538	34.0%	85.6%
	521	6749	5248	77.8%	6749	1418	21.0%	504	35.5%	86.0%
Pittsburgh	33	3396	2515	74.1%	3396	833	24.5%	237	28.5%	82.2%
	151	3396	2493	73.4%	3396	858	25.3%	252	29.4%	82.0%
	521	3021	2212	73.2%	3021	773	25.6%	229	29.6%	82.1%
Seattle	33	3603	2759	76.6%	3603	780	21.7%	241	30.9%	84.1%
	151	3603	2732	75.8%	3603	808	22.4%	259	32.1%	83.8%
	521	3268	2496	76.4%	3268	719	22.0%	234	32.6%	84.4%
Stanford	33	13131	10329	78.7%	13131	2456	18.7%	824	33.6%	86.0%
	151	13130	10197	77.7%	13130	2586	19.7%	923	35.7%	85.7%
	521	11806	9116	77.2%	11806	2352	19.9%	840	35.7%	85.4%
Tucson	33	5197	3726	71.7%	5197	1302	25.1%	340	26.1%	79.4%
	151	5197	3672	70.7%	5197	1366	26.3%	379	27.8%	79.0%
	521	4747	3358	70.7%	4747	1234	26.0%	336	27.2%	78.9%
Wake Forest	33	8047	5820	72.3%	8047	2046	25.4%	558	27.3%	80.3%
	151	8047	5770	71.7%	8047	2097	26.1%	587	28.0%	80.0%
	521	7428	5346	72.0%	7428	1886	25.4%	543	28.8%	80.3%

¹ Form 33 = Medical History Update; Form 151 = Activities of Daily Living; Form 521 = Physical Activity Questionnaire.

Table 1.8
Response Rates to Regional Center Follow-up and Cumulative Response
Extension Study 2010-2020, Follow-up Year 5 by Cohort and Regional Center

Data as of: February 28, 2017

Cohort	Form ¹	Eligible for RC Follow-up	Respondents		Total Estimated Response Rate
Total	33	12510	7569	60.5%	91.4%
	151	13289	4642	34.9%	87.6%
	157	14143	73	0.5%	82.2%
	521	3923	2	0.1%	43.2%
Medical Record Cohort	33	3943	2686	68.1%	89.4%
	151	4228	1622	38.4%	83.7%
	157	4557	20	0.4%	75.8%
	521	1515	1	0.1%	40.6%
Self Report Cohort	33	8567	4883	57.0%	92.0%
	151	9061	3020	33.3%	88.8%
	157	9586	53	0.6%	84.2%
	521	2408	1	<0.1%	44.6%
Regional Center					
Boston	33	1565	764	48.8%	89.6%
	151	1642	550	33.5%	86.9%
	157	1681	6	0.4%	81.1%
	521	374	0	0.0%	31.6%
Buffalo	33	1988	1620	81.5%	92.3%
	151	2108	1337	63.4%	90.0%
	157	2537	28	1.1%	80.3%
	521	945	1	0.1%	33.7%
Columbus	33	1304	935	71.7%	93.0%
	151	1432	61	4.3%	83.8%
	157	1454	5	0.3%	83.1%
	521	371	0	0.0%	39.3%
Gainesville	33	1353	450	33.3%	85.1%
	151	1467	311	21.2%	82.4%
	157	1513	17	1.1%	78.7%
	521	292	0	0.0%	36.9%
Iowa	33	791	607	76.7%	94.8%
	151	842	421	50.0%	92.2%
	157	907	5	0.6%	87.0%
	521	132	0	0.0%	54.1%
Pittsburgh	33	706	327	46.3%	89.0%
	151	715	238	33.3%	86.6%
	157	739	3	0.4%	80.2%
	521	285	0	0.0%	30.1%
Seattle	33	554	255	46.0%	89.2%
	151	659	22	3.3%	82.8%
	157	673	0	0.0%	82.2%
	521	230	0	0.0%	43.8%
Stanford	33	1914	1360	71.1%	94.6%
	151	1978	721	36.5%	90.0%
	157	2018	4	0.2%	85.0%
	521	641	0	0.0%	51.4%
Tucson	33	870	517	59.4%	90.6%
	151	921	417	45.3%	88.6%
	157	1002	1	0.1%	81.1%
	521	225	1	0.4%	61.8%
Wake Forest	33	1465	734	50.1%	89.5%
	151	1525	564	37.0%	87.2%
	157	1619	4	0.3%	80.8%
	521	428	0	0.0%	46.3%

¹ Form 33 = Medical History Update; Form 151 = Activities of Daily Living; Form 157 = Supplemental Questionnaire 2014-2015; Form 521 = Physical Activity Questionnaire.

Table 1.8 (continued for year 6)
Response Rates to Regional Center Follow-up and Cumulative Response
Extension Study 2010-2020, Follow-up Year 6 by Cohort and Regional Center

Data as of: February 28, 2017

Cohort	Form¹	Eligible for RC Follow-up	Respondents		Total Estimated Response Rate
Total	33	8848	5141	58.1%	88.5%
	151	9295	2998	32.3%	83.3%
	521	8543	22	0.3%	76.1%
Medical Record Cohort	33	2832	1813	64.0%	86.2%
	151	2977	1007	33.8%	78.7%
	521	2911	1	<0.1%	70.3%
Self Report Cohort	33	6016	3328	55.3%	89.3%
	151	6318	1991	31.5%	84.8%
	521	5632	21	0.4%	78.3%
Regional Center					
Boston	33	1109	545	49.1%	86.4%
	151	1147	415	36.2%	83.2%
	521	1040	3	0.3%	74.0%
Buffalo	33	1411	1102	78.1%	90.1%
	151	1484	817	55.1%	85.8%
	521	1541	7	0.5%	74.0%
Columbus	33	896	595	66.4%	90.5%
	151	981	4	0.4%	78.3%
	521	853	2	0.2%	78.0%
Gainesville	33	967	370	38.3%	80.9%
	151	1031	283	27.5%	77.9%
	521	964	2	0.2%	72.0%
Iowa	33	619	240	38.8%	88.2%
	151	654	203	31.0%	86.8%
	521	564	2	0.4%	82.4%
Pittsburgh	33	499	275	55.1%	88.3%
	151	506	192	37.9%	84.7%
	521	447	1	0.2%	74.8%
Seattle	33	442	278	62.9%	88.6%
	151	495	16	3.2%	76.0%
	521	426	0	0.0%	75.0%
Stanford	33	1270	955	75.2%	94.0%
	151	1307	449	34.4%	86.9%
	521	1166	1	0.1%	79.2%
Tucson	33	625	297	47.5%	85.5%
	151	656	220	33.5%	82.4%
	521	609	0	0.0%	73.7%
Wake Forest	33	1010	484	47.9%	86.2%
	151	1034	399	38.6%	84.2%
	521	933	4	0.4%	75.7%

¹ Form 33 = Medical History Update; Form 151 = Activities of Daily Living; Form 521 = Physical Activity Questionnaire.

Table 2.1
Participation and Vital Status: WHI Participants by Extension Study Participation and Cohort

Data as of: February 28, 2017

WHI Extension Study 2010-2020 Participants

Vital Status/Participation	MRC Super Cohort (N = 22,316)		SRC Super Cohort (N = 71,251)		Total Participants (N = 93,567)	
	N	%	N	%	N	%
Deceased	3302	14.8	10424	14.6	13726	14.7
Alive: Current Participation ¹	16567	74.2	55589	78.0	72156	77.1
Alive: Recent Participation ²	941	4.2	2323	3.3	3264	3.5
Alive: Past/Unknown Participation ³	34	0.2	77	0.1	111	0.1
Stopped Follow-Up ⁴	582	2.6	1428	2.0	2010	2.1
Lost to Follow-Up ⁵	890	4.0	1410	2.0	2300	2.5

Data as of: February 28, 2017; Status as of September 30, 2010

WHI Extension Study 2005-2010 Participants

Vital Status/Participation	MRC Super Cohort (N = 29,368)		SRC Super Cohort (N = 86,039)		Total Participants (N = 115,407)	
	N	%	N	%	N	%
Deceased	2352	8.0	6196	7.2	8548	7.4
Alive: Current Participation ¹	25887	88.1	78203	90.9	104090	90.2
Alive: Recent Participation ²	321	1.1	491	0.6	812	0.7
Alive: Past/Unknown Participation ³	32	0.1	40	<0.1	72	0.1
Stopped Follow-Up ⁴	462	1.6	796	0.9	1258	1.1
Lost to Follow-Up ⁵	314	1.1	313	0.4	627	0.5

Data as of: February 28, 2017; Status as of April 8, 2005

WHI Participants

Vital Status/Participation	MRC Super Cohort (N = 44,174)		SRC Super Cohort (N = 117,634)		Total Participants (N = 161,808)	
	N	%	N	%	N	%
Deceased	2816	6.5	7229	6.3	10045	6.4
Alive: Current Participation ⁶	37147	86.1	102266	89.5	139413	88.5
Alive: Recent Participation ⁷	343	0.8	420	0.4	763	0.5
Alive: Past/Unknown Participation ⁸	20	<0.1	37	<0.1	57	<0.1
Stopped Follow-Up ⁴	1701	3.9	2757	2.4	4458	2.8
Lost to Follow-Up ⁵	1127	2.6	1602	1.4	2729	1.7

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

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

³ Participants without a Form 33 within the last 24 months, who have been located (as indicated on Form 23) within the last 6 months.

⁴ Participants with codes 5 (no follow-up) or 8 (absolutely no follow-up) on Form 7 or 9.

⁵ Participants not in any of the above categories.

⁶ CT participants who have filled in a Form 33 within the last 9 months; and OS participants who have filled in a Form 33 within the last 15 months.

⁷ CT participants who last filled in a Form 33 between 9 and 18 months ago; and OS participants who last filled in a Form 33 between 15 and 24 months ago.

⁸ CT participants without a Form 33 within the last 18 months, who have been located (as indicated on Form 23) within the last 6 months; and OS participants without a Form 33 within the last 24 months, who have been located (as indicated on Form 23) within the last 6 months.

Table 2.2
Participation and Vital Status: CT and OS Participants

Data as of: February 28, 2017

WHI Extension Study 2010-2020 Participants

Vital Status/Participation	CT Participants (N = 41,499)		OS Participants (N = 52,068)	
	N	%	N	%
Deceased	5939	14.3	7787	15.0
Alive: Current Participation ¹	31988	77.1	40168	77.1
Alive: Recent Participation ²	1540	3.7	1724	3.3
Alive: Past/Unknown Participation ³	44	0.1	67	0.1
Stopped Follow-Up ⁴	893	2.2	1117	2.1
Lost to Follow-Up ⁵	1095	2.6	1205	2.3

Data as of: February 28, 2017; Status as of September 30, 2010

WHI Extension Study 2005-2010 Participants

Vital Status/Participation	CT Participants (N = 52,176)		OS Participants (N = 63,231)	
	N	%	N	%
Deceased	3801	7.3	4747	7.5
Alive: Current Participation ¹	46889	89.9	57201	90.5
Alive: Recent Participation ²	443	0.8	369	0.6
Alive: Past/Unknown Participation ³	38	0.1	34	0.1
Stopped Follow-Up ⁴	651	1.2	607	1.0
Lost to Follow-Up ⁵	354	0.7	273	0.4

Data as of: February 28, 2017; Status as of April 8, 2005

WHI Participants

Vital Status/Participation	CT Participants (N = 68,132)		OS Participants (N = 93,676)	
	N	%	N	%
Deceased	3699	5.4	6346	7.1
Alive: Current Participation ⁶	61162	89.8	78251	87.6
Alive: Recent Participation ⁷	339	0.5	424	0.5
Alive: Past/Unknown Participation ⁸	10	<0.1	47	0.1
Stopped Follow-Up ⁴	2194	3.2	2264	2.5
Lost to Follow-Up ⁵	728	1.1	2001	2.2

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 without a Form 33 within the last 24 months, who have been located (as indicated on Form 23) within the last 6 months.

⁴ Participants with codes 5 (no follow-up) or 8 (absolutely no follow-up) on Form 7 or 9.

⁵ Participants not in any of the above categories.

⁶ CT participants who have filled in a Form 33 within the last 9 months; OS participants who have filled in a Form 33 within the last 15 months.

⁷ CT participants who last filled in a Form 33 between 9 and 18 months ago; OS participants who last filled in a Form 33 between 15 and 24 months ago.

⁸ CT participants without a Form 33 within the last 18 months, who have been located (as indicated on Form 23) within the last 6 months; OS participants without a Form 33 within the last 24 months, who have been located (as indicated on Form 23) within the last 6 months.

Table 2.3
Cause of Death¹ (Annualized Percentages): MRC and SRC Super Cohort Participants

Data as of: February 28, 2017; Events through February 28, 2017

	MRC Super Cohort		SRC Super Cohort	
Number of participants	44174		117634	
Mean Follow-up Time (months)	205.9		209.0	
Death plus post-WHI deaths	12728	(1.68%)	34102	(1.66%)
Adjudicated death	12326	(1.63%)	29986	(1.46%)
Centrally adjudicated death	6746	(0.89%)	7512	(0.37%)
Locally adjudicated death	693	(0.09%)	4864	(0.24%)
Identified by NDI search	4887	(0.64%)	17610	(0.86%)
Not yet adjudicated	341	(0.04%)	0	(0.00%)
Form 120 death ²	61	(0.01%)	4116	(0.20%)
Cardiovascular				
Atherosclerotic cardiac	1917	(0.25%)	4060	(0.20%)
Definite CHD deaths after 10/99	675	(0.09%)	1217	(0.06%)
Possible CHD deaths after 10/99	1242	(0.16%)	2789	(0.14%)
Cerebrovascular	1001	(0.13%)	2341	(0.11%)
Pulmonary embolism	81	(0.01%)	158	(0.01%)
Other cardiovascular	1167	(0.15%)	3043	(0.15%)
Unknown cardiovascular	37	(<0.01%)	112	(0.01%)
Total cardiovascular deaths	4203	(0.55%)	9714	(0.47%)
Cancer				
Breast cancer	350	(0.05%)	1138	(0.06%)
Ovarian cancer	184	(0.02%)	662	(0.03%)
Endometrial cancer	40	(0.01%)	169	(0.01%)
Colorectal cancer	316	(0.04%)	729	(0.04%)
Uterus cancer	41	(0.01%)	91	(<0.01%)
Lung cancer	911	(0.12%)	2027	(0.10%)
Pancreas cancer	315	(0.04%)	814	(0.04%)
Lymphoma (NHL only)	152	(0.02%)	467	(0.02%)
Leukemia	136	(0.02%)	427	(0.02%)
Melanoma	38	(0.01%)	134	(0.01%)
Brain cancer	66	(0.01%)	267	(0.01%)
Multiple myeloma	138	(0.02%)	265	(0.01%)
Other cancer	656	(0.09%)	1723	(0.08%)
Unknown cancer site	168	(0.02%)	548	(0.03%)
Total cancer deaths	3511	(0.46%)	9461	(0.46%)
Accident/injury				
Homicide	16	(<0.01%)	19	(<0.01%)
Accident	288	(0.04%)	772	(0.04%)
Suicide	18	(<0.01%)	62	(<0.01%)
Other injury	26	(<0.01%)	35	(<0.01%)
Total accident/injury deaths	348	(0.05%)	888	(0.04%)
Other				
Alzheimer's disease	541	(0.07%)	1633	(0.08%)
COPD	497	(0.07%)	1259	(0.06%)
Pneumonia	328	(0.04%)	871	(0.04%)
Pulmonary fibrosis	137	(0.02%)	314	(0.02%)
Renal failure	276	(0.04%)	422	(0.02%)
Sepsis	350	(0.05%)	689	(0.03%)
Dementia, NOS	604	(0.08%)	1704	(0.08%)
Amyotrophic Lateral Sclerosis	40	(0.01%)	191	(0.01%)
Parkinson's	110	(0.01%)	390	(0.02%)
Hepatic cirrhosis	85	(0.01%)	153	(0.01%)
Other known cause	1185	(0.16%)	3156	(0.15%)
Unknown cause	172	(0.02%)	3257	(0.16%)
Total other cause deaths	4325	(0.57%)	14039	(0.69%)

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 SRC Super Cohort or non-Extension Study 2010-2020 MRC Super Cohort Participants only.

Table 2.4
Cause of Death¹ (Annualized Percentages): CT and OS Participants

Data as of: February 28, 2017; Events through February 28, 2017

	CT		OS		Total	
Number of participants	68132		93676		161808	
Mean Follow-up Time (months)	212.4		205.0		208.1	
Death plus post-WHI deaths	18625	(1.54%)	28205	(1.76%)	46830	(1.67%)
Adjudicated death	17063	(1.41%)	25249	(1.58%)	42312	(1.51%)
Centrally adjudicated death	9340	(0.77%)	4918	(0.31%)	14258	(0.51%)
Locally adjudicated death (final)	1	(<0.01%)	5556	(0.35%)	5557	(0.20%)
Identified by NDI search	7722	(0.64%)	14775	(0.92%)	22497	(0.80%)
Not yet adjudicated	296	(0.02%)	45	(<0.01%)	341	(0.01%)
Form 120 death ²	1266	(0.10%)	2911	(0.18%)	4177	(0.15%)
Cardiovascular						
Atherosclerotic cardiac	2501	(0.21%)	3476	(0.22%)	5977	(0.21%)
Definite CHD deaths after 10/99	903	(0.07%)	989	(0.06%)	1892	(0.07%)
Possible CHD deaths after 10/99	1582	(0.13%)	2449	(0.15%)	4031	(0.14%)
Cerebrovascular	1333	(0.11%)	2009	(0.13%)	3342	(0.12%)
Pulmonary embolism	116	(0.01%)	123	(0.01%)	239	(0.01%)
Other cardiovascular	1621	(0.13%)	2589	(0.16%)	4210	(0.15%)
Unknown cardiovascular	36	(<0.01%)	113	(0.01%)	149	(0.01%)
Total cardiovascular deaths	5607	(0.46%)	8310	(0.52%)	13917	(0.50%)
Cancer						
Breast cancer	457	(0.04%)	1031	(0.06%)	1488	(0.05%)
Ovarian cancer	326	(0.03%)	520	(0.03%)	846	(0.03%)
Endometrial cancer	93	(0.01%)	116	(0.01%)	209	(0.01%)
Colorectal cancer	438	(0.04%)	607	(0.04%)	1045	(0.04%)
Uterus cancer	55	(<0.01%)	77	(<0.01%)	132	(<0.01%)
Lung cancer	1304	(0.11%)	1634	(0.10%)	2938	(0.10%)
Pancreas cancer	478	(0.04%)	651	(0.04%)	1129	(0.04%)
Lymphoma (NHL only)	246	(0.02%)	373	(0.02%)	619	(0.02%)
Leukemia	245	(0.02%)	318	(0.02%)	563	(0.02%)
Melanoma	74	(0.01%)	98	(0.01%)	172	(0.01%)
Brain cancer	151	(0.01%)	182	(0.01%)	333	(0.01%)
Multiple myeloma	178	(0.01%)	225	(0.01%)	403	(0.01%)
Other cancer	1006	(0.08%)	1373	(0.09%)	2379	(0.08%)
Unknown cancer site	264	(0.02%)	452	(0.03%)	716	(0.03%)
Total cancer deaths	5315	(0.44%)	7657	(0.48%)	12972	(0.46%)
Accident/injury						
Homicide	14	(<0.01%)	21	(<0.01%)	35	(<0.01%)
Accident	433	(0.04%)	627	(0.04%)	1060	(0.04%)
Suicide	27	(<0.01%)	53	(<0.01%)	80	(<0.01%)
Other injury	27	(<0.01%)	34	(<0.01%)	61	(<0.01%)
Total accident/injury deaths	501	(0.04%)	735	(0.05%)	1236	(0.04%)
Other						
Alzheimer's disease	801	(0.07%)	1373	(0.09%)	2174	(0.08%)
COPD	752	(0.06%)	1004	(0.06%)	1756	(0.06%)
Pneumonia	472	(0.04%)	727	(0.05%)	1199	(0.04%)
Pulmonary fibrosis	207	(0.02%)	244	(0.02%)	451	(0.02%)
Renal failure	281	(0.02%)	417	(0.03%)	698	(0.02%)
Sepsis	441	(0.04%)	598	(0.04%)	1039	(0.04%)
Dementia, NOS	877	(0.07%)	1431	(0.09%)	2308	(0.08%)
Amyotrophic Lateral Sclerosis	95	(0.01%)	136	(0.01%)	231	(0.01%)
Parkinson's	194	(0.02%)	306	(0.02%)	500	(0.02%)
Hepatic cirrhosis	107	(0.01%)	131	(0.01%)	238	(0.01%)
Other known cause	1593	(0.13%)	2748	(0.17%)	4341	(0.15%)
Unknown cause	1086	(0.09%)	2343	(0.15%)	3429	(0.12%)
Total other cause deaths	6906	(0.57%)	11458	(0.72%)	18364	(0.65%)

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 Includes SRC participants and discovered deaths among non-Extension Study 2010-2020 participants that occurred during Extension Study 2010-2020.

Table 3.1
Verified Outcomes (Annualized Percentages) by Age at Enrollment for MRC Super Cohort Participants

Data as of: February 28, 2017; Events through February 28, 2017

Outcomes	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Number randomized	44174	6788	9352	19418	8616
Mean follow-up (months)	167.8	177.3	178.1	168.9	146.7
Cardiovascular					
CHD ¹	3185 (0.52%)	213 (0.21%)	388 (0.28%)	1490 (0.55%)	1094 (1.04%)
CHD death ²	1301 (0.21%)	50 (0.05%)	117 (0.08%)	554 (0.20%)	580 (0.55%)
Clinical MI	2254 (0.36%)	170 (0.17%)	304 (0.22%)	1094 (0.40%)	686 (0.65%)
Angina ³	1625 (0.47%)	114 (0.20%)	226 (0.30%)	785 (0.52%)	500 (0.76%)
CABG/PTCA	2899 (0.47%)	230 (0.23%)	469 (0.34%)	1482 (0.54%)	718 (0.68%)
Carotid artery disease	499 (0.08%)	22 (0.02%)	72 (0.05%)	277 (0.10%)	128 (0.12%)
Congestive heart failure, WHI ³	1246 (0.36%)	84 (0.15%)	145 (0.19%)	531 (0.35%)	486 (0.74%)
Heart failure, UNC ⁴	2583 (0.42%)	154 (0.15%)	267 (0.19%)	1201 (0.44%)	961 (0.91%)
Stroke	2518 (0.41%)	158 (0.16%)	303 (0.22%)	1199 (0.44%)	858 (0.81%)
PVD	639 (0.10%)	39 (0.04%)	93 (0.07%)	332 (0.12%)	175 (0.17%)
DVT	1029 (0.17%)	91 (0.09%)	173 (0.12%)	490 (0.18%)	275 (0.26%)
Pulmonary embolism	814 (0.13%)	77 (0.08%)	137 (0.10%)	397 (0.15%)	203 (0.19%)
DVT/PE	1474 (0.24%)	126 (0.13%)	243 (0.18%)	720 (0.26%)	385 (0.37%)
Coronary disease ⁵	6924 (1.12%)	514 (0.51%)	951 (0.69%)	3266 (1.20%)	2193 (2.08%)
Aortic aneurysm ⁶	52 (0.04%)	3 (0.01%)	7 (0.02%)	32 (0.06%)	10 (0.07%)
Atrial fibrillation ⁶	1233 (1.05%)	96 (0.46%)	186 (0.64%)	648 (1.22%)	303 (2.07%)
Valvular heart disease ⁶	342 (0.29%)	24 (0.12%)	41 (0.14%)	190 (0.36%)	87 (0.59%)
Total cardiovascular disease⁷	9520 (1.54%)	685 (0.68%)	1305 (0.94%)	4501 (1.65%)	3029 (2.88%)
Cancer					
Breast cancer	2793 (0.45%)	408 (0.41%)	628 (0.45%)	1279 (0.47%)	478 (0.45%)
Invasive breast cancer	2282 (0.37%)	315 (0.31%)	513 (0.37%)	1035 (0.38%)	419 (0.40%)
Non-invasive breast cancer	561 (0.09%)	98 (0.10%)	124 (0.09%)	272 (0.10%)	67 (0.06%)
Ovarian cancer	255 (0.04%)	24 (0.02%)	51 (0.04%)	132 (0.05%)	48 (0.05%)
Endometrial cancer ⁸	316 (0.09%)	49 (0.09%)	83 (0.10%)	135 (0.09%)	49 (0.08%)
Colorectal cancer	884 (0.14%)	79 (0.08%)	141 (0.10%)	428 (0.16%)	236 (0.22%)
Other cancer ⁹	3786 (0.61%)	343 (0.34%)	652 (0.47%)	1860 (0.68%)	931 (0.88%)
Total cancer	7498 (1.21%)	849 (0.85%)	1467 (1.06%)	3557 (1.30%)	1625 (1.54%)
Fractures					
Hip fracture	1352 (0.22%)	41 (0.04%)	106 (0.08%)	580 (0.21%)	625 (0.59%)
Deaths					
Cardiovascular deaths	2817 (0.46%)	113 (0.11%)	255 (0.18%)	1178 (0.43%)	1271 (1.21%)
Cancer deaths	2735 (0.44%)	203 (0.20%)	411 (0.30%)	1338 (0.49%)	783 (0.74%)
Other known cause	2480 (0.40%)	130 (0.13%)	247 (0.18%)	1119 (0.41%)	984 (0.93%)
Unknown cause	97 (0.02%)	5 (<0.01%)	15 (0.01%)	42 (0.02%)	35 (0.03%)
Not yet adjudicated	341 (0.06%)	20 (0.02%)	45 (0.03%)	171 (0.06%)	105 (0.10%)
Total death	8470 (1.37%)	471 (0.47%)	973 (0.70%)	3848 (1.41%)	3178 (3.02%)
Death plus post-WHI deaths	12728 (1.68%)	688 (0.54%)	1377 (0.81%)	5648 (1.70%)	5015 (3.89%)

¹ "CHD" includes clinical MI, evolving Q-wave MI, and CHD death; Q-wave MI is not collected in the WHI Extension Studies 2005-2020.

² "CHD death" includes definite and possible CHD death.

³ Angina and CHF are not verified outcomes in the WHI Extension Studies 2005-2020. Reported statistics represent experience during the original program.

⁴ Definite or possible decompensated heart failure adjudicated by UNC.

⁵ "Coronary disease" includes clinical MI, evolving Q-wave MI, possible evolving Q-wave MI, CHD death, angina, congestive heart failure, UNC heart failure, and CABG/PTCA; Q-wave MI, angina, and congestive heart failure are not collected in the WHI Extension Studies 2005-2020.

⁶ Aortic aneurysm, atrial fibrillation and valvular heart disease are new adjudicated outcomes during the WHI Extension Study 2010-2020.

⁷ Total CVD does not include aortic aneurysm, atrial fibrillation or valvular heart disease.

⁸ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial cancer.

⁹ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin cancer.

Table 3.2
Verified Outcomes (Annualized Percentages) by Race/Ethnicity for MRC Super Cohort Participants

Data as of: February 28, 2017; Events through February 28, 2017

Outcomes	Race/Ethnicity					
	American Indian/Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/Latina	White	Unknown
Number randomized	130	527	14618	6484	22030	385
Mean follow-up (months)	161.3	162.9	154.7	146.0	183.1	168.9
Cardiovascular						
CHD ¹	10 (0.57%)	26 (0.36%)	915 (0.49%)	200 (0.25%)	2005 (0.60%)	29 (0.54%)
CHD death ²	6 (0.34%)	10 (0.14%)	460 (0.24%)	64 (0.08%)	754 (0.22%)	7 (0.13%)
Clinical MI	6 (0.34%)	20 (0.28%)	579 (0.31%)	157 (0.20%)	1468 (0.44%)	24 (0.44%)
Angina ³	7 (0.69%)	14 (0.34%)	548 (0.48%)	160 (0.33%)	884 (0.49%)	12 (0.40%)
CABG/PTCA	10 (0.57%)	22 (0.31%)	723 (0.38%)	257 (0.33%)	1858 (0.55%)	29 (0.54%)
Carotid artery disease	1 (0.06%)	3 (0.04%)	94 (0.05%)	22 (0.03%)	376 (0.11%)	3 (0.06%)
Congestive heart failure, WHI ³	3 (0.30%)	9 (0.22%)	477 (0.42%)	91 (0.19%)	655 (0.36%)	11 (0.37%)
Heart failure, UNC ⁴	9 (0.52%)	21 (0.29%)	728 (0.39%)	138 (0.18%)	1667 (0.50%)	20 (0.37%)
Stroke	12 (0.69%)	20 (0.28%)	783 (0.42%)	177 (0.22%)	1502 (0.45%)	24 (0.44%)
PVD	3 (0.17%)	7 (0.10%)	230 (0.12%)	24 (0.03%)	371 (0.11%)	4 (0.07%)
DVT	5 (0.29%)	4 (0.06%)	191 (0.10%)	36 (0.05%)	788 (0.23%)	5 (0.09%)
Pulmonary embolism	4 (0.23%)	2 (0.03%)	172 (0.09%)	18 (0.02%)	608 (0.18%)	10 (0.18%)
DVT/PE	8 (0.46%)	4 (0.06%)	295 (0.16%)	47 (0.06%)	1108 (0.33%)	12 (0.22%)
Coronary disease ⁵	22 (1.26%)	57 (0.80%)	2081 (1.10%)	522 (0.66%)	4183 (1.24%)	59 (1.09%)
Aortic aneurysm ⁶	0 (0.00%)	0 (0.00%)	18 (0.06%)	3 (0.02%)	31 (0.04%)	0 (0.00%)
Atrial fibrillation ⁶	0 (0.00%)	2 (0.16%)	150 (0.47%)	71 (0.54%)	998 (1.43%)	12 (1.12%)
Valvular heart disease ⁶	1 (0.31%)	3 (0.23%)	46 (0.14%)	24 (0.18%)	264 (0.38%)	4 (0.37%)
Total cardiovascular disease⁷	31 (1.77%)	80 (1.12%)	2930 (1.55%)	710 (0.90%)	5694 (1.69%)	75 (1.38%)
Cancer						
Breast cancer	8 (0.46%)	36 (0.50%)	891 (0.47%)	299 (0.38%)	1538 (0.46%)	21 (0.39%)
Invasive breast cancer	7 (0.40%)	28 (0.39%)	714 (0.38%)	244 (0.31%)	1272 (0.38%)	17 (0.31%)
Non-invasive breast cancer	1 (0.06%)	9 (0.13%)	196 (0.10%)	61 (0.08%)	289 (0.09%)	5 (0.09%)
Ovarian cancer	1 (0.06%)	3 (0.04%)	69 (0.04%)	37 (0.05%)	141 (0.04%)	4 (0.07%)
Endometrial cancer ⁸	1 (0.14%)	2 (0.04%)	88 (0.10%)	29 (0.07%)	194 (0.09%)	2 (0.06%)
Colorectal cancer	1 (0.06%)	17 (0.24%)	278 (0.15%)	75 (0.10%)	504 (0.15%)	9 (0.17%)
Other cancer ⁹	12 (0.69%)	46 (0.64%)	934 (0.50%)	317 (0.40%)	2443 (0.73%)	34 (0.63%)
Total cancer	22 (1.26%)	99 (1.38%)	2106 (1.12%)	711 (0.90%)	4494 (1.34%)	66 (1.22%)
Fractures						
Hip fracture	6 (0.34%)	9 (0.13%)	128 (0.07%)	66 (0.08%)	1132 (0.34%)	11 (0.20%)
Deaths						
Cardiovascular deaths	12 (0.69%)	18 (0.25%)	943 (0.50%)	153 (0.19%)	1676 (0.50%)	15 (0.28%)
Cancer deaths	8 (0.46%)	35 (0.49%)	788 (0.42%)	250 (0.32%)	1629 (0.48%)	25 (0.46%)
Other known cause	10 (0.57%)	25 (0.35%)	638 (0.34%)	194 (0.25%)	1592 (0.47%)	21 (0.39%)
Unknown cause	0 (0.00%)	1 (0.01%)	29 (0.02%)	13 (0.02%)	50 (0.01%)	4 (0.07%)
Not yet adjudicated	1 (0.06%)	0 (0.00%)	100 (0.05%)	15 (0.02%)	223 (0.07%)	2 (0.04%)
Total Death	31 (1.77%)	79 (1.10%)	2498 (1.33%)	625 (0.79%)	5170 (1.54%)	67 (1.24%)
Death plus post-WHI deaths	38 (1.72%)	130 (1.44%)	4134 (1.68%)	1160 (1.03%)	7161 (1.88%)	105 (1.59%)

¹ "CHD" includes clinical MI, evolving Q-wave MI, and CHD death; Q-wave MI is not collected in the WHI Extension Studies 2005-2020.

² "CHD death" includes definite and possible CHD death.

³ Angina and CHF are not verified outcomes in the WHI Extension Studies 2005-2020. Reported statistics represent experience during the original program.

⁴ Definite or possible decompensated heart failure adjudicated by UNC.

⁵ "Coronary disease" includes clinical MI, evolving Q-wave MI, possible evolving Q-wave MI, CHD death, angina, congestive heart failure, UNC heart failure, and CABG/PTCA; Q-wave MI, angina and congestive heart failure are not collected in the WHI Extension Studies 2005-2020.

⁶ Aortic aneurysm, atrial fibrillation and valvular heart disease are new adjudicated outcomes during the WHI Extension Study 2010-2020.

⁷ Total CVD does not include aortic aneurysm, atrial fibrillation or valvular heart disease.

⁸ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial cancer.

⁹ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin cancer.

Table 3.3
Verified Outcomes (Annualized Percentages)¹ by Age at Diagnosis for MRC Super Cohort Participants

Data as of: February 28, 2017; Events between January 1, 2000 and December 31, 2015

Outcomes	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	90-101
Number of participants²	8898	18159	24972	28864	25537	17220	8539	2622
Mean follow-up (months)	32.0	39.0	44.3	44.4	43.9	42.6	36.9	30.3
Cancer								
Breast cancer	95 (0.40%)	269 (0.46%)	425 (0.46%)	575 (0.54%)	456 (0.49%)	295 (0.48%)	99 (0.38%)	20 (0.30%)
Invasive breast cancer	73 (0.31%)	211 (0.36%)	312 (0.34%)	480 (0.45%)	384 (0.41%)	252 (0.41%)	95 (0.36%)	20 (0.30%)
Non-invasive breast	22 (0.09%)	62 (0.11%)	114 (0.12%)	109 (0.10%)	85 (0.09%)	51 (0.08%)	8 (0.03%)	1 (0.02%)
Ovarian cancer	5 (0.02%)	15 (0.03%)	43 (0.05%)	49 (0.05%)	44 (0.05%)	38 (0.06%)	12 (0.05%)	4 (0.06%)
Endometrial cancer ³	3 (0.02%)	33 (0.10%)	69 (0.13%)	69 (0.11%)	46 (0.08%)	29 (0.08%)	14 (0.09%)	2 (0.05%)
Colorectal cancer	10 (0.04%)	57 (0.10%)	117 (0.13%)	151 (0.14%)	159 (0.17%)	95 (0.16%)	57 (0.22%)	22 (0.33%)
Leukemia	1 (<0.01%)	13 (0.02%)	24 (0.03%)	46 (0.04%)	38 (0.04%)	48 (0.08%)	21 (0.08%)	8 (0.12%)
Lung cancer	18 (0.08%)	51 (0.09%)	132 (0.14%)	212 (0.20%)	235 (0.25%)	157 (0.26%)	77 (0.29%)	24 (0.36%)
Non-Hodgkin's Lymphoma	3 (0.01%)	14 (0.02%)	43 (0.05%)	76 (0.07%)	72 (0.08%)	62 (0.10%)	32 (0.12%)	8 (0.12%)
Melanoma of the skin	10 (0.04%)	30 (0.05%)	43 (0.05%)	60 (0.06%)	68 (0.07%)	45 (0.07%)	27 (0.10%)	7 (0.11%)
Pancreas cancer	5 (0.02%)	10 (0.02%)	35 (0.04%)	55 (0.05%)	51 (0.05%)	47 (0.08%)	32 (0.12%)	13 (0.20%)
Total cancer	167 (0.70%)	595 (1.01%)	1051 (1.14%)	1451 (1.36%)	1333 (1.43%)	917 (1.50%)	395 (1.51%)	127 (1.92%)
Cardiovascular								
CHD ⁴	35 (0.15%)	131 (0.22%)	327 (0.35%)	488 (0.46%)	612 (0.66%)	555 (0.91%)	354 (1.35%)	150 (2.27%)
Clinical MI	25 (0.11%)	98 (0.17%)	249 (0.27%)	377 (0.35%)	445 (0.48%)	377 (0.62%)	204 (0.78%)	69 (1.04%)
CABG/PTCA	48 (0.20%)	180 (0.31%)	418 (0.45%)	565 (0.53%)	586 (0.63%)	410 (0.67%)	113 (0.43%)	19 (0.29%)
Stroke	26 (0.11%)	101 (0.17%)	214 (0.23%)	375 (0.35%)	503 (0.54%)	509 (0.83%)	283 (1.08%)	107 (1.62%)
Total cardiovascular ⁵	157 (0.66%)	496 (0.84%)	1044 (1.13%)	1495 (1.40%)	1733 (1.86%)	1494 (2.44%)	766 (2.92%)	320 (4.84%)

¹ Annualized percentages 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 with any follow-up time in the age interval.

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

⁴ "CHD" includes clinical MI, evolving Q-wave MI, and CHD death; Q-wave MI is not collected in the OS or in the WHI Extension Study 2005-2010.

⁵ Total cardiovascular disease includes CHD, angina, CABG/PTCA, carotid artery disease, WHI CHF, UNC HF, stroke, PVD and CVD death.

Table 3.4
Verified Outcomes (Annualized Percentages) by Age at Enrollment for SRC Super Cohort Participants

Data as of: February 28, 2017; Events through September 30, 2010 and February 28, 2017

	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Outcomes through Extension Study 2005-2010					
Number randomized	117634	14781	22638	53171	27044
Mean follow-up (months)	142.7	154.9	151.9	142.9	128.1
Cardiovascular¹					
CHD ²	5427 (0.39%)	201 (0.11%)	488 (0.17%)	2358 (0.37%)	2380 (0.82%)
CHD death ³	1884 (0.13%)	49 (0.03%)	103 (0.04%)	689 (0.11%)	1043 (0.36%)
Clinical MI	4044 (0.29%)	159 (0.08%)	398 (0.14%)	1834 (0.29%)	1653 (0.57%)
Angina ⁴	3623 (0.38%)	139 (0.11%)	423 (0.22%)	1749 (0.41%)	1312 (0.63%)
CABG/PTCA	6113 (0.44%)	241 (0.13%)	711 (0.25%)	3161 (0.50%)	2000 (0.69%)
Carotid artery disease	1111 (0.08%)	48 (0.03%)	117 (0.04%)	520 (0.08%)	426 (0.15%)
Congestive heart failure, WHI ⁴	2797 (0.29%)	78 (0.06%)	201 (0.11%)	1096 (0.26%)	1422 (0.68%)
Stroke	4253 (0.30%)	124 (0.06%)	319 (0.11%)	1854 (0.29%)	1956 (0.68%)
PVD	984 (0.07%)	24 (0.01%)	88 (0.03%)	460 (0.07%)	412 (0.14%)
Coronary disease ⁵	11764 (0.84%)	455 (0.24%)	1243 (0.43%)	5452 (0.86%)	4614 (1.60%)
Total cardiovascular disease	16760 (1.20%)	626 (0.33%)	1661 (0.58%)	7660 (1.21%)	6813 (2.36%)
Fractures¹					
Hip fracture	2955 (0.21%)	63 (0.03%)	186 (0.06%)	1108 (0.18%)	1598 (0.55%)
Outcomes through Extension Study 2010-2020					
Number randomized	117634	14781	22638	53171	27044
Mean follow-up (months)	181.8	205.1	200.6	183.2	150.8
Cancer					
Breast cancer	9907 (0.56%)	1272 (0.50%)	2057 (0.54%)	4631 (0.57%)	1947 (0.57%)
Invasive breast cancer	8238 (0.46%)	1008 (0.40%)	1697 (0.45%)	3869 (0.48%)	1664 (0.49%)
Non-invasive breast cancer	1799 (0.10%)	281 (0.11%)	386 (0.10%)	827 (0.10%)	305 (0.09%)
Ovarian cancer	930 (0.05%)	108 (0.04%)	179 (0.05%)	438 (0.05%)	205 (0.06%)
Endometrial cancer ⁶	1419 (0.13%)	152 (0.10%)	313 (0.13%)	660 (0.14%)	294 (0.15%)
Colorectal cancer	2215 (0.12%)	124 (0.05%)	283 (0.07%)	1088 (0.13%)	720 (0.21%)
Other cancer ⁷	11956 (0.67%)	1076 (0.43%)	1971 (0.52%)	5840 (0.72%)	3069 (0.90%)
Total cancer	24337 (1.37%)	2535 (1.00%)	4436 (1.17%)	11592 (1.43%)	5774 (1.70%)
Deaths					
Cardiovascular deaths	6476 (0.36%)	142 (0.06%)	362 (0.10%)	2454 (0.30%)	3518 (1.04%)
Cancer deaths	7713 (0.43%)	463 (0.18%)	1001 (0.26%)	3702 (0.46%)	2547 (0.75%)
Other known cause	6565 (0.37%)	198 (0.08%)	452 (0.12%)	2740 (0.34%)	3175 (0.93%)
Unknown cause	3095 (0.17%)	105 (0.04%)	288 (0.08%)	1463 (0.18%)	1239 (0.36%)
Total death	23849 (1.34%)	908 (0.36%)	2103 (0.56%)	10359 (1.28%)	10479 (3.08%)
Death plus post-WHI deaths⁸	34102 (1.66%)	1159 (0.41%)	2693 (0.63%)	14236 (1.53%)	16014 (3.94%)

¹ Cardiovascular diseases and hip fracture are not adjudicated for SRC Super Cohort participants during the WHI Extension Study 2010-2020. Reported statistics represent experience during the original program and the Extension Study 2005-2010.

² "CHD" includes clinical MI, evolving Q-wave MI, and CHD death; Q-wave MI is not collected in the WHI Extension Study 2005-2010.

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

⁴ Angina and CHF are not verified outcomes in the WHI Extension Study 2005-2010. Reported statistics represent experience during the original program.

⁵ "Coronary disease" includes clinical MI, evolving Q-wave MI, possible evolving Q-wave MI, CHD death, angina, congestive heart failure, and CABG/PTCA; Q-wave MI, angina, and congestive heart failure were not collected in the WHI Extension Study 2005-2010.

⁶ Only women without a baseline hysterectomy 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.

⁸ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

Table 3.5
Verified Outcomes (Annualized Percentages) by Race/Ethnicity for SRC Super Cohort Participants

Data as of: February 28, 2017; Events through September 30, 2010 and February 28, 2017

	Race/Ethnicity			
	American Indian/ Alaskan Native	Asian/Pacific Islander	White	Unknown
Outcomes through Extension Study 2005-2010				
Number randomized	583	3663	111511	1877
Mean follow-up (months)	125.1	127.8	143.5	131.0
Cardiovascular¹				
CHD ²	26 (0.43%)	87 (0.22%)	5233 (0.39%)	81 (0.40%)
CHD death ³	13 (0.21%)	30 (0.08%)	1806 (0.14%)	35 (0.17%)
Clinical MI	16 (0.26%)	66 (0.17%)	3906 (0.29%)	56 (0.27%)
Angina ⁴	23 (0.52%)	56 (0.20%)	3492 (0.39%)	52 (0.36%)
CABG/PTCA	30 (0.49%)	77 (0.20%)	5922 (0.44%)	84 (0.41%)
Carotid artery disease	7 (0.12%)	10 (0.03%)	1074 (0.08%)	20 (0.10%)
Congestive heart failure, WHI ⁴	18 (0.41%)	30 (0.11%)	2702 (0.30%)	47 (0.32%)
Stroke	17 (0.28%)	101 (0.26%)	4059 (0.30%)	76 (0.37%)
PVD	6 (0.10%)	8 (0.02%)	951 (0.07%)	19 (0.09%)
Coronary disease ⁵	67 (1.10%)	178 (0.46%)	11349 (0.85%)	170 (0.83%)
Total cardiovascular disease	89 (1.46%)	291 (0.75%)	16116 (1.21%)	264 (1.29%)
Fractures¹				
Hip fracture	7 (0.12%)	29 (0.07%)	2892 (0.22%)	27 (0.13%)
Outcomes through Extension Study 2010-2020				
Number randomized	583	3663	111511	1877
Mean follow-up (months)	152.7	157.3	183.1	161.6
Cancer				
Breast cancer	30 (0.40%)	232 (0.48%)	9524 (0.56%)	121 (0.48%)
Invasive breast cancer	25 (0.34%)	193 (0.40%)	7921 (0.47%)	99 (0.39%)
Non-invasive breast cancer	6 (0.08%)	42 (0.09%)	1728 (0.10%)	23 (0.09%)
Ovarian cancer	2 (0.03%)	14 (0.03%)	906 (0.05%)	8 (0.03%)
Endometrial cancer ⁶	1 (0.03%)	21 (0.07%)	1373 (0.14%)	24 (0.16%)
Colorectal cancer	10 (0.13%)	41 (0.09%)	2132 (0.13%)	32 (0.13%)
Other cancer ⁷	39 (0.53%)	200 (0.42%)	11559 (0.68%)	158 (0.63%)
Total cancer	78 (1.05%)	474 (0.99%)	23469 (1.38%)	316 (1.25%)
Deaths				
Cardiovascular deaths	33 (0.44%)	111 (0.23%)	6227 (0.37%)	105 (0.42%)
Cancer deaths	27 (0.36%)	147 (0.31%)	7441 (0.44%)	98 (0.39%)
Other known cause	45 (0.61%)	86 (0.18%)	6357 (0.37%)	77 (0.30%)
Unknown cause	6 (0.08%)	42 (0.09%)	3008 (0.18%)	39 (0.15%)
Total death	111 (1.50%)	386 (0.80%)	23033 (1.35%)	319 (1.26%)
Death plus post-WHI deaths⁸	181 (1.89%)	732 (1.14%)	32654 (1.68%)	535 (1.68%)

¹ Cardiovascular diseases and hip fracture are not adjudicated for SRC Super Cohort participants during the WHI Extension Study 2010-2020. Reported statistics represent experience during the original program and the Extension Study 2005-2010.

² "CHD" includes clinical MI, evolving Q-wave MI, and CHD death; Q-wave MI is not collected in the WHI Extension Study 2005-2010.

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

⁴ Angina and CHF are not verified outcomes in the WHI Extension Study 2005-2010. Reported statistics represent experience during the original program.

⁵ "Coronary disease" includes clinical MI, evolving Q-wave MI, possible evolving Q-wave MI, CHD death, angina, congestive heart failure, and CABG/PTCA; Q-wave MI, angina and congestive heart failure were not collected in the WHI Extension Study 2005-2010.

⁶ Only women without a baseline hysterectomy 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.

⁸ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

Table 3.6
Verified Primary and Other Cancers (Annualized Percentages): MRC and SRC Super Cohort Participants
 Data as of: February 28, 2017; Events through February 28, 2017

	MRC Super Cohort	SRC Super Cohort
Number of participants	44174	117634
Mean follow-up time (months)	167.8	181.8
Overall cancer	7498 (1.21%)	24337 (1.37%)
Primary cancer		
Breast cancer	2793 (0.45%)	9907 (0.56%)
Invasive breast cancer	2282 (0.37%)	8238 (0.46%)
In-situ breast cancer	561 (0.09%)	1799 (0.10%)
Ovarian cancer	255 (0.04%)	930 (0.05%)
Endometrial cancer ¹	316 (0.09%)	1419 (0.13%)
Colorectal cancer	884 (0.14%)	2215 (0.12%)
Other cancer		
Accessory sinus	1 (<0.01%)	10 (<0.01%)
Adrenal gland	4 (<0.01%)	11 (<0.01%)
Anus	24 (<0.01%)	85 (<0.01%)
Appendix	12 (<0.01%)	30 (<0.01%)
Biliary tract, parts of (other/unspecified)	52 (0.01%)	122 (0.01%)
Bladder	223 (0.04%)	709 (0.04%)
Bones/joints/articular cartilage (limbs)	2 (<0.01%)	11 (<0.01%)
Bones/joints/articular cartilage (other)	7 (<0.01%)	14 (<0.01%)
Brain	60 (0.01%)	269 (0.02%)
Cervix	41 (0.01%)	82 (<0.01%)
Central Nervous System (excludes brain)	1 (<0.01%)	3 (<0.01%)
Connective/subcutaneous/soft tissues	39 (0.01%)	123 (0.01%)
Endocrine glands, related structures	0 (0.00%)	3 (<0.01%)
Esophagus	45 (0.01%)	112 (0.01%)
Eye and adnexa	24 (<0.01%)	56 (<0.01%)
Genital organs	17 (<0.01%)	102 (0.01%)
Kidney	187 (0.03%)	486 (0.03%)
Larynx	21 (<0.01%)	30 (<0.01%)
Leukemia	230 (0.04%)	768 (0.04%)
Liver	81 (0.01%)	176 (0.01%)
Lung	1029 (0.17%)	2639 (0.15%)
Lymph nodes	1 (<0.01%)	2 (<0.01%)
Lymphoma, Hodgkins	22 (<0.01%)	48 (<0.01%)
Lymphoma, Non-Hodgkins	346 (0.06%)	1315 (0.07%)
Melanoma of the skin	340 (0.06%)	1938 (0.11%)
Multiple myeloma	182 (0.03%)	390 (0.02%)
Oral (mouth)	6 (<0.01%)	28 (<0.01%)
Palate	7 (<0.01%)	24 (<0.01%)
Pancreas	288 (0.05%)	806 (0.05%)
Parotid gland (Stensen's duct)	13 (<0.01%)	44 (<0.01%)
Peripheral nerves and autonomic nervous	0 (0.00%)	2 (<0.01%)
Pyriform sinus	0 (0.00%)	2 (<0.01%)
Respiratory system, intrathoracic, other	0 (0.00%)	3 (<0.01%)
Salivary glands, major (other/unspecified)	3 (<0.01%)	14 (<0.01%)
Stomach	90 (0.01%)	187 (0.01%)
Thyroid	100 (0.02%)	382 (0.02%)
Tongue, part of (other/unspecified)	15 (<0.01%)	65 (<0.01%)
Urinary organs (other/unspecified)	9 (<0.01%)	25 (<0.01%)
Uterus, not otherwise specified ¹	27 (<0.01%)	72 (<0.01%)
Other/unknown site of cancer	381 (0.06%)	1154 (0.06%)
Other/unknown cancers reported on death	102 (0.02%)	382 (0.02%)

¹ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 3.7
Verified Outcomes (Annualized Percentages) by Age at Enrollment for CT Participants

Data as of: February 28, 2017; Events through September 30, 2010

Outcome	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Number randomized	68132	9188	14661	31389	12894
Mean follow-up (months)	146.5	155.8	152.7	145.9	134.0
Cardiovascular					
CHD ¹	3570 (0.43%)	193 (0.16%)	406 (0.22%)	1663 (0.44%)	1308 (0.91%)
CHD death ²	1186 (0.14%)	48 (0.04%)	86 (0.05%)	503 (0.13%)	549 (0.38%)
Total MI ³	2733 (0.33%)	155 (0.13%)	339 (0.18%)	1288 (0.34%)	951 (0.66%)
Clinical MI	2657 (0.32%)	149 (0.12%)	331 (0.18%)	1250 (0.33%)	927 (0.64%)
Angina ⁴	2414 (0.43%)	129 (0.16%)	331 (0.27%)	1215 (0.48%)	739 (0.73%)
CABG/PTCA	3951 (0.48%)	217 (0.18%)	551 (0.30%)	2084 (0.55%)	1099 (0.76%)
Carotid artery disease	697 (0.08%)	27 (0.02%)	90 (0.05%)	375 (0.10%)	205 (0.14%)
Congestive heart failure,WHI ⁴	1748 (0.31%)	81 (0.10%)	172 (0.14%)	745 (0.29%)	750 (0.74%)
Stroke	2687 (0.32%)	120 (0.10%)	268 (0.14%)	1259 (0.33%)	1040 (0.72%)
PVD	647 (0.08%)	29 (0.02%)	86 (0.05%)	333 (0.09%)	199 (0.14%)
Coronary disease ⁵	7786 (0.94%)	442 (0.37%)	1016 (0.54%)	3795 (0.99%)	2533 (1.76%)
Total cardiovascular disease	10794 (1.30%)	587 (0.49%)	1361 (0.73%)	5222 (1.37%)	3624 (2.52%)
Cancer					
Breast cancer	4227 (0.51%)	514 (0.43%)	940 (0.50%)	2000 (0.52%)	773 (0.54%)
Invasive breast cancer	3419 (0.41%)	391 (0.33%)	768 (0.41%)	1613 (0.42%)	647 (0.45%)
Non-invasive breast cancer	863 (0.10%)	129 (0.11%)	183 (0.10%)	413 (0.11%)	138 (0.10%)
Ovary cancer	372 (0.04%)	35 (0.03%)	73 (0.04%)	191 (0.05%)	73 (0.05%)
Endometrial cancer ⁶	572 (0.12%)	64 (0.09%)	138 (0.12%)	274 (0.12%)	96 (0.12%)
Colorectal cancer	1116 (0.13%)	71 (0.06%)	181 (0.10%)	542 (0.14%)	322 (0.22%)
Other cancer ⁷	4970 (0.60%)	408 (0.34%)	846 (0.45%)	2484 (0.65%)	1232 (0.86%)
Total cancer	10632 (1.28%)	1042 (0.87%)	2070 (1.11%)	5170 (1.35%)	2350 (1.63%)
Fractures					
Hip fracture	1639 (0.20%)	32 (0.03%)	115 (0.06%)	665 (0.17%)	827 (0.57%)
Deaths					
Cardiovascular deaths	2401 (0.29%)	86 (0.07%)	173 (0.09%)	974 (0.26%)	1168 (0.81%)
Cancer deaths	3123 (0.38%)	190 (0.16%)	432 (0.23%)	1566 (0.41%)	935 (0.65%)
Other known cause	2008 (0.24%)	83 (0.07%)	190 (0.10%)	850 (0.22%)	885 (0.61%)
Unknown cause	47 (0.01%)	2 (<0.01%)	11 (0.01%)	20 (0.01%)	14 (0.01%)
Total death	7579 (0.91%)	361 (0.30%)	806 (0.43%)	3410 (0.89%)	3002 (2.08%)
Death plus post-WHI deaths⁸	9461 (1.03%)	431 (0.33%)	951 (0.46%)	4159 (1.00%)	3920 (2.44%)

¹ "CHD" includes clinical MI and CHD death.

² "CHD death" includes definite and possible CHD death.

³ "Total MI" includes clinical MI and evolving Q-wave MI.

⁴ Angina and CHF are not verified outcomes in the WHI Extension Study 2005-2010. Reported statistics represent experience during the original program.

⁵ "Coronary disease" includes clinical MI, evolving Q-wave MI, possible evolving Q-wave MI, CHD death, angina, congestive heart failure, and CABG/PTCA; Q-wave MI, angina and CHF were not collected during the WHI Extension Study 2005-2010.

⁶ Only women without a baseline hysterectomy 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.

⁸ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

Table 3.8
Verified Outcomes (Annualized Percentages) by Race/Ethnicity for CT Participants

Data as of: February 28, 2017; Events through September 30, 2010

Outcomes	Race/Ethnicity					
	American Indian/Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/ Latina	White	Unknown
Number enrolled	292	1519	6983	2875	55525	938
Mean follow-up (months)	135.1	140.5	139.2	131.5	148.5	137.3
Cardiovascular						
CHD ¹	8 (0.24%)	46 (0.26%)	348 (0.43%)	72 (0.23%)	3048 (0.44%)	48 (0.45%)
CHD death ²	2 (0.06%)	13 (0.07%)	161 (0.20%)	22 (0.07%)	969 (0.14%)	19 (0.18%)
Total MI ³	7 (0.21%)	40 (0.22%)	232 (0.29%)	56 (0.18%)	2361 (0.34%)	37 (0.34%)
Clinical MI	7 (0.21%)	39 (0.22%)	227 (0.28%)	54 (0.17%)	2295 (0.33%)	35 (0.33%)
Angina ⁴	12 (0.51%)	30 (0.25%)	298 (0.53%)	80 (0.36%)	1964 (0.43%)	30 (0.41%)
CABG/PTCA	13 (0.40%)	42 (0.24%)	337 (0.42%)	104 (0.33%)	3412 (0.50%)	43 (0.40%)
Carotid artery disease	3 (0.09%)	3 (0.02%)	43 (0.05%)	6 (0.02%)	632 (0.09%)	10 (0.09%)
Congestive heart failure, WHI ⁴	5 (0.21%)	17 (0.14%)	244 (0.43%)	49 (0.22%)	1409 (0.31%)	24 (0.32%)
Stroke	10 (0.30%)	40 (0.22%)	331 (0.41%)	62 (0.20%)	2204 (0.32%)	40 (0.37%)
PVD	5 (0.15%)	7 (0.04%)	99 (0.12%)	8 (0.03%)	520 (0.08%)	8 (0.07%)
Coronary disease ⁵	26 (0.79%)	98 (0.55%)	852 (1.05%)	210 (0.67%)	6500 (0.95%)	100 (0.93%)
Total cardiovascular disease	40 (1.22%)	141 (0.79%)	1208 (1.49%)	276 (0.88%)	8991 (1.31%)	138 (1.29%)
Cancer						
Breast cancer	10 (0.30%)	95 (0.53%)	365 (0.45%)	104 (0.33%)	3609 (0.53%)	44 (0.41%)
Invasive breast cancer	7 (0.21%)	72 (0.40%)	287 (0.35%)	86 (0.27%)	2932 (0.43%)	35 (0.33%)
Non-invasive breast cancer	3 (0.09%)	25 (0.14%)	82 (0.10%)	20 (0.06%)	723 (0.11%)	10 (0.09%)
Ovarian cancer	2 (0.06%)	10 (0.06%)	27 (0.03%)	9 (0.03%)	319 (0.05%)	5 (0.05%)
Endometrial cancer ⁶	1 (0.07%)	7 (0.06%)	37 (0.10%)	13 (0.07%)	506 (0.12%)	8 (0.13%)
Colorectal cancer	6 (0.18%)	24 (0.13%)	116 (0.14%)	31 (0.10%)	922 (0.13%)	17 (0.16%)
Other cancer ⁷	12 (0.37%)	79 (0.44%)	360 (0.44%)	125 (0.40%)	4336 (0.63%)	58 (0.54%)
Total cancer	29 (0.88%)	203 (1.14%)	854 (1.05%)	264 (0.84%)	9160 (1.33%)	122 (1.14%)
Fractures						
Hip fracture	5 (0.15%)	16 (0.09%)	40 (0.05%)	24 (0.08%)	1542 (0.22%)	12 (0.11%)
Deaths						
Cardiovascular deaths	9 (0.27%)	30 (0.17%)	319 (0.39%)	45 (0.14%)	1971 (0.29%)	27 (0.25%)
Cancer deaths	11 (0.33%)	50 (0.28%)	267 (0.33%)	90 (0.29%)	2664 (0.39%)	41 (0.38%)
Other known cause	13 (0.40%)	22 (0.12%)	180 (0.22%)	44 (0.14%)	1727 (0.25%)	22 (0.21%)
Unknown cause	0 (0.00%)	3 (0.02%)	7 (0.01%)	3 (0.01%)	33 (<0.01%)	1 (0.01%)
Total death	33 (1.00%)	105 (0.59%)	773 (0.95%)	182 (0.58%)	6395 (0.93%)	91 (0.85%)
Death plus post-WHI deaths⁸	48 (1.25%)	148 (0.73%)	1012 (1.09%)	253 (0.65%)	7869 (1.05%)	131 (1.06%)

¹ "CHD" includes clinical MI and CHD death.

² "CHD death" includes definite and possible CHD death.

³ "Total MI" includes clinical MI and evolving Q-wave MI.

⁴ Angina and CHF are not verified outcomes in the WHI Extension Study 2005-2010. Reported statistics represent experience during the original program.

⁵ "Coronary disease" includes clinical MI, CHD death, angina, congestive heart failure, and CABG/PTCA; Q-wave MI, angina and CHF were not collected during the WHI Extension Study 2005-2010.

⁶ Only women without a baseline hysterectomy 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.

⁸ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

Table 3.9
Verified Outcomes (Annualized Percentages) by Age at Enrollment for OS Participants

Data as of: February 28, 2017; Events through September 30, 2010

Outcome	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Number enrolled	93676	12381	17329	41200	22766
Mean follow-up (months)	136.7	146.4	145.1	137.4	124.0
Cardiovascular					
CHD ¹	4224 (0.40%)	159 (0.11%)	361 (0.17%)	1781 (0.38%)	1923 (0.82%)
CHD death ²	1576 (0.15%)	40 (0.03%)	93 (0.04%)	548 (0.12%)	895 (0.38%)
Clinical MI	3089 (0.29%)	125 (0.08%)	287 (0.14%)	1384 (0.29%)	1293 (0.55%)
Angina ³	2834 (0.38%)	124 (0.12%)	318 (0.22%)	1319 (0.41%)	1073 (0.62%)
CABG/PTCA	4608 (0.43%)	199 (0.13%)	534 (0.25%)	2305 (0.49%)	1570 (0.67%)
Carotid artery disease	843 (0.08%)	41 (0.03%)	79 (0.04%)	385 (0.08%)	338 (0.14%)
Congestive heart failure, WHI ³	2295 (0.31%)	81 (0.08%)	174 (0.12%)	882 (0.27%)	1158 (0.67%)
Stroke	3356 (0.31%)	103 (0.07%)	253 (0.12%)	1410 (0.30%)	1590 (0.68%)
PVD	840 (0.08%)	23 (0.02%)	74 (0.04%)	381 (0.08%)	362 (0.15%)
Coronary disease ⁴	9135 (0.86%)	393 (0.26%)	936 (0.45%)	4074 (0.86%)	3732 (1.59%)
Total cardiovascular disease	13153 (1.23%)	539 (0.36%)	1269 (0.61%)	5769 (1.22%)	5576 (2.37%)
Cancer					
Breast cancer	6051 (0.57%)	724 (0.48%)	1087 (0.52%)	2832 (0.60%)	1408 (0.60%)
Invasive breast cancer	5005 (0.47%)	578 (0.38%)	884 (0.42%)	2336 (0.50%)	1207 (0.51%)
Non-invasive breast cancer	1111 (0.10%)	156 (0.10%)	213 (0.10%)	529 (0.11%)	213 (0.09%)
Ovarian cancer	564 (0.05%)	61 (0.04%)	107 (0.05%)	251 (0.05%)	145 (0.06%)
Endometrial cancer ⁵	831 (0.13%)	77 (0.08%)	154 (0.12%)	385 (0.14%)	215 (0.16%)
Colorectal cancer	1355 (0.13%)	78 (0.05%)	144 (0.07%)	625 (0.13%)	508 (0.22%)
Other cancer ⁶	6638 (0.62%)	492 (0.33%)	924 (0.44%)	3164 (0.67%)	2058 (0.87%)
Total cancer	14522 (1.36%)	1362 (0.90%)	2289 (1.09%)	6797 (1.44%)	4074 (1.73%)
Fractures					
Hip fracture	2199 (0.21%)	52 (0.03%)	131 (0.06%)	777 (0.16%)	1239 (0.53%)
Deaths					
Cardiovascular deaths	3524 (0.33%)	87 (0.06%)	213 (0.10%)	1207 (0.26%)	2017 (0.86%)
Cancer deaths	4521 (0.42%)	263 (0.17%)	519 (0.25%)	2065 (0.44%)	1674 (0.71%)
Other known cause	3087 (0.29%)	120 (0.08%)	203 (0.10%)	1185 (0.25%)	1579 (0.67%)
Unknown cause	74 (0.01%)	6 (<0.01%)	10 (<0.01%)	26 (0.01%)	32 (0.01%)
Total death	11206 (1.05%)	476 (0.32%)	945 (0.45%)	4483 (0.95%)	5302 (2.25%)
Death plus post-WHI deaths⁷	15164 (1.24%)	605 (0.35%)	1188 (0.50%)	5868 (1.10%)	7503 (2.73%)

¹ "CHD" includes clinical MI and CHD death.

² "CHD death" includes definite and possible CHD death.

³ Angina and CHF are not verified outcomes in the WHI Extension Study 2005-2010. Reported statistics represent experience during the original program.

⁴ "Coronary disease" includes clinical MI, CHD death, angina, congestive heart failure, and CABG/PTCA; angina and congestive heart failure were not collected in the WHI Extension Study 2005-2010.

⁵ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial cancer.

⁶ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin cancer.

⁷ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

Table 3.10
Verified Outcomes (Annualized Percentages) by Race/Ethnicity for OS Participants

Data as of: February 28, 2017; Events through September 30, 2010

Outcomes	Race/Ethnicity					
	American Indian/Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/Latina	White	Unknown
Number enrolled	421	2671	7635	3609	78016	1324
Mean follow-up (months)	120.0	121.7	118.2	113.5	140.4	127.9
Cardiovascular						
CHD ¹	23 (0.55%)	62 (0.23%)	370 (0.49%)	82 (0.24%)	3628 (0.40%)	59 (0.42%)
CHD death ²	13 (0.31%)	25 (0.09%)	186 (0.25%)	27 (0.08%)	1303 (0.14%)	22 (0.16%)
Clinical MI	13 (0.31%)	44 (0.16%)	227 (0.30%)	63 (0.18%)	2699 (0.30%)	43 (0.30%)
Angina ³	18 (0.58%)	40 (0.20%)	250 (0.44%)	80 (0.31%)	2412 (0.39%)	34 (0.34%)
CABG/PTCA	23 (0.55%)	57 (0.21%)	287 (0.38%)	123 (0.36%)	4053 (0.44%)	65 (0.46%)
Carotid artery disease	5 (0.12%)	9 (0.03%)	40 (0.05%)	16 (0.05%)	760 (0.08%)	13 (0.09%)
Congestive heart failure, WHI ³	16 (0.52%)	22 (0.11%)	233 (0.41%)	42 (0.16%)	1948 (0.31%)	34 (0.34%)
Stroke	14 (0.33%)	75 (0.28%)	272 (0.36%)	65 (0.19%)	2874 (0.31%)	56 (0.40%)
PVD	3 (0.07%)	6 (0.02%)	88 (0.12%)	8 (0.02%)	722 (0.08%)	13 (0.09%)
Coronary disease ⁴	53 (1.26%)	125 (0.46%)	783 (1.04%)	217 (0.64%)	7836 (0.86%)	121 (0.86%)
Total cardiovascular disease	67 (1.59%)	210 (0.78%)	1117 (1.49%)	296 (0.87%)	11272 (1.23%)	191 (1.35%)
Cancer						
Breast cancer	17 (0.40%)	126 (0.47%)	376 (0.50%)	138 (0.40%)	5332 (0.58%)	62 (0.44%)
Invasive breast cancer	16 (0.38%)	106 (0.39%)	302 (0.40%)	108 (0.32%)	4420 (0.48%)	53 (0.38%)
Non-invasive breast cancer	1 (0.02%)	22 (0.08%)	80 (0.11%)	32 (0.09%)	966 (0.11%)	10 (0.07%)
Ovarian cancer	1 (0.02%)	6 (0.02%)	28 (0.04%)	18 (0.05%)	508 (0.06%)	3 (0.02%)
Endometrial cancer ⁵	1 (0.05%)	12 (0.07%)	28 (0.08%)	12 (0.06%)	763 (0.14%)	15 (0.18%)
Colorectal cancer	4 (0.09%)	28 (0.10%)	124 (0.16%)	29 (0.08%)	1156 (0.13%)	14 (0.10%)
Other cancer ⁶	23 (0.55%)	116 (0.43%)	376 (0.50%)	116 (0.34%)	5916 (0.65%)	91 (0.64%)
Total cancer	45 (1.07%)	274 (1.01%)	883 (1.17%)	307 (0.90%)	12838 (1.41%)	175 (1.24%)
Fractures						
Hip fracture	5 (0.12%)	21 (0.08%)	47 (0.06%)	19 (0.06%)	2086 (0.23%)	21 (0.15%)
Deaths						
Cardiovascular deaths	23 (0.55%)	68 (0.25%)	360 (0.48%)	72 (0.21%)	2948 (0.32%)	53 (0.38%)
Cancer deaths	13 (0.31%)	86 (0.32%)	343 (0.46%)	96 (0.28%)	3935 (0.43%)	48 (0.34%)
Other known cause	25 (0.59%)	47 (0.17%)	245 (0.33%)	90 (0.26%)	2645 (0.29%)	35 (0.25%)
Unknown cause	0 (0.00%)	2 (0.01%)	7 (0.01%)	8 (0.02%)	56 (0.01%)	1 (0.01%)
Total death	61 (1.45%)	203 (0.75%)	955 (1.27%)	266 (0.78%)	9584 (1.05%)	137 (0.97%)
Death plus post-WHI deaths⁷	93 (1.77%)	317 (0.90%)	1403 (1.45%)	419 (0.90%)	12707 (1.25%)	225 (1.32%)

¹ "CHD" includes clinical MI and CHD death.

² "CHD death" includes definite and possible CHD death.

³ Angina and CHF are not verified outcomes in the WHI Extension Study 2005-2010. Reported statistics represent experience during the original program.

⁴ "Coronary disease" includes clinical MI, CHD death, angina, congestive heart failure, and CABG/PTCA; angina and congestive heart failure were not collected in the WHI Extension Study 2005-2010.

⁵ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial cancer.

⁶ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin.

⁷ Includes deaths for non-Extension study participants after the main WHI study close-out. Annualized rates incorporate additional follow-up from the NDI search.

Table 3.11
Verified Outcomes (Annualized Percentages)¹ by Age at Diagnosis for CT and OS Participants

Data as of: February 28, 2017; Events Between January 1, 2000 and December 31, 2015 or January 1, 2000 and September 30, 2010

	Age at Diagnosis							
	50-59	60-64	65-69	70-74	75-79	80-84	85-89	90-101
Cancer Outcomes Between 1/1/2000 and 12/31/2015								
Number of participants²	28496	62321	91037	112377	104835	72821	37111	11577
Mean follow-up (months)	30.9	39.5	45.2	45.3	44.4	43.2	37.2	30.9
Breast cancer	359 (0.49%)	1072 (0.52%)	1902 (0.55%)	2429 (0.57%)	2231 (0.57%)	1354 (0.52%)	496 (0.43%)	99 (0.33%)
Invasive breast cancer	281 (0.38%)	862 (0.42%)	1509 (0.44%)	2007 (0.47%)	1880 (0.48%)	1155 (0.44%)	461 (0.40%)	93 (0.31%)
Non-invasive breast	80 (0.11%)	222 (0.11%)	410 (0.12%)	464 (0.11%)	400 (0.10%)	230 (0.09%)	48 (0.04%)	8 (0.03%)
Ovarian cancer	26 (0.04%)	77 (0.04%)	182 (0.05%)	230 (0.05%)	204 (0.05%)	143 (0.05%)	73 (0.06%)	16 (0.05%)
Endometrial cancer ³	32 (0.08%)	144 (0.12%)	294 (0.14%)	341 (0.13%)	305 (0.13%)	184 (0.12%)	58 (0.09%)	15 (0.09%)
Colorectal cancer	35 (0.05%)	156 (0.08%)	337 (0.10%)	517 (0.12%)	581 (0.15%)	476 (0.18%)	259 (0.23%)	78 (0.26%)
Leukemia	6 (0.01%)	47 (0.02%)	137 (0.04%)	190 (0.04%)	208 (0.05%)	177 (0.07%)	96 (0.08%)	29 (0.10%)
Lung cancer	32 (0.04%)	175 (0.09%)	398 (0.12%)	712 (0.17%)	813 (0.21%)	591 (0.23%)	276 (0.24%)	73 (0.25%)
Non-Hodgkin's Lymphoma	19 (0.03%)	78 (0.04%)	201 (0.06%)	339 (0.08%)	349 (0.09%)	270 (0.10%)	160 (0.14%)	37 (0.12%)
Melanoma of the skin	49 (0.07%)	164 (0.08%)	316 (0.09%)	450 (0.11%)	478 (0.12%)	293 (0.11%)	151 (0.13%)	32 (0.11%)
Pancreas cancer	9 (0.01%)	44 (0.02%)	103 (0.03%)	189 (0.04%)	226 (0.06%)	235 (0.09%)	123 (0.11%)	35 (0.12%)
Total cancer	644 (1.11%)	2184 (1.24%)	4231 (1.60%)	5957 (2.18%)	5901 (2.63%)	4129 (3.18%)	1846 (4.60%)	465 (11.89%)
Cardiovascular Outcomes Between 1/1/2000 and 9/30/2010								
Number of participants²	22434	50700	75662	80679	65943	40702	15575	2663
Mean follow-up (months)	31.1	41.6	41.9	40.6	40.8	38.3	31.0	17.6
CHD ⁴	35 (0.06%)	130 (0.07%)	305 (0.12%)	395 (0.14%)	458 (0.20%)	378 (0.29%)	165 (0.41%)	28 (0.72%)
Clinical MI	25 (0.04%)	97 (0.06%)	231 (0.09%)	298 (0.11%)	326 (0.15%)	248 (0.19%)	95 (0.24%)	11 (0.28%)
CABG/PTCA	48 (0.08%)	178 (0.10%)	395 (0.15%)	479 (0.18%)	465 (0.21%)	288 (0.22%)	58 (0.14%)	0 (0.00%)
Stroke	26 (0.04%)	100 (0.06%)	191 (0.07%)	303 (0.11%)	363 (0.16%)	314 (0.24%)	124 (0.31%)	22 (0.56%)
Total cardiovascular ⁵	157 (0.27%)	492 (0.28%)	978 (0.37%)	1252 (0.46%)	1341 (0.60%)	998 (0.77%)	343 (0.85%)	57 (1.46%)

¹ Annualized percentages 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 with any follow-up time in the age interval.

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

⁴ "CHD" includes clinical MI, evolving Q-wave MI, and CHD death; Q-wave MI is not collected in the OS or in the WHI Extension Study 2005-2010.

⁵ Total cardiovascular disease includes CHD, angina, CABG/PTCA, carotid artery disease, CHF, stroke, PVD and CVD death.

Table 3.12
Verified Primary and Other Cancers (Annualized Percentages): CT and OS Participants

Data as of: February 28, 2017; Events through February 28, 2017

	CT	OS	Total
Number of participants	68132	93676	161808
Mean follow-up time (months)	185.7	172.4	178.0
Overall cancer	13626 (1.29%)	18209 (1.35%)	31835 (1.33%)
Primary cancer			
Breast cancer	5300 (0.50%)	7400 (0.55%)	12700 (0.53%)
Invasive breast cancer	4350 (0.41%)	6170 (0.46%)	10520 (0.44%)
Non-invasive breast cancer	1036 (0.10%)	1324 (0.10%)	2360 (0.10%)
Ovarian cancer	472 (0.04%)	713 (0.05%)	1185 (0.05%)
Endometrial cancer ¹	726 (0.12%)	1009 (0.13%)	1735 (0.12%)
Colorectal cancer	1413 (0.13%)	1686 (0.13%)	3099 (0.13%)
Other cancer			
Accessory sinus	4 (<0.01%)	7 (<0.01%)	11 (<0.01%)
Adrenal gland	6 (<0.01%)	9 (<0.01%)	15 (<0.01%)
Anus	44 (<0.01%)	65 (<0.01%)	109 (<0.01%)
Appendix	20 (<0.01%)	22 (<0.01%)	42 (<0.01%)
Biliary tract, parts of (other/unspecified)	86 (0.01%)	88 (0.01%)	174 (0.01%)
Bladder	423 (0.04%)	509 (0.04%)	932 (0.04%)
Bones/joints/articular cartilage (limbs)	6 (<0.01%)	7 (<0.01%)	13 (<0.01%)
Bones/joints/articular cartilage (other)	11 (<0.01%)	10 (<0.01%)	21 (<0.01%)
Brain	147 (0.01%)	182 (0.01%)	329 (0.01%)
Cervix	62 (0.01%)	61 (<0.01%)	123 (0.01%)
Central Nervous System (excludes brain)	1 (<0.01%)	3 (<0.01%)	4 (<0.01%)
Connective/subcutaneous/soft tissues	74 (0.01%)	88 (0.01%)	162 (0.01%)
Endocrine glands, related structures	1 (<0.01%)	2 (<0.01%)	3 (<0.01%)
Esophagus	75 (0.01%)	82 (0.01%)	157 (0.01%)
Eye and adnexa	48 (<0.01%)	32 (<0.01%)	80 (<0.01%)
Genital organs	44 (<0.01%)	75 (0.01%)	119 (<0.01%)
Kidney	316 (0.03%)	357 (0.03%)	673 (0.03%)
Larynx	28 (<0.01%)	23 (<0.01%)	51 (<0.01%)
Leukemia	437 (0.04%)	561 (0.04%)	998 (0.04%)
Liver	109 (0.01%)	148 (0.01%)	257 (0.01%)
Lung	1593 (0.15%)	2075 (0.15%)	3668 (0.15%)
Lymph nodes	2 (<0.01%)	1 (<0.01%)	3 (<0.01%)
Lymphoma, Hodgkins	24 (<0.01%)	46 (<0.01%)	70 (<0.01%)
Lymphoma, Non-Hodgkins	683 (0.06%)	978 (0.07%)	1661 (0.07%)
Melanoma of the skin	992 (0.09%)	1286 (0.10%)	2278 (0.09%)
Multiple myeloma	259 (0.02%)	313 (0.02%)	572 (0.02%)
Oral (mouth)	19 (<0.01%)	15 (<0.01%)	34 (<0.01%)
Palate	13 (<0.01%)	18 (<0.01%)	31 (<0.01%)
Pancreas	481 (0.05%)	613 (0.05%)	1094 (0.05%)
Parotid gland (Stensen's duct)	22 (<0.01%)	35 (<0.01%)	57 (<0.01%)
Peripheral nerves and autonomic nervous system	1 (<0.01%)	1 (<0.01%)	2 (<0.01%)
Pyriform sinus	0 (0.00%)	2 (<0.01%)	2 (<0.01%)
Respiratory system, intrathoracic, other	1 (<0.01%)	2 (<0.01%)	3 (<0.01%)
Salivary glands, major (other/unspecified)	5 (<0.01%)	12 (<0.01%)	17 (<0.01%)
Stomach	121 (0.01%)	156 (0.01%)	277 (0.01%)
Thyroid	205 (0.02%)	277 (0.02%)	482 (0.02%)
Tongue, part of (other/unspecified)	37 (<0.01%)	43 (<0.01%)	80 (<0.01%)
Urinary organs (other/unspecified)	14 (<0.01%)	20 (<0.01%)	34 (<0.01%)
Uterus, not otherwise specified ¹	43 (<0.01%)	56 (<0.01%)	99 (<0.01%)
Other/unknown site of cancer	668 (0.06%)	867 (0.06%)	1535 (0.06%)
Other/unknown cancers reported on death form	165 (0.02%)	319 (0.02%)	484 (0.02%)

¹ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 3.13
Verified Primary and Other Cancers (Annualized Percentages) by Race/Ethnicity for CT and OS Participants

Data as of: February 28, 2017; Events through February 28, 2017

	Race/Ethnicity					
	American Indian/Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/Latina	White	Unknown
Number of participants	713	4190	14618	6484	133541	2262
Mean follow-up time (months)	154.3	158.0	154.7	146.0	183.1	162.8
Overall cancer	100 (1.09%)	573 (1.04%)	2106 (1.12%)	711 (0.90%)	27963 (1.37%)	382 (1.24%)
Primary cancer						
Breast cancer	38 (0.41%)	268 (0.49%)	891 (0.47%)	299 (0.38%)	11062 (0.54%)	142 (0.46%)
Invasive breast cancer	32 (0.35%)	221 (0.40%)	714 (0.38%)	244 (0.31%)	9193 (0.45%)	116 (0.38%)
Non-invasive breast cancer	7 (0.08%)	51 (0.09%)	196 (0.10%)	61 (0.08%)	2017 (0.10%)	28 (0.09%)
Ovarian cancer	3 (0.03%)	17 (0.03%)	69 (0.04%)	37 (0.05%)	1047 (0.05%)	12 (0.04%)
Endometrial cancer ¹	2 (0.05%)	23 (0.06%)	88 (0.10%)	29 (0.07%)	1567 (0.13%)	26 (0.14%)
Colorectal cancer	11 (0.12%)	58 (0.11%)	278 (0.15%)	75 (0.10%)	2636 (0.13%)	41 (0.13%)
Other cancer						
Accessory sinus	0 (0.00%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	10 (<0.01%)	0 (0.00%)
Adrenal gland	0 (0.00%)	0 (0.00%)	2 (<0.01%)	1 (<0.01%)	12 (<0.01%)	0 (0.00%)
Anus	1 (0.01%)	2 (<0.01%)	8 (<0.01%)	5 (0.01%)	92 (<0.01%)	1 (<0.01%)
Appendix	0 (0.00%)	0 (0.00%)	4 (<0.01%)	3 (<0.01%)	34 (<0.01%)	1 (<0.01%)
Biliary tract, parts of (other/unspecified)	2 (0.02%)	2 (<0.01%)	11 (0.01%)	11 (0.01%)	146 (0.01%)	2 (0.01%)
Bladder	2 (0.02%)	10 (0.02%)	49 (0.03%)	13 (0.02%)	850 (0.04%)	8 (0.03%)
Bones/joints/articular cartilage (limbs)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	0 (0.00%)	11 (<0.01%)	1 (<0.01%)
Bones/joints/articular cartilage (other)	0 (0.00%)	0 (0.00%)	1 (<0.01%)	0 (0.00%)	19 (<0.01%)	1 (<0.01%)
Brain	1 (0.01%)	3 (0.01%)	11 (0.01%)	5 (0.01%)	307 (0.02%)	2 (0.01%)
Cervix	0 (0.00%)	1 (<0.01%)	18 (0.01%)	5 (0.01%)	96 (<0.01%)	3 (0.01%)
Central Nervous System (excludes brain)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (<0.01%)	0 (0.00%)
Connective/subcutaneous/soft tissues	0 (0.00%)	4 (0.01%)	6 (<0.01%)	4 (0.01%)	147 (0.01%)	1 (<0.01%)
Endocrine glands, related structures	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)
Esophagus	1 (0.01%)	0 (0.00%)	9 (<0.01%)	2 (<0.01%)	142 (0.01%)	3 (0.01%)
Eye and adnexa	0 (0.00%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	76 (<0.01%)	1 (<0.01%)
Genital organs	0 (0.00%)	1 (<0.01%)	3 (<0.01%)	3 (<0.01%)	111 (0.01%)	1 (<0.01%)
Kidney	7 (0.08%)	13 (0.02%)	57 (0.03%)	20 (0.03%)	567 (0.03%)	9 (0.03%)
Larynx	0 (0.00%)	0 (0.00%)	6 (<0.01%)	0 (0.00%)	45 (<0.01%)	0 (0.00%)
Leukemia	0 (0.00%)	16 (0.03%)	57 (0.03%)	14 (0.02%)	902 (0.04%)	9 (0.03%)
Liver	2 (0.02%)	15 (0.03%)	21 (0.01%)	17 (0.02%)	197 (0.01%)	5 (0.02%)
Lung	16 (0.17%)	53 (0.10%)	244 (0.13%)	54 (0.07%)	3249 (0.16%)	52 (0.17%)
Lymph nodes	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)

¹ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 3.13 (continued)
Verified Primary and Other Cancers (Annualized Percentages) by Race/Ethnicity: CT and OS Participants

Data as of: February 28, 2017; Events through February 28, 2017

	Race/Ethnicity					
	American Indian/Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/ Latina	White	Unknown
Lymphoma, Hodgkins	0 (0.00%)	1 (<0.01%)	4 (<0.01%)	5 (0.01%)	59 (<0.01%)	1 (<0.01%)
Lymphoma, Non-Hodgkins	4 (0.04%)	28 (0.05%)	60 (0.03%)	45 (0.06%)	1505 (0.07%)	19 (0.06%)
Melanoma of the skin	3 (0.03%)	7 (0.01%)	8 (<0.01%)	13 (0.02%)	2228 (0.11%)	19 (0.06%)
Multiple myeloma	3 (0.03%)	1 (<0.01%)	74 (0.04%)	18 (0.02%)	470 (0.02%)	6 (0.02%)
Oral (mouth)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	1 (<0.01%)	31 (<0.01%)	0 (0.00%)
Palate	0 (0.00%)	1 (<0.01%)	1 (<0.01%)	0 (0.00%)	29 (<0.01%)	0 (0.00%)
Pancreas	4 (0.04%)	31 (0.06%)	90 (0.05%)	25 (0.03%)	929 (0.05%)	15 (0.05%)
Parotid gland (Stensen's duct)	0 (0.00%)	2 (<0.01%)	7 (<0.01%)	1 (<0.01%)	47 (<0.01%)	0 (0.00%)
Peripheral nerves and autonomic nervous system	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)
Pyiform sinus	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (<0.01%)	0 (0.00%)
Respiratory system, intrathoracic, other	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	3 (<0.01%)	0 (0.00%)
Salivary glands, major (other/ unspecified)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	17 (<0.01%)	0 (0.00%)
Stomach	1 (0.01%)	15 (0.03%)	38 (0.02%)	8 (0.01%)	211 (0.01%)	4 (0.01%)
Thyroid	1 (0.01%)	10 (0.02%)	34 (0.02%)	10 (0.01%)	420 (0.02%)	7 (0.02%)
Tongue, part of (other/unspecified)	0 (0.00%)	2 (<0.01%)	2 (<0.01%)	0 (0.00%)	74 (<0.01%)	2 (0.01%)
Urinary organs (other/unspecified)	1 (0.01%)	1 (<0.01%)	4 (<0.01%)	1 (<0.01%)	27 (<0.01%)	0 (0.00%)
Uterus, not otherwise specified ¹	0 (0.00%)	2 (<0.01%)	12 (0.01%)	4 (0.01%)	77 (<0.01%)	4 (0.01%)
Other/unknown site of cancer	5 (0.05%)	25 (0.05%)	87 (0.05%)	42 (0.05%)	1360 (0.07%)	16 (0.05%)
Other/unknown cancers reported on death form	1 (0.01%)	9 (0.02%)	43 (0.02%)	13 (0.02%)	411 (0.02%)	7 (0.02%)

¹ Only women without a baseline hysterectomy are used to compute the annual rates of endometrial and uterine cancer.

Table 4.1
Counts (Annualized Percentages) of Participants with Self-Reported Outcomes by Age at Enrollment and Race/Ethnicity for MRC Super Cohort Participants Who Did Not Report a Prevalent Condition at Baseline

Data as of: February 28, 2017; Events through February 28, 2017

Outcome	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Number randomized	44174	6788	9352	19418	8616
Mean follow-up (months)	167.6	177.0	177.9	168.7	146.5
Angina ¹	3091 (0.53%)	386 (0.40%)	540 (0.41%)	1488 (0.58%)	677 (0.70%)
Diabetes (treated)	7390 (1.28%)	1284 (1.34%)	1672 (1.28%)	3346 (1.31%)	1088 (1.11%)
Hysterectomy	1746 (0.49%)	271 (0.51%)	438 (0.53%)	791 (0.50%)	246 (0.42%)
Osteoarthritis ²	12954 (3.31%)	2210 (2.90%)	2952 (3.05%)	5687 (3.46%)	2105 (3.88%)
Intestinal polyps	10333 (1.80%)	1635 (1.69%)	2421 (1.84%)	4756 (1.88%)	1521 (1.64%)
Lupus	779 (0.13%)	128 (0.13%)	171 (0.12%)	354 (0.13%)	126 (0.12%)
Hypertension treated w/pills	16026 (3.85%)	2596 (3.37%)	3537 (3.56%)	7038 (3.99%)	2855 (4.53%)
COPD ³	1926 (0.85%)	248 (0.67%)	462 (0.92%)	951 (0.96%)	265 (0.70%)
Macular degeneration ⁴	4105 (1.02%)	323 (0.48%)	649 (0.71%)	2031 (1.14%)	1102 (1.66%)
Alzheimer's disease ⁴	3553 (0.88%)	180 (0.27%)	397 (0.44%)	1774 (1.00%)	1202 (1.81%)
Parkinson's disease ⁴	515 (0.13%)	53 (0.08%)	89 (0.10%)	273 (0.15%)	100 (0.15%)

Outcomes	Race/Ethnicity					
	Am Indian/ Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/ Latina	White	Unknown
Number randomized	130	527	14618	6484	22030	385
Mean follow-up (months)	161.3	162.9	154.2	145.5	183.0	168.9
Angina ¹	15 (0.94%)	21 (0.31%)	954 (0.55%)	326 (0.43%)	1742 (0.54%)	33 (0.63%)
Diabetes (treated)	24 (1.54%)	88 (1.31%)	2773 (1.65%)	1091 (1.47%)	3343 (1.03%)	71 (1.41%)
Hysterectomy	4 (0.56%)	12 (0.24%)	405 (0.48%)	263 (0.60%)	1046 (0.48%)	16 (0.48%)
Osteoarthritis ²	48 (3.96%)	169 (3.27%)	3887 (3.43%)	1982 (3.71%)	6745 (3.14%)	123 (3.42%)
Intestinal polyps	32 (1.98%)	104 (1.62%)	3439 (1.98%)	1263 (1.70%)	5413 (1.73%)	82 (1.66%)
Lupus	3 (0.17%)	5 (0.07%)	285 (0.15%)	126 (0.16%)	356 (0.11%)	4 (0.07%)
Hypertension treated w/pills	58 (4.60%)	186 (3.68%)	4332 (4.56%)	2304 (3.86%)	9013 (3.59%)	133 (3.57%)
COPD ³	10 (1.66%)	11 (0.39%)	470 (0.63%)	178 (0.53%)	1243 (1.10%)	14 (0.71%)
Macular degeneration ⁴	12 (1.00%)	31 (0.69%)	729 (0.55%)	420 (0.72%)	2881 (1.41%)	32 (0.90%)
Alzheimer's disease ⁴	11 (0.91%)	32 (0.71%)	898 (0.68%)	363 (0.62%)	2225 (1.09%)	24 (0.68%)
Parkinson's disease ⁴	2 (0.17%)	7 (0.16%)	134 (0.10%)	57 (0.10%)	312 (0.15%)	3 (0.08%)

¹ During WHI Extension Study 2005-2010, the outcome was angina with hospitalization for a heart condition that may or may not have been related to the angina.

² This outcome has not been self-reported on all versions of Form 33 during WHI follow-up. The annualized percentages are corrected for the different amounts of follow-up.

³ Data only collected during the WHI Extension Study 2010-2020.

⁴ Data only collected during the WHI Extension Study 2005-2020.

Table 4.2
Counts (Annualized Percentages) of Participants with Self-Reported Outcomes by Age at Enrollment and Race/Ethnicity for SRC Super Cohort Participants Who Did Not Report a Prevalent Condition at Baseline

Data as of: February 28, 2017; Events through February 28, 2017

Outcome	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Number randomized	117634	14781	22638	53171	27044
Mean follow-up (months)	181.6	204.8	200.4	183.0	150.5
DVT, IP/OP	3660 (0.21%)	286 (0.12%)	551 (0.15%)	1824 (0.23%)	999 (0.31%)
PE, IP/OP	2196 (0.12%)	185 (0.07%)	366 (0.10%)	1121 (0.14%)	524 (0.16%)
PE, IP	2117 (0.12%)	178 (0.07%)	350 (0.09%)	1080 (0.13%)	509 (0.15%)
PE, OP ¹	112 (0.02%)	10 (0.01%)	21 (0.02%)	62 (0.02%)	19 (0.02%)
Diabetes (treated)	14889 (0.86%)	1946 (0.78%)	3078 (0.83%)	7048 (0.89%)	2817 (0.86%)
Hysterectomy	6455 (0.61%)	980 (0.63%)	1543 (0.64%)	2973 (0.63%)	959 (0.50%)
Osteoarthritis ²	35453 (3.30%)	5336 (2.83%)	7862 (3.06%)	15961 (3.44%)	6294 (3.81%)
Intestinal polyps	28957 (1.78%)	4258 (1.76%)	6646 (1.87%)	13324 (1.82%)	4729 (1.61%)
Lupus	1841 (0.10%)	237 (0.09%)	376 (0.10%)	851 (0.11%)	377 (0.11%)
Pills for hypertension	43627 (3.30%)	5407 (2.52%)	8793 (2.89%)	20246 (3.47%)	9181 (4.19%)
COPD ¹	5513 (0.90%)	581 (0.70%)	1102 (0.89%)	2960 (1.07%)	870 (0.72%)
Macular degeneration ³	14393 (1.27%)	925 (0.59%)	1976 (0.84%)	7334 (1.42%)	4158 (1.91%)
Alzheimer's disease ³	9940 (0.87%)	359 (0.23%)	945 (0.40%)	5071 (0.98%)	3565 (1.64%)
Parkinson's disease ³	1856 (0.16%)	114 (0.07%)	296 (0.13%)	1048 (0.20%)	398 (0.18%)

Outcomes	Race/Ethnicity			
	Am Indian/ Alaskan Native	Asian/Pacific Islander	White	Unknown
Number randomized	583	3663	111511	1877
Mean follow-up (months)	152.3	156.6	182.9	161.2
DVT, IP/OP	11 (0.16%)	30 (0.06%)	3569 (0.22%)	50 (0.21%)
PE, IP/OP	7 (0.10%)	15 (0.03%)	2150 (0.13%)	24 (0.10%)
PE, IP	7 (0.10%)	14 (0.03%)	2073 (0.12%)	23 (0.09%)
PE, OP ¹	0 (0.00%)	2 (0.01%)	109 (0.02%)	1 (0.01%)
Diabetes (treated)	104 (1.56%)	505 (1.11%)	14006 (0.84%)	274 (1.14%)
Hysterectomy	15 (0.43%)	119 (0.38%)	6234 (0.62%)	87 (0.58%)
Osteoarthritis ²	144 (3.46%)	1115 (3.24%)	33628 (3.30%)	566 (3.59%)
Intestinal polyps	122 (1.80%)	735 (1.70%)	27685 (1.78%)	415 (1.82%)
Lupus	15 (0.21%)	36 (0.08%)	1759 (0.10%)	31 (0.12%)
Pills for hypertension	183 (3.81%)	1165 (3.46%)	41619 (3.29%)	660 (3.69%)
COPD ¹	27 (0.94%)	63 (0.32%)	5355 (0.92%)	68 (0.71%)
Macular degeneration ³	44 (0.81%)	215 (0.61%)	13973 (1.30%)	161 (0.92%)
Alzheimer's disease ³	37 (0.68%)	172 (0.49%)	9589 (0.89%)	142 (0.81%)
Parkinson's disease ³	7 (0.13%)	27 (0.08%)	1794 (0.17%)	28 (0.16%)

IP = Inpatient; OP = Outpatient

¹ Data only collected during the WHI Extension Study 2010-2020.

² This outcome has not been self-reported on all versions of Form 33 during WHI follow-up. The annualized percentages are corrected for the different amounts of follow-up.

³ Data only collected during the WHI Extension Studies 2005-2020.

Table 4.3
Counts (Annualized Percentages) of Participants with Self-Reported Outcomes by Age at Enrollment and Race/Ethnicity for CT Participants Who Did Not Report a Prevalent Condition at Baseline

Data as of: February 28, 2017; Events through February 28, 2017

Outcome	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Number randomized	68132	9188	14661	31389	12894
Mean follow-up (months)	185.7	202.1	198.9	186.0	158.1
Hospitalizations					
Ever	49922 (4.74%)	5485 (3.54%)	9725 (4.00%)	23996 (4.93%)	10716 (6.31%)
Two or more	36186 (3.43%)	3489 (2.25%)	6574 (2.71%)	17790 (3.66%)	8333 (4.91%)
Other					
DVT ¹	1853 (0.18%)	137 (0.09%)	300 (0.13%)	908 (0.19%)	508 (0.31%)
Pulmonary embolism	1435 (0.14%)	130 (0.08%)	252 (0.10%)	745 (0.15%)	308 (0.18%)
Diabetes (treated)	10823 (1.07%)	1609 (1.07%)	2446 (1.04%)	5119 (1.10%)	1649 (1.02%)
Gallbladder disease ^{2,3}	5248 (1.15%)	746 (1.07%)	1195 (1.15%)	2463 (1.21%)	844 (1.05%)
Hysterectomy	3468 (0.56%)	516 (0.57%)	884 (0.58%)	1621 (0.57%)	447 (0.47%)
Glaucoma ³	7565 (1.44%)	744 (0.96%)	1457 (1.23%)	3662 (1.54%)	1702 (1.86%)
Osteoporosis ³	14695 (2.85%)	1450 (1.88%)	2635 (2.24%)	7142 (3.07%)	3468 (3.92%)
Osteoarthritis ⁴	21992 (3.25%)	3470 (2.86%)	5256 (3.03%)	9986 (3.40%)	3280 (3.75%)
Rheumatoid arthritis ³	4009 (0.76%)	538 (0.70%)	866 (0.74%)	1822 (0.77%)	783 (0.83%)
Intestinal polyps	17690 (1.81%)	2645 (1.77%)	4297 (1.86%)	8334 (1.86%)	2414 (1.61%)
Lupus	1106 (0.11%)	152 (0.10%)	256 (0.11%)	519 (0.11%)	179 (0.11%)
Kidney stones ^{3,4}	1877 (0.36%)	241 (0.31%)	379 (0.32%)	898 (0.38%)	359 (0.38%)
Cataracts ^{3,4}	21571 (4.54%)	1468 (1.90%)	3731 (3.20%)	11650 (5.43%)	4722 (7.09%)
Hypertension treated w/pills	26654 (3.53%)	3654 (2.90%)	5981 (3.20%)	12451 (3.70%)	4568 (4.32%)
COPD ⁵	3443 (0.97%)	369 (0.72%)	791 (0.99%)	1831 (1.13%)	452 (0.78%)
Macular degeneration ⁶	8005 (1.24%)	529 (0.56%)	1227 (0.83%)	4203 (1.41%)	2046 (2.02%)
Alzheimer's disease ⁶	5980 (0.93%)	233 (0.25%)	663 (0.45%)	3120 (1.05%)	1964 (1.94%)
Parkinson's disease ⁶	971 (0.15%)	71 (0.08%)	187 (0.13%)	539 (0.18%)	174 (0.17%)

¹ Inpatient DVT only.

² "Gallbladder disease" includes self-reports of both hospitalized and non-hospitalized events.

³ Data not collected for the WHI Extension Studies 2005-2020.

⁴ These outcomes have not been self-reported on all versions of Form 33 during WHI follow-up. The annualized percentages are corrected for the different amounts of follow-up.

⁵ Data only collected during the WHI Extension Study 2010-2020.

⁶ Data only collected during the WHI Extension Studies 2005-2020.

Table 4.3 (continued)
Counts (Annualized Percentages) of Participants with Self-Reported Outcomes by Age at Enrollment and Race/Ethnicity for CT Participants Who Did Not Report a Prevalent Condition at Baseline

Data as of: February 28, 2017; Events through February 28, 2017

Outcomes	Race/Ethnicity					
	Am Indian/ Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/ Latina	White	Unknown
Number randomized	292	1519	6983	2875	55525	938
Mean follow-up (months)	166.9	177.1	170.0	158.9	189.6	171.6
Hospitalizations						
Ever	201 (4.95%)	854 (3.81%)	4754 (4.81%)	1615 (4.24%)	41861 (4.77%)	637 (4.75%)
Two or more	150 (3.69%)	506 (2.26%)	3345 (3.38%)	996 (2.62%)	30765 (3.51%)	424 (3.16%)
Other						
DVT ¹	7 (0.18%)	10 (0.04%)	213 (0.22%)	36 (0.10%)	1567 (0.18%)	20 (0.15%)
Pulmonary embolism	7 (0.17%)	6 (0.03%)	143 (0.15%)	23 (0.06%)	1242 (0.14%)	14 (0.10%)
Diabetes (treated)	51 (1.37%)	277 (1.31%)	1529 (1.73%)	571 (1.59%)	8232 (0.97%)	163 (1.29%)
Gallbladder disease ^{2,3}	22 (1.31%)	86 (0.81%)	420 (0.85%)	243 (1.45%)	4403 (1.18%)	74 (1.20%)
Hysterectomy	8 (0.45%)	52 (0.36%)	233 (0.54%)	124 (0.58%)	3018 (0.57%)	33 (0.42%)
Glaucoma ³	40 (1.85%)	153 (1.35%)	1005 (1.96%)	338 (1.59%)	5930 (1.37%)	99 (1.47%)
Osteoporosis ³	66 (3.04%)	389 (3.49%)	909 (1.71%)	639 (3.12%)	12483 (2.96%)	209 (3.11%)
Osteoarthritis ⁴	95 (3.73%)	519 (3.14%)	2036 (3.31%)	972 (3.62%)	18056 (3.22%)	314 (3.60%)
Rheumatoid arthritis ³	32 (1.55%)	74 (0.66%)	682 (1.33%)	357 (1.70%)	2787 (0.65%)	77 (1.13%)
Intestinal polyps	80 (2.13%)	355 (1.73%)	1860 (2.02%)	622 (1.71%)	14541 (1.78%)	232 (1.88%)
Lupus	8 (0.20%)	16 (0.07%)	143 (0.15%)	54 (0.14%)	870 (0.10%)	15 (0.11%)
Kidney stones ^{3,4}	15 (0.71%)	47 (0.42%)	190 (0.35%)	100 (0.48%)	1501 (0.35%)	24 (0.35%)
Cataracts ^{3,4}	92 (4.68%)	428 (4.21%)	2002 (4.10%)	828 (4.10%)	17928 (4.62%)	293 (4.72%)
Hypertension treated w/pills	105 (3.86%)	554 (3.58%)	2247 (4.46%)	1139 (3.98%)	22284 (3.44%)	325 (3.53%)
COPD ⁵	19 (1.33%)	35 (0.43%)	258 (0.73%)	97 (0.65%)	2994 (1.03%)	40 (0.82%)
Macular degeneration ⁶	27 (0.99%)	102 (0.72%)	391 (0.63%)	201 (0.80%)	7210 (1.36%)	74 (0.85%)
Alzheimer's disease ⁶	22 (0.81%)	93 (0.65%)	509 (0.82%)	199 (0.80%)	5094 (0.96%)	63 (0.72%)
Parkinson's disease ⁶	3 (0.11%)	17 (0.12%)	64 (0.10%)	28 (0.11%)	847 (0.16%)	12 (0.14%)

¹ Inpatient DVT only.

² "Gallbladder disease" includes self-reports of both hospitalized and non-hospitalized events.

³ Data not collected for the WHI Extension Studies 2005-2020.

⁴ These outcomes have not been self-reported on all versions of Form 33 during WHI follow-up. The annualized percentages are corrected for the different amounts of follow-up.

⁵ Data only collected during the WHI Extension Study 2010-2020.

⁶ Data only collected during the WHI Extension Studies 2005-2020.

Table 4.4
Counts (Annualized Percentages) of Participants with Self-Reported Outcomes by Age at Enrollment and Race/Ethnicity for OS Participants Who Did Not Report a Prevalent Condition at Baseline

Data as of: February 28, 2017; Events through February 28, 2017

Outcome	Total	Age at Enrollment			
		50-54	55-59	60-69	70-79
Number enrolled	93676	12381	17329	41200	22766
Mean follow-up (months)	172.0	191.6	189.6	173.9	144.7
Hospitalizations					
Ever	64473 (4.80%)	6783 (3.43%)	10739 (3.92%)	29471 (4.93%)	17480 (6.37%)
Two or more	44491 (3.31%)	4083 (2.07%)	6966 (2.54%)	20737 (3.47%)	12705 (4.63%)
Other					
DVT ¹	1840 (0.14%)	147 (0.08%)	243 (0.09%)	902 (0.16%)	548 (0.21%)
Pulmonary embolism	1528 (0.11%)	147 (0.07%)	255 (0.09%)	742 (0.13%)	384 (0.14%)
Diabetes (treated)	11456 (0.88%)	1621 (0.84%)	2304 (0.86%)	5275 (0.91%)	2256 (0.85%)
Gallbladder disease ^{2,3}	5652 (0.95%)	832 (0.96%)	1141 (0.98%)	2534 (0.99%)	1145 (0.85%)
Hysterectomy	4733 (0.35%)	735 (0.37%)	1097 (0.40%)	2143 (0.36%)	758 (0.28%)
Glaucoma ³	8454 (1.26%)	843 (0.88%)	1364 (1.04%)	3886 (1.32%)	2361 (1.56%)
Osteoporosis ³	20669 (3.20%)	2090 (2.21%)	3364 (2.62%)	9502 (3.38%)	5713 (4.01%)
Osteoarthritis ⁴	26415 (3.34%)	4076 (2.85%)	5558 (3.09%)	11662 (3.49%)	5119 (3.88%)
Rheumatoid arthritis ³	4572 (0.68%)	634 (0.67%)	877 (0.68%)	1880 (0.64%)	1181 (0.76%)
Intestinal polyps	21600 (1.77%)	3248 (1.72%)	4770 (1.86%)	9746 (1.82%)	3836 (1.62%)
Lupus	1514 (0.11%)	213 (0.11%)	291 (0.11%)	686 (0.12%)	324 (0.12%)
Kidney stones ^{3,4}	2317 (0.34%)	292 (0.31%)	433 (0.33%)	994 (0.34%)	598 (0.38%)
Cataracts ^{3,4}	27103 (4.66%)	1726 (1.81%)	4088 (3.20%)	14045 (5.47%)	7244 (7.14%)
Hypertension treated w/pills	32999 (3.36%)	4349 (2.63%)	6349 (2.93%)	14833 (3.50%)	7468 (4.23%)
COPD ⁵	3996 (0.83%)	460 (0.67%)	773 (0.82%)	2080 (0.98%)	683 (0.68%)
Macular degeneration ⁶	10493 (1.17%)	719 (0.55%)	1398 (0.77%)	5162 (1.30%)	3214 (1.76%)
Alzheimer's disease ⁶	7513 (0.84%)	306 (0.23%)	679 (0.38%)	3725 (0.94%)	2803 (1.54%)
Parkinson's disease ⁶	1400 (0.16%)	96 (0.07%)	198 (0.11%)	782 (0.20%)	324 (0.18%)

¹ Inpatient DVT only.

² "Gallbladder disease" includes self-reports of both hospitalized and non-hospitalized events.

³ Data not collected for the WHI Extension Studies 2005-2020.

⁴ These outcomes have not been self-reported on all versions of Form 33. The annualized percentages are corrected for the different amounts of follow-up.

⁵ Data only collected during the WHI Extension Study 2010-2020.

⁶ Data only collected during the WHI Extension Studies 2005-2020.

Table 4.4 (continued)
Counts (Annualized Percentages) of Participants with Self-Reported Outcomes by Age at Enrollment and Race/Ethnicity for OS Participants Who Did Not Report a Prevalent Condition at Baseline

Data as of: February 28, 2017; Events through February 28, 2017

Outcomes	Race/Ethnicity					
	American Indian/ Alaskan Native	Asian/Pacific Islander	Black/African American	Hispanic/ Latina	White	Unknown
Number enrolled	421	2671	7635	3609	78016	1324
Mean follow-up (months)	144.9	146.3	139.8	134.9	178.2	156.1
Hospitalizations						
Ever	273 (5.37%)	1185 (3.64%)	4551 (5.12%)	1747 (4.31%)	55890 (4.82%)	827 (4.80%)
Two or more	190 (3.74%)	622 (1.91%)	2860 (3.22%)	1015 (2.50%)	39241 (3.39%)	563 (3.27%)
Other						
DVT ¹	7 (0.15%)	13 (0.04%)	159 (0.18%)	29 (0.07%)	1611 (0.14%)	21 (0.13%)
Pulmonary embolism	4 (0.08%)	11 (0.03%)	104 (0.12%)	18 (0.04%)	1377 (0.12%)	14 (0.08%)
Diabetes (treated)	77 (1.72%)	316 (1.01%)	1244 (1.56%)	520 (1.36%)	9117 (0.81%)	182 (1.10%)
Gallbladder disease ^{2,3}	31 (1.32%)	81 (0.46%)	374 (0.78%)	230 (1.18%)	4860 (0.97%)	76 (0.94%)
Hysterectomy	11 (0.22%)	79 (0.24%)	172 (0.19%)	139 (0.34%)	4262 (0.37%)	70 (0.41%)
Glaucoma ³	45 (1.64%)	253 (1.36%)	987 (1.98%)	308 (1.31%)	6739 (1.18%)	122 (1.32%)
Osteoporosis ³	90 (3.30%)	625 (3.50%)	1069 (2.06%)	735 (3.21%)	17827 (3.29%)	323 (3.64%)
Osteoarthritis ⁴	97 (3.43%)	765 (3.31%)	1851 (3.56%)	1010 (3.80%)	22317 (3.31%)	375 (3.53%)
Rheumatoid arthritis ³	38 (1.39%)	98 (0.53%)	661 (1.33%)	382 (1.65%)	3307 (0.58%)	86 (0.95%)
Intestinal polyps	74 (1.60%)	484 (1.66%)	1579 (1.94%)	641 (1.69%)	18557 (1.77%)	265 (1.72%)
Lupus	10 (0.20%)	25 (0.08%)	142 (0.16%)	72 (0.18%)	1245 (0.11%)	20 (0.12%)
Kidney stones ^{3,4}	17 (0.61%)	40 (0.21%)	263 (0.50%)	125 (0.53%)	1828 (0.32%)	44 (0.47%)
Cataracts ^{3,4}	102 (4.21%)	683 (4.33%)	1937 (4.26%)	894 (4.11%)	23094 (4.73%)	393 (5.02%)
Hypertension treated w/pills	136 (4.07%)	797 (3.43%)	2085 (4.67%)	1165 (3.76%)	28348 (3.27%)	468 (3.77%)
COPD ⁵	18 (0.88%)	39 (0.27%)	212 (0.55%)	81 (0.43%)	3604 (0.90%)	42 (0.63%)
Macular degeneration ⁶	29 (0.74%)	144 (0.56%)	338 (0.48%)	219 (0.65%)	9644 (1.28%)	119 (0.97%)
Alzheimer's disease ⁶	26 (0.67%)	111 (0.43%)	389 (0.56%)	164 (0.49%)	6720 (0.89%)	103 (0.84%)
Parkinson's disease ⁶	6 (0.15%)	17 (0.07%)	70 (0.10%)	29 (0.09%)	1259 (0.17%)	19 (0.15%)

¹ Inpatient DVT only.

² "Gallbladder disease" includes self-reports of both hospitalized and non-hospitalized events.

³ Data not collected for the WHI Extension Studies 2005-2020.

⁴ These outcomes have not been self-reported on all versions of Form 33. The annualized percentages are corrected for the different amounts of follow-up.

⁵ Data only collected during the WHI Extension Study 2010-2020.

⁶ Data only collected during the WHI Extension Studies 2005-2020.

Table 4.5
Self Reported Fractures (Annualized Percentages): MRC and SRC Super Cohort Participants

Data as of: February 28, 2017; Events through February 28, 2017

	MRC Super Cohort	SRC Super Cohort
Number of participants	44174	117634
Mean follow-up time (months)	167.8	181.8
Elbow	617 (0.10%)	2107 (0.12%)
Foot	1847 (0.30%)	6752 (0.38%)
Hand	564 (0.09%)	1804 (0.10%)
Hip	1436 (0.23%)	5236 (0.29%)
Knee	990 (0.16%)	2865 (0.16%)
Lower arm	2973 (0.48%)	9549 (0.54%)
Lower leg	2244 (0.36%)	7082 (0.40%)
Pelvis	684 (0.11%)	3057 (0.17%)
Tailbone	243 (0.04%)	1008 (0.06%)
Upper arm	1708 (0.28%)	5521 (0.31%)
Upper leg	589 (0.10%)	2258 (0.13%)
Spine	1758 (0.28%)	7370 (0.41%)
Other	4144 (0.67%)	14768 (0.83%)
Any fracture	13039 (2.11%)	43857 (2.46%)

Table 4.6
Self Reported Fractures (Annualized Percentages): CT and OS Participants

Data as of: February 28, 2017; Events through February 28, 2017

	CT	OS	Total
Number of participants	68132	93676	161808
Mean follow-up time (months)	185.7	172.4	178.0
Elbow	1160 (0.11%)	1564 (0.12%)	2724 (0.11%)
Foot	3772 (0.36%)	4827 (0.36%)	8599 (0.36%)
Hand	1094 (0.10%)	1274 (0.09%)	2368 (0.10%)
Hip	2801 (0.27%)	3871 (0.29%)	6672 (0.28%)
Knee	1660 (0.16%)	2195 (0.16%)	3855 (0.16%)
Lower arm	5518 (0.52%)	7004 (0.52%)	12522 (0.52%)
Lower leg	4183 (0.40%)	5143 (0.38%)	9326 (0.39%)
Pelvis	1458 (0.14%)	2283 (0.17%)	3741 (0.16%)
Tailbone	503 (0.05%)	748 (0.06%)	1251 (0.05%)
Upper arm	3254 (0.31%)	3975 (0.30%)	7229 (0.30%)
Upper leg	1196 (0.11%)	1651 (0.12%)	2847 (0.12%)
Spine	3762 (0.36%)	5366 (0.40%)	9128 (0.38%)
Other	8213 (0.78%)	10699 (0.79%)	18912 (0.79%)
Any fracture	24656 (2.34%)	32240 (2.40%)	56896 (2.37%)

Table 5.1
Agreement of the Central Adjudications with Self-Reports for Outcomes Reported in Extension Study 2010-2020

Data as of: February 28, 2017

	Participants with a self-report ¹	Closed N %	Confirmed N (%) ³	Denied – related outcome found ² N (%) ³	Denied – unrelated outcome found ² N (%) ³	Denied – no outcome found ² N (%) ³	Administrative denials N (%) ³
Cardiovascular							
Clinical MI	467	459 98%	283 (62%)	97 (21%)	7 (2%)	72 (16%)	0 (0%)
CABG	164	163 99%	116 (71%)	38 (23%)	3 (2%)	6 (4%)	0 (0%)
PTCA	508	497 98%	333 (67%)	97 (20%)	6 (1%)	60 (12%)	1 (0%)
Carotid artery disease	148	146 99%	77 (53%)	50 (34%)	1 (1%)	18 (12%)	0 (0%)
Stroke	876	856 98%	564 (66%)	87 (10%)	0 (0%)	201 (23%)	4 (0%)
PVD	209	204 98%	85 (42%)	40 (20%)	21 (10%)	58 (28%)	0 (0%)
DVT	538	521 97%	289 (55%)	28 (5%)	97 (19%)	107 (21%)	0 (0%)
Pulmonary embolism	293	285 97%	236 (83%)	11 (4%)	15 (5%)	23 (8%)	0 (0%)
Atrial fibrillation	1555	1533 99%	822 (54%)	208 (14%)	14 (1%)	489 (32%)	0 (0%)
Valvular heart disease	306	304 99%	220 (72%)	53 (17%)	1 (0%)	30 (10%)	0 (0%)
Cancers							
Breast cancer	2414	2388 99%	2333 (98%)	12 (1%)	0 (0%)	43 (2%)	0 (0%)
Ovarian cancer	272	268 99%	176 (66%)	68 (25%)	10 (4%)	14 (5%)	0 (0%)
Endometrial cancer	389	386 99%	300 (78%)	75 (19%)	4 (1%)	7 (2%)	0 (0%)
Cervical cancer	57	56 98%	15 (27%)	30 (54%)	3 (5%)	8 (14%)	0 (0%)
Colorectal cancer	663	655 99%	552 (84%)	64 (10%)	2 (0%)	36 (5%)	1 (0%)
Bladder cancer	283	280 99%	244 (87%)	26 (9%)	1 (0%)	9 (3%)	0 (0%)
Brain cancer	99	96 97%	32 (33%)	36 (38%)	5 (5%)	23 (24%)	0 (0%)
Esophagus cancer	52	52 100%	32 (62%)	11 (21%)	0 (0%)	9 (17%)	0 (0%)
Gallbladder/bile duct cancer	58	58 100%	23 (40%)	29 (50%)	2 (3%)	4 (7%)	0 (0%)
Kidney cancer	217	216 >99%	127 (59%)	58 (27%)	4 (2%)	27 (13%)	0 (0%)
Leukemia	238	236 99%	183 (78%)	19 (8%)	3 (1%)	31 (13%)	0 (0%)
Liver cancer	194	189 97%	39 (21%)	106 (56%)	11 (6%)	33 (17%)	0 (0%)
Lung cancer	872	859 99%	710 (83%)	74 (9%)	9 (1%)	66 (8%)	0 (0%)
Lymphoma/Hodgkin's	346	343 99%	271 (79%)	48 (14%)	8 (2%)	16 (5%)	0 (0%)
Melanoma	960	948 99%	706 (74%)	34 (4%)	6 (1%)	202 (21%)	0 (0%)
Multiple myeloma	140	138 99%	117 (85%)	9 (7%)	0 (0%)	12 (9%)	0 (0%)
Pancreas cancer	281	276 98%	228 (83%)	27 (10%)	1 (0%)	20 (7%)	0 (0%)
Stomach cancer	99	98 99%	40 (41%)	38 (39%)	1 (1%)	19 (19%)	0 (0%)

¹ Excludes duplicates and prior conditions.² All cardiovascular outcomes are considered related, all cancers are considered related and all fractures are considered related.³ Percentages between parentheses are relative to "closed."

Table 5.1 (continued)
Agreement of the Central Adjudications with Self-Reports for Outcomes Reported in Extension Study 2010-2020

Data as of: February 28, 2017

	Participants with a self-report ¹	Closed		Confirmed		Denied – related outcome found ²		Denied – unrelated outcome found		Denied – no outcome found		Administrative denials	
		N	%	N	(%) ³	N	(%) ³	N	(%) ³	N	(%) ³	N	(%) ³
Thyroid cancer	131	131	100%	104	(79%)	9	(7%)	1	(1%)	17	(13%)	0	(0%)
Other genital organ cancer	91	90	99%	9	(10%)	72	(80%)	5	(6%)	4	(4%)	0	(0%)
Other cancer ⁴	593	580	98%	274	(47%)	127	(22%)	24	(4%)	155	(27%)	0	(0%)
Fractures													
Hip fracture	447	439	98%	370	(84%)	0	(0%)	0	(0%)	69	(16%)	0	(0%)
Upper leg fracture ⁵	250	237	95%	0	(0%)	97	(41%)	27	(11%)	112	(47%)	1	(0%)

¹ Excludes duplicates and prior conditions.

² All cardiovascular outcomes are considered related, all cancers are considered related and all fractures are considered related.

³ Percentages between parentheses are relative to “closed.”

⁴ Any cancer other than those listed above, excluding non-melanoma skin cancer.

⁵ Upper leg fractures are only investigated for possible occurrence of hip fracture.

Table 5.2
Agreement of the UNC Heart Failure (HF) Adjudications with Self-Reports among MRC Super Cohort Participants

Data as of: February 28, 2017

	Potential Case ¹	Case Eligible for UNC ²		Case Sent to UNC ²		Case Confirmed ³		Case Denied ⁵		Case Unclassifiable ⁵	
		N	%	N	(%) ⁴	N	(%) ⁵	N	(%) ⁵	N	(%) ⁵
Overall	7401	6870	93%	6588	(96%)	5303	(80%)	861	(13%)	418	(6%)
By Self Report											
Self-reported HF	3273	2781	85%	2574	(93%)	2253	(88%)	236	(9%)	82	(3%)
No HF self-report	4128	4089	99%	4014	(98%)	3050	(76%)	625	(16%)	336	(8%)

¹ Includes all self-reported or discovered heart failure cases and a portion of self reported angina or other heart condition cases with 2 or more essential documents among MRC Super Cohort participants.

² Cases are eligible if they self-reported HF, or if not, were forwarded by another outcomes committee for possible HF; cases are sent to UNC when all required records have been received.

³ Diagnosis was either definite or probable decompensated heart failure, or chronic stable heart failure.

⁴ Percentages are relative to "Case Eligible for UNC".

⁵ Percentages are relative to "Case Sent to UNC"

Table 5.3

Source of Outcomes Identified by Central Adjudications for Outcomes Reported in Extension Study 2010-2020

Data as of: February 28, 2017

	Centrally confirmed N	Reason for central investigation					
		Self-report same outcome		Self-report related outcome ¹		Self-report unrelated outcome ²	
		N	%	N	%	N	%
Cardiovascular							
Clinical MI	552	285	52%	199	36%	68	12%
CABG	126	116	92%	9	7%	1	1%
PTCA	370	335	91%	31	8%	4	1%
Carotid artery disease	70	58	83%	7	10%	5	7%
Stroke	632	565	89%	19	3%	48	8%
PVD	136	86	63%	20	15%	30	22%
DVT	381	291	76%	29	8%	61	16%
Pulmonary embolism	299	229	77%	24	8%	46	15%
Atrial fibrillation	1233	780	63%	223	18%	230	19%
Valvular heart disease	342	202	59%	118	35%	22	6%
Cancers							
Breast cancer	2358	2334	99%	16	1%	8	<1%
Ovarian cancer	184	176	96%	7	4%	1	1%
Endometrial cancer	327	300	92%	26	8%	1	<1%
Cervical cancer	18	15	83%	2	11%	1	6%
Colorectal cancer	576	548	95%	19	3%	9	2%
Bladder cancer	252	241	96%	9	4%	2	1%
Brain Cancer	32	32	100%	0	0%	0	0%
Kidney cancer	135	129	96%	3	2%	3	2%
Leukemia	211	183	87%	23	11%	5	2%
Liver cancer	48	39	81%	8	17%	1	2%
Lung cancer	747	712	95%	22	3%	13	2%
Lymphoma/Hodgkin's	367	271	74%	92	25%	4	1%
Melanoma	718	707	98%	10	1%	1	<1%
Multiple myeloma	134	117	87%	16	12%	1	1%
Pancreas cancer	238	229	96%	6	3%	3	1%
Thyroid cancer	104	104	100%	0	0%	0	0%
Fractures							
Hip fracture	469	369	79%	91	19%	9	2%

¹ All cardiovascular outcomes are considered related, all cancers are considered related and all fractures are considered related.² Includes self-report of hospitalizations.

Table 6.1
Consent Status for Long Life Study Participants¹

Data as of: September 20, 2013

	N	(%)
Number eligible	14081	
Phase 1: Age 72-79	9930	(70.5%)
Phase 2: Age 63-72	2651	(18.8%)
Phase 3: Age 64-98	1500	(10.7%)
Consented	9246	(65.7%) ²
Completed visit 2012-2013	7875	(85.2%) ³
Age at visit		
63-69	723	(9.2%)
70-79	3052	(38.8%)
80-89	3688	(46.8%)
≥90	412	(5.2%)
Race/ethnicity		
White	3910	(49.7%)
Black	2651	(33.7%)
Hispanic	1314	(16.7%)
Blood draw	7475	(94.9%) ⁴

¹ Long Life Study participants are a subset of the Medical Records Cohort.

² Percentage of eligible.

³ Percentage of consented.

⁴ Percentage of completed visit.

Table 6.2
Verified Outcomes After LLS Blood Draw by Age at Visit for Long Life Study (LLS) Participants
 Data as of: February 28, 2017; Events through February 28, 2017

Outcomes	Total	Age at Visit			
		63-69	70-79	80-89	≥ 90
Number enrolled	7875	723	3052	3688	412
Cardiovascular					
CHD ¹	205	9	40	130	26
CHD death ²	102	2	13	68	19
Clinical MI	154	8	35	95	16
CABG/PTCA	114	7	36	66	5
Carotid artery disease	15	0	4	10	1
Heart failure, UNC	217	5	45	143	24
Stroke	171	6	45	102	18
PVD	37	0	8	25	4
DVT	116	8	38	61	9
Pulmonary embolism	84	5	30	45	4
Coronary disease	327	14	72	207	34
DVT/PE	163	12	57	84	10
Aortic aneurysm	12	1	4	6	1
Atrial fibrillation	316	6	52	218	40
Valvular heart disease	87	2	15	58	12
Total cardiovascular disease	496	19	119	305	53
Cancer					
Breast cancer	114	9	62	42	1
Invasive breast cancer	102	6	56	38	2
Non-invasive breast cancer	16	4	8	4	0
Ovarian cancer	13	0	7	6	0
Endometrial cancer	10	0	5	5	0
Colorectal cancer	45	2	13	28	2
Other cancer ³	214	10	68	122	14
Total cancer	351	21	138	177	15
Fractures					
Hip fracture	153	1	19	108	25
Deaths					
Cardiovascular deaths	262	6	32	172	52
Cancer deaths	145	5	37	91	12
Other known cause	230	4	34	157	35
Unknown cause	15	0	2	7	6
Not yet adjudicated	132	4	27	87	14
Total death	784	19	132	514	119

¹ CHD includes clinical MI and CHD death.

² CHD death includes definite and possible CHD death.

³ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin cancer.

Table 6.3
Verified Outcomes After LLS Blood Draw by Race/Ethnicity for Long Life Study (LLS) Participants

Data as of: February 28, 2017; Events through February 28, 2017

Outcomes	Race/Ethnicity		
	Black/African American	Hispanic/Latina	White
Number enrolled	2651	1314	3910
Cardiovascular			
CHD ¹	43	19	143
CHD death ²	20	5	77
Clinical MI	33	17	104
CABG/PTCA	24	11	79
Carotid artery disease	6	0	9
Heart failure, UNC	49	17	151
Stroke	49	22	100
PVD	12	3	22
DVT	41	12	63
Pulmonary embolism	37	6	41
Coronary disease	70	29	228
DVT/PE	65	17	81
Aortic aneurysm	7	0	5
Atrial fibrillation	35	28	253
Valvular heart disease	7	9	71
Total cardiovascular disease	129	52	315
Cancer			
Breast cancer	43	19	52
Invasive breast cancer	35	19	48
Non-invasive breast cancer	10	1	5
Ovarian cancer	4	4	5
Endometrial cancer	3	2	5
Colorectal cancer	9	4	32
Other cancer ³	54	34	126
Total cancer	102	58	191
Fractures			
Hip fracture	16	12	125
Deaths			
Cardiovascular deaths	56	14	192
Cancer deaths	37	16	92
Other known cause	42	21	167
Unknown cause	3	1	11
Not yet adjudicated	41	7	84
Total death	179	59	546

¹ CHD includes clinical MI and CHD death.

² CHD death includes definite and possible CHD death.

³ Only one report of "other cancer" is counted per woman; however, the first of each type is adjudicated. Excludes non-melanoma skin cancer.

Table 6.4
Self-Reported Outcomes After LLS Blood Draw by Age at Visit and Race/Ethnicity
for Long Life Study (LLS) Participants Who Did Not Report a Prevalent Condition at Baseline

Data as of: February 28, 2017; Events through February 28, 2017

Outcome	Total	Age at Visit			
		63-69	70-79	80-89	≥ 90
Number randomized	7875	723	3052	3688	412
Angina	313	22	96	176	19
Diabetes (treated)	401	37	173	176	15
Hysterectomy	65	9	38	18	0
Osteoarthritis	518	57	230	204	27
Intestinal polyps	326	55	180	88	3
Lupus	23	3	11	9	0
Pills for hypertension	367	48	127	175	17
COPD	464	31	171	246	16
Macular degeneration	673	25	183	413	52
Alzheimer's disease	571	13	127	370	61
Parkinson's disease	58	5	25	25	3

Outcome	Race/Ethnicity		
	Black/African American	Hispanic/Latina	White
Number randomized	2651	1314	3910
Angina	98	41	174
Diabetes (treated)	138	68	195
Hysterectomy	23	14	28
Osteoarthritis	180	88	250
Intestinal polyps	133	80	113
Lupus	5	6	12
Pills for hypertension	72	78	217
COPD	145	67	252
Macular degeneration	141	100	432
Alzheimer's disease	138	71	362
Parkinson's disease	22	11	25

Table 7.1
WHI Manuscript Stages through February 2017

Stage #	Definition	Number
12*	Published	1478
11	In press / accepted by journal	13
10	Submitted to journal	40
9	Final manuscript approved by P&P Committee	146
8	Final manuscript submitted to P&P Committee	26
7	Draft manuscript	25
6	Analysis completed	38
5	Analysis in progress	58
4	Analysis proposed	5
3	Manuscript proposal and writing group approved	637
2	Approved/Writing group nominations open	169
Total		2635

*Only Stage 12 papers published between October 2016 and February 2017 are included in Table 7.2

Table 7.2
Publications October 2016 - February 2017

MS#	Title	Authors	Focus	Reference	Study #
304	No increase in fractures after stopping hormone therapy: results from the Women's Health Initiative	Watts, Cauley, Jackson, LaCroix, Lewis, Manson, Neuner, Phillips, Stefanick, Wactawski-Wende, Crandall	Gen	J Clin Endocrinol Metab. 2016 Nov 7:jc20163270. [Epub ahead of print]	
947	Weight fluctuation and cancer risk in post-menopausal women: The Women's Health Initiative	Welti, Beavers, Caan, Sangi-Haghpeykar, Vitolins, Beavers	Gen	Cancer Epidemiol Biomarkers Prev. 2017 Jan 9. pii: cebp.0611.2016. doi: 10.1158/1055-9965.EPI-16-0611. [Epub ahead of print]	
960	Body mass index, waist circumference, and mortality in a large multiethnic cohort-results from the Women's Health Initiative	Chen, Klimentidis, Bea, Ernst, Hu, Jackson, Thomson	Gen	J Am Geriatr Soc. 2017 Feb 23. doi: 10.1111/jgs.14790. [Epub ahead of print]	AS153
1175	Leukocyte telomere length, genetic variants at the TERT gene region and risk of pancreatic cancer	Bao, Prescott, Yuan, Zhang, Kraft, Babic, Morales-Oyarvide, Qian, Buring, Cochrane, Gaziano, Giovannucci, Manson, Ng, Ogino, Rohan, et al.	OS	Gut. 2016 Oct 21. pii: gutjnl-2016-312510. doi: 10.1136/gutjnl-2016-312510. [Epub ahead of print]	AS214
1200	Genome-wide trans-ethnic meta-analysis identifies seven genetic loci influencing erythrocyte traits and a role for RBPMS in erythropoiesis	van Rooij, Qayyum, Smith, Zhou, Trompet, Tanaka, Keller, Chang, Schmidt, Yang, Schick, Snively, Chen, Kooperberg, Reiner	Gen	Am J Hum Genet. 2016 Dec 19. pii: S0002-9297(16)30520-1. doi: 10.1016/j.ajhg.2016.11.016. [Epub ahead of print]	M5
1222	Reproductive and menstrual factors and colorectal cancer incidence in the Women's Health Initiative Observational Study	Murphy, Xu, Zervoudakis, Xue, Kabat, Rohan, Wassertheil-Smoller, O'Sullivan, Thomson, Messina, Strickler, Gunter	OS	Br J Cancer. 2016 Nov 29. doi: 10.1038/bjc.2016.345. [Epub ahead of print]	
1407	Pancreatic cancer risk associated with prediagnostic plasma levels of leptin and leptin receptor genetic polymorphisms	Babic, Bao, Qian, Giovannucci, Aschard, Kraft, Amundadottir, Stolzenberg-Solomon, Morales-Oyarvide, Lee, Stampfer, Ogino, Buring, Sesso, Gaziano, Rifai, et al.	OS	Cancer Res. 2016 Dec 15;76(24):7160-7167	AS214
1422	Sex steroid hormones and fracture in a multi-ethnic cohort of women: The Women's Health Initiative Study (WHI)	Cauley, Danielson, Jammy, Bauer, Jackson, Wactawski-Wende, Chlebowski, Ensrud, Boudreau	OS	J Clin Endocrinol Metab. 2017 Jan 25. doi: 10.1210/jc.2016-3589. [Epub ahead of print]	BAA9

Table 7.2
Publications October 2016 - February 2017

MS#	Title	Authors	Focus	Reference	Study #
1488	Changes in physical activity, sedentary time, and risk of falling: the Women's Health Initiative Observational Study	Bea, Thomson, Wallace, Wu, Seguin, Going, LaCroix, Eaton, Ockene, LaMonte, Jackson, Mysiw, Wactawski-Wende	OS	Prev Med. 2016 Dec 5. pii: S0091-7435(16)30381-4. doi: 10.1016/j.ypmed.2016.11.025 . [Epub ahead of print]	
1490	Are optimism and cynical hostility associated with smoking cessation in older women?	Progovac, Chang, Chang, Matthews, Donohue, Scheier, Habermann, Kuller, Goveas, Chapman, Duberstein, Messina, Weaver, Saquib, Wallace, Kaplan, et al.	Gen	Ann Behav Med. 2017 Feb 13. doi: 10.1007/s12160-016-9873-x. [Epub ahead of print]	
1610	Fine-mapping of QT regions in global populations refines previously identified QT loci and identifies signals unique to African and Hispanic descent populations	Avery, Wassel, Richard, Highland, Bien, Zubair, Soliman, Fornage, Bielinski, Tao, Whitsel, Peters, Kooperberg, North	Gen	Heart Rhythm. 2016 Dec 14. pii: S1547-5271(16)31212-7. doi: 10.1016/j.hrthm.2016.12.021. [Epub ahead of print]	M6
1722	Genome-wide interaction analyses between genetic variants and alcohol consumption and smoking for risk of colorectal cancer	Gong, Hutter, Newcomb, Ulrich, Bien, Campbell, Baron, Berndt, Bezieau, Brenner, Du, Harrison, Jeon, Kocarnik, Lin, Potter, et al.	Gen	PLoS Genet. 2016 Oct 10;12(10):e1006296. doi: 10.1371/journal.pgen.1006296	AS224
1815	Projecting individualized absolute invasive breast cancer risk in US Hispanic women	Banegas, John, Slattery, Gomez, Yu, LaCroix, Pee, Chlebowski, Hines, Thomson, Gail	Gen	J Natl Cancer Inst. 2016 Dec 20;109(2). pii: djw215. doi: 10.1093/jnci/djw215	
1839	Venous thromboembolism incidence, recurrence, and mortality based Women's Health Initiative data and Medicare claims	Burwen, Wu, Cirillo, Rossouw, Margolis, Limacher, Wallace, Allison, Eaton, Safford, Freiberg	Gen	Thromb Res. 2016 Nov 15;150:78-85. doi: 10.1016/j.thromres.2016.11.015. [Epub ahead of print]	W35
1880	Physical activity modifies the association between dietary protein and lean mass of postmenopausal women	Martinez, Wertheim, Thomson, Bea, Wallace, Allison, Snetselaar, Chen, Nassir, Thompson	Gen	J Acad Nutr Diet. 2016 Nov 30. pii: S2212-2672(16)31217-5. doi: 10.1016/j.jand.2016.10.009. [Epub ahead of print]	
1912	Inaccurate self-report of height and its impact on misclassification of body mass index in postmenopausal women	Mai, Sperrazza, Marshall, Hovey, Wactawski-Wende	OS	Menopause. 2016 Nov 14. [Epub ahead of print]	AS98

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1925	Large-scale pharmacogenomic study of sulfonylureas and the QT, JT and QRS intervals: CHARGE Pharmacogenomics Working Group	Floyd, Sitlani, Avery, Noordam, Smith, Gogarten, Li, Broer, Evans, Trompet, Reiner, Whitsel	Gen	Pharmacogenomics J. 2016 Dec 13. doi: 10.1038/tpj.2016.90. [Epub ahead of print]	M5, W63
1997	Cross-cancer genome-wide analysis of lung, ovary, breast, prostate, and colorectal cancer reveals novel pleiotropic associations	Fehringer, Kraft, Pharoah, Eeles, Chatterjee, Schumacher, Schildkraut, Lindstrom, Brennan, Bickeboller, Prentice, Hung, Hofman, Meindl, Newcomb, White, et al.	Gen	Cancer Res. 2016 Sep 1;76(17):5103-14. doi: 10.1158/0008-5472.CAN-15-2980. Epub 2016 Apr 20	AS224
2017	Red blood cell polyunsaturated fatty acids and mortality in the Women's Health Initiative Memory Study	Harris, Luo, Pottala, Espeland, Margolis, Manson, Wang, Brasky, Robinson	CT	J Clin Lipidol. 2017 Jan - Feb;11(1):250-259.e5. doi: 10.1016/j.jacl.2016.12.013. Epub 2017 Jan 12.	BAA19
2030	The interaction between dietary fiber and fat and risk of colorectal cancer in the Women's Health Initiative	Navarro, Neuhouser, Cheng, Tinker, Shikany, Snetselaar, Martinez, Kato, Beresford, Chapkin, Lampe	Gen	Nutrients. 2016 Nov 30;8(12). pii: E779	
2036	Discovery and refinement of genetic loci associated with cardiometabolic risk using dense imputation maps.	Iotchkova, Huang, Morris, Jain, Barbieri, Walter, Min, Chen, Soranzo, Cocca, Reiner, Auer	Gen	Nat Genet. 2016 Nov;48(11):1303-1312. doi: 10.1038/ng.3668	AS224, BAA18, M13, M24, M5, W63
2048	The cross-sectional association between vasomotor symptoms and hemostatic parameter levels in postmenopausal women	Harrington, Blondon, Cushman, Kaunitz, Rossouw, Allison, Martin, Johnson, Rosing, Woods, LaCroix, Heckbert, McKnight, Smith	CT	Menopause. 2016 Dec 5. [Epub ahead of print]	W6
2064	A genome-wide interaction analysis of tricyclic/tetracyclic antidepressants and RR and QT intervals: a pharmacogenomics study from the Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) consortium	Noordam, Sitlani, Avery, Stewart, Gogarten, Wiggins, Trompet, Warren, Sun, Evans, Reiner, Thornton, Whitsel	CT	J Med Genet. 2016 Dec 30. pii: jmedgenet-2016-104112. doi: 10.1136/jmedgenet-2016-104112. [Epub ahead of print]	AS405, M13, M5, W63, W68
2078	Relationship between marital transitions, health behaviors, and health indicators of postmenopausal women: Results from the Women's Health Initiative	Kutob, Yuan, Wertheim, Sbarra, Loucks, Nassir, Bareh, Kim, Snetselaar, Thomson	OS	J Womens Health (Larchmt). 2017 Jan 10. doi: 10.1089/jwh.2016.5925. [Epub ahead of print]	AS264

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2196	Dietary inflammatory index, bone mineral density and risk of fracture in postmenopausal women: results from the Women's Health Initiative	Orchard, Yildiz, Steck, Hebert, Ma, Cauley, Li, Mossavar-Rahmani, Johnson, Sattari, LeBoff, Wactawski-Wende, Jackson	Gen	J Bone Miner Res. 2016 Dec 26. doi: 10.1002/jbmr.3070. [Epub ahead of print]	
2240	Factors associated with new-onset depression following ischemic stroke: the Women's Health Initiative	Salinas, Ray, Nassir, Lakshminarayan, Dording, Smoller, Wassertheil-Smoller, Rosand, Dunn	Gen	J Am Heart Assoc. 2017 Feb 1;6(2). pii: e003828. doi: 10.1161/JAHA.116.003828	
2242	Body mass index, waist circumference, diabetes and risk of primary liver cancer for U.S. men and women: the Liver Cancer Pooling Project	Campbell, Newton, Freedman, Koshiol, Alavanja, Ijioma, Buring, Chan, Chong, Datta, Gaudet, Gaziano, Giovannucci, Graubard, Hollenbeck, King, et al.		Cancer Res. 2016 Oct 15;76(20):6076-6083	AS296
2243	Sickle cell trait is not associated with an increased risk of heart failure or abnormalities of cardiac structure and function	Bello, Hyacinth, Roetker, Seals, Naik, Derebail, Kshirsagar, Key, Wilson, Correa, Adams, Egede, Longstreth, Choudhary, Gee, Hughes, et al.	Gen	Blood. 2017 Feb 9;129(6):799-801. doi: 10.1182/blood-2016-08-705541. Epub 2016 Dec 8	M24, M5
2247	Post-diagnosis body mass index and mortality among women diagnosed with endometrial cancer: Results from the Women's Health Initiative	Arem, Pfeiffer, Moore, Irwin, LaMonte, Sarto, Nassir, Luo, Chlebowski, Brinton, Matthews	Gen	PLoS One. 2017 Feb 2;12(2):e0171250. doi: 10.1371/journal.pone.0171250. eCollection 2017	
2298	Relationship of pre-diagnostic body mass index with survival after colorectal cancer: Stage-specific associations	Kocarnik, Chan, Slattery, Potter, Meyerhardt, Phipps, Nan, Harrison, Rohan, Qi, Hou, Caan, Kroenke, Strickler, Hayes, Schoen, et al.	Gen	Int J Cancer. 2016 Sep 1;139(5):1065-72. doi: 10.1002/ijc.30163. Epub 2016 May 14	AS224
2308	Association between dietary energy density and type 2 diabetes in the Women's Health Initiative	Hingle, Wertheim, Neuhaus, Tinker, Howard, Johnson, Liu, Phillips, Qi, Sarto, Turner, Waring, Thomson	Gen	J Acad Nutr Diet. 2017 Jan 5. pii: S2212-2672(16)31445-9. doi: 10.1016/j.jand.2016.11.010. [Epub ahead of print]	
2321	Association of genetic variation in the tachykinin receptor 3 locus with hot flashes and night sweats in the Women's Health Initiative Study	Crandall, Manson, Hohensee, Horvath, Wactawski-Wende, LeBlanc, Vitolins, Nassir, Sinsheimer	Gen	Menopause. 2016 Oct;24(3):000-000. doi: 10.1097/GME.0000000000000763	M13, M5, W63

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2328	Metabolic phenotypes of obesity: frequency, correlates, and change over time in a cohort of postmenopausal women	Kabat, Wu, Bea, Chen, Qi, Stefanick, Chlebowski, Lane, Wactawski-Wende, Wassertheil-Smoller, Rohan	Gen	Int J Obes (Lond). 2016 Oct 17. doi: 10.1038/ijo.2016.179	
2359	Risk factors for incident hospitalized heart failure with preserved versus reduced ejection fraction in a multiracial cohort of postmenopausal women	Eaton, Pettinger, Rossouw, Martin, Foraker, Quddus, Liu, Wampler, Hank Wu, Manson, Margolis, Johnson, Allison, Corbie-Smith, Rosamond, Breathett, et al.	CT	Circ Heart Fail. 2016 Oct;9(10). pii: e002883.	
2393	A prospective study of low fasting glucose with cardiovascular disease events and all-cause mortality: The Women's Health Initiative	Mongraw-Chaffin, LaCroix, Sears, Garcia, Phillips, Salmoirago-Blotcher, Zaslavsky, Anderson	OS	Metabolism. 2017 May;70:116-124. doi: 10.1016/j.metabol.2017.02.010. Epub 2017 Feb 16	
2407	Effects of calcium, vitamin D, and hormone therapy on cardiovascular disease risk factors in the Women's Health Initiative: A Randomized Controlled Trial	Schnatz, Jiang, Aragaki, Nudy, O'Sullivan, Williams, LeBlanc, Martin, Manson, Shikany, Johnson, Stefanick, Payne, Cauley, Howard, Robbins, et al.	Gen	Obstet Gynecol. 2017 Jan;129(1):121-129. doi: 10.1097/AOG.0000000000001774. Epub 2016 Dec 2	
2508	Estrogen alone and health outcomes in black women by African ancestry: a secondary analyses of a randomized controlled trial	Chlebowski, Barrington, Aragaki, Manson, Sarto, O'Sullivan, Wu, Cauley, Qi, Wallace, Prentice	CT	Menopause. 2016 Oct 3. [Epub ahead of print]	
2549	A voxel-based morphometry study reveals local brain structural alterations associated with ambient fine particles in older women	Casanova, Wang, Reyes, Akita, Serre, Vizuete, Chui, Driscoll, Resnick, Espeland, Chen	Gen	Front Hum Neurosci. 2016 Oct 13;10:495	AS233, AS252, AS39
2591	Dietary biomarker evaluation in a controlled feeding study in women from the Women's Health Initiative cohort	Lampe, Huang, Neuhaus, Tinker, Song, Schoeller, Kim, Raftery, Di, Zheng, Schwarz, Van Horn, Thomson, Mossavar-Rahmani, Beresford, Prentice, et al.	Gen	Am J Clin Nutr. 2016 Dec 28. pii: ajcn144840. doi: 10.3945/ajcn.116.144840. [Epub ahead of print]	AS498
2602	Winner's curse correction and variable thresholding improve performance of polygenic risk modeling based on summary-level data from genome-wide association study summary-level data	Shi, Park, Duan, Berndt, Moy, Vajdic, Song, Wheeler, Hua, Silverman, Hsu	Gen	PLoS Genet. 2016 Dec 30;12(12):e1006493. doi: 10.1371/journal.pgen.1006493	AS224

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2613	Age of menopause and fracture risk in postmenopausal women randomized to calcium + vitamin D, hormone therapy, or the combination: results from the Women's Health Initiative Clinical Trials	Sullivan, Nathan, Howard, Lehman, Thomson	CT	Menopause. 2016 Oct 31. [Epub ahead of print]	
2626	Smoking habits and body weight over the adult lifespan in postmenopausal women	Kabat, Heo, Allison, Johnson, Ho, Tindle, Asao, LaMonte, Giovino, Rohan	Gen	Am J Prev Med. 2016 Dec 6. pii: S0749-3797(16)30545-1. doi: 10.1016/j.amepre.2016.10.020. [Epub ahead of print]	
2644	Bioavailable insulin-like growth factor-I as mediator of racial disparity in obesity-relevant breast and colorectal cancer risk among postmenopausal	Jung, Barrington, Lane, Chen, Chlebowski, Corbie-Smith, Hou, Zhang, Paek, Crandall	OS	Menopause. 2016 Oct 3. [Epub ahead of print]	
2652	Associations of accelerometer-measured and self-reported sedentary time with leukocyte telomere length in older women	Shadyab, Macera, Shaffer, Jain, Gallo, LaMonte, Reiner, Kooperberg, Carty, Di, Manini, Hou, Aviv, LaCroix	Gen	Am J Epidemiol. 2017 Jan 18. doi: 10.1093/aje/kww196. [Epub ahead of print]	BAA25
2653	Replication study of genome-wide association study findings of longevity in white, African-American, and Hispanic women: The Women's Health Initiative	Shadyab, Kooperberg, Reiner, Jain, Manson, Hohensee, Macera, Shaffer, Gallo, LaCroix	Gen	J Gerontol A Biol Sci Med Sci. 2016 Oct 5. pii: glw198	M13, M5, W63
2654	Association of sleep disturbance and sexual function in postmenopausal women	Kling, Manson, Naughton, Temkit, Sullivan, Gower, Hale, Weitlauf, Nowakowski, Crandall	OS	Menopause. 2017 Jan 30. doi: 10.1097/GME.0000000000000824. [Epub ahead of print]	
2747	Epigenetic clock analysis of diet, exercise, education, and lifestyle factors	Quach, Levine, Tanaka, Lu, Chen, Ferrucci, Ritz, Bandinelli, Neuhauser, Beasley, Snetselaar, Wallace, Tsao, Absher, Assimes, Stewart, et al.	Gen	Aging (Albany NY). 2017 Feb 14. doi: 10.18632/aging.101168. [Epub ahead of print]	BAA23
2772	Platelet count and total and cause-specific mortality in the Women's Health Initiative	Kabat, Kim, Verma, Manson, Lin, Lessin, Wassertheil-Smoller, Rohan	Gen	Ann Epidemiol. 2017 Feb 21. pii: S1047-2797(16)30353-2. doi: 10.1016/j.annepidem.2017.02.001. [Epub ahead of print]	

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2865	Particulate air pollutants, APOE alleles and their contributions to cognitive impairment in older women and to amyloidogenesis in experimental models	Cacciottolo, Wang, Driscoll, Woodward, Saffari, Reyes, Serre, Vizuete, Sioutas, Morgan, Gatz, Chui, Shumaker, Resnick, Espeland, Finch, et al.	CT	Transl Psychiatry. 2017 Jan 31;7(1):e1022. doi: 10.1038/tp.2016.280	AS250, AS252
2886	Accounting for individualized competing mortality risks in estimating postmenopausal breast cancer risk	Schonberg, Li, Eliassen, Davis, LaCroix, McCarthy, Rosner, Chlebowski, Hankinson, Marcantonio, Ngo	Gen	Breast Cancer Res Treat. 2016 Oct 21	
2887	Association of traditional cardiovascular risk factors with venous thromboembolism: an individual participant data meta-analysis of prospective studies	Mahmoodi, Cushman, Naess, Allison, Bos, Braekkan, Cannegieter, Gansevoort, Gona, Hammerstrøm, Hansen, Heckbert, Holst, Lakoski, Lutsey, Manson, et al.	CT	Circulation. 2017 Jan 3;135(1):7-16. doi: 10.1161/CIRCULATIONAHA.116.024507. Epub 2016 Nov 9	
2893	Maternal age at childbirth and parity as predictors of longevity among women in the United States: the Women's Health Initiative	Shadyab, Macera, Shaffer, Jain, Gallo, Gass, Waring, Stefanick, LaCroix	Gen	Am J Public Health. 2016 Nov 17:e1-e7. [Epub ahead of print]	
2965	The objective physical activity and cardiovascular disease health in older women (OPACH) study	LaCroix, Rillamas-Sun, Buchner, Evenson, Di, Lee, Marshall, LaMonte, Hunt, Tinker, Stefanick, Lewis, Bellettiere, Herring	Gen	BMC Public Health. 2017 Feb 14;17(1):192. doi: 10.1186/s12889-017-4065-6	AS286
3006	The influence of genetic susceptibility and calcium plus vitamin D supplementation on fracture risk	Wang, Wactawski-Wende, Sucheston, Preus, Hovey, Nie, Jackson, Handelman, Nassir, Crandall, Ochs-Balcom	CT	Am J Clin Nutr. 2017 Feb 1. pii: ajcn144550. doi: 10.3945/ajcn.116.144550. [Epub ahead of print]	M13, W63
3057	Intentional weight loss and endometrial cancer risk	Luo, Chlebowski, Hendryx, Rohan, Wactawski-Wende, Thomson, Felix, Chen, Barrington, Coday, Stefanick, LeBlanc, Margolis	Gen	J Clin Oncol. 2017 Feb 6;JCO2016705822. doi: 10.1200/JCO.2016.70.5822. [Epub ahead of print]	
3090	Metabolic phenotype and risk of colorectal cancer in normal-weight postmenopausal women	Liang, Margolis, Hendryx, Rohan, Groessl, Thomson, Kroenke, Simon, Lane, Stefanick, Luo	Gen	Cancer Epidemiol Biomarkers Prev. 2017 Feb 1. doi: 10.1158/1055-9965.EPI-16-0761. [Epub ahead of print]	

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3165	Weight loss randomized intervention trials in women cancer survivors	Chlebowski, Reeves	N/A	J Clin Oncol. 2016 Dec 10;34(35):4238-4248. Epub 2016 Nov 7	