

Distant visual acuity was measured for each eye with a Landolt C letter at 5m. Contrast sensitivity and intraocular pressure were also examined. Fundus photographs were taken with a Topcon fundus camera (TRC-NW5S). Autorefractometry was done with the NIDEK-ARK700A. Refractive errors, in the spherical equivalent, were assessed. Corneal thickness was obtained with the Topcon SP-2000 specular microscope.

Auditory function assessed by pure-tone audiometry (Audiometer RION AA-73A), and impedance audiometry (Middle Ear Analyzer, Grason-Stadler model 33, version 2). Air conduction thresholds at 125Hz to 8000Hz were examined in all participants. Bone conduction thresholds at 250Hz to 4000Hz were examined in participants with elevation of air conduction thresholds. Middle ear function was evaluated by impedance audiometry. Inner ear function was also assessed by distortion product otoacoustic emission (DPOAE).

4. Oral examinations

Caries, periodontal index, and tongue coat were evaluated by a well-trained dentist with a dental mirror and WHO CPI probe. All teeth were classified into intact, decayed, filled, missing, or caries observation. Periodontal index (CPI score) on 10 index teeth (17/16, 11, 26/27, 36/37, 31, 46/47) were derived according to World Health Organization standard. Score of tongue coat was given by its area on the tongue dorsum. Denture use was asked by a dentist on verbal. Score of tongue wetness was determined by putting Elsalibo R on the tongue dorsum for 10 seconds. For the assessment of bite force, each subject clenched a pressure sensitive sheet (Dental Prescale R 50H, GC Co. Ltd.) as hard as they could at the intercuspal position for 3 seconds. Average bite force were determined by an image analyzer (Occuluzer R FPD703, GC Co. Ltd.).

5. Anthropometry and body composition

For anthropometry measurements, height, weight, abdominal sagittal diameter, circumferences of waist, hip, thigh and upper arm and other parameters were taken. Using ultrasonic tomography, intrabdominal and subcutaneous fat thickness and muscle thickness were evaluated. Intra- and extra-cellular fluid was measured via bioimpedance spectroscopy. Body fat was assessed by DXA. Abdominal fat distribution was evaluated as intra-abdominal and subcutaneous fat areas at the level of umbilicus using a computed tomography

6. Exercise examinations

Grip strength, leg extension power, sit-up and static balance, reaction time, and trunk flexion were measured with a computerized automatic diagnosis system. Step length, pitch, and velocity of walking were assessed by the 10m walking test using four video cameras and two force plates. Physical activities were checked by detailed interview using job-specific questionnaire sheets. Seven-day averages of physical activity were also measured with an electric pedometer.

7. Nutritional survey

Nutritional intakes were assessed by three-day dietary record using a scale. The scale was handed out to each participant to record the weight of each food taken over the recording period. If it was impossible to weigh each food, approximate size and amounts of food were noted. Dietitians explained to each participant how to weigh foods and how to determine the size and approximate amount. For more accurate assessment, disposable cameras were also handed out to all participants. Before and after each meal, participants were asked to take pictures of all dishes to record what kind of foods and how much food were eaten, and how much food was not eaten. Using these dietary records and photographs, dietitians estimate actual food intake. Dietary supplement usage was also assessed by interview by dietitians in addition to three-day dietary record.

8. Psychological test

All participants were interviewed by psychology specialists. Cognition and intelligence were assessed using the Wechsler Adult Intelligence Scale-Revised Short Form (WAIS-R-SF) in all participants and the Mini-Mental State Examination (MMSE) in participants aged 60 years and over. Life events, hassles, and stress coping were also assessed by interview. Basic ADL was checked via the Katz index.

Depressive symptoms, personality, subjective well-being, social relations, and ADL were assessed using a questionnaire.

Over 1,000 variables, including various areas of gerontology and geriatrics will be checked repeatedly every two years in almost 2,400 participants. The staff of the NLS-LSA were consisted of full time researchers, researchers from hospitals and universities, research assistants such as administrators, clinical technicians, dietitians, psychologists, and radiologists. The total number of staff was about 90.

9) Future of the NILS-LSA

We will continue the NILS-LSA to investigate the natural course of aging and the changes that lead to disease. The third wave examination was completed in May 2004. The participants will be examined every 2 years. The cohort of the NILS-LSA is a dynamic cohort, that is, new subjects participate in the study instead of those who do not attend their next examination. Participants who move out of the area are to be followed up by telephone interview or postal questionnaire. Medical records of the participants who die during follow-up will be checked to find out the cause of death.

Extensive tests and examinations should be repeated in longitudinal studies on aging. However, it is actually impossible to repeat many tests and examinations in multiple research facilities with the same protocols and methods. Thus, there are almost no comprehensive longitudinal studies on aging that have been followed up for a long period by multi-center collaboration in the U.S. or other countries.

However, cohort studies with common end points such as dementia and disturbance of ADL are also important for aging studies. For these studies, a relatively large number of subjects and cases during follow-up will be required to get significant analysis results. We are collaborating with other research facilities in Japan and other countries as shown in Fig. 6.

Comparative studies of the aging process accounting for regional and cultural differences between northern and southern areas, or between urban and rural areas, are also important. In these comparative studies, the number of common examinations and tests should be limited. The study design should be a cross-sectional or short-term longitudinal study, considering the difficulties involved continuing and repeating the examinations in all facilities with same protocols.

We are going to make the data of this study public through the Internet. We hope that the results from this large longitudinal study of aging can serve the development of health science on aging.

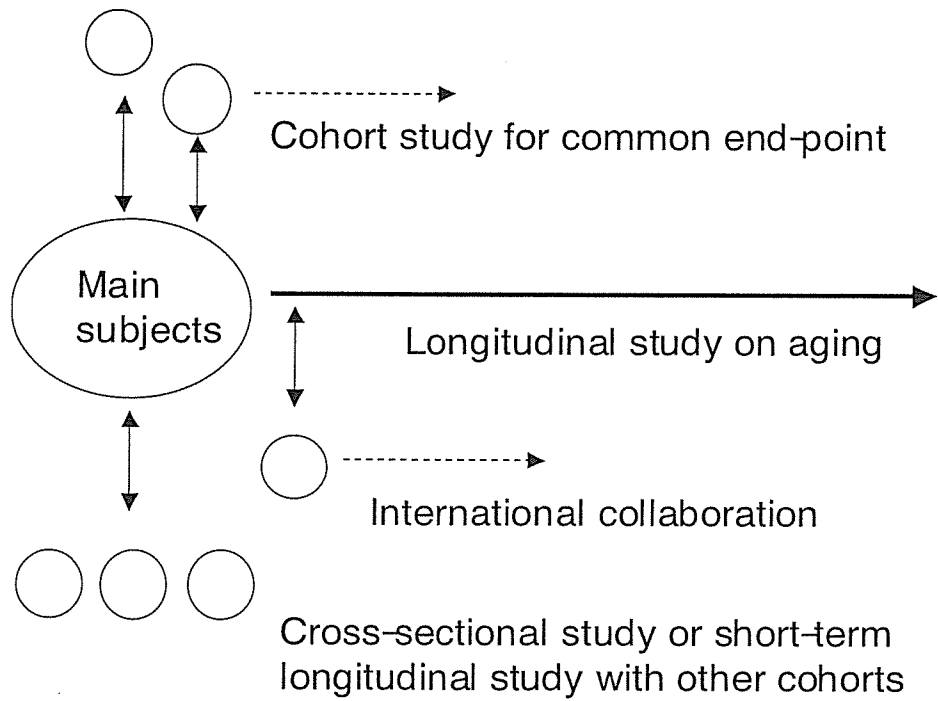


Fig. 6 Design of the longitudinal study by multi-center collaboration

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II. Background Examinations

II . Background Examinations

1. Medical history

- 1) Past and present illness
- 2) Medication for hypertension and diabetes
- 3) History of surgery
- 4) Blood transfusion and hospital admission
- 5) Bone fracture
- 6) Family history

2. Gynecology (for only women)

3. Daily life and health

- 1) Health
- 2) Smoking
- 3) Outing
- 4) Difficulty in daily activity
- 5) Pain
- 6) Change in height

4. Dental status

5. Eyesight

6. Hearing ability

7. Fall

8. Urinary disturbance

1-1. Medical history - Past and present illness

Stroke

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	285	99.7	290	98.3	284	94.7	226	88.6	44	83.0	1129	95.0
	Female	294	100.0	279	98.6	266	97.4	267	93.7	57	96.6	1163	97.4
	Total	579	99.8	569	98.4	550	96.0	493	91.3	101	90.2	2292	96.2
On medication	Male	0	0.0	2	0.7	9	3.0	18	7.1	6	11.3	35	2.9
	Female	0	0.0	1	0.4	5	1.8	11	3.9	2	3.4	19	1.6
	Total	0	0.0	3	0.5	14	2.4	29	5.4	8	7.1	54	2.3
Previously medicated	Male	1	0.3	3	1.0	5	1.7	8	3.1	2	3.8	19	1.6
	Female	0	0.0	2	0.7	2	0.7	6	2.1	0	0.0	10	0.8
	Total	1	0.2	5	0.9	7	1.2	14	2.6	2	1.8	29	1.2
Not treated	Male	0	0.0	0	0.0	2	0.7	3	1.2	1	1.9	6	0.5
	Female	0	0.0	1	0.4	0	0.0	1	0.4	0	0.0	2	0.2
	Total	0	0.0	1	0.2	2	0.3	4	0.7	1	0.9	8	0.3

Hypertension

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	260	90.9	234	79.3	190	63.3	141	55.3	30	56.6	855	71.9
	Female	276	93.9	235	83.0	195	71.4	138	48.4	23	39.0	867	72.6
	Total	536	92.4	469	81.1	385	67.2	279	51.7	53	47.3	1722	72.3
On medication	Male	14	4.9	41	13.9	93	31.0	106	41.6	20	37.7	274	23.0
	Female	8	2.7	32	11.3	60	22.0	135	47.4	34	57.6	269	22.5
	Total	22	3.8	73	12.6	153	26.7	241	44.6	54	48.2	543	22.8
Previously medicated	Male	2	0.7	10	3.4	13	4.3	5	2.0	2	3.8	32	2.7
	Female	7	2.4	10	3.5	16	5.9	12	4.2	2	3.4	47	3.9
	Total	9	1.6	20	3.5	29	5.1	17	3.1	4	3.6	79	3.3
Not treated	Male	10	3.5	10	3.4	4	1.3	3	1.2	1	1.9	28	2.4
	Female	3	1.0	6	2.1	2	0.7	0	0.0	0	0.0	11	0.9
	Total	13	2.2	16	2.8	6	1.0	3	0.6	1	0.9	39	1.6

Ischemic heart disease

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	285	99.7	290	98.3	283	94.3	235	92.2	44	83.0	1137	95.6
	Female	293	99.7	277	97.9	268	98.2	255	89.5	48	81.4	1141	95.6
	Total	578	99.7	567	98.1	551	96.2	490	90.7	92	82.1	2278	95.6
On medication	Male	0	0.0	3	1.0	12	4.0	18	7.1	6	11.3	39	3.3
	Female	0	0.0	0	0.0	5	1.8	20	7.0	6	10.2	31	2.6
	Total	0	0.0	3	0.5	17	3.0	38	7.0	12	10.7	70	2.9
Previously medicated	Male	1	0.3	0	0.0	4	1.3	2	0.8	3	5.7	10	0.8
	Female	1	0.3	3	1.1	0	0.0	8	2.8	4	6.8	16	1.3
	Total	2	0.3	3	0.5	4	0.7	10	1.9	7	6.3	26	1.1
Not treated	Male	0	0.0	2	0.7	1	0.3	0	0.0	0	0.0	3	0.3
	Female	0	0.0	3	1.1	0	0.0	2	0.7	1	1.7	6	0.5
	Total	0	0.0	5	0.9	1	0.2	2	0.4	1	0.9	9	0.4

Other heart disease

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	266	93.0	264	89.5	264	88.0	219	85.9	41	77.4	1054	88.6
	Female	281	95.6	264	93.3	252	92.3	248	87.0	52	88.1	1097	91.9
	Total	547	94.3	528	91.3	516	90.1	467	86.5	93	83.0	2151	90.3
On medication	Male	1	0.3	6	2.0	8	2.7	19	7.5	8	15.1	42	3.5
	Female	1	0.3	6	2.1	6	2.2	18	6.3	3	5.1	34	2.8
	Total	2	0.3	12	2.1	14	2.4	37	6.9	11	9.8	76	3.2
Previously medicated	Male	4	1.4	4	1.4	5	1.7	5	2.0	2	3.8	20	1.7
	Female	0	0.0	5	1.8	7	2.6	8	2.8	3	5.1	23	1.9
	Total	4	0.7	9	1.6	12	2.1	13	2.4	5	4.5	43	1.8
Not treated	Male	15	5.2	21	7.1	23	7.7	12	4.7	2	3.8	73	6.1
	Female	12	4.1	8	2.8	8	2.9	11	3.9	1	1.7	40	3.4
	Total	27	4.7	29	5.0	31	5.4	23	4.3	3	2.7	113	4.7

Hyperlipidemia

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	254	88.8	246	83.4	251	83.7	215	84.3	49	92.5	1015	85.4
	Female	283	96.3	232	82.0	192	70.3	204	71.6	42	71.2	953	79.8
	Total	537	92.6	478	82.7	443	77.3	419	77.6	91	81.3	1968	82.6
On medication	Male	3	1.0	19	6.4	21	7.0	27	10.6	3	5.7	73	6.1
	Female	2	0.7	16	5.7	46	16.8	49	17.2	14	23.7	127	10.6
	Total	5	0.9	35	6.1	67	11.7	76	14.1	17	15.2	200	8.4
Previously medicated	Male	4	1.4	8	2.7	8	2.7	4	1.6	0	0.0	24	2.0
	Female	1	0.3	7	2.5	7	2.6	7	2.5	1	1.7	23	1.9
	Total	5	0.9	15	2.6	15	2.6	11	2.0	1	0.9	47	2.0
Not treated	Male	25	8.7	22	7.5	20	6.7	9	3.5	1	1.9	77	6.5
	Female	8	2.7	28	9.9	28	10.3	25	8.8	2	3.4	91	7.6
	Total	33	5.7	50	8.7	48	8.4	34	6.3	3	2.7	168	7.0

Renal disease

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	274	95.8	285	96.6	283	94.3	246	96.5	50	94.3	1138	95.7
	Female	290	98.6	269	95.1	256	93.8	267	93.7	54	91.5	1136	95.1
	Total	564	97.2	554	95.8	539	94.1	513	95.0	104	92.9	2274	95.4
On medication	Male	1	0.3	2	0.7	4	1.3	4	1.6	0	0.0	11	0.9
	Female	0	0.0	0	0.0	3	1.1	3	1.1	1	1.7	7	0.6
	Total	1	0.2	2	0.3	7	1.2	7	1.3	1	0.9	18	0.8
Previously medicated	Male	11	3.8	8	2.7	13	4.3	4	1.6	3	5.7	39	3.3
	Female	4	1.4	14	4.9	13	4.8	12	4.2	3	5.1	46	3.9
	Total	15	2.6	22	3.8	26	4.5	16	3.0	6	5.4	85	3.6
Not treated	Male	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.1
	Female	0	0.0	0	0.0	1	0.4	3	1.1	1	1.7	5	0.4
	Total	0	0.0	0	0.0	1	0.2	4	0.7	1	0.9	6	0.3

Liver disease

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	274	95.8	277	93.9	279	93.0	236	92.5	48	90.6	1114	93.7
	Female	287	97.6	271	95.8	262	96.0	269	94.4	56	94.9	1145	95.9
	Total	561	96.7	548	94.8	541	94.4	505	93.5	104	92.9	2259	94.8
On medication	Male	2	0.7	6	2.0	5	1.7	7	2.7	3	5.7	23	1.9
	Female	1	0.3	2	0.7	3	1.1	3	1.1	0	0.0	9	0.8
	Total	3	0.5	8	1.4	8	1.4	10	1.9	3	2.7	32	1.3
Previously medicated	Male	4	1.4	7	2.4	13	4.3	8	3.1	1	1.9	33	2.8
	Female	3	1.0	6	2.1	7	2.6	9	3.2	3	5.1	28	2.3
	Total	7	1.2	13	2.2	20	3.5	17	3.1	4	3.6	61	2.6
Not treated	Male	6	2.1	5	1.7	3	1.0	4	1.6	1	1.9	19	1.6
	Female	3	1.0	4	1.4	1	0.4	4	1.4	0	0.0	12	1.0
	Total	9	1.6	9	1.6	4	0.7	8	1.5	1	0.9	31	1.3

Cholecystitis and gallstone

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	278	97.2	275	93.2	277	92.3	227	89.0	43	81.1	1100	92.5
	Female	282	95.9	267	94.3	252	92.3	249	87.4	53	89.8	1103	92.4
	Total	560	96.6	542	93.8	529	92.3	476	88.1	96	85.7	2203	92.4
On medication	Male	0	0.0	0	0.0	1	0.3	3	1.2	1	1.9	5	0.4
	Female	0	0.0	0	0.0	2	0.7	0	0.0	0	0.0	2	0.2
	Total	0	0.0	0	0.0	3	0.5	3	0.6	1	0.9	7	0.3
Previously medicated	Male	7	2.4	15	5.1	16	5.3	21	8.2	8	15.1	67	5.6
	Female	8	2.7	14	4.9	13	4.8	27	9.5	5	8.5	67	5.6
	Total	15	2.6	29	5.0	29	5.1	48	8.9	13	11.6	134	5.6
Not treated	Male	1	0.3	5	1.7	6	2.0	4	1.6	1	1.9	17	1.4
	Female	4	1.4	2	0.7	6	2.2	9	3.2	1	1.7	22	1.8
	Total	5	0.9	7	1.2	12	2.1	13	2.4	2	1.8	39	1.6

Diabetes mellitus

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	279	97.6	274	92.9	261	87.0	227	89.0	44	83.0	1085	91.3
	Female	289	98.3	271	95.8	251	91.9	262	91.9	52	88.1	1125	94.2
	Total	568	97.9	545	94.3	512	89.4	489	90.6	96	85.7	2210	92.7
On medication	Male	4	1.4	15	5.1	30	10.0	24	9.4	4	7.5	77	6.5
	Female	2	0.7	8	2.8	17	6.2	16	5.6	4	6.8	47	3.9
	Total	6	1.0	23	4.0	47	8.2	40	7.4	8	7.1	124	5.2
Previously medicated	Male	0	0.0	1	0.3	5	1.7	2	0.8	3	5.7	11	0.9
	Female	0	0.0	3	1.1	3	1.1	3	1.1	1	1.7	10	0.8
	Total	0	0.0	4	0.7	8	1.4	5	0.9	4	3.6	21	0.9
Not treated	Male	3	1.0	5	1.7	4	1.3	2	0.8	2	3.8	16	1.3
	Female	3	1.0	1	0.4	2	0.7	4	1.4	2	3.4	12	1.0
	Total	6	1.0	6	1.0	6	1.0	6	1.1	4	3.6	28	1.2

Peptic ulcer

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Not recorded	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
	Total	1	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
None	Male	252	88.1	228	77.3	234	78.0	196	76.9	35	66.0	945	79.5
	Female	275	93.5	259	91.5	248	90.8	264	92.6	50	84.7	1096	91.8
	Total	527	90.9	487	84.3	482	84.1	460	85.2	85	75.9	2041	85.6
On medication	Male	1	0.3	5	1.7	5	1.7	10	3.9	2	3.8	23	1.9
	Female	1	0.3	2	0.7	2	0.7	3	1.1	3	5.1	11	0.9
	Total	2	0.3	7	1.2	7	1.2	13	2.4	5	4.5	34	1.4
Previously medicated	Male	26	9.1	53	18.0	56	18.7	48	18.8	16	30.2	199	16.7
	Female	15	5.1	19	6.7	21	7.7	18	6.3	6	10.2	79	6.6
	Total	41	7.1	72	12.5	77	13.4	66	12.2	22	19.6	278	11.7
Not treated	Male	7	2.4	9	3.1	5	1.7	1	0.4	0	0.0	22	1.9
	Female	2	0.7	3	1.1	2	0.7	0	0.0	0	0.0	7	0.6
	Total	9	1.6	12	2.1	7	1.2	1	0.2	0	0.0	29	1.2

Tuberculosis or plauritis

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Not recorded	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	1	0.1
	Total	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	1	0.0
None	Male	280	97.9	292	99.0	281	93.7	218	85.5	42	79.2	1113	93.6
	Female	290	98.6	276	97.5	269	98.5	258	90.5	48	81.4	1141	95.6
	Total	570	98.3	568	98.3	550	96.0	476	88.1	90	80.4	2254	94.6
On medication	Male	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.1
	Female	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	1	0.0
Previously medicated	Male	6	2.1	3	1.0	18	6.0	35	13.7	9	17.0	71	6.0
	Female	3	1.0	6	2.1	4	1.5	26	9.1	11	18.6	50	4.2
	Total	9	1.6	9	1.6	22	3.8	61	11.3	20	17.9	121	5.1
Not treated	Male	0	0.0	0	0.0	1	0.3	1	0.4	2	3.8	4	0.3
	Female	1	0.3	0	0.0	0	0.0	1	0.4	0	0.0	2	0.2
	Total	1	0.2	0	0.0	1	0.2	2	0.4	2	1.8	6	0.3

Bronchial asthma

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	266	93.0	284	96.3	292	97.3	246	96.5	52	98.1	1140	95.9
	Female	277	94.2	268	94.7	263	96.3	271	95.1	57	96.6	1136	95.1
	Total	543	93.6	552	95.5	555	96.9	517	95.7	109	97.3	2276	95.5
On medication	Male	6	2.1	3	1.0	3	1.0	6	2.4	0	0.0	18	1.5
	Female	2	0.7	3	1.1	4	1.5	2	0.7	1	1.7	12	1.0
	Total	8	1.4	6	1.0	7	1.2	8	1.5	1	0.9	30	1.3
Previously medicated	Male	14	4.9	8	2.7	5	1.7	3	1.2	1	1.9	31	2.6
	Female	14	4.8	12	4.2	6	2.2	11	3.9	1	1.7	44	3.7
	Total	28	4.8	20	3.5	11	1.9	14	2.6	2	1.8	75	3.1
Not treated	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	1	0.3	0	0.0	0	0.0	1	0.4	0	0.0	2	0.2
	Total	1	0.2	0	0.0	0	0.0	1	0.2	0	0.0	2	0.1

Chronic bronchitis

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	284	99.3	287	97.3	292	97.3	243	95.3	48	90.6	1154	97.1
	Female	289	98.3	278	98.2	269	98.5	264	92.6	56	94.9	1156	96.8
	Total	573	98.8	565	97.8	561	97.9	507	93.9	104	92.9	2310	96.9
On medication	Male	0	0.0	1	0.3	4	1.3	3	1.2	4	7.5	12	1.0
	Female	0	0.0	0	0.0	3	1.1	8	2.8	2	3.4	13	1.1
	Total	0	0.0	1	0.2	7	1.2	11	2.0	6	5.4	25	1.0
Previously medicated	Male	2	0.7	5	1.7	4	1.3	8	3.1	0	0.0	19	1.6
	Female	5	1.7	5	1.8	1	0.4	10	3.5	1	1.7	22	1.8
	Total	7	1.2	10	1.7	5	0.9	18	3.3	1	0.9	41	1.7
Not treated	Male	0	0.0	2	0.7	0	0.0	1	0.4	1	1.9	4	0.3
	Female	0	0.0	0	0.0	0	0.0	3	1.1	0	0.0	3	0.3
	Total	0	0.0	2	0.3	0	0.0	4	0.7	1	0.9	7	0.3

Anemia

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Not recorded	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	1	0.4	1	0.4	0	0.0	2	0.2
	Total	0	0.0	0	0.0	1	0.2	1	0.2	0	0.0	2	0.1
None	Male	282	98.6	285	96.6	290	96.7	239	93.7	44	83.0	1140	95.9
	Female	198	67.3	191	67.5	226	82.8	243	85.3	45	76.3	903	75.6
	Total	480	82.8	476	82.4	516	90.1	482	89.3	89	79.5	2043	85.7
On medication	Male	0	0.0	0	0.0	1	0.3	1	0.4	0	0.0	2	0.2
	Female	4	1.4	1	0.4	1	0.4	2	0.7	5	8.5	13	1.1
	Total	4	0.7	1	0.2	2	0.3	3	0.6	5	4.5	15	0.6
Previously medicated	Male	2	0.7	3	1.0	5	1.7	3	1.2	4	7.5	17	1.4
	Female	75	25.5	76	26.9	34	12.5	29	10.2	7	11.9	221	18.5
	Total	77	13.3	79	13.7	39	6.8	32	5.9	11	9.8	238	10.0
Not treated	Male	2	0.7	7	2.4	4	1.3	12	4.7	5	9.4	30	2.5
	Female	17	5.8	15	5.3	11	4.0	10	3.5	2	3.4	55	4.6
	Total	19	3.3	22	3.8	15	2.6	22	4.1	7	6.3	85	3.6

Osteoporosis

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Not recorded	Male	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Female	0	0.0	0	0.0	0	0.0	1	0.4	0	0.0	1	0.1
	Total	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	1	0.0
None	Male	285	99.7	294	99.7	297	99.0	248	97.3	50	94.3	1174	98.7
	Female	294	100.0	267	94.3	242	88.6	214	75.1	43	72.9	1060	88.8
	Total	579	99.8	561	97.1	539	94.1	462	85.6	93	83.0	2234	93.7
On medication	Male	0	0.0	0	0.0	0	0.0	2	0.8	2	3.8	4	0.3
	Female	0	0.0	9	3.2	16	5.9	37	13.0	11	18.6	73	6.1
	Total	0	0.0	9	1.6	16	2.8	39	7.2	13	11.6	77	3.2
Previously medicated	Male	0	0.0	1	0.3	1	0.3	1	0.4	0	0.0	3	0.3
	Female	0	0.0	0	0.0	5	1.8	15	5.3	3	5.1	23	1.9
	Total	0	0.0	1	0.2	6	1.0	16	3.0	3	2.7	26	1.1
Not treated	Male	1	0.3	0	0.0	2	0.7	4	1.6	1	1.9	8	0.7
	Female	0	0.0	7	2.5	10	3.7	18	6.3	2	3.4	37	3.1
	Total	1	0.2	7	1.2	12	2.1	22	4.1	3	2.7	45	1.9

Arthritis

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Not recorded	Male	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	1	0.1
	Female	0	0.0	1	0.4	0	0.0	0	0.0	0	0.0	1	0.1
	Total	0	0.0	2	0.3	0	0.0	0	0.0	0	0.0	2	0.1
None	Male	283	99.0	286	96.9	280	93.3	237	92.9	46	86.8	1132	95.2
	Female	284	96.6	261	92.2	249	91.2	233	81.8	47	79.7	1074	89.9
	Total	567	97.8	547	94.6	529	92.3	470	87.0	93	83.0	2206	92.6
On medication	Male	1	0.3	0	0.0	2	0.7	6	2.4	3	5.7	12	1.0
	Female	4	1.4	5	1.8	6	2.2	15	5.3	9	15.3	39	3.3
	Total	5	0.9	5	0.9	8	1.4	21	3.9	12	10.7	51	2.1
Previously medicated	Male	2	0.7	7	2.4	16	5.3	10	3.9	4	7.5	39	3.3
	Female	5	1.7	10	3.5	15	5.5	35	12.3	3	5.1	68	5.7
	Total	7	1.2	17	2.9	31	5.4	45	8.3	7	6.3	107	4.5
Not treated	Male	0	0.0	1	0.3	2	0.7	2	0.8	0	0.0	5	0.4
	Female	1	0.3	6	2.1	3	1.1	2	0.7	0	0.0	12	1.0
	Total	1	0.2	7	1.2	5	0.9	4	0.7	0	0.0	17	0.7

Gout, hyperuricacidemia

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	263	92.0	274	92.9	275	91.7	228	89.4	50	94.3	1090	91.7
	Female	293	99.7	280	98.9	267	97.8	272	95.4	57	96.6	1169	97.9
	Total	556	95.9	554	95.8	542	94.6	500	92.6	107	95.5	2259	94.8
On medication	Male	7	2.4	14	4.7	12	4.0	16	6.3	2	3.8	51	4.3
	Female	0	0.0	0	0.0	2	0.7	4	1.4	1	1.7	7	0.6
	Total	7	1.2	14	2.4	14	2.4	20	3.7	3	2.7	58	2.4
Previously medicated	Male	11	3.8	5	1.7	11	3.7	10	3.9	1	1.9	38	3.2
	Female	0	0.0	2	0.7	0	0.0	5	1.8	0	0.0	7	0.6
	Total	11	1.9	7	1.2	11	1.9	15	2.8	1	0.9	45	1.9
Not treated	Male	5	1.7	2	0.7	2	0.7	1	0.4	0	0.0	10	0.8
	Female	1	0.3	1	0.4	4	1.5	4	1.4	1	1.7	11	0.9
	Total	6	1.0	3	0.5	6	1.0	5	0.9	1	0.9	21	0.9

Thyroid disease

		40-49yr		50-59yr		60-69yr		70-79yr		80yr-		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
None	Male	282	98.6	292	99.0	296	98.7	250	98.0	50	94.3	1170	98.4
	Female	279	94.9	263	92.9	261	95.6	266	93.3	56	94.9	1125	94.2
	Total	561	96.7	555	96.0	557	97.2	516	95.6	106	94.6	2295	96.3
On medication	Male	2	0.7	1	0.3	1	0.3	2	0.8	2	3.8	8	0.7
	Female	4	1.4	6	2.1	3	1.1	8	2.8	1	1.7	22	1.8
	Total	6	1.0	7	1.2	4	0.7	10	1.9	3	2.7	30	1.3
Previously medicated	Male	2	0.7	2	0.7	2	0.7	2	0.8	0	0.0	8	0.7
	Female	9	3.1	10	3.5	8	2.9	10	3.5	2	3.4	39	3.3
	Total	11	1.9	12	2.1	10	1.7	12	2.2	2	1.8	47	2.0
Not treated	Male	0	0.0	0	0.0	1	0.3	1	0.4	1	1.9	3	0.3
	Female	2	0.7	4	1.4	1	0.4	1	0.4	0	0.0	8	0.7
	Total	2	0.3	4	0.7	2	0.3	2	0.4	1	0.9	11	0.5