Appendix. Evidence Tables for Dementia and Co-Occurring Chronic Conditions Systematic Literature Review*

*for Categories with Sufficient Evidence only

Mortality

Service Utilization

Function

Medications

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
First author *Each row/ article is numbered consecutively in this table for easier reference.* Year of publication Article Tracking # Study Design (if reported) Study duration	Sample size Mean age (SD) % Female Other Demographics (e.g. education, race/ethnicity) *if reported* Study location Database (if reported) *Note: If demographic data is not available for the whole sample, other data will be provided here (e.g., age range, % female for w/ and w/o dementia; age range).*	Which chronc conditions (CC) were included (e.g. depression). Overall comorbidity refers to a measure of multiple chronic conditions. Assessment Type of assessment (e.g. clinical exam/diagnosis, records review) along with details about the assessment, including who made the assessment.	Measures Objective measures used to screen for or diagnose dementia-severity level cognitive impairment or dementia (e.g. MMSE). Cut off scores are provided where available. Criteria Diagnostic criteria used to determine presence of dementia (and dementia types) in the sample (e.g., DSM-III-R) % with dementia / cognitive impairment Mean scores for objective measures (where available) Details about the assessment of cognitive impairment / dementia (e.g. who conducted the assessement)	Outcomes indicating how cognitive impairment/ dementia impacts mortality in samples with multiple chronic conditions or one target condition e.g., Hazard Ratios (HR) for mortality, mean survival times for people with and without dementia Where provided, adjusted analyses will follow unadjusted analyses.	SAMPLE N > 500 GENDER >/= 30% each male and female MCC >/= 2 CC's DEM Both measures and criteria for measuring cognitive impairment CC Assessment details reported for measuring CC MULTI Multivariate Analysis COV ASE Adjusted for age, sex, education

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
29 studies	N=52,644	Multiple chronic conditions	Community-based samples: 17 studies Clinic-based samples: 12 studies		SAMPLE: 23 GENDER: 27 MCC: 29 DEM: 12 CC: 24 MULTI: 26 COV ASE: 12
	Community-based				
1. Gombojav 2011 #A5 Longitudinal Mean 11.8 yrs	N=2496 73.6(5.9) 57.7% female % no formal education: CogImp: 80% No CogImp: 50% INTL: South Korea Database NR (survey of Kangwa County cohort)	Overall comorbidity, HTN, Smoking (former and current), Drinking, BMI Overall comorbidity: Subjects answered yes or no to the the question ˜do you have any chronic disease or past accident or injury due to which you feel uncomfortable in your daily life including work? HTN was measured in two BP readings. HTN=SBP/DBP: </= 140/90 mm Hg	Measures: MMSE<24 (18-23=mild severity; <18=severe) Criteria: None 44% with CogImp Mean MMSE (SD): mild severity: 17.6 (1.1) severe severity: 11.9 (3.1) no CogImp: 24.1 (2.9) MMSE administered by the investigation team	% died (unadjusted): CogImp: 54.8% (mild 49.1% and severe 61.2%) No CogImp: 41.9% p = 0.00 Adjusted HR All-Cause Mortality (95% CI): No CogImp = referrant group Male severe: 1.33 (0.99 - 1.77); p = 0.0577 mild: 1.28 (1.01-1.61; p = NR Female severe: 1.59 (1.25 - 2.00); p < 0.001 mild: 1.32 (1.04-1.67), p = NR	SAMPLE: Yes GENDER: Yes MCC: NA DEM: No CC: Yes MULTI: Yes COV ASE: No
2. Nikolova 2011 #29 Secondary analysis of SIPA RCT 3 years	N=1164 82(7.3) >50% female >50% had >/= h.s. educ INTL: Montreal, Canada SIPA (Research Program on Integrated Services for the Elderly)	Overall comorbidity Standardized Instrument: A 16-item questionnaire on prevalence of common CC. Number of diseases was coded as: 0-1 disease, 2-3, 4-5, and more than 6 diseases. Trained Interviewer	Measures: SPMSQ >/= 5 Criteria: None 30% with cognitive impairment Assessment details NR	Adjusted OR Mortality (95% CI): 5.57 (0.84, 36.39) p=NS	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB				
3. Millan-Calenti 2010 #A28 Design NR Duration NR	N=579 75.1 (7.5) 56.3% female No formal education: CogImp: 87.4% No CogImp: 83.2% Older subjects (85+) were more cognitively impairmed (29.4%) and presented more co-occuring CogImp and depression (22.1%) than other ages. INTL: Naron Council, A Coruna, Spain Database NR (community-dwelling)	Overall comorbidity, Depression, Visual /hearing impairments Self-Report, Standardized Instrument, Clinical Exam/ Diagnosis, Records Review: Probable clinical depression: Assessed by a psychologist using GDS-SF>/=6. Medical histories were collected by a physician or a trained nurse in charge of the participant during the research. Participants report was given by the patient or their relatives according to medical records. Comorbidity conditions were defined according to the CCI.	Measures: MMSE Criteria: None 20.6% with cognitive impairment Mean (SD) MMSE: 23.9 (5.6) (all subjects) MMSE cut-offs based on pop-based age-education adjusted norms: <20 for 80+ w/ 0 -4 yrs of education to <29 for age 65-69 college-educated. Majority of subjects (>80%) had no formal education. MMSE administered by a psychologist.	Predicted 10-year survival expectancy Mean (SD) (unadjusted): No CogImp: 3.2 years (3.0) CogImp: 2.3 years (2.9) p = NR	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female Other Demographics	Chronic Condition (CC): Definition Assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
Study Design Duration	Location DB	Who made assessment			
4. Wang 2010 #A239 Design NR 5 years Mean (SD) f/u: Dem: 5.15(0.40) No Dem: 4.92 -0.32	N=2162 All 65+ NR% female Other demog NR INTL: Beijing, China 10/66 Dementia Research Group's population-based study in China	Overall comorbidity Assessment details and who did assessment NR	Measures: CSI-D, CERAD; GMS-AGECAT Criteria: 10/66 Dementia Research Group algorithm using: CSI-D CERAD; GMS-AGECAT 6.3% with dementia Cognitive measures were administered by trained research assts. Other assessment details NR	Mortality rate (unadjusted): Dem: 66.4% No Dem: 37.2% p<.01 Kaplan-Meier survival curves: Dem had SS shorter survival time than No Dem (logrank test, p<0.001). Five-year survival rates (unadjusted): Dem: 16.1% No Dem: 28.5% p<.001 Severity of dementia (severe/mild, HR: 8.765, 95%CI: 4.436-17.163) and substantial disability (HR: 5.503, 95%CI: 3.017-8.135) were the most significant predictors of shortened survival time in the multivariate analysis.	SAMPLE: Yes GENDER: NR MCC: Yes DEM: Yes CC: No MULTI: No COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics Location DB	Assessment Who made assessment			
5. Llinas-Regla, 2008 #500 Prospective, two-phase, observational cohort study. 6 years (mean f/u 4.3 years)	N=1153 Men: 80.3(5.2) Women: 80.9 (5.1) 56.5% female Avg 5 years education (all subjects) INTL: Gironia, Spain Database NR (epidemiological study using participants from a regional census)	Cancer, heart disease, stroke Assessment details and who made made assessment NR	Measures: MEC<24 (Spanish MMSE) Criteria: CAMDEX < 70 (for surviving participants); RCDI and DMS-III-R criteria (deceased) 10.6% with dementia Mean (SD) MEC, all subjects: Men = 27.5(4.7) Women = 25.0 (5.7) A neurologist and neuropsychologist conducted the CAMDEX interview with subjects to assess dementia diagnosis and severity. For subjects that died before the f/u study, a psychologist administered the RCDI to relatives and neurologists used DSM-III-R to diagnose dementia. Subjects who screened positive or were unable to complete the MEC received a further clinical eval and structure interview at home (inc. informants) by the neurologist and neuropsychologist. Persistent disagreements about diagnosis were coded as "no dementia." CDR assessed severity of dementia.	# / % Deaths (unadjusted): Dem: 49 (40.2%) No Dem: 188 (18.2%) p = NR Median survival (95% CI) (unadjusted): Dem: 4.71 years (4.4-5.0) No Dem: 6.2 years (6.0-6.3) p<0.001 (log rank test = 30.59) Median survival by dementia severity (unadjusted): Mild dementia: 5.5 years (5.2-5.8) Moderate dementia: 4.7 years (4.1-5.4) Severe dementia: 3.2 years (2.6-3.9). No vs Mild: p = NS Mild vs moderate and moderate vs severe, p < .001 Mortality rate (95% CI) (unadjusted): Dem: 9.8 per 100 person-years (7.3-12.9) No Dem: 4.2 per 100 person-years (3.6-4.9) PAR% of death related to dementia diagnosis = 11.8% Unadjusted RR Mortality (95% CI) = 2.3 (1.7-3.2) Adjusted HR Mortality (95% CI): Severe Dementia: 5.7 (3.7-8.6) Moderate dementia: 1.9 (1.1-3.5) Mild dementia: 0.8 (0.4-1.5) Other significant HRs were cancer, advanced age (90+), age 85-89, heart disease; severe dementia was the strongest predictor of death.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: No MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics Location DB	Assessment Who made assessment			
Study Design Duration					
6. Rothman 2008 #356 Prospective cohort study 7.5 years	N=754 78.4(5.3) 64.6% female Mean (SD) yrs education: 12.0 (2.9) 90.5% non-Hispanic white 39.5% live alone U.S.: New Haven, CT Precipitating Events Project (PEP) (community-dwelling)	Inurious Falls, Overall Comorbidity Self-Report, Records Review: Participants were asked about overnight hospital stays during the past month and to provide the primary reason for admission. An independent review of hospital records of 44 participants indicated high reliability of self-reported information (kappa value of 0.89). An injurious fall was defined as a fall leading to a hospital admission , head injury, or hematoma or bruise of the face or scalp. Overall CC: Mean 1.9(1.3) CC. Self=reported, physician-diagnosed CC's were HTN, MI, CHF, stroke, diabetes mellitus, arthritis, hip fracture, chronic lung disease, and cancer (other than minor skin cancers). Trained research staff conducted the assessments	Measures: MMSE<24 Criteria: None 11.4% with cognitive impairment Mean MMSE (SD): CogImp: 21.7(1.5) (min. = 16) No CogImp: NR MMSE administered by trained research staff. Other details NR.	Adjusted HR Mortality (95% CI): Model 1 adjusted for demographics and CC: 2.4 (1.8-3.1) Model 2 (~Model 1 + 6 other frailty criteria): 1.5 (1.1-2.1) Notes: Frailty criteria: low physical activity, cognitive impairment, depressive symptoms, weight loss, gait speed, falls In Model 1, lowest PA was the strongest predictor of death (out of the 6 frailty criteria)	SAMPLE: Yes GENDER: Yes MCC: No DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with	Mortality Outcomes	Quality
	Other Demographics	Assessment	Dem/CogImp, Mean Scores,		
Study Design	Location	Who made assessment	Assessment		
Duration	DB				
7. Lyketsos 2007 #805 Prospective cohort study 4 years (median 1.5 years)	N=198 CogImp: 86.1(6.73) No CogImp: 84.9 (10.76) % Female CogImp: 80.6% No CogImp: 75% % Caucasian CogImp: 79.9% No CogImp: 89.1% p=NS % in large facility CogImp: 70.9% No CogImp: 85.9% p=.02 U.S.: Central Maryland The Maryland Assisted Living Study (MD-AL)	Overall comorbidity, Depression, Polypharmacy/High risk medications Self-Report, Standardized Interview, Records Review: Residents completed the GMHR (overall comorbidity) and CSDD (depression). Number of Medications came from chart reviews and interviews with the resident, family informant, and facility staff members who knew the resident well.	Measures: MMSE, Trails A and B, HVLT Criteria: None 68% with cognitive impairment Mean MMSE (p<.001) CogImp: 14.64 (7.67) No CogImp: 25.84 (5.50) Mean HVLT: (p<.001) CogImp: 0.54 (1.12), No CogImp: 4.82 (3.32) Mean Trails B (p <.001) CogImp: 500.84 (157.74) No CogImp: 270.17 (151.96)	Mean # of days from assessment to discharge, death, or censoring: CogImp: 521.55 (407.74) No CogImp: 707.30 (429.09) p=.004 % Discharged (including death) CogImp: 78.4 No CogImp: 59.4 p=.005 Difference in medial survival time (CogImp vs No CogImp): 209 days (@7.5 months) p=NR All above analyses are unadjusted	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
7. Lyketsos (continued)			Information from MMSE, Trails, and HVLT (no cut-offs reported) was brought to a panel consisting of the team that evaluated the resident in his or her facility, another geriatric psychiatrist, a geriatric medicine physician, a neuropsychologist, and a registered nurse. The panel used a consensus process, based on all available information, to make diagnoses and render opinions about the completeness of evaluation and treatment for dementia on the basis community-care standards (e.g., minimize inappropriate medication use).		

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with	Mortality Outcomes	Quality
	Other Demographics	Assessment	Dem/CogImp, Mean Scores,		
Study Design	Location	Who made assessment	Assessment		
Duration	DB				
8. Guhne 2006 #1096 Prospective population-based cohort study Mean (SD) f/u 3.4 years (0.7), range 0.74-4.4 years	N=908 83(4.7) 75% female Low education (p<.001): Dem: 45%, No Dem: 19% Living location (p<0.001) Nursing Home: Dem: 53%, No Dem: 10% Hom: Dem: 47%, No Dem: 90% Marital status (p=NS) INTL: Leipzig, Germany Leipzig Longitudinal Study of the Aged (LEILA75+)	Overall comorbidity (diabetes, stroke, and/or myocardial infarction) Self-Report: Subjects or relative's reported history of at least one CC Who made assessment NR	Measures: MMSE, CDR, SIDAM Criteria: SIDAM neuropsych-ological battery (inc. MMSE and DSM-III-R criteria), CDR 9% with dementia -AD: 45, VaD: 18, Other: 15 SIDAM neuropsychological test battery administered by psychologist. SIDAM includes MMSE, third-party information on psychosocial impairment and a section for clinical judgment including severity rating according to DSM-III-R criteria. Cognitive criteria for dementia diagnosis based on SIDAM or CDR + proxy interviews. Diagnosis made by physician.	# / % Deceased (unadjusted): Dem: 40 (51%); No Dem: 159 (19%) p = NR Mean (95% CI) survival (unadjusted): Dem: CI: 3.1 years (2.8-3.4) No Dem: 4.0 years (3.9-4.0) p<0.001 Adjusted HR Mortality (95% CI): Incident dementia = 2.42 (1.62-3.63)	SAMPLE: Yes GENDER: Yes MCC: No DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
9. Cacciatore 2005 #1557 Cross-sectional survey with f/u mortality evaluation 6 years	N=1332 74.1(6.4) NR% female Other Demog NR INTL: Campania, Italy Database NR Random sample of polling stations in Campania	Hypertension, Overall Comorbidity Clinical Exam/Diagnosis: BP was measured according Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure criteria: 3 BP measurements at 2-min intervals when subject had been sitting for @ 1 hr, using a standard mercury sphygmomanometer. The disappearance of sound (phase V) was used for diastolic reading. Mean value of the last two recorded measures was considered for SBP and DBP. NR how overall comorbidity was measured. Mean 2.4 (1.3) CC (for all subjects) A physician conducted the BP assessments	Measures: MMSE<24 Criteria: None Mean MMSE=25.4(4.8) (all subjects) A physician administered the MMSE	Adjusted RR mortality (referent=DBP 80-89): *DBP 90-99 (~ HTN)* CogImp: 1.51 (0.83-2.74), no CogImp: 1.39 (0.88-2.19) *DBP >99 (~HTN)* CogImp: 3.41 (1.40-8.29), No CogImp: 1.60 (0.68-3.76) DBP <80 CogImp: 2.84 (2.53-5.24), No CogImp: 1.64 (1.11-2.41) Adjusted RR Mortality (referent = SBP 130-139) *SBP 140-159 (~ HTN)* CogImp: 0.66 (0.38-1.14), No CogImp: 1.09 (0.68-1.63) *SBP >159 (~ HTN)* CogImp: 0.53 (0.28-1.02), No CogImp: 0.93 (0.55-1.57) *SBP <130* CogImp: 0.53 (0.25-1.10), No CogImp: 0.85 (0.48-1.52)	SAMPLE: Yes GENDER: NA MCC: No CC: Yes DEM: No MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
10. Fitzpatrick 2005 #1496 Prospective Cohort 5 years	N=2798 75.1(NR) ~59% female NoDem-AD-Mixed-VaD Non-white (%): 9.3 - 17.1 - 13.9 - 17.7 Educ some HS (%): 19.2 - 37.1 - 27.8 - 27.4 Educ HS grad (%): 29.4 - 23.3 - 26.5 - 32.3 Educ some college (%): 26.4 - 18.4 - 21.2 - 16.1 Educ college or + (%): 25.0 - 21.1 - 24.5 - 24.2 U.S.: Forsyth county, NC, Washington county, MD, Sacramento county, CA, Pittsburgh, PA Cardiovascular Health Cognition Study, and offshoot of the Cardiovascular Health Study	Stroke, Heart disease, Hypertension Clinical Exam/Diagnosis, Records Review: This included data on demographics, anthropometry, blood pressure, psychosocial interviews, depression, medical history, health behaviors, physical function, hematology, and medications. Who made assessment NR	Measures (screening): 3MS, Digit Symbol Benton Visual Retention Those failing the screening and still living completed detailed neuropsychological testing at the clinic Measures (diagnosis): TICS, IQCODE, DQ, Neuropsychiatric Inventory Criteria: ~DSM-IV, NINCDS-ADRDA (AD), CADDTC (VaD) 17% with dementia AD: 245, VD: 62 A committee of neurologists and psychiatrists evaluated data to determine dementia diagnoses. Participants were required to have impairments in two cognitive domains, which did not necessarily include memory (this correlates very closely to DSM-IV). Dementia type of dementia was classified using NINCDS-ADRDA (AD) and CADDTC (VaD), and MRIs.	Unadjusted HR Mortality (95% CI): (referrant = no dementia): Total dementia: 39.6% - 3.9 (3.2-4.6) AD: 32.2% - 3.0 (2.3 - 3.8) Mixed: 43.7% - 3.8 (2.9-4.9) VaD: 53.2% - 5.7 (4.0-8.2) p<0.0001 Adjusted HR Mortality (95% CI): (referrent = no dementia): Total dementia: 2.8 (2.3 - 3.4) AD: 2.1 (1.6 - 2.7) Mixed: 2.5 (1.9 - 3.3) VaD: 4.4 (3.1 - 6.3) p<0.0001 Median Survival (95% CI) (adjusted): No Dementia: 11.0 years (10.5-11.7) VaD: 3.9 years (3.5-4.2) AD: 7.1 years (6.7-7.5) Mixed: 5.4 years (5.2-6.0)	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
11. Tschanz 2004 #1737 Longitudinal 5 years	N=4683 All 65+ Dem: 83.3(7) No Dem: 74.7(6.8) Dem: 64% female No Dem: 56% female Mean (SD) yrs education Dem: 12.4(2.8) No Dem: 13.3(2.9) Dem: 28% in NH No Dem: <1% in NH 99% Caucasian U.S.: Cache County, UT The Cache County Study on Memory in Aging	PD, Asthma, CVD, CHF, HTN, Diabetes, Head Injury, Pulmonary Disease, Hypercholestemia, Ulcer, Cerebrovascular Disease, Depression, Smoking, Drinking Self-Report (interview): Self- or proxy report of common CC. Cancer was not included b/c primary intent was to identify risk factors for dementia. Selected IW questions to ascertain CC are available on journal's website. Who made assessment NR	Measures: 3MS, IQCODE, DQ Criteria: DSM-III-R, NINCDS-ADRDA, NINDS-AIREN 7.6% dementia AD: 207 ,VD: 54, AD/VaD (Mixed): 31, OD (Other Dementia): 63 Subjects with DQ suggestive of cognitive impairment received clinical assessment, conducted by research nurses and psycho-metricians. These assessments included a brief physical exam, standardized BP measurement, neurologic exam, and psycho-metric testing. A board-certified geriatric psychiatrist and neuro-psychologist reviewed findings with the examiners and assigned working diagnoses of dementia (DMS-III-R) and rated dementia severity using the CDR. One year later, of subjects still living, 83.9% were examined by geriatric psychiatrists and 65.9% of these underwent MRI scanning and standard lab tests for differential diagnosis. A panel of experts reviewed all data for those with suspected dementia and assigned diagnoses of AD, VaD, or other disorders using standard criteria.	Unadjusted Mortality Rate: Dem: 82% No Dem: 22% p=.0001 Crude OR = 16.23, 95% CI 12.27-21.48, p = 0.0001 Adjusted RR Mortality: 2.99 (95% CI 2.53-3.53) PAR% (Adjusted) = 16.6% Dementia had risk of mortality 2-3x greater than other life-threatening CC's, across all age groups. PAR% were also higher than other CC's. Relative hazard of death with dementia was highest at ages 65 to 74 (RR = 7.3), but the high prevalence of dementia after age 85 resulted in 27% PAR among the oldest old. Mortality increased substantially with severity of dementia. AD shortened survival time most dramatically in younger participants, but VaD posed a greater mortality risk among the oldest old.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: No MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics Location DB	Assessment Who made assessment			
Study Design Duration					
12. Feil 2003 #1851 Longitudinal (mortality) 6 years	N=7482 65+ (58% age 65-74) 61.7% female Education for CogImp: 40% < 8 yrs, 11% > 12 yrs U.S.: East Boston, MA and rural Iowa Established Populations for Epidemiologic Studies of the Elderly (EPESE)	Overall comorbidity, Stroke, Cancer, Heart Attack, HTN, Diabetes, Hip Fracture Self-Report, Clinical Exam/Diagnosis: Subjects were asked about history of CC. HTN was assessed from direct measurement of BP according to Hypertension Detection and Follow-Up Program. Interviews conducted by trained interviewers (in-person and phone)	Measures: modified SPMSQ (>/= 2 errors) Criteria: None 23.6% w/ cognitive impairment Trained interviewers conducted the assessments	RR mortality (adjusted): 1.68 (95% CI 1.53-1.86) p<.0001 RR mortality due to CogImp was greater than RR for other six CC (diabetes was closest at 1.62). Older age (75+) was stronger predictor, and male gender was a similar predictor. The effect of CI and specific CC on mortality is mainly additive (NS interactions between the survival curves). That said, 6-year survival for CI + CC was 40%-50%, whereas no CC and no CI was 80%. The theory that the assoc btw CI and mortality is primarily attributable to cognitive impairment aggravating chronic medical illness was not supported in this study. CI predicted mortality indep of the number of chronic illnesses.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
13. Nguyen 2003 #3430 Longitudinal cohort 5 years	N=2625 72.9(NR) 58.5% female Education > 12 years: Mod-Severe: 3.1% Mild: 1.8% No CogImp: 14.5% U.S.: Texas, New Mexico, Colorado, Arizona, California. Hispanic Established Population for the Epidemiological Study of the Elderly	Stroke, Cancer, CVD, Diabetes, HTN, Depression, Hip Fracture Self-Report, Standardized Instrument: Depression: CES-D by trained. interviewer. All other CC were self-report: "has a doctor ever told you that you had any of the following conditions?"	Measures: MMSE<24 Criteria: None 37% with cognitive impairment MMSE 18-23 = "Mild" and 0-17 = "Moderate-Severe" severity. Serial-sevens item is not used in the MMSE-Spanish. "Don't know" and "refusals" were counted as errors. Trained bilingual interviewers conducted all interviews in Spanish or English, depending on the respondent's preference.	% Deceased at 5-year f/u (unadjusted): No CogImp: 263 (16.0%) Mild: 263 (16.0%) Moderate-severe: 59 (45.7%) 20.3% of sample was deceased at follow-up Adjusted HR Mortality (95% CI): Mild: 1.56 (1.28-1.92) Mod-Severe: 2.41 (1.74-3.34) (data not reported)	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes
14. Ganguli 2002 #2037 Prospective epidemiological study 10 years (Mean f/u 7.67 years)	N=1064 74.9 (5.5) 57.5% female 58.4% >/= H.S. grad Largely blue-collar, low income, European descent U.S.: SW Pennsylvania Monongahela Valley Independent Elders Survey (MoVIES)	Depression, overall comorbidity Self-Report, Standardized Instrument: Depression: mCES-D > 5 (interviewer-administered, max. 20 points) Overall comorbidity: total # of prescription medications was used as a conrinuous measure of morbidity, to control for medical burden. Who made assessment NR	Measures: MMSE < 24 Criteria: None 8.2% with cognitive impairment In-home screening interview including the MMSE Who made assessment NR	Adjusted RR Mortality: 3-Year Mortality 1.43, p=.16 5-Year Mortality: 1.16, p=.48 10-Year Mortality:1.26, p=.12 In post hoc analyses, when baseline IADL disability was excluded from the model, baseline MMSE was a significant predictor of mortality: 3-Year Mortality 2.2, p<.001 5-Year Mortality 1.52, p=.04 10-Year Mortality 1.55, p = .002	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female Other Demographics	Chronic Condition (CC): Definition Assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
Study Design Duration	Location DB	Who made assessment			
15. Helmer 2001 #2227 Prospective population-based cohort study Duration NR	N=2923 65+ 58.3% female INTL: Southwest France (Gironde and Dordogne region) Personnes Ages Quid (PAQUID) cohort	Stroke, Cancer, Heart Disease, HTN, Respiratory disease, Diabetes,Dyspnea Self-Report: Self-reported diseases or symptoms. Overall comorbidity = at least one of these diseases or symptoms. Psychologist collected self-report data	Measures: MMSE, other tests Criteria: DSM-III-R, NINCDS-ADRDA, Hachinski Scale 10% with dementia -AD: 189, VaD: 70, Other: 22 MMSE and other tests administered by psychologists to obtain info for DMS-III-R criteria for dementia. Participants who met DSM-III-R criteria were seen by a senior neurologist, who confirmed and completed DSM-III-R criteria for dementia, NINCDS-ADRDA criteria for AD, and the Hachinski score for VaD. Informant was consulted when available and all available info was used. A consensus meeting was used to definitely classify each case.	% Died (unadjusted): Dem: 39.1%, No Dem: 22.2% p = NR Cause of death (unadjusted): CVD, Stroke, Cancer, Respiratory, Other Dem: 20%, 12.7%, 12.7%, 10%, 10.9% No Dem: 32.3%, 9.2%, 24.6%, 6.4%, 7.2% p=NR Adjusted RR Mortality (95% CI): Dem: 1.80 (1.46, 2.21) AD only: 1.72 (1.34, 2.21) According to causes of death: Adjusted RR Mortality for dementia (95% CI): Cerebrovascular disease: 2.29 (1.26, 4.17) Respiratory disease: 2.78 (1.40, 5.51) Adjusted RR Mortality for those with AD (95% CI): Respiratory disease: 2.82 (1.30, 6.17)	SAMPLE: Yes GENDER: Yes MCC: Yes CC: Yes DEM: Yes MULTI: Yes COV: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
16. Bruce 1995 #3434 Design NR 9 years	N=3538 67.61 (11.69) 59% female </= 8 years education: 86% U.S.: New Haven, CT New Haven Epidemiologic Catchment Area study	Overall comorbidity, PD, Stroke, Arterioscleroris, Myocardial Infarction, Other Neurological Disease, Epilepsy, seizures or head injuries Self-Report: Subjects were asked if they had ever been diagnosed with the CC Who made assessment: NR	Measures: MMSE<24 (<18=severe, 18-23 mild) Criteria: None 6% with cognitive impairment Assessment details NR	Unadjusted RR Mortality: Men: mild: 1.96, severe: 3.91 p=0.0001 for both Women: mild: 2.41, severe: 4.62 p=0.0001 for both % Deceased within 9 years follow-up (unadjusted): Men: CogImp: 74.07%, No CogImp: 32.41% Women: CogImp: 73.53%, No CogImp: 25.72% p=NR Adjusted: For both men and women, lower scores on the MMSE decreased the risk of survival (with the effect stronger for younger respondents than older respondents) (p<.05)	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes
17. Kukull 1994 #3067 Longitudinal descriptive study Duration NR	N=104 NR % female: Probable AD: 60% Probable AD: 57.4% Other Dem: 45.4% No Dem: 58.8% Caucasian: 88-95% U.S.: Seattle, WA The University of Washington Alzheimer's Disease Patient Registry	Stroke, Cancer, Ischemic Heart Disease Records Review: ADRC participants completed a medical history and clinical exam when enrolled and at annual follow-up visits	Measures: MMSE Criteria: DSM-III (R), NINCDS-ADRDA 84% with dementia -Probable AD: 55, Possible AD: 10, Other: 22 MMSE was obtained from last follow-up visit at AD Research Center was obtained from the patient registry. "No dementia" group were patient registry participants who did not meet dementia criteria.	Underlying cause of death-cancers and CVD: No Dementia: 59% Possible AD: 80% Probably AD: 35% Other dementia: 36% Probable AD cases died at similar ages, regardless of level of cognitive impairment.	SAMPLE: No GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Clinic-based				
18. Aguero -Torres, 1999 #2566 Longitudinal (mortality) Duration NR	N=989 84.3(4.3) 77% female < 8 years education: Dem: 74.6% No Dem: 53.7% INTL: Stockholm, Sweden Kungsholmen Project	Overall comorbidity (inc: cancer, stroke not followed by dementia hip fracture, heart disease ICD Diagnosis, Records Review Electronic inpatient records on hospital discharge diagnoses Who made assessment: NR	Measures: MMSE, free recall & recognition of random words, digit span. Criteria: DSM-III-R 12.8% with dementia -AD: 102 ,VD: 21 Mean MMSE=25.2(5.3) (all subjects) Clinical eval using standard protocol: family and personal history (nurses), clinical exam (physicians), psychological tests (psychologists). Informant used when subject unable to answer. Two indep diagnoses (examining physician; specialist)	% Died after 5-year follow-up (unadjusted): Dementia: 70%, No Dementia: 35%, p=NR Unadjusted Mortality Rates (100 person-yrs) (95% CI) Men Age 77-84: Dem: 28.8 (9.2-67.3), no Dem: 8.1 (5.5-11.1) Men 85+: Dem: 24.8 (10.8-48.9); No Dem: 14.6 (11.2-18.7) Women 77-84: Dem: 17.5(8.4-32.3); no Dem: 3.9(2.8-5.3) Women 85+: Dem: 23.6(18.2-30.0); no Dem: 10.0(8.4-11.8) p=NR Unadjusted RR Mortality: Men: 77-84: 3.6(1.4-9.1); 85+: 1.7(0.8-3.5) Women: 77-84: 4.5(2.2-8.9); 85+: 2.4(1.8-3.2) p=NR PAR% (unadjusted): Men 77-84: 10(8-13); 85+: 5 (4-7) Women 77-84: 17(13-20); 85+: 18(14-20) p=NR	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female Other Demographics	Chronic Condition (CC): Definition Assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
Study Design Duration	Location DB	Who made assessment			
18. Aguerro-Torres (continued)				Mean Survival Time from f/u (95% CI) (unadjusted): Dem: 3.0 yrs (2.7-3.4); No Dem: 4.2 yrs (4.1-4.3); p<0.001 Similar findings for AD vs No Dem, and VaD vs No Dem Adjusted RR of 5-yr Mortality (95% CI) AD: 2.0 (1.5-2.7); VD: 3.3 (2.0-5.3) p=NS (AD vs VD) There were similar risk factors for death when stratifying by age and dementia types.	

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
19. Bursi 2006 #1273 Cohort study Mean f/u: Dem: 6.1 years (0.4-19.5), No Dem: 8.2 years (1.1-19.5) p < .001	N=1832 Median: 82 (38-102 yrs) NR % female Other Demog NR U.S.: Rochester, MN Rochester Epidemiology Project	Myocardial infarction, Hypertension, Lipidemia, Diabetes, Substance use (smoking) ICD Diagnosis, Records Review, Standardized Instrument: MI assessed using ICD-9 codes from discharged diagnoses in medical records. Trained nurse abstractors validated the diagnosis of MI using standardized criteria for definite or probable MI (cardiac pain, biomarker values, and Minnesota coding of the electrocardiogram). NR how other CC's were collected. Trained nurse abstractors reviewed the records and compared against standardized criteria.	Measures: NR Criteria: DSM-IV, H-ICDA code 50% with dementia Searched for H-ICDA codes in medical records. Each potential case (at least one H-ICDA code) was screened by trained nurse abstractors. A neurologist confirmed the presence of dementia using DSM-IV.	% Survival at 10 years (unadjusted): Dementia: 22% (95% CI: 20, 25) No Dementia: 39% (95% CI: 36, 43) p < 0.001 # Cardiac Deaths: (unadjusted) Dementia: 313 (55% attributed to coronary disease) No Dementia: 370 (58% attributed to coronary disease) p = .01 Adjusted HR Mortality: 1.67, p=NS (0.516) Adjusted HR Cardiac Death (95% CI): 0.82, 0.70-0.95; p = 0.010 # / % Sudden death: (adjusted)Dementia: 130 (42%) No Dementia: 133 (36%) p = NS (0.135) Survival free of cardiac death after accounting for the competing risk of noncardiac death was better among subjects with dementia (p = 0.014).	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: No MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB				
20. Foley #2604 1999 Longitudinal (mortality) Approx.. 3 years	N=2905 0% female 77.1(4.2) 86.3% married (all subjects) U.S.: Oahu, HI Honolulu-Asia Aging Study (HAAS), using survivors from a cohort study of cardiovascular disease (Honolulu Heart Program (HHP))	Stroke, Asthma, COPD, HTN, Diabetes, Arthritis, CHD Clinical Exam/Diagnosis, Records Review, Structured IW: HTN: measured SBP >/= 160 mm Hg, or measured DBP >/= 95 mm Hg, or use of antiHTN meds. COPD: structured interview data indicating a physician's diagnosis of emphysema at least 2 years earlier or coughing or bringing up phlegm for periods of at least 3 consecutive months for 2 or more years. History of a physician's diagnosis of diabetes, arthritis, and asthma were obtained from the structured interview. CHD and Stroke (CVA) history: surveillance data from hospital/physician discharge records	Measures: CASI<74 Criteria: DSM-III-R 9.1% with cognitive impairment; 2.5% with dementia Note: 6 subjects w/ dementia had CASI>74 Who made assessment NR	Adjusted OR for 3-year Mortality (95% CI): (for cognitive impairment) 2.26 (1.64, 3.10)	SAMPLE: Yes GENDER: No MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
21. Freels 2002 #2055 Cohort study 7 years (median f/u: AD: 5.9 years, VaD: 5.8, No Dem: 6.1)	N=248 45+ % female NR Other demog NR U.S.: Chicago, Illinois Database NR Patients were referred from a hospital-based stroke registry and an academic AD center	Stroke, Myocardial Infarction, Atrial fibrillation, HTN, Lipidemia, Diabetes, Depression, Substance use (smoking) Self-Report, Standardized Instrument: An epidemiologic interviewer administered standardized questionnaires to determine CC's. Stroke: The study neurologist completed the Stroke Data Bank Neurologic Examination and an unstructured neurologic interview with informants.	Measures: MMSE, BOMCT, Formal neuropsychological testing Criteria: ~NINDS-AIREN 77% with dementia. AD: 113 ,VD: 79 All study patients completed diagnostic measures with trained interviewers and informants completed a structured neurologic interview. The following criteria were used: AD = met dementia criteria and no other conditions contributing to cog impairment; VaD = dementia + diagnosis of stroke by Stroke Data Bank criteria, and a temporal relationship between stroke and dementia onset (VaD diagnosis predated both of the currently most commonly used diagnostic systems today). These criteria are consistent with NINDS-AIREN. Persons meeting both VaD and AD criteria were excluded. The "No dementia" group included patients who met criteria for neurologic dysfunction due to vascular disease (stroke) but did not meet criteria for dementia.	Unadjusted: Survival at 2 years: AD: 80.9%, VaD: 89.4%, No Dem: 92.6% Survival at 5 years: AD: 54.6%, VaD: 58.6%, No Dem: 77.1% Survival at 7 years: Adjusted HR Mortality (95% CI): AD vs VaD: HR 0.91, p= 0.685 Adjustment for age and CDR reverses the direction of the HR to a protective, but NS, effect. Adjusted HR Mortality (95% CI): VaD vs No Dem: HR 1.30, p 0.450 The increase in risk for patients with VaD is lower and no longer significant after adjusting for age. Note: No Dem = No Dementia for this study	SAMPLE: No MULTI: Yes GENDER: NR MCC: Yes DEM: Yes CC: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB				
22. Kammoun 2000 #2307 Retrospective correlation study. Duration NR	N=342 84.94(6.9) 62% female Other Demog NR INTL: Geneva, Switzerland Database NR (university-based, geriatric care center)	Overall comorbidity (CCI), Cancer, CVD (heart failure, myocardial infarction), pulmonary embolism, Cerebrovascular disease, CNS heaemorrhage, cachexia, gastrointestinal diseases, cancer, metabolic disorders, depression, and renal failure. ICD Diagnosis: ICD- 10 for somatic diseases and DSM-IV for mental illnesses. Who made assessment NR	Measures: NR Criteria: DSM-IV criteria 35% with dementia -AD: 21 ,VD: 34, MD (Mixed): 65 Subjects with comprehensive clinical, neuropsychological and neuropathological data were included. Cases with major neuropsychiatric illness, alcoholism, head trauma or PD were excluded. Who made assessment NR.	Pulmonary infections and cardiovascular diseases were the most common causes of death. NS differences in causes of death between persons with and No dementia. (unadjusted analysis, data not reported)	SAMPLE: No GENDER: Yes MCC: Yes DEM: No CC: Yes Multi: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
23. Lavretsky 2010 #A368 Multicenter longitudinal study 12 years (median 4.7 yrs)	N=498 74.5(NR) 49.8% female 73.3% Caucasian, 15.7% Asian, 6.0% African-American, 4.6% Hispanic U.S.: California Ischemic Vascular Dementia Program Project (4 clinical sites from 3 academic dementia centers)	Stroke, CVD (MI, CHF, HTN Diabetes, Hyperlipidemia, Depression Standardized Instrument, Clinical Exam/Diagnosis: No other details were provided about the assessment	Measures: Neuropsychological Battery (not specified) Criteria: DSM-IV, NINDS-AIREN, CADDTC 33% with dementia AD: 87 ,VD: 36 Participants received a comprehensive clinical evaluation. Cognition was evaluated using neuropsychological battery (details NR). Dementia diagnoses were made at a multidisciplinary case conference using DSM-IV criteria and NINDS-AIREN for AD and CADDTC for VaD)	Unadjusted Mortality rate: Dem: 52.0% No Dem: 21.1% p<0.001 Unadjusted HR Mortality (95% CI): 7.4 (4.9-11.4) p<0.001 Adjusted HR Mortality (95% CI): 4.7 (2.9-7.5) p=NR	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics Location DB	Assessment Who made assessment			
Study Design Duration					
24. Magaziner 2005 #1287 Epidemiological cohort Up to 2 years or until discharge	N=2153 Dem: 82.7 (7.3) No Dem: 80.2 (7.7) Female (%) Dem: 69.4 No Dem: 72.8 White (%) Dem: 76.2 No Dem: 84.7 Married (%) Dem: 26.8 No Dem: 21.5 Education </= 8 years (%): Dem: 37.9% No Dem: 28.9% U.S.: Maryland (nursing homes) Database NR	Overall comorbidity, Fractures or Injuries Self-Report, Records Review: Overall comorbidity: # of CC at NH admission inc. CHD, CHF, cerebrovascular disease, COPD, liver disease, peripheral vascular disease, seizure disorder, peptic ulcers, arthritis, cancer, uncontrolled HTN (SBP >/=160 or DBP >/=90 mmHg), and malnutrition/underweight (BMI </=20). This information was obtained from interviews with significant others at admission, with the exception that BMI and HTN information was abstracted from the nursing home chart. Two other comorbidity measures (a modified CCI's and the Diagnostic Cost Group/Hierarchical Coexisting Condition risk adjustor, with the dementia diagnosis omitted from both measures) had the same direction, magnitude, and SS of the effect of dementia on any study outcome so the comorbidity count only is presented. Fractures and injuries occurring in the first week of NH stay were included because these originated in the NH. Study abstractors collected follow-up data from NH home charts.	Criteria: NR Diagnosis: DSM-III-R criteria 48.2% with dementia An expert panel of geriatric psychiatrists and neurologists, and a geriatrician determined dementia status using DSM-III-R criteria. 2 panelists gave indep diagnoses: dementia, no dementia, or difficult to diagnose. A larger panel rendered a diagnosis if the two panelists disagreed. Data was obtained from medical records and interviews with staff, family, and residents (conducted by lay interviewers). Note: No dementia includes subjects No dementia and those that were difficult to diagnose	Mortality rate per 100 person-days (unadjusted): Dem: .09, No Dem: .14 p=NR Unadjusted RR mortality (95% CI): 0.61 (0.53-0.71) p </= 0.001 Adjusted RR mortality (95% CI) 0.63(0.51-0.77) p </= 0.001 During the first 90 days of the nursing home stay, residents with dementia had significantly lower rates of mortality if not admitted for rehabilitative care under a Medicare qualifying stay (RR 0.25, 95% CI 0.14-0.45) than residents No dementia.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
25. Meerman 2008 #640 Retrospective case-control Maximum 23 years	N=502 Dem: 81.7 (7.1) No Dem: 81.1 (7) 68.5% female Most subjects were low or middle class INTL: Nijmegen, The Netherlands Continuous Morbidity Registration database, Dept of Family Medicine of Radboud University Nijmegen in the Netherlands	CVD (heart failure, myocardial infarction), Cerebrovascular Diseases (CVA, TIA), HTN, Diabetes (type 1 and 2), Obesity (BMI>25) ICD Diagnosis, Records Review: GP diagnoses coded as ICHPPC codes in medical records.	Measures: NR Criteria: DSM, NINCDS-ADRDA 50% with dementia In the GP registration, dementia is classified as a syndrome only; ICHPPC-2 classification does not distinguish the different types of dementia	Median survival (25-75%) (unadjusted): Dem: 2.3 (1.3-3.6) years No Dem: 3.7 (2.1-6.2) years 1-year: Dem: 73.7%, No Dem: 92.8% 2-year: Dem: 53.7%, No Dem: 79.7% 3-year: Dem: 30.2%, No Dem: 66.9% Unadjusted HR Mortality (95% CI): 3.9 (2.3-3.9) Adjusted HR Mortality (95% CI): (CC within 5 years prior to dementia diagnosis) Cerebrovascular: 1.54 (1.13-2.09) Cardiovascular: 1.91 (1.48-2.46) Obesity: 0.68 (0.52-0.90)	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
26. Zekry 2009 #463 Prospective cohort Duration NR	N=435 85.3(6.7) 74% female Level 1 education (lowest) Dem: 55.6% No Dem: 59.9% Acute and rehab patients in geriatric hospital INTL: Geneva, Switzerland Database NR (acute and rehabilitation geriatric hospital)	Overall comorbidity, Obesity Standardized Instrument: Overall comorbidity: The same geriatrician calculated CCI for each patient using the patient's medical records. Higher scores = greater comorbidity. Dementia was not included in the calculation of CCI or comorbidity. Obesity = BMI, using the short version MNA administered on admission, by the same nurse.	Measures: MMSE,Short Cognitive Evaluation Battery, CDR Criteria: DSM-IV-TR, NINCDS-ADRDA, NINDS-AIREN 44% with dementia AD: 77,VD: 21,Mixed: 82,Other:11 The same neuropsychologist assessed all subjects for clinical dementia, at least one week after admission, to avoid the effects of concomitant delirium. Based on screening results with the objective measures, the same neuropsychologist carried out a comprehensive standardized neuropsychological assessment, to determine the etiology and severity of clinical dementia. Dementia severity was assessed with the CDR (2, moderate, and 3, severe dementia). DSM IV-TR was used for dementia diagnosis. NINCDS-ADRDA and ADDTC used for AD, and NINDS-AIREN used for VaD. Cerebral imaging was also carried out.	# / % Death in Hospitals: Dem: 7 (3.9%), No Dem: 12 (5.8%), p = 0.641 Unadjusted OR Death in Hospital (No Dem / Normal Cognition = referrant group) AD: 0.21 (0.03-1.67); p=0.142 VaD: 0.81 (0.10-6.580; p=0.846 Mixed: 1.06 (0.36-3.09); p=0.360 CDR 2-3: 0.91 (0.31-2.67); p=0.868 Adjusted OR Death in Hospital AD: 0.20 (0.01-3.81); p=0.286 VaD: VaD dropped bc of collinarity MD: 0.70 (0.07-7.30); p=0.762 CDR 2-3: 1.28 (1.12 -13.52); p=0.837	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
27. Arfken 1999 #2622 Design NR Mean f/u 1.9 years	N=455 77.3(7.3) 68% female Mean yrs educ: 9.5 (3.2) 71% Black U.S.: Detroit, Michigan Database NR (rehabilitation hospital)	Depression, Overall comorbidity Standardized Instrument; Records Review: GDS (depression); CCI Index (from 18 different CC diagnoses obtained from medical records) Mean GDS: 7.91 ± 5.76 (range 0-28; >10=depression) Neuropsychology dept staff conducted the GDS; Hospital Management Information System staff for the conducted the Record Review	Measures: DRS < 103 Criteria: None 14% w/ severe cog. Impairment Mean DRS: 120.3 ±16.2 (all subjects) Screen administered by staff from the neuropsychology dept "No CogImp" includes subjects without cognitive impairment (53%) and mild cognitive impairment (33%).	Adjusted OR Mortality: 2.13 (95% CI: 1.13,4.02) p = .02	SAMPLE: No GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: No
28. Gale 1996 #3433 Cohort study 20 years	N=921 65+ 45% female Other Demog NR INTL: Britain Database NR Family practices in 8 areas	Stroke (ischemic), Cancer, Cardiovascular Diseases ICD Diagnosis Who made assessment NR	Measures: AMTS </= 7 Criteria: NA 6.1% with cognitive impairment A geriatrician administered the AMTS	Adjusted RR All-Cause mortality (95% CI): Model 1: CogImp: 2.2 (1.6 to 2.9) Model 2: CogImp: 2.0 (1.4 to 2.7) Adjusted RR Mortality from stroke (95% CI): Model 1: CogImp: 3.3 (1.7 to 6.2) Model 2: CogImp: 2.8(1.4-5.5) *Model 1 adjusts for age and sex only	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: No MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB				
29. Stump 2001 #3431 Prospective cohort study 5-7 years	N=2975 68.1(7.4) 69.2% female Mean (SD) yrs education: CogImp: 7.5 (3.8) No CogImp: 9.1 (3.1) % Black: CogImp: 85.4% No CogImp: 61.2% U.S.: Indianapolis, Indiana Regenstrief Medical Record System: Over 600,000 outpatient visits and 60,000 inpatient stays per year across several insitutions	Cancer, COPD, Artherosclerosis, CAD, Cerebrovascular disease, HTN, Diabetes, Arthritis, Depression, Substance Abuse (Problem Drinking), Smoking, Obesity, High Cholesterol, Standardized Instrument, Records Review: Depression was assessed using CES-D >/= 16). Alcohol drinking problems were measured using the CAGE>/= 2 positive responses. For the records review, data on medical diagnoses, lab data, and smoking status were assessed using data routinely collected and stored in a comprehensive electronic medical record. Physicians order all laboratory tests and procedures. A diagnosis or diagnoses must be entered as the reason for the patient's visit after each encounter.	Measures: SPMSQ (>2 errors) Criteria: None 5.2% with moderate-severe cognitive impairment Trained research assistants collected the SPMSQ. No other assessment details are provided.	% Survived: CogImp: 78.5% No CogImp: 78.6% % Died: CogImp: 40.8% No CogImp: 21.4% p<.001 Unadjusted HR Mortality (95% CI): CogImp: 2.31 (1.83-2.90) p<=.01 Adjusted HR Mortality (95% CI): CogImp: 1.70 (1.32-2.19), p<=.0001	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
8 studies	N=4513	Parkinson's Disease (PD)			SAMPLE: 2 GENDER: 7 MCC: 0 DEM: 4 CC: 4 MULTI: 2 COV ASE: 2
30. Buter 2008 #603 Prospective longitudinal cohort 12 years	N=233 75(8.4) 51.1% female Other Demog NR INTL: Norway Database NR	Idiopathic PD Clinical Exam: Idiopathic PD required at least 2 of 4 cardinal signs (i.e., resting tremor, rigidity, akinesia, and postural instability); at least a moderate response to a dopaminergic agent; and no other evident potential cause of parkinsonism. Patients with neurologic symptoms or radiologically proven structural brain abnormalities compatible with brain diseases other than PD were excluded. Assessment made by neurologist	Measures: CDR, MMSE; If MMSE >16: Neuropsychological Battery visual memory, visuospatial ability, and executive functions) Criteria: DSM-III-R, Caregiver-based dementia interview Scores below the lowest quartile of population-based, age- and education-corrected normative cognitive test data were considered cognitive impairment. 60% with dementia Independent trained raters (blind to eval) administered the tests in an interview with the patient and an informant; An experienced clinician (neurologist) conducted the neurologic exam and made the diagnosis.	Life Expectancy, years (unadjusted): Men Age 70: Dementia: 4.2, No Dementia: 8.0 Men Age 70: Dementia: 4.2, No Dementia: 8.0 Women Age 70: Dementia: 5.7, No Dementia: 11.0 Men Age 75: Dementia: 3.4, No Dementia: 6.2 Women Age 75: Dementia: 4.6, No Dementia: 8.7 Men Age 80: Dementia: 2.7, No Dementia: 4.7 Women Age 80: Dementia: 3.8, No Dementia: 6.8 Men Age 85: Dementia: 2.2, No Dementia: 3.6 Women Age 85: Dementia: 3.0, No Dementia: 5.2 Men Age 90: Dementia: 1.8, No Dementia: 2.4 Women Age 90: Dementia: 2.7, No Dementia: 3.9 P = NR	SAMPLE: No GENDER: Yes MCC: No DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
31. Hobson 2010 #A217 NR 4 years	N=166 Survivors: 74.9(8.3) Deceased: 77.8(7.1) Survivors: 36% Deceased: 38% INTL: England and Wales Database NR	Parkinson's Disease Clinical Exam/Diagnosis: PD Brain Bank clinical diagnostic criteria for probable PD. Who made assessment NR	Measures: CAMDEX CAMCOG Neuropsychological battery-not specified Criteria: DSM-IV 48.2% with dementia Mean (SD) CAMDEX CAMCOG: Alive 82.2(19.2) Deceased: 73.9(16.8) p=.01 Other assessment details NR	Standardised Mortality Ratios (unadjusted) Dem: 3.10 (2.39-3.96) No Dem 1.15 (0.75-1.69) p<0.001 Univariate models of association with mortality (log rank statistic): Dementia = 42.8 (p<0.0001) (greatest predictor, more than age and institutional placement) Average LE (life expectancy) Ages 55 and 74: Dem: 7.5 (SD 3), No Dem: 12.4 (SD 7) Average AAD (avg age death) Ages 55 and 74: Dem: 72.5 (SD 4), No Dem: 77.8 (SD 7) Average LE (life expectancy) Ages 75+: Dem: 2 (SD 1), No Dem: 4.7 (SD 3) Average AAD (avg age death) Ages 75+: Dem: 89.5 (SD 6), No Dem: 92.2 (SD 6) p = NR	SAMPLE: No GENDER: Yes MCC: No DEM: Yes CC: No MULTI: No COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female Other Demographics	Chronic Condition (CC): Definition Assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
Study Design Duration	Location DB	Who made assessment			
32. Levy 2002 #2017 Design NR mean f/u was 3.9 years +/- 2.2 years)	N=180 71(10.3) 53.9% female Avg 11.1(4.8) yrs educ 55.6% White, non-Hispanic, 35.6% Hispanic, 8.9% Black, non-Hispanic 61.8% English as primary language U.S.: Manhattan, NY Database NR	Idiopathic PD. Patients with parkinsonism or a Parkinson-plus syndrome were excluded, as were patients who presented memory loss or dementia before the motor manifestations of PD. Disease Registry: Patients were identified through the development of a registry for PD in the community for individuals considered to have PD or related disorder. Patients were identified from: Hospital admission and discharge lists, lists from various ambulatory care sites, and practitioners both in the hospital and in the community. Who made the assessment NR	Measures: NR Criteria: DSM-III-R 29% with dementia Other assessment details NR	RR Mortality (95% CI) (adjusted): 3.7 (2.0-7.2), p < 0.001 When both incident dementia and EPS (extrapyramidal signs) severity were analyzed in a Cox model, RR for incident dementia was: Adjusted RR=2.2, 95% CI (1.1-4.5), p < 0.04 **This RR includes UPDRS score in the model** RR's by severity of CDR are provided. CDR 1, 2, and 3 or 4 are significant (range from 3.6 to 5.0)	SAMPLE: No GENDER: Yes MCC: No DEM: No CC: No MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with	Mortality Outcomes	Quality
	Other Demographics	Assessment	Dem/CogImp, Mean Scores,		
Study Design	Location	Who made assessment	Assessment		
Duration	DB				
33. Marder 1991 #3225 Design NR 5 years	N=257 Dem: 69.6(7.9) No Dem: 64 (9.9) 38.5% female Age at onset of motor signs: Dem: 59.2(12.1) No Dem: 54.8 (11.2) p=0.006 U.S.: New York City Database NR	Parkinson's Disease Clinical exam/diagnosis: 2:4 cardinal motor manifestations of PD (resting tremor, rigidity, gait impairment, bradykinesia) Who made assessment NR	Measures: UPDRS Item 1 Criteria: DSM-III-R 28% with dementia Structured interview (some in-person, some over phone). Diagnoses made by neurologist or psychiatrist or health professional. UPDRS Item 1 (intellectual impairment) = 2 (if performed by neurologist.	% Deaths (unadjusted) Dem: 23.3%, No Dem: 15.2%, p= NS % Deaths for only age 50+ w/ PD for 10 yrs: Dem: 26.2%, No Dem: 11.8%, p < .02 No significant differences in causes of death (NS). Pnemonia and MI most common causes. Multivariate: Dementia is not a SS predictor of death when age and sex are included in model. Dementia is significant predictor of death (p<0.005) when only include age 50+ w/ PD for 10 years Dementia group has SS decreased survival (p=.049)	SAMPLE: No GENDER: Yes MCC: No DEM: Yes CC: No MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
34. Parashos 2002 #3429 Historical cohort study Median f/u: Dem: 7.0 yrs (<1-15.5) No Dem:7.5 yrs (<1-15.5 yrs).	N=178 73(NR) 41.6% female 36% < HS education 68.6% married U.S.: Olmstead County, Minnesota Rochester Epidemiology Project	Parkinson's Disease Records Review: PD diagnostic criteria: (1) 3: 4 cardinal signs (rest tremor, rigidity, bradykinesia, and postural reflex impairment), 2 cardinal signs + diagnosis of typical PD by a neurologist, OR 2 cardinal signs and improvement of symptoms with antiparkinsonian therapy (as documented in the medical record); (2) no other apparent cause of parkinsonism; and (3) absence of signs of more extensive nervous system dysfunction (not expected in PD). PD cases with evidence of dementia preceding or within the first year of motor symptoms were excluded.	Measures: NR Criteria: in Beard, 1995 26% with dementia Dementia diagnosis required fulfillment of 3 criteria: (1) evidence of previously normal intellectual and social function, irreversible decline in intellectual and social function, dementia as a predominant symptom, and definite evidence of memory impairment; (2) at least 2 of the following symptoms (patient must be fully alert): disorientation, decline in personality and/or behavior, dyscalculia, apraxia and/or agnosia, problems with language, and for impairment in judgment and/or abstract thinking; and (3) cognitive impairment lasting at least 6 months	Unadjusted RR for Mortality (95% CI) (absence of dementia) 0.3; (0.2-0.5) p<.001 Longer survival was associated w/ absence of dementia.	SAMPLE: No GENDER: Yes MCC: No DEM: Yes CC: No MULTI: No COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female Other Demographics	Chronic Condition (CC): Definition Assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
Study Design Duration	Location DB	Who made assessment			
35. Mitchell 2000 #2454 Prospective cohort 5 years	N=2426 All age 65+ NR% female Other Demog NR INTL: Canada Canadian Study of Health and Aging (CSHA)	Parkinson's Disease Clinical Exam/Diagnosis, Records Review, Medication list: 2:4 PD signs asssessed by physician in a neurological exam: bradykinesia of either the face or limbs, resting tremor; increased tone in the limbs, and abnormal gait and posture. The precise nature of the abnormal gait or posture was not noted. To exclude subjects with spasticity, those with increased tone in the presence of abnormal reflexes or focal neurological signs were excluded. Subjects who met PD criteria but who were on medications that commonly cause extrapyramidal side effects were excluded from the survival analysis (any neuroleptic or metoclopramide). Subjects with a previous diagnosis of Idiopathic PD were also excluded from the survival analysis.	Measures: 3MS < 78 Criteria: DSM-III-R, NINCDS -ADRDA 29.7% with AD Following a comprehensive evaluation by physician and nurse, a consensus diagnosis was reached using DSM-III-R. AD based on NINCDS-ADRDA and includes probable or possible AD.	Unadjusted RR Mortality (95% CI): AD: 1.43 (1.09-1.87) No Dem: 1.82 (1.31-2.53 Adjusted RR Mortality (95% CI): AD vs No Dem: 1.39 (1.13-1.72) An interaction term between AD and PD to test for effect modification was NS with mortality when added to the model (RR, 0.87; 95% CI, 0.59-1.29).	SAMPLE: Yes GENDER: NR MCC: No DEM: No CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB				
36. Lo 2009 #52 Cohort study Till death or 10 years	N=573 70.5(7.4) 38.7% female 80.6% non-Hispanic whites. U.S.: Northern California Parkinson Epidemiology at Kaiser Study.	Clinical subtypes of PD included modified tremor dominant, PIGD, or mixed based on the presence of cardinal signs within 2 years of Rceent PD diagnosis Records Review, Admitted to Clinic/Program, Disease Registry, Computerized pharmacy system: Potential incident PD cases were identified through comprehensive clinical inpatient and outpatient databases, a computerized pharmacy system, and KPMCP physician referrals. The records of all potential cases were reviewed by a movement disorder specialist for eligibility and diagnostic status. > 90% subjects were newly diagnosed with PD by a neurologist (median 1 month since first symptom onset). All eligible cases met modified Core Assessment Program for Intracerebral Transplantation/ Hughes diagnostic criteria at the time of diagnosis.	Measures: MMSE < 24 Criteria: None 33% with cognitive impairment MMSE interviewer was trained by a neurologist	Kaplan-Meier curve showed dementia severity correlated with HR. Severe cognitive impairment had the strongest impact on survival among all predictors. Adjusted HR Mortality (95% CI) (age, sex, ethnicity): Severe: 2.71 (1.88-3.91) p=<.001 Adjusted HR Mortality (95% CI) (extended model): Severe: 2.16 (1.31-3.55) p=.002	SAMPLE: Yes GENDER: Yes MCC: No DEM: No CC: No MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB				
37. Ebmeier 1990 #3286 Design NR Mean 3 yrs, 7 mo.	N=500 All 60+ NR% female Other Demog NR INTL: Aberdeen, Scotland Database NR	48.6% with idiopathic PD Clinical Exam/Diagnosis: Comprehensive exam by a research psychiatrist with experience in geriatric medicine	Measures: MSQ < 8 Criteria: None 54.7% with cognitive impairment MSQ collected during the original PD examination. NR who made the assessment.	OR Mortality (95% CI) (unadjusted): CogImp: 5.00 (2.18-13.60) No CogImp: 2.83 (0.82-12.79)	SAMPLE: No GENDER: Yes MCC: No DEM: No CC: No MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
6 studies	N=2302	Stroke			SAMPLE: 0 GENDER: 3 MCC: 2 DEM: 4 CC: 4 MULTI: 5 COV ASE: 2
38. Desmond 2002 #2085 Longitudinal Median f/u: Dem: 2.6 yrs(0-10) No Dem: 4 yrs (0-10.5)	N=453 72(8.3) 52.5% female 36.4% education </= 8 yrs, 72.6% non-White U.S.: New York City Database NR	Ischemic stroke Clinical Exam/Diagnosis, Records Review,Admitted to Clinic/ Program: 7-10 days after stroke onset, neurologists specializing in stroke administered a structured neurologic examination and documented any history of stroke, TIA, or exposure to risk factors for cerebrovascular disease based on review of medical records and a structured interview administered to all patients and knowledgeable informants. A comprehensive medical history was also recorded. Based on the review of clinical features and brain imaging performed immediately after stroke, patients were classified by stroke syndrome using a modification of the methods of the Stroke Data Bank.	Measures: Neuropsychological Battery- not specified Criteria: DSM-III-R and similar criteria as later proposed by NINDRS-AIREN 26.3% with dementia During baseline assessment and annual examinations, all patients were administered a comprehensive battery of neuropsychological tests developed for use in epidemiologic studies of dementia, with testing performed in either English or Spanish based on the language spoken in the subject's home. Knowledgeable informants were administered the Blessed Functional Activity Scale, which taps the cognitive aspects of activities of daily living. We required deficits in memory and two or more additional	Unadjusted RR Mortality (95% CI): 2.98 (2.15-4.12), p = NR (SS) Crude Incidence Mortality Rate Dem: 15.9 deaths/100 person-years No Dem: 5.37 deaths/100 person-years p<0.0001 (log-rank test comparison of survival curves) % Causes of death: Pnemounia: Dem: 26.1%, No Dem: 20.7%, p = 0.516 Cerebrovasc.disease: Dem: 29.8%, No Dem: 23.0%, p = 0.422 Cardiac disease: Dem: 18.2%, No Dem: 20.7%, p=0.752 Malignancies: Dem: 5.3%, No Dem: 19.0%, p=0.070. The risk of death did not differ significantly between patients with cerebrovascular disease as the primary basis for their dementia syndrome (51.5% of whom had died or 14.37 deaths per 100 person-years) and patients with AD with concomitant stroke (53.3% of whom had died or 18.51 deaths per 100 person-years) by a log-rank test. Adjusted RR Mortality (95% CI): 2.37 (1.64-3.43)	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with	Mortality Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment	Dem/CogImp, Mean Scores,		
Duration	DB		Assessment		
38. Desmond (continued)		Other CC: Atrial fibrillation, CHF, MI, HTN, Prior Stroke, Diabetes, Consistent drinking, Consistent smoking Same assessment process as described above	cognitive domains as determined in the neuropsychological evaluation as well as functional impairment not solely related to physical disability documented with the Blessed scale. When patients were aphasic, we required that they exhibit evidence of nonverbal memory impairment. We defined impairment within any cognitive domain as any neuropsychological test score within that domain falling below a predetermined cutoff that was selected in a pilot study. In previous work, we noted that a diagnosis of dementia based on this paradigm had the greatest validity as a predictor of death among stroke patients, while diagnoses based on less stringent operationalized criteria, the MMSE, and the examining neurologist's clinical judgment were only weakly related.		

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
39. Liebtrau 2003 #1838 Design NR 3 years	N=494 85+ 71.1% female 25% higher education INTL: Gothenburg, Sweden Database NR	Stroke (first-ever) Self-Report: First-ever stroke was obtained from self-reports (n =235 for 85-88) and key informant interviews (n =190) for age > 88. Who made assessment NR	Measures: NR Criteria: DSM-III-R 30% with dementia The study included nurse home visits, physical examinations by geriatricians (including assessment of physical disorders), neuro-psychiatric examinations, key informant interviews (to assess cognitive measures, also by neuropsychiatrist), and lab tests	Unadjusted mortality rate, 3-year (95% CI): Dem: 67.9% (53.6-79.7) No Dem: 30.0% (17.1-46.7) Unadjusted RR mortality: Dem: 2.3 (1.1-4.7) No Dem: 1.5 (0.7-3.1)	SAMPLE: No GENDER: Yes MCC: No DEM: No CC: No MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
40. Melkas 2009 #307 Design NR 12 years	N=451 72(7.7) 49% female </= 6 yrs formal educ. Dem: 48.2% No Dem: 25.1% INTL: Helsinki, Finland Helsinki Stroke Aging Memory (SAM) cohort	Ischemic stroke (intracerebral or subarachnoid haemorrhage excluded) Admitted to Clinic/Program: Patients w/ suspected stroke admitted to university hospital Other CC: Stroke, AF, MI, CHF, Arterial HTN, Diabetes, Smoking Peripheral arterial disease Self-Report, Records Review: Detailed medical and neurological history. History of CC assessed by reviewing all available hospital charts and conducting a structured interview with the patient and a knowledgeable informant. HTN = SBP >/= 160 mm Hg or greater and DBP >/= 95 mm Hg. Diabetes included previously documented diagnosis, current use of insulin or oral hypoglycemic medication, or fasting blood glucose greater than 7.0 mmol/l.	Measures: MMSE, Neuropsych-Battery-not specified Criteria: DSM-III 25.5% with dementia Clinical mental status examination by the neurologist, including MMSE. Dementia diagnosed using DSM-III.	Median survival (95% CI) (unadjusted): Dem: 5.1 years, 4.1 - 6.0 No Dem: 8.8 years (7.8 - 9.9) p<0.001 Median survival brain death (95% CI) (unadjusted): Dem: 6.8 years (4.6 - 8.9) No Dem: 11.1 years (10.2 -11.9) p<0.001 HR Mortality (95% CI) (adjusted): 1.53 (1.15 to 2.04) p=.003	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: No MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female Other Demographics	Chronic Condition (CC): Definition Assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
Study Design Duration	Location DB	Who made assessment			
41. Oksala 2009 #170 Prospective, observational cohort study Mean (SD) f/u 7.5 (4.0) years (0.3 - 12.8 yrs)	N=409 71.2(7.7) 49.4% female < 6 years educ: 31.8% INTL: Helsinki, Finland Database NR	Stroke (acute) (80% first-ever) Clinical Exam/Diagnosis, Admitted to Clinic/Program: Detailed medical and neurological history. Stroke severity was assessed using the modified Rankin score at 3 mths. (40% had poor Rankin score)	Measures: MMSE, Stroop colour naming test, WMS-Digit span subtest, WMS-R Logical memory and Visual reproduction subtests, WCST, verbal fluency test, FOME,Token test, the Boston naming test, BDAE, WAIS-R Block design subtest, clock test, and by copying a triangle, a flag, a three-dimensional cube and a Greek cross, Trail making test Criteria: DSM-III MMSE <=25 in 28.6% 28.1% with dementia Impairement in each cognitive domain was judged using normative, age-specific data from a random healthy Finnish population (2 SD or, if more than one test, 1 SD below the level of the norm if one test). Structured interview with the patient and a knowledgeable informant. Dementia diagnosis using DSM-III criteria.	Unadjusted RR Mortality (95% CI): Dem: 4.4 (3.7 -5.1) No Dem: 9.3 (8.3 -10.4) p < 0.0001 Adjusted HR Mortality (95% CI) for dementia: Model inc. memory: 1.45 (1.07 to1.96) p=0.017 Model inc. language: 1.46 (1.09 to 1.97) p=0.012 Model inc. executive: 1.44 (1.06 to 1.94) p=0.019 Model inc. visuospatial: 1.28 (0.94-1.75) p=.116 No different findings when recurrent stroke excluded	SAMPLE: No GENDER: Yes MCC: No DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
42. Tatemichi 1994 #3044 Longitudinal (mortality) Median 4.9 yrs	N=251 >/= 60 NR% female Other demog NR U.S.: New York City Database NR	Acute ischemic stroke Clinical Exam/Diagnosis, Admitted to Clinic/Program: Consecutively stroke patients admitted within 30 days of onset to university medical center. Stroke diagnosis was supported by CT scan obtained as part of the clinical evaluation. Who made assessment NR	Measures: Neuropsychological Battery-not specified Criteria: DSM-III-R 26% with dementia Neuropsychological battery details not available. DSM-III-R criteria to diagnose dementia. BFAS was administered with informants to assess functional impariment. In evaluation of memory deficits in aphasic subjects who were testable, impairment in nonverbal memory was required.	Mortality rate (unadjusted): Dem: 19.8/100 person-years No Dem: 6.9/100 person-years p = NR NS differences in causes of death btw dementia and no dementia Median Survival (%) (unadjusted): Dem: 38.9(+/- 0.08) No Dem: 74.51(0.04%) p<.001 Adjusted RR Mortality (95% CI): Model A: 3.11 (1.79-5.41) Model B: 3.21 (1.64-6.25) When the baseline MMSE score was used instead of the diagnosis of dementia, the results of the model were similar: RR of 3.99 (95% CI, 1.50 to 10.65) for a score of < 12 versus >24.	SAMPLE: No GENDER: NR MCC: No DEM: Yes CC: No MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Mortality Outcomes	Quality
43. Desmond 1998 #2760 Prospective Median f/u 4.7 years	N=244 71.7(8.5) NR% female Mean yrs education: 10.1 (4.5) U.S.: New York City Database NR	Ischemic Stroke Admitted to Clinic/Program, Other: Stroke was defined as the acute onset of a focal neurological deficit attributable to cerebro-vascular disease and supported by CT scan (normal or relevant infarct). Who made assessment NR	Measures: MMSE, Neuropsych. Battery: MMSE orientation scale, SRT, BVT, BNT, BVRT, repetition and complex ideation subtests of BDAE, other language tests, RDT, WAIS-R similarities subset, MDRS Oddities subtest, Blessed Functional Activity Scale Criteria: None Comprehensive neurological exam by neurologist specializing in CVD and dementia.	All of the cognitive impairment paradigms were SS predictors of mortality using log-rank tests and Cox proportional hazards analysis. The neuropsychological testing was superior to the use of MMSE and of clinical judgement, particularly when memory impairment was required. *This study compared multiple methods for assessing dementia (we are only including those that included memory + 1 other cognitive domain in their assessment). The lowest prevalence (11%) was found for using multiple single-cognitive domain items + functional impairment. The highest prevalence (38%) was found for MMSE < 24.	SAMPLE: No GENDER: NR MCC: No DEM: No CC: No MULTI: Yes COV ASE: No

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores,	Service Utilization Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB		Assessment		
3 studies	N = 3423	Multiple Chronic Conditions		Length of stay-Institution	
23. Rothman 2008 #356 Prospective cohort study 7.5 years	N=754 78.4(5.3) 64.6% female Mean (SD) yrs education: 12.0 (2.9) 90.5% non-Hispanic white 39.5% live alone U.S.: New Haven, CT Precipitating Events Project (PEP) (community-dwelling)	Inurious Falls, Overall Comorbidity Self-Report, Records Review: Participants were asked about overnight hospital stays during the past month and to provide the primary reason for admission. An independent review of hospital records of 44 participants indicated high reliability of self-reported information (kappa value of 0.89). An injurious fall was defined as a fall leading to a hospital admission , head injury, or hematoma or bruise of the face or scalp. Overall CC: Mean 1.9(1.3) CCs. Self-reported, physician-diagnosed CC's: HTN, MI, CHF, diabetes mellitus, arthritis, hip fracture, stroke, chronic lung disease, cancer (other than minor skin cancers). Trained research staff conducted the assessments	Measures: MMSE<24 Criteria: None 11.4% with cognitive impairment Mean MMSE (SD): CogImp: 21.7(1.5) (min. = 16) No CogImp: NR MMSE administered by trained research staff. Other details NR.	Adjusted HR Long-Term Nursing Home Stay (95% CI): Model 1 adjusted for demographics and CC: 3.7 (2.5 - 5.4) Model 2 (~Model 1 + 6 other frailty criteria): 2.6 (1.7 - 4.0) Notes: "Long-term NH stay" = >/= 90 days Frailty criteria: low physical activity, cognitive impairment, depressive symptoms, weight loss, gait speed, falls. In Model 1 and 2, slow gait speed was the strongest predictor of long-term NH stay (out of the 6 frailty criteria) The associations for the other frailty criteria were weaker (and of comparable magnitude).	SAMPLE: Yes GENDER: Yes MCC: No DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking #	# Sample (N) Mean age (SD) % Female	Chronic Condition (CC): Definition	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Service Utilization Outcomes	Quality
	Other Demographics	Assessment			
Study Design	Location	Who made assessment			
Duration	DB				
24. Magaziner 2005 #1287 Epidemio-logical cohort Up to 2 years or until discharge	N=2153 Dem: 82.7 (7.3) No Dem: 80.2 (7.7) Female (%) Dem: 69.4 No Dem: 72.8 White (%) Dem: 76.2 No Dem: 84.7 Married (%) Dem: 26.8 No Dem: 21.5 Education </= 8 years (%): Dem: 37.9% No Dem: 28.9% U.S.: Maryland (nursing homes) Database NR	Overall comorbidity, Fractures or Injuries Self-Report, Records Review: Overall comorbidity: # of CC at NH admission: CHD, CHF, cerebrovascular disease, COPD, liver disease, peripheral vascular disease, seizure disorder, peptic ulcers, arthritis, cancer, uncontrolled HTN (SBP >/=160 or DBP >/=90 mmHg), and malnutrition/underweight (BMI </=20). Information was obtained from interviews with significant others at admission, with the exception that BMI and BP was from NH charts. Two other comorbidity measures (modified CCI's and the Diagnostic Cost Group/Hierarchical Coexisting Condition risk adjustor, with the dementia diagnosis omitted from both measures) had the same direction, magnitude, and SS of the effect of dementia on any study outcome so the comorbidity count only is presented. Fractures and injuries occurring in the first week of NH stay were included. Study abstractors collected follow-up data from NH home charts.	Criteria: NR Diagnosis: DSM-III-R criteria 48.2% with dementia An expert panel of geriatric psychiatrists and neurologists, and a geriatrician determined dementia status using DSM-III-R criteria. 2 panelists gave indep diagnoses: dementia, no dementia, or difficult to diagnose. A larger panel rendered a diagnosis if the two panelists disagreed. Data was obtained from medical records and interviews with staff, family, and residents (conducted by lay interviewers). Note: No dementia includes subjects No dementia and those that were difficult to diagnose	Discharged home rate per 100 person-days (unadjusted): Dem: .04, No Dem: .20 p=NR Adjusted RR for Discharged Home (95% CI) 0.23 (0.17-0.31) p </= 0.001	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Service Utilization Outcomes	Quality
25. Smith 2000 #2446 Retrospective case control 6-10 year retrospective record review	N=516 Dem: 80.8 (7.1) No Dem: 81.6 (6.9) 66% female % Married: Dem: 46%, No Dem: 38% Mean (SD) education: Dem: 11.7 years (3.6) No Dem: 11.8 years (3.4) U.S.: Rochester MN Rochester Epidemiology Project (REP)	Overall comorbidity Records Review, Standardized Instrument: Healthcare records from Mayo integrated record-linkage system were reviewed to calculate the Charlson (CCI) scores, excluding dementia Who made assessment NR	Measures: NR Criteria: DSM-III-R, NINCDS-ADRDA (AD) 42.6% with dementia AD: 164, Other Dementia: 150 First step, search of REP integrated record-linkage system for diagnostic terms that might be related to dementing illness (search continued 6-10 years after 1980-84 to capture delayed diagnoses). Individual health care records subsequently reviewed for descriptive features of dementia: including physician's notes, correspondence, lab studies, nursing home notes, etc. Then assessment of probable cause by a neurologist using NINDS-ADRDA criteria. Potential controls' records screened similarly for absence of features of dementia.	Median length of stay in nursing home (unadjusted): Dem: 946 days (range 46-4473) No Dem: 579 days (range 46-3211) P = NR	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
19 studies	N = 37,446	Multiple Chronic Conditions			SAMPLE: 14 GENDER: 18 MCC: 19 DEM: 9 CC: 17 MULTI: 11 COV ASE: 6
1. Rothman 2008 #356 Prospective cohort study 7.5 years	N=754 78.4(5.3) 64.6% female Mean (SD) yrs education: 12.0 (2.9) 90.5% non-Hispanic white 39.5% live alone U.S.: New Haven, CT Precipitating Events Project (PEP) (community-dwelling)	Inurious Falls, Overall Comorbidity Self-Report, Records Review: Self-reported, physician-diagnosed CC's were HTN, MI, CHF, stroke, diabetes mellitus, arthritis, hip fracture, chronic lung disease, and cancer (other than minor skin cancers). There were a mean (SD) of 1.9(1.3) CC. Trained research staff conducted the assessments	Measures: MMSE<24 Criteria: None 11.4% with cognitive impairment Mean MMSE (SD): CogImp: 21.7(1.5) (min. = 16) No CogImp: NR MMSE administered by trained research staff. Other details NR.	Adjusted HR Chronic Disability (95% CI): Model 1 adjusted for demographics and CC: 2.1 (1.7 - 2.8) Model 2 (~Model 1 + 6 other frailty criteria): 1.8 (1.4 - 2.4) In Model 1 and 2, slow gait speed was the strongest predictor of chronic disability (out of the 6 frailty criteria: low physical activity, cognitive impairment, depressive symptoms, weight loss, gait speed, and falls). The associations for the other frailty criteria were weaker (and of comparable magnitude). <u>How function was assessed:</u> "Chronic disability" = new ADL disability that persists for at least 3 consecutive months	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
2. Nikolova 2011 #29 Secondary analysis of SIPA RCT 3 years	N=1164 82(7.3) >50% female >50% had >/= h.s. educ INTL: Montreal, Canada SIPA (Research Program on Integrated Services for the Elderly)	Overall comorbidity Standardized Instrument: A 16-item questionnaire on prevalence of common CC. Number of diseases was coded as: 0-1 disease, 2-3, 4-5, and more than 6 diseases. Trained Interviewer	Measures: SPMSQ >/= 5 Criteria: None 30% with cognitive impairment Assessment details NR	Adjusted OR IADL disability (95% CI): 2.64 (0.47;14.90) p=NS Adjusted OR ADL disability (95% CI): 7.10 (1.12;44.85) p < 0.05 <u>How function was assessed:</u> Data on physical functional limitations were collected using a 7-item scale based on a portion of Roslow and Breslau's Functional Health Scale and some measures of physical performance adapted from Nagy's work on disability. Total score varied from 7 to 28 points with higher scores denoting worse function. The activities referred to were climbing stairs, walking outdoors for 1.5 km, carrying an object of 5 kg, bending and kneeling, pulling or pushing large objects like a chair, handling or picking up small objects, raising arms above shoulders. A cut-off for severity of functional limitations was set as four or more limitations, based on Roslow and Breslau (1966).	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
3. Millan-Calenti 2010 #A28 Design NR Duration NR	N=579 75.1 (7.5) 56.3% female No formal education: CogImp: 87.4% No CogImp: 83.2% Older subjects (85+) were more cognitively impairmed (29.4%) and presented more co-occuring CogImp and depression (22.1%) than other ages. INTL: Naron Council, A Coruna, Spain Database NR (community-dwelling)	Overall comorbidity, Visual /hearing impairments Self-Report, Standardized Instrument, Clinical Exam/ Diagnosis, Records Review: Medical histories were collected by a physician or a trained nurse in charge of the participant during the research. Participants report was given by the patient or their relatives according to medical records. Comorbidity conditions were defined according to the CCI.	Measures: MMSE Criteria: None 20.6% with cognitive impairment Mean (SD) MMSE: 23.9 (5.6) (all subjects) MMSE cut-offs based on pop-based age-education adjusted norms: <20 for 80+ w/ 0 -4 yrs of education to <29 for age 65-69 college-educated. Majority of subjects (>80%) had no formal education. MMSE administered by a psychologist.	IADL dependence (%) Cog Imp: 75.3% No CogImp: 40.8% p < 0.001 ADL dependence (%) CogImp: 42.5% No CogImp: 21.7% p < 0.001 <u>How function was assessed:</u> Functional status was measured using the ADL (Katz et al., 1963) and IADL (Lawton and Brody, 1969) scores. Participants were asked by a physician or a trained nurse if they had any difficulty performing each task without the help of another person. Individuals who were unable to perform any one of the activities were considered to be functionally incapacitated in that activity (ADL or IADL dependent).	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
4. Zekry 2009 #463 Prospective cohort Duration NR	N=435 85.3(6.7) 74% female Level 1 education (lowest) Dem: 55.6% No Dem: 59.9% Acute and rehab patients in geriatric hospital INTL: Geneva, Switzerland Database NR (acute and rehabilitation geriatric hospital)	Overall comorbidity, Obesity Standardized Instrument: Overall comorbidity: The same geriatrician calculated CCI for each patient using the patient's medical records. Higher scores = greater comorbidity. Dementia was not included in the calculation of CCI or comorbidity. Obesity = BMI, using the short version MNA administered on admission, by the same nurse.	Measures: MMSE,Short Cognitive Evaluation Battery, CDR Criteria: DSM-IV-TR, NINCDS-ADRDA, NINDS-AIREN 44% with dementia AD: 77,VD: 21,Mixed: 82,Other:11 The same neuropsychologist assessed all subjects for clinical dementia, at least one week after admission, to avoid the effects of concomitant delirium. Based on screening results with the objective measures, the same neuropsychologist carried out a comprehensive standardized neuropsychological assessment, to determine the etiology and severity of clinical dementia. Dementia severity was assessed with the CDR (2, moderate, and 3, severe dementia). DSM IV-TR was used for dementia diagnosis, NINCDS-ADRDA and ADDTC for AD, and NINDS-AIREN for VaD. Cerebral imaging was also carried out.	Premorbid ADL: Mean (SD) Dem: 4.51 (1.31) Non-Dem: 5.27 (0.86) p< 0.001 Premorbid IADL: Mean (SD) Dem: 3.47 (2.26) Non-Dem: 5.33 (2.01) p< 0.001 How function was assessed: ADL and IADL) (Katz et al., 1963; Lawton and Brody, 1969) scores were determined as a function of patient status 2 weeks before admission, based on the patient's medical history or information supplied by an informal or formal carer. ADL assesses ability to manage activities such as bathing, dressing, going to the toilet, continence, feeding, and transfer (6 items). IADL assesses ability to use the telephone, to shop, to use transport, to cook, to do housework, to take medication and to handle finances (8 items). For both scales, 0 indicates total dependence and the maximum score (6 or 8) indicates total independence.	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
5. Lyketsos 2007 #805 Prospective cohort study 4 years (median 1.5 years)	N=198 CogImp: 86.1(6.73) No CogImp: 84.9 (10.76) % Female CogImp: 80.6% No CogImp: 75% % Caucasian CogImp: 79.9% No CogImp: 89.1% p=NS % in large facility CogImp: 70.9% No CogImp: 85.9% p=.02 U.S.: Central Maryland The Maryland Assisted Living Study (MD-AL)	Overall comorbidity, Depression, Polypharmacy/High risk medications Self-Report, Standardized Interview, Records Review: Residents completed the GMHR (overall comorbidity) and CSDD (depression). Number of Medications came from chart reviews and interviews with the resident, family informant, and facility staff members who knew the resident well.	Measures: MMSE, Trails A andB, HVLT Criteria: None 68% with cognitive impairment Mean MMSE (p<.001) CogImp: 14.64 (7.67) No CogImp: 25.84 (5.50) Mean HVLT: (p<.001) CogImp: 0.54 (1.12), No CogImp: 4.82 (3.32) Mean Trails B (p <.001) CogImp: 500.84 (157.74) No CogImp: 270.17 (151.96) Information from MMSE, Trails, and HVLT (no cut-offs reported) was brought to the panel (the team that evaluated the resident in his or her facility, another geriatric psychiatrist, a geriatric medicine physician, a neuropsychologist, and a registered nurse). The panel used a consensus process to make diagnoses and render opinions about the completeness of evaluation and treatment for dementia on the basis community-care standards (e.g., minimize inappropriate medication use).	Mean (SD) PGDRS scores: CogImp: 14.24 (8.81) No CogImp: 8.42 (6.12) p<.001 Mean (SD) Get up and Go scores: CogImp: 39.44 (57.48) no CogImp: 29.66 (18.76) p = 0.13 High activities, hours (75th percentile) %: CogImp: 23.5 No CogImp: 38.1% p = 0.03 Mean (SD) total activity hours: CogImp: 69.45 (62.56) No CogImp: 91.29 (74.89) p = 0.03 <u>How function was assessed:</u> -Psychogeriatric Dependency Rating Scale (PGDRS) is a measure of ADL impairment; higher scores indicate greater ADL dependency. -Get Up and Go is a direct assessment of physical functioning, measuring the time it takes to rise from a chair and walk 5 m, assessing gait speed and balance. Higher scores (longer time) indicates greater impairment. -Caregiver ratings of hours of activity participation in the previous month based on self-report and available records kept at the facility.	SAMPLE: No GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
6. Magaziner 2005 #1287 Epidemiological cohort Up to 2 years or until discharge	N=2153 Dem: 82.7 (7.3) No Dem: 80.2 (7.7) Female (%) Dem: 69.4 No Dem: 72.8 White (%) Dem: 76.2 No Dem: 84.7 Married (%) Dem: 26.8 No Dem: 21.5 Education </= 8 years (%): Dem: 37.9% No Dem: 28.9% U.S.: Maryland (nursing homes) Database NR	Overall comorbidity Self-Report, Records Review: Overall comorbidity: # of CC at NH admission inc. CHD, CHF, cerebrovascular disease, COPD, liver disease, peripheral vascular disease, seizure disorder, peptic ulcers, arthritis, cancer, uncontrolled HTN (SBP >/=160 or DBP >/=90 mmHg), and malnutrition/ underweight (BMI </=20). Information on CC's was obtained from interviews with significant others at NH admission, with BMI and HTN information abstracted from NH charts. Two other comorbidity measures (modified CCI's and Diagnostic Cost Group/ Hierarchical Coexisting Condition risk adjustor, with dementia omitted from both measures) had the same direction, magnitude, and SS of the effect of dementia on any study outcome so the comorbidity count only is presented.	Criteria: NR Diagnosis: DSM-III-R criteria 48.2% with dementia An expert panel of geriatric psychiatrists and neurologists, and a geriatrician determined dementia status using DSM-III-R criteria. 2 panelists gave indep diagnoses: dementia, no dementia, or difficult to diagnose. A larger panel rendered a diagnosis if the two panelists disagreed. Data was obtained from medical records and interviews with staff, family, and residents (conducted by lay interviewers). Note: No dementia includes subjects No dementia and those that were difficult to diagnose	Mean (SD) number of ADL dependencies: Dem: 4.3(1.7) No Dem: 3.2(2.1) p <.01 >/= 4 ADL dependencies: Dem: 73.1 No Dem: 50.1 p < .01 % Bedbound: Dem: 5.5 No Dem: 10.2 p <.01 % Chairbound: Dem: 36.8 No Dem: 38.5 p=NS (0.41) How function was assessed: Baseline physical function was assessed using a modified Katz ADL scale, which measures ability in bathing, dressing, toileting, transferring, feeding, and continence. Each ADL domain was scored as dependent or fully independent; a summary measure indicated the number of domains in which residents were dependent.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
7. Stewart 2009 #185 Longitudinal Mean f/u 32 yrs	N=1890 Ages 77 - 96 0% female U.S.: Oahu, HI Honolulu Heart Program and	Diabetes, HTN, Depression, Smoking 32% with diabetes, 46% w/ HTN, 58% past smoker Self-Report, Clinical Exam/ Diagnosis: Diabetes was assessed at the fourth clinical examination using World Health Organization criteria. BP was measured with the same standardized protocol at each examination. After the participant had been seated for 10 minutes, SBP and DBPs were measured on 3 occasions 5 minutes apart on the left arm of a seated participant using a mercury sphygmomanometer with a standard cuff. Diastolic pressure was recorded as the fifth phase. Repeated readings were averaged for each examination. Depressive symptoms were measured using the CES-D. Smoking status was ascertained from previous exams from the study.	Measures: NR ("Cognitive prescreening and neuropsych-ological testing") Criteria: DSM-III (R), NINCDS -ADRDA, ADDTC, Hachinski Ischemic Scale 59% with dementia AD: 74 ,VD: 15, Other: 25 The 3-stage procedure included a cognitive prescreening, neuropsychological testing, proxy interview, neurological examination, and neuroimaging. Consensus diagnoses were made by a neurologist and 2 physicians. Diagnosis was made according to DSM-III-R, with NINCDS-ADRDA (AD) and ADDTC (VaD). Probable VaD diagnosis required dementia, computed tomography/MRI evidence of 1 infarct outside of the cerebellum, and then either clinical/imaging evidence of 2 ischemic stokes or a single stroke with a clear temporal relationship to the onset of dementia. Additional support is allowed if there is evidence of multiple infarcts in brain regions known to affect cognition, multiple transient ischemic attacks, a history of vascular risk factors, and an elevated Hachinski Ischemic Scale score.	% with impaired physical function: Incident Dementia: 9% Incident AD: 4% Incident VaD: 13% No Dementia: 2% How function was assessed: Impaired physical function = inability to rise from a chair or walking speed 0.4 m/s	SAMPLE: Yes GENDER: No MCC: Yes DEM: Yes CC: Yes MULTI: No COV: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
8. Eriksson 2008 #808 NR 6-month f/u	N=186 83.6(6.6) 72.6% female Other Demog NR Intl: Umea, Sweden Database NR	Stroke (32%) , Heart disease, Depression (28%), Falls (53%), Urinary Incontinence (29%), Visual and hearing impairments, Sleeping disorder, Diabetes Records Review, Other: 6 specialists in geriatric medicine, who were also the resident's ordinary physicians, registered the diagnoses and current medication of each participant based on previous knowledge and chart review. The staff was instructed to register every fall they observed on a structured fall incidence report, or when they found residents unaccountably on the floor or ground. A fall was defined as an event in which the resident unintentionally came to rest on the floor, regardless of whether or not an injury was sustained. This included falls as a consequence of acute illness (e.g., stroke, an epileptic seizure). The fall reports were collected once a week by the research team. In order to optimize the collection of fall reports, the resident' charts were reviewed after 3 months and at the end of the study. The staff was obliged to note down important events in the charts, such as a fall or a change in a resident's health status.	Measures: MMSE < 24 Criteria: DSM-IV 55.4% with dementia Dementia was one of the diagnoses registered by the six specialists described in the CC assessment section. After the study was terminated, the diagnoses of dementia were re-evaluated, according to the DSM IV criteria, through chart review and a review of the baseline assessments by a specialist in geriatric medicine. All participants with an MMSE < 24 (administered by a physiotherapist) with no diagnosis of dementia were included in the re-evaluation (N = 82). An explanation for the low MMSE score was explored, which could be due to different diagnosis or difficulties originating from these diagnoses (e.g., depression, stroke, impaired vision, paresis affecting writing, and aphasia these diagnoses). If no alternative explanation regarding the low MMSE score was found, the findings still had to fit the symptom profile of dementia, including memory deficit and social dependency, to be diagnosed with dementia.	Mean (SD) Barthell ADL: Dem: 11.1 (5.7) , No Dem: 14.5 (4.8), p = NS # (%) unable to walk: Dem: 14 (13.6) , No Dem: 16 (19.3), p = NS How function was assessed: Nurses' aides and licensed practical nurses who knew the resident were questioned by physiotherapists about ADLs using the Barthell Index. The physiotherapists also assessed walking with and without an aid.	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
9. Lyketsos 2005 #1365 Nested, case-control study Cross-sectional	N=695 Dem: 83.89 (6.29) No Dem: 79.93 (6.73) % female Dem: 64, No Dem: 54.8 99% White Mean (SD) yrs education: Dem: 12.95 (3.13) No Dem: 13.58 (2.90) % married: Dem: 43, No Dem: 63.2 U.S: Cache County, Utah Cache County Study	Overall comorbidity, Stroke, HTN, Diabetes, Chronic Pain, Arthritis, GI disease, Thyroid disease, Heart Attack, Stroke, High cholesterol Mean number of CC's: Dem: 4.1 (2.5), No Dem: 3.7 (2.3) Self-Report, Standardized Instrument, Records Review: A detailed review of systems was used to identify each participant's medical illnesses, with follow-up questions to clarify diagnoses and treatments. The GMHR was administered to rate seriousness of non-cognitive medical comorbidity in persons with cognitive disorders. It was developed as a clinician rating. Ratings of 4 indicate little-to-no comorbidity; 3: mild-to-moderate comorbidity; 2: moderate-to-severe comorbidity; and 1: serious comorbidity. In this study, GMHR ratings were assigned by a geriatric psychiatrist on the basis of direct and proxy interviews by the nurse, as well as a brief physical and neurological exam. To assess the reliability of these ratings, we calculated the agreement between two raters in a random sample of 150 cases and found it to be high ($p < 0.001$)	Measures: MMSE, IQCODE Criteria: DSM-IV 53.8% with dementia Mean (SD) MMSE: Dem: 20.47 (5.92) No Dem: 28.30 (1.86) The subsample and all other participants with suspected dementia underwent a comprehensive clinical assessment for dementia in their place of residence by a research nurse, a psychometric technician, and a geriatric psychiatrist. Data from these evaluations were used to classify participants at consensus conferences that included two geriatric psychiatrists, a board-certified neurologist, a senior neuropsychologist, and a cognitive neuroscientist.	Mean DSRS-ADL score, by GMHR rating GMHR = Fair: Dem: ~12 (10.5 - 14), No Dem: ~2 (1 - 3.5) GMHR = Good: Dem: ~9 (7.5 - 11.5), No Dem: ~1 (0.5-1.5) GMHR = Excellent Dem: ~4.5 (3 - 6), No Dem: ~0.2 (0.1 - 0.3) Data are estimated from Figure 2A. p values are not reported. Less serious comorbidity (higher ratings on GMHR) was associated with less impairment (lower mean DSRS- ADL). <u>How function was assessed:</u> A knowledgeable informant rated each participant on the Dementia Severity Rating Scale (DSRS), an 11-item scale of signs and symptoms associated with dementia. Six of the 11 items refer to ADLs, including: engagement in social activities, household responsibilities, personal care, meals/feeding, incontinence, and mobility. Each ADL is assessed on a scale from 0 to 4 (except mobility, which is assessed on a scale from 0 to 6). A rating of “0” indicates that there is no impairment, and the highest rating, of “4” (or “6”) indicates complete dependency or loss of ability to perform the ADL. The sum of the six ADL ratings (DSRS-ADL) was used as an indicator of cumulative ADL impairment.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
10. Zekry 2008 #711 Prospective study 1 year	N=349 85.2(6.7) 76% female % < 12 yrs education: Dem: 57, No Dem: 63.1 % live alone: Dem: 50, No Dem: 65 Intl: Geneva, Switzerland Database NR	Overall comorbidity, Stroke, COPD, Cancer, AF, CHF, HTN, Arthritis, Cerebrovascular disease, Substance use (drinking, smoking), BMI, Nutrition Mean (SD) CCI: Dem: 4.87 (2.56) No Dem: 4.50 (2.79) Self-Report, Records Review: The Charlson (CCI) was determined by extensive review of the patient's medical records for diagnoses established at/or before enrollment in this study, higher scores indicating greater comorbidity. The study also included HTN, AF, stroke, and hypercholesterolaemia (CC's not included in the CCI). The various classes of medication taken before admission were also listed, as well as functional status. ADL and IADL were determined by the same nursing team on the admission day of the patient. The information regarding the previous 2 weeks was supplied by the patient when he was capable of answering and by an informal and/or formal caregiver. Who made assessment NR	Measures: MMSE, Neuropsychological Battery - Not Specified, Short Cognitive Evaluation Criteria: "Formal clinical criteria" 53.8% with cognitive impairment AD: 61 ,VD: 17, Mixed: 62, Other: 11 (DLB: 3, PDD: 2, Creutzfeld-Jacob disease: 1, cortico-basal: 1, fronto-temporal: 1, hydrocephaly with normal pressure: 1, glioblastoma: 1, cerebral measures: 1) Mean (SD) MMSE Scores: AD: 16.3 (4.7) Mixed dementia: 15.6 (4.9) VaD: 17.5 (6.7) The same neuropsychologist assessed all subjects at least one week after patient inclusion. The following neuropsychological battery was applied: the MMSE and the short cognitive evaluation. Based on this screening, a comprehensive standardised neuropsychological battery used in our routine clinical practice was carried out by the same neuropsychologist, with formal clinical criteria used to determine the aetiology and severity of clinical dementia (Appendix 3). Cerebral imaging was also carried out.	Mean (SD) Functional Independence Measure (FIM): (Assessment at discharge) Dem: 84.87 (27.88) No Dem: 99.56 (28.81) p < 0.0001 How function was assessed: The Functional Independence Measure (FIM). FIM scores range from 18 (completely dependent) to 126 (completely independent).	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
11. Feng 2010 #A441 Cohort study 1 year	N=146 77.8(10.8) 69.9% female Other Demog NR INTL: Singapore Database NR (hip fracture patients in a rehabilitative care facility)	Overall comorbidity Mean (SD) CCI: 2.1(1.9) Standardized Instrument, Records Review: Overall comorbidity was obtained from medical charts and included diabetes, HTN, stroke, dementia, congestive cardiac failure, ischemic heart disease, COPD and arthritis. A modified Charlson comorbidity scale was created that excluded dementia and HTN as disease conditions. Nurses reviewed charts and completed the CCI.	Measures: MMSE < 24 Criteria: None 79% with cognitive impairment Nurses administered the MMSE	Mean (SD) modified Barthell Index Baseline: CogImp: 50.3 (16.6), No CogImp: 57.3 (21.2) Discharge: CogImp: 74.6 (16.5), No CogImp: 83.8 (15.0) 12-month: CogImp: 87.2 (27.9), No CogImp: 94.4 (7.4) Mean (SD) Ambulatory status Baseline: CogImp: 2.3 (0.6), No CogImp: 2.7 (0.7) Discharge: CogImp: 2.8(0.8), No CogImp: 3.6(1.2) 12-month: CogImp: 4.7 (1.1), No CogImp: 4.1 (1.3) p = NR How function was assessed: The Modified Barthel Index (MBI) is a 10-item questionnaire used to assess independence in ADLs. A summary score was computed by adding the point of each single item. Possible scores range from 0 to 100, with a higher score indicating greater independence in ADLs. Ambulatory status was determined based on functional walking categories defined by Perry et al. (1995). It includes six walking categories, each of which was characterized according to observation of the participants' ambulation, including the walkingspeed test.	SAMPLE: No GENDER: Yes MCC: Yes DEM: No CC: No MULTI: Yes COV: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
12. Cankurtaran 2008 #779 Design NR Cross-sectional	N=1436 72.7(6.9) 65.8% female Living status (%) Alone: Dem 51.7%, No Dem 54.1% Living With family: AD 46.3%, VaD 47.9%, no Dem 41.3% Nursing Home: AD 2.0%, VaD 4.3%, no CI 4.7% Intl: Ankara, Turkey Database NR	Stroke, CVD, HTN, Diabetes, Depression, Lipidemia, Cerebrovascular disease, Substance use (drinking, smoking) Clinical Exam/Diagnosis, Lab exams: A comprehensive geriatric assessment (CGA) was conducted. "Normal": vitamin B12 160 pg/ml and over; total cholesterol 200 mg/dl and lower; triglycerides 200 mg/dl and lower; LDL-C 130 mg/dl and lower, HDL-C 40 mg/dl and over	Measures: MMSE, CDT Criteria: DSM-IV, NINCDS -ADRDA, Hachinski Ischemic Score for VaD 21% with dementia AD: 203 ,VD: 73 Global Deterioration Scale (GLDS) was used to stage severity of dementia: 60% mild (GLDS stage 3), 30% moderate (stage 4), and 10% severe (stage 6).	Mean (SD) IADL score: AD: 13.5 (3.5) No Dem: 14.3 (2.9) p=0.001 ADL score data was not reported. <u>How function was assessed:</u> The Instrumental ADL Scale (Lawton and Broody, 1969) and the ADL Scale (Mahoney and Barthel, 1965)	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
13. Gombojav 2011 #A5 Longitudinal Mean 11.8 yrs	N=2496 73.6(5.9) 57.7% female % no formal education: CogImp: 80% No CogImp: 50% INTL: South Korea Database NR	1/3 with a chronic disease, 1/3 with HTN (may be overlap btw these 2 categories), BMI, Smoking, Drinking, Clinical Exam/Diagnosis, Self-Report: Avg 2 BP measurement using standard mercury sphygmo-manometer, assessed by trained interviewer. SBP/DBP: </= 140/90 mm Hg. Overall comorbidity: Subjects answered yes or no to the question "do you have any chronic disease or past accident or injury due to which you feel uncomfortable in your daily life including work?	Measures: MMSE Criteria: None 44% with CogImp Mean MMSE (SD): mild severity CogImp: 17.6 (1.1) severe CogImp: 11.9 (3.1) no CogImp: 24.1 (2.9) MMSE administered by the investigation team	% with ADL disability: No CogImp: 0.8 Mild Severity CogImp: 1.6 Severe CogImp: 7.4 p = 0.000 % w/ IADL disability: No CogImp: 49.7 Mild Severity CogImp: 63.7 Severe CogImp: 73.4 p = 0.000 <u>How function was assessed:</u> ADLs included: bathing or showering, dressing, going to the toilet, transferring (in and out of bed or chair), and eating. A 3-category outcome score was used to assess disability in ADL: (1) can perform the activity independently, (2) can perform the activity with assistance, and (3) unable to perform the activity. ADL disability was defined as being unable to perform the activity. In order to define IADL, the following activities were addressed: housework, meal preparation, traveling by car or public transportation, shopping food or clothes (regardless of transport), medication use (preparing and taking correct dose), making telephone calls and managing money. Each activity was graded on a 3-part scale: independent, assistance needed and dependent. Participants who performed the activities dependently or with assistance were considered as having an IADL disability.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
14. Covinsky 2003 #1965 Retrospective analysis 2 years	N=917 Age at death: CogImp: (85.3 (7.7) No CogImp: 80.9 (9.6) % Female (CogImp/No): 70.7%, 65.9% % Race/Ethnicity Cog Imp/No Cog Imp: White: 41.7 / 53.9 African Americ: 21.3 / 14.7 Hispanic: 4.5 / 9.6 Asian: 31.4 / 20.7 Other: 1.2 / 1.2 U.S.: 12 PACE demonstration centers in the U.S. DataPACE PACE cares for frail older people who meet criteria for nursing home placement, with the goal of keeping the patient at home.	Parkinson's Disease (12%), Cancer (19%), Diabetes (27%), Stroke (43%), CHF (37%), CAD (46%) Records Review: DataPACE includes data about demographics, functional status, and comorbid conditions for patients enrolled at the PACE demonstration sites. Sources of data include patients, caregivers, nurses, social workers, and physicians. Principles underlying PACE data collection include a consistent set of variables collected by all sites, consistent guidelines for recording data across sites, and centralized training and quality assurance procedures. Detailed procedure manuals outlined specific definitions and protocols for each data element, and data collection staff were trained to a standard of reliability. Staff from the coordinating center visited each PACE site on a yearly basis to monitor data collection and perform additional reliability checks.	Measures: SPMSQ Criteria: None 63.6% with cognitive impairment Mean (SD) SPMSQ errors: CogImp: 8.5 (1.5) No CogImp: 1.9 (1.7) Cognitive status was defined as six or more errors on the 10-item SPMSQ. PACE nurses or social workers assessed SPMSQ scores on enrollment and every 3 months thereafter. For these analyses, the SPMSQ score that was closest to 24 months before death was used.	Unadjusted OR for Incidence of Functional Decline (95% CI) for with vs without CogImp: Bathing: OR: 3.4 (2.3-5.2) Eating: OR: 2.7 (1.9-3.9) Mobility: OR: 2.2 (1.6-3.2) Continence: OR: 3.1 (2.2-4.6) Mean (SD) Occurrence of Decline, Days Before Death: Bathing: CogImp: 338 (332) / No Cog Imp: 194 (175), p=.83 Eating: CogImp: 325 (222) / No CogImp: 173 (174), p<.001 Mobility: CogImp: 331 (281) / No CogImp: 187 (186), p=.05 Continence: CogImp: 337 (270) / No CogImp: 191 (175), p=.016 Adjusted OR for Functional Decline (95% CI): Bathing: OR: 3.6 (2.3-5.8) Eating: OR: 2.6 (1.7-3.8) Mobility: OR: 2.4 (1.6-3.7) Continence: OR: 3.5 (2.3-5.3) For each measure, patients with cogimp were much more likely than patients without cogimp to be fully dependent 2 years before death. People with cogimp were also more likely to have the maximal level of dependence in the 0- to 3-month window before death.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
Covinsky (cont)				How function was assessed: PACE nurses assessed each functional measure at the time of PACE enrollment and every 3 months thereafter. For bathing, eating, and mobility (walking), patients were classified as independent (able to do the activity without the assistance of another person all of the time), partially dependent (needs help for part of the activity some or all of the time), or fully dependent (needs help for all of the activity all of the time). For mobility, patients who used an assistive device other than a wheelchair were classified as independent as long as they did not need the help of another person. Continence was defined based on the combination of bladder and bowel incontinence. For each, incontinence was defined as one or more episodes of incontinence per week. A hierarchical classification was used. Patients were defined as continent, bladder incontinent, or bowel incontinent. Bowel incontinence was classified as a higher level of functional impairment because, in most patients, bladder incontinence proceeds bowel incontinence and because bowel incontinence generally confers greater caregiving needs than bladder incontinence.	

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
15. Sousa 2009 #31 Population-based survey Cross-Sectional	N=14,981 71.3 - 75.2 among 11 sites 53 - 66% female % with educ attainment ranged from 34% - 97% Intl: 7 low and middle income countries (China, India, Cuba, Dominican Republic, Venezuela, Mexico, and Peru) 10/66 Dementia Research Group population-based survey	Median (range) prevalence: HTN: 62.6% (28.5 - 75.4) Diabetes: 14.0% (1.0 - 24.5) Stroke: 7.1% (1.1 - 8.7) COPD: 5.8% (1.6 - 7.6) Depression : 4.7% (0.3 - 13.8) Heart Disease: 4.4% (1.2 - 14.2) Arthritis/Rheumatism: 18.2% (1.9-51.1) Self-Report, Standardized Instrument, Clinical Exam/Diagnosis: Depression: ICD-10 criteria ascertained with the structured GMS clinical interview. HTN: European Society of Hypertension criteria (SBP >/= 140 mm Hg or DBP >/= 95 mm Hg) or a positive answer to the question 'have you ever been told by a doctor that you have hypertension?' COPD: People who "usually cough up phlegm from their chest first thing in the morning" "more than 3 months" per year. Diabetes: Persons who had ever been told they have diabetes.	Measures: "Extensive multidomain cognitive testing" (not specified) Criteria: DSM-IV, 10/66 dementia diagnosis algorithm 8.7% with dementia Dementia was ascertained according to the cross-culturally validated 10/66 dementia diagnosis algorithm and the DSM-IV dementia criterion after extensive multidomain cognitive testing and clinical and informant interview.	Adjusted RR for association btw disability and dementia: All Countries: 1.88 (1.79-1.98) RR's ranged from low (rural India, 1.32 (1.18-1.47)) to a high from Rural Peru: 2.66 (2.25-3.15) Compared to other significant CCs, such as depression, stroke, diabetes, heart problems, myocardial infarction/angina, COPD and Hypertension, the RR of disability and self-reported impairments is higher for subjects with dementia. (e.g., the next highest RR was 1.39 for depression and for stroke). How function was assessed: Disability was measured with the 12-item WHODAS 2.0. This short version covers all six domains of the full 36-item version. The schedule has five activity-limitation domains: understanding or communication, getting around (mobility), self-care, getting along with people (interpersonal interaction), and life activities. A sixth domain, participation in society, assesses broad social aspects of disability. Each domain is covered by two questions, with scores ranging from 0 (no difficulty) to 4 (extreme difficulty or cannot do). The standardised global score ranges from 0 (non-disabled) to 100 (maximum disability).	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
16. Zhu 1998 #2680 Cross-sectional survey of a longitudinal study	N=1810 82.5(5.2) 71.6% female 53% 4-7 yrs education Intl: Stockholm, Sweden Kungsholmen Project	Stroke (8.4%), hip fracture (10.8%) heart disease (13.4%), cancer (11.9%) ICD Diagnosis: Cases of stroke (ICD-8 codes 430 to 438) were identified through the computerized inpatient register system. There are no private hospitals that treat patients with stroke in this area. Persons with any stroke event recorded in the system before the date of the interview were considered prevalent stroke cases. In Sweden 90% of patients who suffer from a stroke are admitted to a hospital. Most of the stroke patients who are not hospitalized are those who die at home or on the way to the hospital. All kinds of heart disease (ICD-8 codes 390 to 429), cancer (ICD-8 codes 140 to 208 and 230 to 239), and hip fracture (ICD-8 code 820) were detected from the same source.	Measures: MMSE>24 Criteria: DSM-III-R 12.4% with dementia AD: 121 ,VD: 52, Other: 52 Dementia cases were detected by a screening phase (health interview and MMSE) and a clinical exam phase (all subjects with MMSE<24 and a sample of subjects with MMSE > 24). Dementia diagnosis was made according to DSM-III-R. The cognitive exam explored memory (facts of general knowledge and past personal information), language (object naming and comprehension), abstract thinking (problem solving and proverbs), praxis (examining simple motor activities-dressing, pantomime), and visuospatial skills (copying figures). A preliminary diagnosis was first given by the examining physician. All cases were independently reviewed by a neurologist, and a second preliminary diagnosis was made. If there was agreement between the two, this was the final diagnosis. In case of disagreement, a third opinion was asked, and the concordant diagnosis was accepted. For patients with aphasia, a close informant was asked about a patient's everyday behavior and ADLs. Patients who were behaviorally unchanged and routinely attempted to use residual functions were not considered	Adjusted OR for ADLs for dementia vs no dementia: OR for Bathing: Stroke: 3.4 (2.3â€“5.1) OR for Dressing: 8.7 (6.2 - 12.2) OR for Toileting: 5.3 (3.7 - 7.4) OR for Transfer: 10.3 (6.5 - 16.3) OR for Continence: 6.2 (4.2-9.0) Population-Attributable Risk Percentages (PAR%) of Dementia to Disability: Bathing: 48.7 Dressing: 48.9 Toileting: 34.7 Transfer: 53.6 Continence: 39.2 p values are not reported Dementia produced the largest OR of disability compared to hip fracture, stroke, heart disease (OR range 1 - 3), and was the biggest contributor to disability (PARs). How function was assessed: Functional disability was assessed according to Katz Index of independence in ADL. The subjects were asked questions regarding their ability to bathe, dress, go to toilet, transfer, maintain continence, and feed. Any dependent performance of these activities was recorded as disability in correspondent items.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: No MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
17. Aguero-Torres, 2002 #2023 Baseline case-control assessment of a longitudinal study Cross-Sectional	N=570 No Dem: 84.0 (5.2) Dem:85.0 (5.5) % female (No Dem/Dem) 81.4% / 80.9% % education < 8 yrs: No Dem: 59.5 Dem: 74.4 % Single, Divorced, Widow: No Dem:79.4 Dem: 79.1 Intl: Stockholm, Sweden Kungsholmen Project	Cancer (12%), Hip fracture (19%), Cerebrovascular disease (12%), Heart disease (19%) ICD Diagnosis: The information was obtained from the Computerized Stockholm Inpatient Register System, which is a register of hospital discharge diagnoses from 1969 to 1987. Disease diagnoses were based on the ICD-8 codes: heart diseases (410-414, 427, 428); cerebrovascular diseases (430 - 438); hip fracture (820) and; cancer (140 - 208 and 230 - 239). A new variable was created to idnetify when at least one of these somatic disorders, or target chronic conditions (CC) was present. Who made assessment NR	Measures: MMSE < 24 (Swedish), Neuropsychological battery (not specified) Criteria: DSM-III-R 48.4% with dementia Psychologic tests included the MMSE, episodic, and primary memory tasks as free recall and recognition of random words, and digit span. Dementia was diagnosed using the DSM III-R criteria. As the clinical diagnosis of AD and other dementias presents particular difficulties because of the lack of specific markers, the diagnostic process was double: first, a preliminary diagnosis was made by the examining physician, and all the cases were independently reviewed by a geriatrician who made a second preliminary diagnosis. In case of agreement between the physicians, this was the final diagnosis. In case of disagreement, a third opinion was sought (neurologist, expert in dementia research) before the final diagnosis was accepted. A completeneuropsychologic assessment was also carried out.	Functional disability (%) In at least one ADL: No Dem: 24.1%, Dem: 77.6% In at least one IADL: No Dem: 68.0%, Dem: 97.1% Demented subjects had the highest prevalence of dysfunction in all ADL and IADL activities. In ADL, the distribution of dysfunction was similar among demented and nondemented subjects; bathing being the most affected item for all subjects. In IADL, non-demented subjects had most dysfunction in cleaning, while demented subjects had most difficulties in handling economy. Adjusted OR (95% CI) for ADL and IADL disability for combined effect of CC + Dementia (reference group = nondemented + no target CC): ADL disability: Dementia w/ no target CC: 4.9 (2.7-8.8) Dementia w/ at least 1 target CC: 26.5 (14.0-49.9) IADL disability: Dementia w/ no target CC: 14.2 (4.8-41.9) Dementia w/ at least 1 target CC: 45.2 (10.7-191.0) How function was assessed: Functional status was measured as ability to perform basic ADL and IADL. The ADL Katz scale was used, which includes 6 activities: bathing, dressing, toileting, transferring, continence, and feeding. IADL included 5 activities: cleaning, cooking, using public transportation, handling finances, and shopping. Information on both ADL and IADL was obtained directly from the subjects if MMSE > 23, and from a close relative for subjects with MMSE < 24. If the person lived in an institution, the personnel in charge were interviewed. Any dysfunction in the performance of these activities was recorded as dependence in the correspondent item. Because IADL items are often gender-specific, we considered not only the current ability to perform each item, but also the potential capability in case of necessity.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: No MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
18. Aguero-Torres,1998 #2674 Prospective longitudinal cohort Mean follow-up: 3.36 years	N=1745 81.7(4.9) 76% female % high level education: Dem:24%, NoDem:40% Int: Stockholm, Sweden Kungsholmen Project	Cancer (12%), Hip fracture (11%), Cerebrovascular disease (9%), Heart disease (17%) ICD Diagnosis: The information was obtained from the Computerized Stockholm Inpatient Register System, which is a register of hospital discharge diagnoses from 1969 to 1987. Disease diagnoses were based on the ICD-8 codes: heart diseases (410-414, 427, 428); cerebrovascular diseases (430 - 438); hip fracture (820) and; cancer (140 - 208 and 230 - 239). A new variable was created to idnetify when at least one of these somatic disorders, or target chronic conditions (CC) was present. Who made assessment NR	Measures: MMSE < 24 (Swedish), Neuropsychological battery (not specified) Criteria: DSM-III-R 12% with dementia Mean (SD) MMSE: Dem: 12.6 (8.2) No Dem: 26.8 (3.3) Psychologic tests included the MMSE, episodic, and primary memory tasks as free recall and recognition of random words, and digit span. Dementia was diagnosed using the DSM III-R criteria. As the clinical diagnosis of AD and other dementias presents particular difficulties because of the lack of specific markers, the diagnostic process was double: first, a preliminary diagnosis was made by the examining physician, and all the cases were independently reviewed by a geriatrician who made a second preliminary diagnosis. In case of agreement between the physicians, this was the final diagnosis. In case of disagreement, a third opinion was sought (neurologist, expert in dementia research) before the final diagnosis was accepted. A completeneuropsychologic assessment was also carried out.	Adjusted OR (95% CI) for Functional Dependence (Katz ADL Index > 1): Cerebrovascular disease and Dementia: 2.3 (0.8-7.3) Heart disease and Dementia: 5.4 (1.4-21.2) Cancer and Dementia: 0.5 (0.1-2.1) Hip fracture and Dementia: 1.7 (0.5-5.2) ADL Dependence (Requiring personal assistance in at least 1 of the 6 basic activities) (%): Dem: 77.6, No Dem: 26.1, p value = NR Adjusted OR (95% CI) for Risk Factors for Developing Functional Dependence (Katz ADL Index >1) after a 3-Year Follow-up Interval: Dementia: 25.2 (9.6-66.4) Adjusted OR for 3-Year Functional Decline for Those Who Already Had Functional Dependence at Baseline: Dementia: 2.2 (1.1-4.5) <u>How function was assessed:</u> Functional dependence = Katz ADL Index > 1. ADL Dependence = Requiring personal assistance in at least 1 of the 6 basic ADL activities.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
19. Wang 2010 #A43 Non-experiment longitudinal coh study 4 - 9 months	N=4942 CogImp: 84.6 (7.4) No CogImp: 84.1 (7.7) ~69% female % < 12 yrs education: Dem: 57, No Dem: 63.1 % live alone: Dem: 50, No Dem: 65 U.S.: Minnesota Database NR	HTN (39%), CVD (20%), Stroke (4%), Arthritis (8%), Depression (10%), Vision impairments (19%), Bladder incontience (12%), Bowel incontinence (9%) *CC prevalence is reported for each CC individually. Subjects may have more than one CC. Mean CC's = 1.5 Self-report, Standardized Instrument: Participants responding "yes" to both having the CC and reporting having a related treatment were classified as having the CC. The Chinese GDS-SF was used to evaluate the depressive symptoms of the elderly subjects in the past one week. GDS-SF has shown good sensitivity and specificity for predicting depressive disorders in different settings. A cutoff value of >/= 5 (0 - 15 range) was used to define geriatric depression. All CC data was collected during home visits with well-trained interviewers.	Measures: MDS-COG Criteria: None 36.6% with cognitive impairment The study sample was divided into high and low cognitive function based on the MDS-COGS, which is constructed from eight MDS cognitive function items measured at baseline (range 0-10). Residents with a MDS-COGS score of 0 to 4 were categorized as having high cognitive function and those with a MDS-COGS score of 5 or higher were categorized as having low cognitive function. Who made assessment NR	Mean (SD) Total ADL score Baseline: CogImp: 16.5 (7.1) , No CogImp: 12.4 (7.1) Follow-Up: CogImp: 16.6 (7.4) , No CogImp: 11.5 (8.0) Totally dependent, n (%): Baseline: CogImp: 75 (4.1) , No CogImp: 7 (0.2) Follow-up: CogImp: 84 (4.6), No Cog Imp: 44 (1.4) Eating, % (supervision, assistance or dependence): Baseline: CogImp: 62.2%, No Cog Imp: 25.6% Follow-up: Cog Imp: 66% , No CogImp: 28.2% Toilet Use, % (supervision, assistance or dependence): Baseline: Cog Imp: 93.1%, No CogImp: 79.5% Follow-Up: CogImp: 90.7%, No CogImp: 71% Personal Hygiene, % (supervision, assistance or dependence): Baseline: CogImp: 97%, No CogImp: 83.2% Follow-up: CogImp: 96.7%, No CogImp: 77.6% p = NR for above comparisons. Notes: Participants with no cognitive impairment were less dependent in all ADL measures at baseline and follow-up than those with cognitive impairment.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: Yes COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Function Outcomes	Quality
Wang (continued)				NH random effects were much stronger for residents with a no cognitive impairment. For those with no cognitive impairment, NH random effects were SS for total ADLs, toileting, and personal hygiene, whereas for those with cognitive impairment, NH effect was significant only for eating function. <u>How function was assessed:</u> Total ADL scores at baseline and follow-up were aggregated from seven MDS items (bed mobility, transfer, locomotion on unit, dressing, eating, toilet use, and personal hygiene), each item rated from 0 (totally independent) to 4 (totally dependent), resulting in a total ADL score ranging from 0 to 28.	

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
6 studies	N = 8236	Hypertension		Anti-HTN medications	
15. Huang 2009 #221 Cross-sectional design and duration	N=782 93.62(NR) All in their 90's and 100's 67.5% female Intl: Dujiangyan, China Project of Longevity and Aging in Dujiangyan	% with hypertension: CogImp: 56.99%, No CogImp: 57.10% Self-Report/Interview, Clinical Exam/Diagnosis: Trained study personnel conducted standardized face-to-face interviews, including self-reported medical history, medication, anthropometric measurements, standardized physical examination, and a 12-lead electrocardiogram. BP was taken twice, to nearest 2 mm Hg, using standard mercury sphygmomanometer. The mean value of the two measurements was used to calculate SBP and DBP according to the Joint National Committee VII criteria. HTN = SBP>140 mm Hg and/or DBP>90 mm Hg and/or receiving antihypertensive treatment. Participants with confirmed HTN and no identified cause of secondary HTN were diagnosed with essential HTN Persons with cancer, type 2 diabetes, secondary HTN, severe heart failure, and terminal stage COPD were excluded .	Measures: MMSE<19 Criteria: NA 59.5% with cognitive impairment 3% had vascular dementia. Mean (SD) MMSE: 14.95 (5.99) CogImp: 11.63 (4.38) No CogImp: 21.03 (2.49) Trained professional physicians administered the MMSE during the face-to-face interview. In addition to the MMSE the physicians also asked about dementia diagnoses during the face-to-face interview. Vascular dementa was defined as people with dementia combined with a history or clinical evidence of stroke. "No CogImp" included people with mild cognitive impairment (MMSE 19-24, 27% of the sample).	% with antihypertensive medication (unadjusted) CogImp: 4.52% No CogImp: 4.41% p=0.947	SAMPLE: Yes GENDER: Yes MCC: No DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
16. Stewart 2009 #185 Longitudinal Mean f/u 32 yrs	N=1890 Ages 77 - 96 0% female U.S.: Oahu, HI Honolulu Heart Program and	% with hypertension: No Dem: 46%, Incident Dem: 49% AD: 43%, VaD: 80% Self-Report, Clinical Exam/ Diagnosis, Standardized Instrument: BP was measured with the same standardized protocol at each examination. After the participant had been seated for 10 minutes, SBP and DBPs were measured on 3 occasions, 5 minutes apart on the left arm of a seated participant using a mercury sphygmomanometer with a standard cuff. DBP was recorded as the fifth phase. Repeated readings were averaged for each examination. Other CC: Diabetes, Depression, Smoking Depressive symptoms were measured using the CES-D. Smoking status was ascertained from previous exams from the study.	Measures: NR ("Cognitive prescreening and neuropsych-ological testing") Criteria: DSM-III (R), NINCDS -ADRDA, ADDTC, Hachinski Ischemic Scale 59% with dementia AD: 74 ,VD: 15, Other: 25 3-stage procedure for dementia case finding: cognitive prescreening, neuropsychological testing, proxy interview, neurological examination, and neuroimaging. Consensus diagnoses were made by neurologist and 2 physicians. Diagnosis made according to DSM-III-R (dementia), NINCDS-ADRDA (AD), and ADDTC (VaD). The criteria for probable VaD require dementia, computed tomography/MRI evidence of 1 infarct outside of the cerebellum, and then either clinical/ imaging evidence of 2 ischemic stokes or a single stroke with a clear temporal relationship to the onset of dementia. Additional support is allowed if evidence of multiple infarcts in brain regions known to affect cognition, multiple TIAs, history of vascular risk factors, and elevated Hachinski Ischemic Scale score.	% Antihypertensive medication use (unadjusted) No Dem: 40% Incident Dementia: 41% Incident AD: 37% Incident VaD: 73% p = NR	SAMPLE: Yes GENDER: No MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
17. Vinyoles 2008 #404 Epidemiological, multicentre cross-sectional study	N=1579 70.1(6.7) 55.6% female 52% w/ incomplete primary education 60% married/partner 17% living alone 77% rural Intl: Spain COGNIPRES Study	100% w/ arterial hypertension Duration: Mean 9.5 (6.7) years Self-report, Clinical Exam/ Diagnosis: Hypertension = SBP >/= 140 mm Hg or DBP < 90 mm Hg. BP was determined by two measurements spaced two minutes apart, with the patient in the resting position, and using a sphygmomanometer from each clinic (conventional mercury device or validated automated oscillometric device) in order to reproduce the conditions of routine clinical practice. When differences between the first and second measurements were over 5 mmHg for systolic or diastolic pressure, a third measurement was made.	Measures: MMSE Criteria: None 12.3% with cognitive impairment 25.9 (4.8) The main study variable was the prevalence of cognitive impairment, which was assessed by the MMSE, adjusted for educational level in order to avoid false positive or false negative results. The cut-off points were 17/18 for no education, 20/21 for incomplete primary education, and 23/24 for primary education and over 27. The validated Spanish version of the MMSE was used and administered by a physician during the clinical exam.	High Blood Pressure treatment % (N) (unadjusted) CogImp: 12.3% (194) No CogImp: 87.7% (1379) p=0.028 Monotherapy CogImp:1 0.1% (65) No CogImp: 89.9% (576) p=NR Combined therapy CogImp: 13.8% (129) No CogImp: 86.2% (803) p=NR Compliance to antihypertensive treatment: Compliant patients CogImp: 9.1% (94) No CogImp: 90.9% (942) Non-Compliant CogImp: 19.0% (100) No CogImp: 81.0% (425) p<0.001	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
17. Vinyoles (cont)		Other CC: PD, Epilepsy, Stroke, Cancer, Lipidemia, Diabetes, Depression, Psychosis, Personality disorders, Substance use (drinking) Self-Report, Clinical Exam/Diagnosis: Assessment details: Data collection was performed during a single visit by completing a normalized questionnaire on demographic data, cardiovascular risk factors, previous clinical cardiovascular disease and current treatment.	Note: Persons with previously diagnosed dementia were excluded from this study.	Notes: Non-compliant patients with anti HTN treatment was defined as those who answered affirmatively in response to the Haynes-Sackett questionnaire item: "Most patients have difficulties in taking all their tablets, do you have difficulties in taking yours?". Patients yielding a negative answer to the same question, with three or four incorrect answers in the Morisky-Green test were also regarded as non-compliers. The Morisky-Green test is the most specific adherence questionnaire applied to hypertensive populations. The most frequent monotherapy comprised angiotensin II receptor antagonists (28.6%), diuretics (25.5%), angiotensin-converting enzyme inhibitors (ACEIs) (20.3%) and a fixed combination of angiotensin II receptor antagonists and diuretics (20%).	

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
18. Hanon 2006 #1065 Cohort study Cross-sectional	N=1241 78(8) 67% female % primary education: No Dem: 27% AD: 31% VaD: 37% Intl: France Database NR	100% with hypertension Clinical Exam/Diagnosis: SBP and DBP were measured during the consultation, by nurses, 3 times in each patient, after at least 5 minutes of rest seated, on the left arm, using a validated electronic device. The average of the 3 measurements was used to determine the BP level. Individuals with SBP 140 mmHg or greater and DBP 90 mmHg or greater or those taking antihypertensive medication were considered to be hypertensive. Other CC: CHD, Stroke, Heart Failure, Atrial Fibrulation Self-Report, Admitted to Clinic/Program: Collected during consultations at a geriatric memory clinic.	Measures: MMSE, CEP Criteria: DSM-IV, NINDS-AIREN 49% with dementia AD: 524 ,VD: 85 Mean MMSE: AD: 19 (+/-6), VaD 19 (+/-5) No Dem: 28(+/-1) Mean CEP scores (max 100) AD: 29 (+/-15), VaD: 28 (+/-17) No Dem: 75 (+/-8) Subjects were screened during the consultation by a physician. At the end of the evaluation by psychologists and physicians, patients were classified into four subgroups: AD (using, DSM-IV), VaD (using NINDS-AIREN), MCI and normal cognitive function. The normal group comprised patients with no disease known to alter cognitive function. They had normal scores on the CEP according to age, sex and education (score > mean 1.5 SD) and were autonomous in their activities of daily living.	% using antiHTN therapy: No Dem: 60% AD: 53% VaD: 65% p = NR Treated hypertensive patients had better cognitive function than untreated patients (adjusting for covariates), and this association was observed independently of the cognitive status (in normal, AD and VaD hypertensive patients). Note: AntiHTN therapy = diuretics, beta-blockers, calcium antagonists, angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARB) and other drugs.	SAMPLE: Yes GENDER: Yes MCC: Yes CI: Yes CC: MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
19. Gombojav 2011 #A5 Longitudinal Mean 11.8 yrs	N=2496 73.6(5.9) 57.7% female % no formal education: CogImp: 80% No CogImp: 50% INTL: South Korea Database NR	18% w/ hypertension (same % for CogImp and NoCogImp) Clinical Exam/Diagnosis: SBP/DBP: </= 140/90 mm Hg Avg 2 BP measurement using standard mercury sphygmo-manometer, assessed by trained interviewer Other CC: Overall comorbidity, Smoking (former and current), Drinking, BMI Overall comorbidity: Subjects answered yes or no to the question "do you have any chronic disease or past accident or injury due to which you feel uncomfortable in your daily life including work?	Measures: MMSE Criteria: None 44% with CogImp Mean MMSE (SD): mild severity CogImp: 17.6 (1.1) severe CogImp: 11.9 (3.1) no CogImp: 24.1 (2.9) MMSE administered by the investigation team	% ever taking antiHTN medications: No CogImp: 18.3 Mild Severity CogImp: 18.8 Severe CogImp: 18.6 % never taking antiHTN medications: No CogImp: 61.1 Mild Severity CogImp: 62.1 Severe CogImp: 57.1 p = 0.76	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: No MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
20. Freels 2002 #2055 Cohort study 7 years (median f/u: AD: 5.9 years, VaD: 5.8, No Dem: 6.1)	N=248 45+ % female NR Other demog NR U.S.: Chicago, Illinois Database NR Patients were referred from a hospital-based stroke registry and an academic AD center	46.5% AD, 74.7% VaD, 85.3% No Dem with HTN Self-Report, Standardized Instrument: An epidemiologic interviewer administered standardized questionnaires to determine CC's. Other CC: Stroke, MI, AF, Lipidemia, Diabetes, Depression, Smoking Same methods as described above	Measures: MMSE, BOMCT, Formal neuropsychological testing Criteria: ~NINDS-AIREN 77% with dementia. AD: 113 ,VD: 79 All study patients completed diagnostic measures with trained interviewers and informants completed a structured neurologic interview. The following criteria were used: AD = met dementia criteria and no other conditions contributing to cog impairment; VaD = dementia + diagnosis of stroke by Stroke Data Bank criteria, and a temporal relationship between stroke and dementia onset (VaD diagnosis predated both of the currently most commonly used diagnostic systems today). These criteria are consistent with NINDS-AIREN. Persons meeting both VaD and AD criteria were excluded. The "No dementia" group included patients who met criteria for neurologic dysfunction due to vascular disease (stroke) but did not meet criteria for dementia.	Taking antihypertensive medication (%) AD: ~47% VaD: ~48% No Dem: ~48% p = NR Adjusted HR for survival for VaD: Taking antiHTN meds: 4.69 (p = 0.0001)	SAMPLE: No GENDER: NR MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
21. Barzilay 2008 #552 Design NR Cross-Sectional	N=2316 Age 65 - 75 / > Age 80 Dem: 14.5% / 49.5 % No Dem: 38.7% / 22.1% % Female Dem: 59% No Dem: 59.1% Race: (%) Nonwhite: (%) Dementia: 19.4% No Dem: 9.9% White: % Dementia: 80.6% No Dem: 90.1% < HS education: Dem: 33.9% No Dem: 18.3% U.S.: Cardiovascular Health Study Centers Cardiovascular Health Study	49% with hypertension Self-report, Clinical Exam/Diagnosis: At annual clinic visits, participants underwent baseline blood testing, cardiac and carotid artery ultrasound testing, electrocardiography, ankle-brachial index measurement, and completion of medical history and clinical examination with their physician. Other CC: Stroke, TIA, CHF, CHD, Substance use (drinking, smoking), Obesity Same methods as described above	Measures: 3MS < 80, TICS < 28 IQCODE > 3.6 Criteria: NINCDS-ADRDA, NINDS-AI 27% with dementia Participants completed the 3MS annually at clinic visits or the TICS by phone if they did not come to the clinic. The IQCODE was used for additional information. If person is unable to complete 3MSE or TICS, a physician provided additional information. Diagnosis of dementia was based on a deficit in performance in 2 or more cognitive domains of sufficient severity to affect ADLs and a history of normal intellectual function before the cognitive decrease. Diagnosis was made by an adjudication committee of neurologists with expertise in dementia. Medical charts were also reviewed for diagnosis of dementia.	Any antiHTN use (%) Dem: 7.6% No Dem: 55.8% p = 0.002	SAMPLE: Yes GENDER: Yes MCC: No DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
8 studies	N = 5245	CVD		CVD Medications (besides anti-HTN)	
22. Lopponen 2006 #1143 Longitudinal epidemiological study Cross-Sectional	N=462 All age 75+ Dem: 79.8 (4.4) No Dem: 84.4 (5.7) </= 6 yrs education: Dem: 78% No Dem: 69% Unmarried: Dem: 78% No Dem: 57% 53% of people with dementia lived in an institution, compared with 1% of those without dementia. Intl: Lieto, Finland Database NR	HTN, CAD, CHF, Diabetes, AF, Hypercholesterolaemia Mean (SD) CVD's: Dem: 2.6(1.2), No Dem: 2.2(1.1) Self-Report, Clinical Exam/ Diagnosis, ICD Diagnosis, Records Review: Study protocol consisted of an interview, lab visit, clinical exam, and records review. 2 specially trained research nurses conducted IWs to assess physical, mental and social health. BP was measured with a mercury sphygmo-manometer after 5-min rest with subject sitting. The mean value of 2 measurements was used. A close informant or nursing staff were interviewed if participant was unable to provide info.	Measures: MMSE < 24 Criteria: DSM-IV, NINCDS-ADRDA, NINDS-AIREN, CDR, Hachinski Ischaemic Scale 79.7% with dementia AD: 40 ,VD: 35 Mean MMSE (SD): Dem: 14.9 (7.7) No Dem: 27.1 (2.5) A 2-stage design was applied to assess the occurrence of dementia. First, the MMSE was performed to screen cognitive functioning, and the cut-off point of 23/24 was used for further evaluation. Persons with an MMSE score of 24–30 having a previous history of a dementing disorder in their medical records or clinical suspicion of dementia in the interview or clinical	Adjusted OR CVD meds for CVD patients: Dem: 0.31 (95% CI 0.12-0.82) Cumulative OR for receiving a growing number of medications: Moderately demented: 0.39 (95% CI 0.20-0.76) Severely demented: 0.50 (95% CI 0.19-1.34) (N) % Taking CVD Medications (unadjusted): Antithrombotic agents (B01A): Dementia (n=34): 40.0 Without Dementia (n=113): 34.9 p = NS Nitrates in ischaemic heart disease (C01D) Dementia (n=23): 27.1 Without Dementia (n=74): 22.8 p=NS Beta-Blockers (C07A) Dementia (n=13): 15.3 Without Dementia (n=88): 27.2 p=NS	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
22. Lopponen (continued)		Two research physicians (experienced GP's) reviewed available primary-care medical records, registered medications used, and all diagnosed diseases and other relevant conditions. Diagnoses were coded according ICD-10. They also carried out clinical examinations, in which all info from interviews, medical records, and lab tests were available. In addition to looking at diagnoses in the medical records, CC's were defined as: *HTN = entitled to reimbursements from the NHI for HTN and/or had SBP>160 mm Hg and/or DBP < 100 mm Hg. *CHD = history of coronary by-pass operation or angioplasty and/or entitled to reimbursements from the NHI for CHD medication and/or had ischaemic ECG findings (major/moderate Q/QS item as a sign of MI, and/or a minor Q/QS item, S-T depression, T wave inversion or left bundle branch block as a sign of possible CHD) *CHF = entitled to reimbursements from the NHI for CHF medication.	examination were also included in the second stage. In the case of institutionalised or hospitalised patients, caregivers or nursing staff were interviewed. The interview was semi-structured and covered the items of the Hachinski Ischaemic Scale and the CDR Scale. The latter was used to stage the severity of the dementia. Finally, dementia was assessed in the clinical examination according to the DSM-IV criteria, diagnosis of possible AD according to NINCDS-ADRDA criteria and the diagnosis of possible VaD according to the NINDS-AIREN criteria. In cases of disagreement, a consensus was reached between the research physicians and the geriatrician.	Cardiac glycosides (C01A) Dementia (n=18): 21.1 Without Dementia (n=36): 11.1 p=NS Calcium antagonists, cardioselective (C08D) Dementia (n=9): 10.6 Without Dementia (n=40): 12.4 p=NS ACE inhibitors (C09A) Dementia (n=5):5.9 Without Dementia (n=41): 12.7 p=NS Minor analgesics and antipyretics (N02B) Dementia (n=15):17.7 Without Dementia (n=29): 9.0 p=NS Laxatives (A06A) Dementia (n=18): 21.2 Without Dementia (n=22): 6.8 p=NS Thyroxin (H03A) Dementia (n=12): 14.1 Without Dementia (n=27): 8.3 p=NS	

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
22. Lopponen (continued)		*AF = had AF at ECG. *Stroke = subjective history of stroke with neurological symptoms persisting for more than 24 h, verified in the clinical examination. *Hypercholesterolaemia = treated with lipid-lowering agents (ATC code C10) and/or had a fasting serum total cholesterol concentration 66.5 mmol/l. *Diabetes = treated with antidiabetic agents (ATC code A10) and/or had a fasting plasma glucose level 67.0 mmol/l.		Peptic ulcer and reflux drugs (A02B) Dementia (n=14): 16.5 Without Dementia (n=25): 7.7 p=NS Antiglaucoma preparations and miotics (S01E) Dementia (n=6): 7.1 Without Dementia (n=31): 9.6 p=NS Calcium antagonists, angioselective (C08C) Dementia (n=7): 8.2 Without Dementia (n=29): 9.0 p=NS Potassium (A12B) Dementia (n=6): 7.1 Without Dementia (n=27): 8.3 p=NS Antigout preparations (M04A) Dementia: 7.1 Without Dementia: 8.3 p=NS	

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
22. Lopponen (continued)				Sulphonamides and trimethoprim (J01E) Dementia (n=15): 17.7 Without Dementia (n=16): 4.9 p < 0.001 Loop diuretics (C03C) Dementia (n=8): 9.4 Without Dementia (n=20): 6.2 p=NS Potassium-sparing diuretics (C03E) Dementia (n=31): 36.5 Without Dementia (n=93): 28.7 p=NS NSAIDs (M01A): Dementia (n=19): 22.4 Without Dementia (n=11): 34.3 p < 0.05 Notes: This article aimed to examine medication use in persons with CVD both with and without dementia. Depression prevalence was not reported. Cardiovascular medications were defined as ATC groups C01 (cardiac glycosides, anti-arrhythmics, nitrates), C02 (antihypertensives), C03 (diuretics), C04 eripheral vasodilators), C07 (-blockers), C08 (calcium channel blockers), C09 (ACE inhibitors, angiotensin II receptor blockers), C10 (lipid-lowering agents) and B01	

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
23. Bursi 2006 #1273 Cohort study Mean f/u: Dem: 6.1 years (0.4-19.5), No Dem: 8.2 years (1.1-19.5) p < .001	N=1832 Median: 82 (38-102 yrs) NR % female Other Demog NR U.S.: Rochester, MN Rochester Epidemiology Project (using Mayo clinic and othe records of Rochester residents)	Myocardial infarction (MI) ICD Diagnosis, Records Review, Standardized Instrument: MI assessed using ICD-9 codes from discharged diagnoses in medical records. Trained nurse abstractors validated the diagnosis of MI using standardized criteria for definite or probable MI (cardiac pain, biomarker values, and Minnesota coding of the electrocardiogram). Trained nurse abstractors reviewed the records and compared against standardized criteria. Other CC: HTN, Lipidemia, Diabetes, Substance use (smoking) Assessment details and who made the assessment of other CC's were NR	Measures: NR Criteria: DSM-IV, H-ICDA code 50% with dementia Searched for H-ICDA codes in medical records. Each potential case (at least one H-ICDA code) was screened by trained nurse abstractors. A neurologist confirmed the presence of dementia using DSM-IV.	There were NS differences between subjects with and without dementia in thrombolysis, ace inhibitors, beta blockers, and aspirin use after myocardial infarction. Unadjusted analysis, data not reported.	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: No CC: No MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
24. Andersson 2008 #798 Design NR Cross-sectional	N=349 Median age: AD: 76, DLB: 77, No Dem: 73 % female: AD: 69%, DLB: 44%, No Dem: 66% Other demog NR Intl: Malmo, Sweden Malmo Alzheimer's study (90% community-based)	CVD (MI, CAD, Peripheral Artery Disease), HTN, Arteriosclerosis Clinical exam: All participants completed a physical examination and cognitive testing. This included the collection of data on current medications and BP measurement. The drugs were classified by the Anatomical Therapeutic Chemical Classification system (ATC) recommended by the World Health Organization (WHO) (2001). All the patients attended the Neuropsychiatric Clinic, Malmo University Hospital. Who made assessment NR This article targeted orthostatic hypotension (not a target chronic condition of this review) and looked at other chronic conditions that influence blood pressure.	Measures: MMSE, ADAS Criteria: NINCDS-ADRDA (AD), McKeith (probable DLB) 82.2% with dementia AD: 235, DLB: 52 Mean (SD) MMSE Scores: AD: 21 (5), DLB: 22 (5) No Dem: 29 (1) Detailed clinical invest-igation: anamnestic data, physical and neuropsych-iatric exam, cognitive measures, blood and cerebrospinal fluid sampling, brain CT, regional cerebral blood flow, EKG and BP measurements. Probable AD mild or moderate were included. All patients diagnosed with DLB during the study were included. Dementia diagnosis was given prospectively. Controls: recruited through advertisements, completed physical examination and cognitive testing. Inclusion criteria = absence of memory complaints or any other cognitive symptoms, preservation of general cognitive functioning and no active neurological or psychiatric disease.	This article included medications that may influence orthostatic hypotension (OH) / blood pressure. N (%) AntiHTN / cardiac therapy AD: 79 (34%), p = NS DLB: 19 (37%), p = NS No Dem: 23 (37%) N (%) antidepressant medications AD: 98 (42%), p < 0.001 DLB: 26 (51%), p < 0.001 No Dem: 3 (5%) N (%) Antipsychotics, Anxiolytics, Sedatives/Hypnotics AD: 74 (32%), p < 0.001 DLB: 28 (55%), p < 0.001 No Dem: 1 (2%) Note: Specific CVD medications are not described in the article. This article looked at use of anti HTN and other CVD medications since these meds have been known to influence blood pressure.	SAMPLE: No GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
25. Freels 2002 #2055 Cohort study 7 years (median f/u: AD: 5.9 years, VaD: 5.8, No Dem: 6.1)	N=248 45+ % female NR Other demog NR U.S.: Chicago, Illinois Database NR Patients were referred from a hospital-based stroke registry and an academic AD center	Stroke, Myocardial Infarction, Atrial fibrillation, HTN, Lipidemia, Diabetes, Depression, Substance use (smoking) Self-Report, Standardized Instrument: An epidemiologic interviewer administered standardized questionnaires to determine CC's. Stroke: The study neurologist completed the Stroke Data Bank Neurologic Examination and an unstructured neurologic interview with informants.	Measures: MMSE, BOMCT, Formal neuropsychological testing Criteria: ~NINDS-AIREN 77% with dementia. AD: 113 ,VD: 79 All study patients completed diagnostic measures with trained interviewers and informants completed a structured neurologic interview. The following criteria were used: AD = met dementia criteria and no other conditions contributing to cog impairment; VaD = dementia + diagnosis of stroke by Stroke Data Bank criteria, and a temporal relationship between stroke and dementia onset (VaD diagnosis predated both of the currently most commonly used diagnostic systems today). These criteria are consistent with NINDS-AIREN. Persons meeting both VaD and AD criteria were excluded. The "No dementia" group included patients who met criteria for neurologic dysfunction due to vascular disease (stroke) but did not meet criteria for dementia.	Taking aspirin or antiplatelet/anticoagulant medication (%): AD: ~41% VaD: ~37% No Dem: ~50% p = NR Adjusted HR for survival for VaD: Taking aspirin or antiplatelet/anticoagulant meds: 0.30 (p = 0.0084)	SAMPLE: No GENDER: NR MCC: Yes DEM: Yes CC: Yes MULTI: Yes COV ASE: Yes

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
26. Barzilay 2008 #552 Design NR Cross-Sectional	N=2316 Age 65 - 75 / > Age 80 Dem: 14.5% / 49.5 % No Dem: 38.7% / 22.1% % Female Dem: 59% No Dem: 59.1% Race: (%) Nonwhite: (%) Dementia: 19.4% No Dem: 9.9% White: % Dementia: 80.6% No Dem: 90.1% < HS education: Dem: 33.9% No Dem: 18.3% U.S.: Cardiovascular Health Study Centers Cardiovascular Health Study	49% with hypertension Self-report, Clinical Exam/Diagnosis: At annual clinic visits, participants underwent baseline blood testing, cardiac and carotid artery ultrasound testing, electrocardiography, ankle-brachial index measurement, and completion of medical history and clinical examination with their physician. Other CC: Stroke, TIA, CHF, CHD, Substance use (drinking, smoking), Obesity Same methods as described above	Measures: 3MS < 80, TICS < 28 IQCODE > 3.6 Criteria: NINCDS-ADRDA, NINDS-AI 27% with dementia Participants completed the 3MS annually at clinic visits or the TICS by phone if they did not come to the clinic. The IQCODE was used for additional information. If person is unable to complete 3MSE or TICS, a physician provided additional information. Diagnosis of dementia was based on a deficit in performance in 2 or more cognitive domains of sufficient severity to affect ADLs and a history of normal intellectual function before the cognitive decrease. Diagnosis was made by an adjudication committee of neurologists with expertise in dementia. Medical charts were also reviewed for diagnosis of dementia.	ACE inhibitor use (%) Dem: 18.4% No Dem: 13.1% p = 0.005	SAMPLE: Yes GENDER: Yes MCC: No DEM: Yes CC: Yes MULTI: No COV ASE: No

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27. Cankurtaran 2008 #779 Design NR Cross-sectional	N=1436 72.7(6.9) 65.8% female Living status (%) Alone: Dem 51.7%, No Dem 54.1% Living With family: AD 46.3%, VaD 47.9%, no Dem 41.3% Nursing Home: AD 2.0%, VaD 4.3%, no CI 4.7% Intl: Ankara, Turkey Database NR	Stroke, CVD, HTN, Diabetes, Depression, Lipidemia, Cerebrovascular disease, Substance use (drinking, smoking) Clinical Exam/Diagnosis, Lab exams: A comprehensive geriatric assessment (CGA) was conducted. "Normal": vitamin B12 160 pg/ml and over; total cholesterol 200 mg/dl and lower; triglycerides 200 mg/dl and lower; LDL-C 130 mg/dl and lower, HDL-C 40 mg/dl and over	Measures: MMSE, CDT Criteria: DSM-IV, NINCDS -ADRDA, Hachinski Ischemic Score for VaD 21% with dementia AD: 203 ,VD: 73 Global Deterioration Scale (GLDS) was used to stage severity of dementia: 60% mild (GLDS stage 3), 30% moderate (stage 4), and 10% severe (stage 6).	For people with VaD, intake of two NSAID's and of were not significantly associated with VaD (Data NR)	SAMPLE: Yes GENDER: Yes MCC: Yes DEM: Yes CC: Yes MULTI: No COV ASE: No

Author Yr Tracking # Study Design Duration	# Sample (N) Mean age (SD) % Female Other Demographics Location DB	Chronic Condition (CC): Definition Assessment Who made assessment	Cognitive Impairment (CogImp)/Dementia (Dem): Measures, Criteria, % with Dem/CogImp, Mean Scores, Assessment	Medication Outcomes	Quality
28. Rastas 2007 #897 Prospective, longitudinal, population based study 9 years	N=553 All 85+ % female: Dem: 81.3 / No Dem:79.5 Mean (SD) yrs education: Dem: 3.9(3.0) No Dem: 4.2(2.9) Intl: Vantaa, Finland Vantaa 85+ Study	Heart failue (61%), HTN (25%), Diabetes (20%), Stroke (21%), AF (22%), MI (14%) Clinical Exam/Diagnosis, Records Review: The evaluation included an interview of a participant and a knowledgeable informant by a trained nurse and a clinical examination by a physician. Information concerning health, health-related behavior, medical history, including all the illnesses and medication, was obtained from an electronic primary health care database that contains all primary care health records. The diagnosis of clinical stroke was based on the history of previous transient ischemic attack or stroke in the medical records and the presence of clinical neurological focal signs indicating previous stroke examined by a neurologist. We also included in the stroke group 27 subjects without a history of cerebrovascular disease who had focal signs indicating stroke. The diagnosis of AF was made if 12-lead ECG at rest or a short Holter ECG monitoring during the exam showed AF. Because these may fail to detect paroxysmal AF, individuals with a history of chronic AF in the health records were included.	Measures: MMSE, SPMSQ Criteria: DSM-III-R, CDR 38.7% with dementia Mean MMSE (SD): Dem: 8.3 (7.2) No Dem: 23.2 (4.8) Cognitive impairment was assessed during the same evaluation and electronic primary health care records database as was used to assess chronic conditions. The diagnosis of dementia according to the DSM-III R criteria was based on data collected during the study: the neurologist's clinical examination, the MMSE and SPMSQ tests, ad the CDR, ADL and IADL. Besides the subject, also the relatives, nurses, and other persons taking care of the subject were interviewed. Medical history was also available. The duration of the cognitive symptoms had to be at least 3 months to exclude, eg, delirium. The consensus of 2 neurologists was needed for the dementia diagnosis.	# (%) Warfarin Use: Dem: 2 (0.9) No Dem: 9 (2.7) p=NS	SAMPLE: Yes GENDER: Yes MCC: No DEM: Yes CC: Yes MULTI: No COV ASE: No