Table 1A: Superstar Sample, Sudden Deaths

Name		Degree/Year		Cause of Death	Institutional Affiliation	Career Pubs	Career Cites
Alan P. Wolffe	(1959-2001)	PhD	1984	car accident	NIH	245	19,238
Stanley R. Kay	(1946-1990)	PhD	1980	heart attack	Albert Einstein College of Medicine	93	5,467
Joaquim Puig-Antich	(1944-1989)	MD	1967	asthma attack	University of Pittsburgh	83	4,849
Mu-En Lee	(1954-2000)	MD/PhD	1984	complications from routine surgery	Harvard Medical School/MGH	83	6,289
Matthew L. Thomas	(1953-1999)	PhD	1981	died while travelling	Washington University in St. Louis	82	8,867
Harold A. Menkes	(1938-1987)	MD	1963	car accident	Johns Hopkins University	93	2,827
Howard S. Tager	(1945-1994)	PhD	1971	heart attack	University of Chicago	99	5,638
John J. Wasmuth	(1946-1995)	PhD	1973	heart attack	University of California — Irvine	170	7,687
Richard E. Heikkila	(1942-1991)	PhD	1969	murder	UMDNJ Robert Wood Johnson Medical School	138	10,862
Emil T. Kaiser	(1938-1988)	PhD	1959	complications from kidney transplant	Rockefeller University	144	6,254
Roland L. Phillips	(1937-1987)	MD/PhD	1971	glider plane accident	Loma Linda University School of Medicine	36	3,323
Neil S. Jacobson	(1949-1999)	PhD	1977	heart attack	University of Washington	46	3,569
D. Michael Gill	(1940-1990)	PhD	1967	heart attack	Tufts University	75	8,019
Roland D. Ciaranello	(1943-1994)	MD	1970	heart attack	Stanford University	107	3,781
Gary J. Miller	(1950-2001)	MD/PhD	1978	heart attack	University of Colorado HSC	98	3,297
Mary Lou Clements	(1946-1998)	MD	1972	airplane crash	Johns Hopkins University	126	6,897
James R. Neely	(1936-1988)	PhD	1966	heart attack	Penn State University	91	8,732
John B. Penney, Jr.	(1947-1999)	MD	1973	heart attack	Harvard Medical School/MGH	164	13,549
Hymie L. Nossel	(1930-1983)	MD/PhD	1962	heart attack	Columbia University	80	5,000
Simon J. Pilkis	(1942-1995)	MD/PhD	1971	heart attack	University of Minnesota	166	8,970
Roy D. Schmickel	(1936-1990)	MD	1961	died tragically	University of Pennsylvania	64	3,546
Roger R. Williams	(1944-1998)	MD	1971	airplane crash	University of Utah	167	8,597
Fredric S. Fay	(1943-1997)	PhD	1969	heart attack	UMASS	108	7,947
Jeffrey M. Isner	(1947-2001)	MD	1973	heart attack	Tufts University	373	29,075
Jonathan M. Mann	(1943-1998)	MD	1974	plane crash	Harvard University School of Public Health	104	2,942
Julio V. Santiago	(1942-1997)	MD	1967	heart attack	Washington University in St. Louis	119	7,081
William L. McGuire	(1937-1992)	MD	1964	scuba-diving accident	University of Texas HSC at San Antonio	296	27,508
Walter F. Heiligenberg	(1938-1994)	PhD	1964	plane crash	UCSD	51	1,881
George J. Schroepfer, Jr.	(1932-1998)	MD/PhD	1961	heart attack	Rice University	183	5,230
D. Martin Carter	(1936-1993)	MD/PhD	1971	dissecting aortic aneurysm	Rockefeller University	87	2,678
George Streisinger	(1927-1984)	PhD	1953	scuba-diving accident	University of Oregon	38	3,765
Dolph O. Adams	(1939-1996)	MD/PhD	1969	unexpected	Duke University	123	7,721
Verne M. Chapman	(1938-1995)	PhD	1965	died suddenly while attending meeting	Roswell Park Cancer Institute/SUNY Buffalo	151	7,546
Don C. Wiley	(1944-2001)	PhD	1971	accidental fall	Harvard University	202	30,974
Peter M. Steinert	(1945-2003)	PhD	1972	heart attack	NIH	207	16,744
G. Scott Giebink	(1944-2003)	MD	1969	heart attack	University of Minnesota	178	4,302
Edward V. Evarts	(1926-1985)	MD	1948	heart attack	NIH	80	5,254
Raymond R. Margherio	(1940-2000)	MD	1965	aneurysm	Wayne State University School of Medicine	26	697
Lewis W. Wannamaker	(1923-1983)	MD	1948	heart attack	University of Minnesota Medical School	151	5,873
Ronald G. Thurman	(1941-2001)	PhD	1967	massive heart attack	University of North Carolina	444	15,289
A. Arthur Gottlieb	(1937-1998)	MD	1961	pulmonary embolus following surgery	Tulane University School of Medicine	55	948
Christopher A. Dawson	(1942-2003)	PhD	1969	suddenly	Medical College of Wisconsin	192	3,936
Donald C. Shreffler	(1933-1994)	PhD	1961	heart attack	Washington University in St. Louis	166	8,295
DeWitt S. Goodman	(1930-1991)	MD	1955	pulmonary embolism	Columbia University	216	15,586
John H. Walsh	(1938-2000)	MD	1963	heart attack	UCLA	370	16,854
Thomas P. Dousa	(1937-2000)	MD/PhD	1968	heart attack	Mayo Clinic	202	6,526
Donald T. Witiak	(1935-1998)	PhD	1961	stroke	University of Wisconsin	120	2,028
Thomas F. Burks, II	(1938-2001)	PhD	1967	heart attack	University of Texas HSC at Houston	254	8,355
Robert M. Macnab	(1940-2003)	PhD	1969	accidental fall	Yale University	112	6,881
Norbert Freinkel	(1926-1989)	MD	1949	heart attack	Northwestern University	188	9,730
Philip J. Fialkow	(1933-1996)	MD	1960	trekking accident in Nepal	University of Washington	167	10,802
Abraham M. Lilienfeld	(1920-1984)	MD	1944	heart attack	Johns Hopkins University School of Public Health	147	6,935
John J. Jeffrey, Jr.	(1937-2001)	PhD	1965	stroke	Albany Medical College	123	7,367
James N. Davis	(1939-2003)	MD	1965	airplane crash	SUNY HSC at Stony Brook	98	5,005
Takis S. Papas	(1935-1999)	PhD	1970	unexpected and sudden	Medical University of South Carolina	195	9,763
Gerald D. Aurbach	(1927-1991)	MD	1954	hit in a head by a stone	NIH	227	16,448
Demetrios Papahadjopoulos	(1934-1998)	PhD	1963	adverse drug reaction/multi-organ failure	UCSF	204	25,372
George B. Craig, Jr.	(1930-1995)	PhD	1956	heart attack	University of Notre Dame	74	1,710
Sandy C. Marks, Jr.	(1937-2002)	DDS/PhD	1968	heart attack	UMASS	214	5,105
Paul B. Sigler	(1934-2000)	MD/PhD	1967	heart attack	Yale University	132	18,527
Gerald P. Murphy	(1934-2000)	MD	1959	heart attack	Roswell Park Cancer Institute/SUNY Buffalo	404	14,667
Henry G. Kunkel	(1916-1983)	MD	1942	complications after vascular surgery	Rockefeller University	299	36,432
Zanvil A. Cohn	(1926-1993)	MD	1953	aortic dissection	Rockefeller University	277	38,941
Patricia S. Goldman-Rakic	(1937-2003)	PhD	1963	struck by a car	Yale University	286	29,273
John P. Merrill	(1917-1984)	MD	1942	drowned	Harvard Medical School/Brigham & Women's Hospital	353	15,457
William H. Oldendorf	(1925-1992)	MD	1947	complications from heart disease	UCLA	163	9,639
Susumu Hagiwara	(1922-1989)	PhD	1951	bacterial infection	UCLA	105	10,320

Table 1B: Superstar Sample, Anticipated Deaths

Name		Degree/Year		Cause of Death	Institutional Affiliation	Career Pubs	Career Cites
Ernest G. Peralta	(1959-1999)	PhD	1986	brain cancer	Harvard University	41	5,359
George Khoury	(1943-1987)	MD	1970	lymphoma	NIH	134	11,305
B. Frank Polk	(1942-1988)	MD	1967	brain cancer	Johns Hopkins University	107	8,226
Joel D. Meyers	(1944-1991)	MD	1970	colon cancer	University of Washington/FHCRC	171	14,717
Melvin L. Marcus	(1940-1989)	MD	1966	colon cancer	UMASS	225	15,034
Harold Weintraub	(1945-1995)	MD/PhD	1973	brain cancer	University of Washington/FHCRC	154	31,562
Richard K. Gershon	(1932-1983)	MD	1959	lung cancer	Yale University	182	12,007
Theodore S. Zimmerman	(1937-1988)	MD	1963	lung cancer	Scripps Research Institute	132	12,264
Markku Linnoila	(1947-1998)	MD/PhD	1974	cancer	NIH	513	21,254
Robert F. Spencer	(1949-2001)	PhD	1974	gastric carcinoma	Medical College of Virginia	59	2,136
Michael Solursh	(1942-1994)	PhD	1968	AIDS	University of Iowa School of Medicine	148	6,702
Larry C. Clark	(1948-2000)	PhD	1981	prostate cancer	University of Arizona	33	2,387
Samuel W. Perry, 3rd	(1941-1994)	MD	1967	pancreatic cancer	Weill Medical College — Cornell University	44	1,210
Janis V. Giorgi	(1947-2000)	PhD	1977	uterine cancer	UCLA	130	10,212
Lois K. Miller	(1945-1999)	PhD	1972	melanoma	University of Georgia	121	8,411
Gerald T. Babcock	(1946-2000)	PhD	1973	cancer	Michigan State University	123	8,511
Edward C. Franklin	(1928-1982)	MD	1950	brain cancer	New York University	224	12,761
Tai-Shun Lin	(1939-1994)	PhD	1970	non hodgkin's lymphoma	Yale University School of Medicine	91	3,102
Edwin H. Beachey	(1934-1989)	MD	1962	cancer	University of Tennessee at Memphis	192	10,080
Ora M. Rosen	(1935-1990)	MD	1960	breast cancer	Sloan Kettering Institute for Cancer Research	150	14,587
Elizabeth A. Bates	(1974-2003)	PhD	1974	pancreatic cancer	UCSD	81	1,985
Murray Rabinowitz	(1927-1983)	MD	1950	muscular dystrophy	University of Chicago	146	8,229
Helene S. Smith	(1941-1997)	PhD	1967	breast cancer	UCSF	95	5,623
C. Richard Taylor	(1939-1995)	PhD	1963	heart failure	Harvard University	100	6,377
Norton B. Gilula	(1944-2000)	PhD	1971	lymphoma	Scripps Research Institute	99	13,147
Ira Herskowitz	(1946-2003)	PhD	1971	pancreatic cancer	UCSF	160	17,457
Priscilla A. Campbell	(1940-1998)	PhD	1968	cervical cancer	University of Colorado HSC/Nat. Jewish center	77	3,914
Laird S. Cermak	(1942-1999)	PhD	1968	leukemia	Boston University	73	2,338
Bernard N. Fields	(1938-1995)	MD	1962	pancreatic cancer	Harvard Medical School/Brigham & Women's Hospital	181	10,505
Peter A. Kollman	(1944-2001)	PhD	1970	cancer	UCSF	189	9,095
Wallace P. Rowe	(1926-1983)	MD	1948	colon cancer	NIH	233	21,455
Allan C. Wilson	(1934-1991)	PhD	1961	leukemia	University of California — Berkeley	165	25,917
Elizabeth M. Smith	(1939-1997)	PhD	1978	cancer	Washington University School of Medicine	50	1,512
David G. Marsh	(1940-1998)	PhD	1964	glioblastoma	Johns Hopkins University	142	6,395
Aaron Janoff	(1930-1988)	PhD	1959	long illness	SUNY HSC at Stony Brook	131	8,590
Nelson Butters	(1937-1995)	PhD	1964	Lou Gehrig's disease	UCSD	191	12,555
George Némethy	(1934-1994)	PhD	1962	brain cancer	Mount Sinai School of Medicine	76	7,079
G. Harrison Echols, Jr.	(1933-1993)	PhD	1959	lung cancer	University of California — Berkeley	113	9,191
Lawrence H. Piette	(1932-1992)	PhD	1957	cancer	Utah State University	61	2,766
William L. Chick	(1938-1998)	MD	1963	diabetes complications	UMASS	90	5,108
Mette Strand	(1937-1997)	PhD	1964	cancer	Johns Hopkins University	128	6,044
Joachim G. Liehr	(1942-2003)	PhD	1968	pancreatic cancer	University of Texas Medical Branch at Galveston	134	6,272
Howard M. Temin	(1934-1994)	PhD	1959	lung cancer	University of Wisconsin	212	17,277
Charles A. Janeway, Jr.	(1943-2003)	MD	1969	B-cell lymphoma	Yale University	313	31,455
Keith Green	(1940-2001)	PhD	1964	died after lengthy illness	Medical College of Georgia	206	2,572
Gregory Mooser	(1942-2003)	DDS/PhD	1972	complications from alzheimer's disease	University of Southern California	23	962
Harvey D. Preisler	(1941-2002)	MD	1965	lymphoma	Rush Medical College	304	7,069
Roy H. Steinberg	(1935-1997)	MD/PhD	1965	multiple myeloma	UCSF	121	6,707
Donald J. Cohen	(1940-2001)	MD	1966	ocular melanoma	Yale University	299	12,177
Thomas W. Smith	(1936-1997)	MD	1965	mesothelioma	Harvard Medical School/Brigham & Women's Hospital	170	12,826
Marian W. Fischman	(1939-2001)	PhD	1972	colon cancer	Columbia University	157	5,910
Thoralf M. Sundt, Jr.	(1930-1992)	MD	1959	bone marrow cancer	Mayo Clinic	208	11,099
John C. Liebeskind	(1935-1997)	PhD	1962	cancer	UCLA	147	10,160
Robert J. Fass	(1939-2002)	MD	1964	lung cancer	Ohio State University	132	3,703
Sidney H. Ingbar	(1925-1988)	MD	1947	lung cancer	Harvard Medical School/Beth Israel Medical Center	310	14,921
Eva J. Neer	(1937-2000)	MD	1963	breast cancer	Harvard Medical School/Brigham & Women's Hospital	104	10,652
Kiichi Sagawa	(1926-1989)	MD/PhD	1958	cancer	Johns Hopkins University	119	9,491
Richard J. Wyatt	(1939-2002)	MD	1964	lung cancer	NIH	534	21,693
Charles D. Heidelberger	(1920-1983)	PhD	1946	carcinoma of nasal sinus	University of Southern California	243	19,260
Sydney E. Salmon	(1936-1999)	MD	1962	pancreatic cancer	University of Arizona	286	20,024
Jiri Palek	(1934-1998)	MD	1958	2 year illness	Tufts University	127	5,487
Eleanor M. Saffran	(1938-2002)	PhD	1968	amyotrophic lateral sclerosis	Temple University School of Medicine	41	2,811
Irving Kupfermann	(1938-2002)	PhD	1964	Creutzfeldt-Jacob's disease	Columbia University	121	7,635
Harold C. Neu	(1934-1998)	MD	1960	glioblastoma	Columbia University	530	18,498
Richard P. Bunge	(1932-1996)	MD	1960	esophageal cancer	University of Miami	157	10,828
Merton Bernfield	(1938-2002)	MD	1961	Parkinson's Disease	Harvard Medical School/Children's Hospital	137	11,962
Sheldon M. Wolff	(1930-1994)	MD	1957	complications from a renal malignancy	Tufts University School of Medicine	224	22,128
Gerald L. Klerman	(1928-1992)	MD	1954	diabetes	Weill Medical College — Cornell University	253	19,458
Leo J. Neuringer	(1928-1993)	PhD	1957	cancer	MIT	39	1,264
Frank Lilly	(1930-1995)	PhD	1965	prostate cancer	Albert Einstein College of Medicine	95	4,471
Joseph Stokes, 3rd	(1924-1989)	MD	1949	cancer	Boston University School of Medicine	64	2,915
Jane Pitt	(1938-2003)	MD	1964	chronic lymphocytic leukemia	Columbia University College of Physicians and Surgeons	74	2,984
J. Christian Gillin	(1938-2003)	MD	1966	esophageal cancer	UCSD	355	15,729
Edwin L. Bierman	(1930-1995)	MD	1955	bone cancer	University of Washington	204	14,583
Edgar Haber	(1932-1997)	MD	1956	multiple myeloma	Harvard University School of Public Health	372	27,458
Barbara H. Bowman	(1930-1996)	PhD	1959	cancer	University of Texas HSC at San Antonio	115	3,371
Albert Dorfman	(1916-1982)	MD/PhD	1944	kidney failure	University of Chicago	183	9,660
Charlotte Friend	(1921-1987)	PhD	1950	lymphoma	Mount Sinai School of Medicine	98	5,486
William H. Tooley	(1925-1992)	MD	1949	long illness	UCSF School of Medicine	78	5,927
John R. Williamson	(1934-2000)	PhD	1959	cancer	University of Pennsylvania School of Medicine	210	16,530
Henry S. Kaplan	(1918-1984)	MD	1940	lung cancer	Stanford University School of Medicine	405	27,929
Charles G. Moertel	(1927-1994)	MD	1953	Hodgkin's Disease	Mayo Clinic	302	22,557
Joseph B. Warshaw	(1936-2003)	MD	1961	multiple myeloma	University of Vermont College of Medicine	110	3,399
Michael J. Goldstein	(1930-1997)	PhD	1957	cancer	UCLA	118	4,221
Gareth M. Green	(1931-1998)	MD/PhD	1957	cancer	Harvard University School of Public Health	61	3,131
John Gibbon	(1934-2001)	PhD	1967	cancer	Columbia University	37	2,002
Paul C. MacDonald	(1930-1997)	MD	1955	cancer	University of Texas Southwestern Medical Center at Dallas	268	14,116
George G. Glenner	(1927-1995)	MD	1953	systemic senile amyloidosis	UCSD	152	15,369
Jack E. White	(1921-1988)	MD	1944	cancer	Howard University School of Medicine	35	282

Table 2A: Summary Statistics for Superstars

	Mean	Std. Dev	Min.	Max.
Controls (N=156)				
Career Age at Death	31	8	9	53
Degree Year	1964	9	1936	1986
# Coauthors	98	65	3	303
NIH funding (excl. center grants)	$10,598,124	$8,370,053	$0	$63,493,052
# Papers (total)	132	77	11	417
# Citations	8,670	6,590	552	36,467
h index	52	20	10	122
Extinct (N=156)				
Career Age at Death	32	7	10	45
Degree Year	1963	9	1940	1986
# Coauthors	126	79	7	375
NIH funding (excl. center grants)	$10,982,680	$9,517,132	$0	$55,402,980
# Papers (total)	155	99	20	530
# Citations	9,047	6,963	282	34,625
h index	50	20	9	112
Total (N=312)				
Career Age at Death	32	8	9	53
Degree Year	1964	9	1936	1986
# Coauthors	112	74	3	375
NIH funding (excl. center grants)	$10,790,402	$8,949,616	$0	$63,493,052
# Papers (total)	143	89	11	530
# Citations	8,859	6,771	282	36,467
h index	51	20	9	122

Table 2B: Summary Statistics for Superstars (Counts)

	N	MD	PhD	MD/ PhD	NAS	HHMI	MERIT	Female	US born
Control	156	57	88	11	40	11	60	11	134
Extinct	156	71	70	15	33	11	51	16	132
Total	312	128	158	26	73	22	111	27	266

Table 3: Demographic Characteristics of Coauthors

	Female	**MD**	**PhD**	**MD/ PhD**	**NAS**	**NIH Grantee**	**Basic Dept.**	**Clinical Dept.**
Controls	723	1,717	2,068	362	107	2,767	1,563	2,584
(n=4,147)	(17.40%)	(41.40%)	(49.90%)	(8.70%)	(2.60%)	(66.70%)	(37.70%)	(62.30%)
Treatment	938	2,703	2,239	556	118	3,606	1,810	3,690
(n=5,500)	(17.10%)	(49.10%)	(40.70%)	(10.10%)	(2.10%)	(65.60%)	(32.90%)	(65.60%)
Total	1,661	4,420	4,307	918	225	6,373	3,373	6,274
(n=9,647)	(17.20%)	(45.80%)	(44.60%)	(9.50%)	(2.30%)	(66.10%)	(35.00%)	(65.00%)

Table 4: Number of Superstar Coauthors per Colleague

	Freq.	Proportion
1	8,917	91.58%
2	707	7.26%
3	94	0.97%
4	12	0.12%
5	7	0.07%
Total	15,715	100%

Table 5A: Summary Statistics for Superstar/Colleague Dyads in Year of Death, Treated Dyads Only

	Mean	Std. Dev.	Min.	Max.
Dyads involving a Star with Anticipated Death (N=4,642)				
Cum. Nb. of Papers, JIF-weighted	544.189	661.49	1.246	6336.873
Cum. Nb. of Papers	140.679	134.083	2	1388
Cum. Nb. of Coauthorships	3.19	6.134	1	112
Former trainee of the star	0.087	0.282	0	1
Colleague Senior to the star	0.033	0.178	0	1
At least one coauth. in last 5 years	0.341	0.474	0	1
Holds R01 at time of death	0.547	0.498	0	1
Career age at time of death	23.017	8.928	5	40
Colocated at time of death	0.247	0.431	0	1
Within 10 miles at time of death	0.282	0.45	0	1
Dyads involving a Star with Sudden Death (N=3,379)				
Cum. Nb. of Papers, JIF-weighted	571.218	669.581	1.378	6336.873
Cum. Nb. of Papers	146.242	138.698	2	1388
Cum. Nb. of Coauthorships	3.284	6.227	1	99
Former trainee of the star	0.082	0.274	0	1
Colleague Senior to the star	0.053	0.223	0	1
At least one coauth. in last 5 years	0.354	0.478	0	1
Holds R01 at time of death	0.574	0.495	0	1
Career age at time of death	22.532	8.706	5	40
Colocated at time of death	0.208	0.406	0	1
Within 10 miles at time of death	0.226	0.419	0	1
Total (N=8,021)				
Cum. Nb. of Papers, JIF-weighted	555.576	665.003	1.246	6336.873
Cum. Nb. of Papers	143.022	136.066	2	1388
Cum. Nb. of Coauthorships	3.229	6.173	1	112
Former trainee of the star	0.085	0.279	0	1
Colleague Senior to the star	0.041	0.199	0	1
At least one coauth. in last 5 years	0.346	0.476	0	1
Holds R01 at time of death	0.558	0.497	0	1
Career age at time of death	22.813	8.838	5	40
Colocated at time of death	0.231	0.421	0	1
Within 10 miles at time of death	0.258	0.438	0	1

Table 5B: Summary Statistics for Superstar/Colleague Dyads in Year of Death, Control vs. Treatment Dyads

	Mean	Std. Dev	Min.	Max.
Control Dyads (N=4,476)				
Career age at time of death	20.913	8.759	5	40
Time since first coauthorship	10.917	7.683	0	48
Number of Coauthorships in last 5 years	0.775	2.301	0	54
Cum. Nb. of Papers	67.363	66.077	1	765
Cum. Nb. of Papers, JIF-weighted	255.145	306.55	0.369	3490.446
Cum. Nb. of Patents	0.53	2.244	0	31
Cum. Nb. of Coauthorships	3.038	6.758	1	160
Holds R01 at time of death	0.541	0.498	0	1
Cum. NIH Funding at time of death	$2,687,440	$4,664,128	$0	$54,236,564
School NIH Funding in year of death	$180,085,816	$212,184,454	$0	$1,146,971,648
Proportion of Papers coauthored with star	0.104	0.163	0.001	1
Colocated at time of death	0.212	0.408	0	1
Within 10 miles at time of death	0.237	0.425	0	1
Former trainee of the star	0.123	0.329	0	1
Colleague Senior to the star	0.041	0.197	0	1
Treatment Dyads (N=6,220)				
Career age at time of death	22.086	8.816	5	40
Time since first coauthorship	11.147	7.774	0	39
Number of Coauthorships in last 5 years	0.803	2.192	0	40
Cum. Nb. of Papers	79.8	82.263	1	1071
Cum. Nb. of Papers, JIF-weighted	294.047	369.246	0.738	5019.836
Cum. Nb. of Patents	0.599	2.612	0	55
Cum. Nb. of Coauthorships	3.173	6.141	1	107
Holds R01 at time of death	0.515	0.5	0	1
Cum. NIH Funding at time of death	$3,017,445	$6,168,175	$0	$123,224,432
School NIH Funding in year of death	$177,066,269	$24,476,511	$0	$1,146,971,648
Proportion of Papers coauthored with star	0.095	0.158	0.001	1
Colocated at time of death	0.236	0.425	0	1
Within 10 miles at time of death	0.262	0.44	0	1
Former trainee of the star	0.095	0.293	0	1
Colleague Senior to the star	0.033	0.18	0	1

Table 6: Trends in Publication output in the years immediately preceding/following a superstar's death

	(1)	(2)	(3)	(4)
	156 Superstars, Age at death≤67	**Excluding 89 whose death was anticipated**	**Excluding 67 whose death was sudden**	**30 Superstars Age at death>75**
	156 Controls	**67 Controls**	**89 Controls**	**30 Controls**
2 years after year of death	0.311**	0.295**	0.315**	0.208**
	[6.36]	[3.95]	[5.26]	[2.72]
1 year after year of death	0.697**	0.762	0.611**	1.237
	[3.06]	[1.36]	[4.01]	[0.52]
year of death	1.140	0.947	1.289†	0.728
	[1.18]	[0.30]	[1.90]	[0.92]
1 year before year of death	1.230*	1.067	1.333**	0.840
	[2.25]	[0.42]	[2.58]	[0.59]
2 years before year of death	1.038	0.905	1.118	1.087
	[0.38]	[0.65]	[0.91]	[0.29]
3 years before year of death	1.101	1.133	1.046	1.039
	[1.02]	[0.92]	[0.38]	[0.12]
4 years before year of death	1.150	0.968	1.302*	0.997
	[1.49]	[0.20]	[2.41]	[0.02]
Log Quasi-Likelihood	-59,050	-24,095	-34,388	-11,393
Nb. of Observations	9,444	3,947	5,497	2,018
Nb. of Scientists	312	134	178	60

The estimates above are taken from a conditional fixed effects Poisson specification that also include 7 indicator variables corresponding to different age brackets and a full suite of calendar year effects (estimates not reported). The estimates are displayed as incidence rate ratios, e.g., the estimate in column (1) implies a statistically significant (1-0.311)=68.9% decrease in the rate of publication two years after a superstar scientist passes away (regardless of cause of death). Robust (QML) z-statistics are reported in brackets. The dependent variable is the weighted article count for the superstar, including only those publications in which the superstar appears in last position on the authorship list. The weights used to create these counts are Journal Impact Factors (JIF) published by the Institute for Scientific Information.

†significant at 10%; *significant at 5%; **significant at 1%

Table 7: Impact of Superstar Death on Coauthors' Publication Rates

Panel A: Treatment Dyads Only, JIF-weighted Total Publications

	(1) All	(2) All	(3) Sudden	(4) Sudden	(5) Anticip.	(6) Anticip.
After Death	0.922**	0.936**	0.882**	0.911**	0.956*	0.955+
	[4.72]	[3.68]	[5.31]	[3.32]	[1.97]	[1.93]
After Death ×		0.972		0.866**		1.051
Regular Collab.		[0.89]		[2.94]		[1.29]
After Death ×		0.892*		0.938		0.860*
Close Collab.		[2.34]		[1.13]		[2.06]
Log Quasi-Likelihood	-1,371,011	-1,370,709	-578,393	-577,902	-791,517	-791,101
Nb. of Obs.	207,412	207,412	86,541	86,541	120,871	120,871
Nb. of Dyads	8,021	8,021	3,379	3,379	4,642	4,642
Nb. of Superstars	156	156	67	67	89	89

Panel B: Treatment Dyads Only, JIF-weighted Publications written with others

	(1) All	(2) All	(3) Sudden	(4) Sudden	(5) Anticip.	(6) Anticip.
After Death	0.959*	0.946**	0.913**	0.919**	0.996	0.968
	[2.56]	[3.22]	[3.96]	[3.11]	[0.17]	[1.47]
After Death ×		1.022		0.907*		1.107*
Regular Collab.		[0.65]		[1.98]		[2.53]
After Death ×		1.154**		1.243**		1.093
Close Collab.		[2.74]		[3.52]		[1.16]
Log Quasi-Likelihood	-1,343,692	-1,343,292	-566,520	-565,830	-776,114	-775,732
Nb. of Obs.	207,412	207,412	86,541	86,541	120,871	120,871
Nb. of Dyads	8,021	8,021	3,379	3,379	4,642	4,642
Nb. of Superstars	156	156	67	67	89	89

Estimates are displayed as incidence rate ratios (exponentiated coefficients). For example. the estimates in column (4) of Panel A imply that casual coauthors suffer a statistically significant (1-0.911)=8.9% decrease in the rate of publication after one's superstar coauthor passes away, but that regular coauthors (between 3 and 9 publications) incur an additional decrease of 1-0.866=13.4%. All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar. †significant at 10%; *significant at 5%; **significant at 1%.

Panel C: Treatment and Control Dyads, JIF-weighted Total Publications

	(1) All	(2) All	(3) Sudden	(4) Sudden	(5) Anticip.	(6) Anticip.
After Death	0.945**	0.959*	0.914**	0.950	0.972	0.969
	[2.98]	[2.11]	[2.99]	[1.64]	[1.23]	[1.27]
After Death ×		0.983		0.853**		1.072†
Regular Collab.		[0.51]		[3.01]		[1.77]
After Death ×		0.875**		0.925		0.842*
Close Collab.		[2.68]		[1.25]		[2.37]
Log Quasi-Likelihood	-1,605,687	-1,605,415	-687,813	-687,441	-917,275	-916,849
Nb. of Obs.	271,487	271,487	114,664	114,664	156,823	156,823
Nb. of Dyads	10,696	10,696	4,553	4,553	6,143	6,143
Nb. of Superstars	312	312	134	134	178	178

Panel D: Treatment and Control Dyads, JIF-weighted Publications written with others

	(1) All	(2) All	(3) Sudden	(4) Sudden	(5) Anticip.	(6) Anticip.
After Death	0.976	0.956*	0.945*	0.947†	1.003	0.966
	[1.32]	[2.32]	[1.97]	[1.77]	[0.13]	[1.44]
After Death ×		1.044		0.905†		1.139**
Regular Collab.		[1.22]		[1.81]		[3.15]
After Death ×		1.178**		1.292**		1.104
Close Collab.		[2.94]		[3.66]		[1.24]
Log Quasi-Likelihood	-1,562,196	-1,561,810	-668,294	-667,711	-893,391	-892,993
Nb. of Obs.	271,487	271,487	114,664	114,664	156,823	156,823
Nb. of Dyads	10,696	10,696	4,553	4,553	6,143	6,143
Nb. of Superstars	312	312	134	134	178	178

Estimates are displayed as incidence rate ratios (exponentiated coefficients). For example. the estimates in column (6) of Panel D imply that casual coauthors suffer a statistically significant (1-0.88)=12% decrease in the rate of publication written with others after one's superstar coauthor passes away, but that close coauthors partly shift their effort towards other collaborations, resulting in a net increase of (1-1.169)-(1-11.6)=5.3%. All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar. †significant at 10%; *significant at 5%; **significant at 1%.

Table 8: Ideas Spillovers Are Increasing in Superstar's Accomplishments

	Superstar's Total Cites at Time of Death		Superstar's Total Cites at Time of Death, normalized by career length		Superstar's Career NIH Funding	
	(1a) w/o Controls	(1b) with Controls	(2a) w/o Controls	(2b) with Controls	(3a) w/o Controls	(3b) with Controls
After Death × Star in 1st Quartile	1.007	1.034	1.012	1.040	0.899*	0.916*
	[0.17]	[0.79]	[0.25]	[0.85]	[2.38]	[2.00]
After Death × Star in 2nd Quartile	0.949†	0.953	0.939*	0.948	0.936†	0.967
	[1.65]	[1.39]	[1.98]	[1.35]	[1.80]	[0.77]
After Death × Star in 3rd Quartile	0.895**	0.928*	0.918*	0.948	0.916**	0.945
	[3.38]	[2.05]	[2.55]	[1.46]	[2.67]	[1.58]
After Death × Star in 4th Quartile	0.912**	0.936*	0.904**	0.927**	0.916**	0.948†
	[3.68]	[2.31]	[4.14]	[2.83]	[3.15]	[1.73]
Log Quasi-Likelihood	-1,370,592	-1,605,491	-1,370,686	-1,605,483	-1,250,688	-1,507,523
Nb. of Obs.	207,412	271,487	207,412	271,487	189,821	256,027
Nb. of Dyads	8,021	10,696	8,021	10,696	7,360	10,108
Nb. of Superstars	156	312	156	312	146	296

Conditional dyad fixed effects quasi-MLE estimates for the determinants of JIF-weighted publications among coauthors of academic life sciences superstar academics. Estimates are displayed as incidence rate ratios (exponentiated coefficients). All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar. We interact the treatment variable with 4 indicator variables corresponding to quartiles for four distinct metrics of achievement for the superstars at the time of their death: total citations, total citations normalized by years of career, and career NIH funding. In the latter case, we exclude 7 scientists who spend all their careers at NIH campus in Bethesda, MD, and are therefore not eligible to receive extramural NIH funding.

†significant at 10%; *significant at 5%; **significant at 1%.

Table 9: Spillovers Are Not Increasing in Superstar's Network Centrality

	Betweenness Centrality		Eigenvector Centrality		Bonacich Centrality	
	(1a) w/o Controls	(1b) with Controls	(2a) w/o Controls	(2b) with Controls	(3a) w/o Controls	(3b) with Controls
After Death × Star in 1st Quartile	0.842* [2.31]	0.815* [2.44]	0.842* [2.31]	0.815* [2.44]	0.842* [2.31]	0.815* [2.44]
After Death × Star in 2nd Quartile	0.971 [0.66]	0.867* [2.47]	0.971 [0.66]	0.867* [2.47]	0.971 [0.66]	0.867* [2.47]
After Death × Star in 3rd Quartile	0.973 [0.97]	0.873** [3.68]	0.973 [0.97]	0.873** [3.68]	0.973 [0.97]	0.873** [3.68]
After Death × Star in 4th Quartile	0.910** [4.11]	0.799** [7.95]	0.910** [4.11]	0.799** [7.95]	0.910** [4.11]	0.799** [7.95]
Log Quasi-Likelihood	-1,271,085	-2,440,786	-1,271,085	-2,440,786	-1,271,085	-2,440,786
Nb. of Obs.	191,046	426,306	191,046	426,306	191,046	426,306
Nb. of Dyads	7,392	17,944	7,392	17,944	7,392	17,944
Nb. of Superstars	137	369	137	369	137	369

Conditional dyad fixed effects quasi-MLE estimates for the determinants of JIF-weighted publications among coauthors of academic life sciences superstar academics. Estimates are displayed as incidence rate ratios (exponentiated coefficients). All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar. We interact the treatment variable with 4 indicator variables corresponding to quartiles for four distinct measures of star centrality within the coauthorship network among 7,276 eminent life scientists. Because raw centrality measures are heavily correlated with publication output, the centrality measures on which the estimates are based are residuals from a simple regression of (raw) centrality on the stars' stock of publications and a constant.

†significant at 10%; *significant at 5%; **significant at 1%.

Table 10A: Interactions with Location, Coauthorship recency, and Former Trainee Status

	Star and Coauthor Co-located at Time of Death		Star and Coauthor Separated by Less than 10 Miles at Time of Death		Recent Coauthorship		Coauthor is Superstar's Former Trainee	
	w/o Controls	with Controls	w/o Controls	with Controls	w/o Controls	with Controls	w/o Controls	with Controls
	(1a)	(1b)	(2a)	(2b)	(3a)	(3c)	(4a)	(4c)
After death	0.918** [4.43]	0.948* [2.43]	0.923** [4.03]	0.952* [2.13]	0.874** [6.91]	0.885** [5.50]	0.930** [4.26]	0.956* [2.40]
After Death × Co-located at Time of Death	1.020 [0.67]	0.989 [0.36]						
After Death × Within 10 Miles at Time of Death			0.997 [0.09]	0.976 [0.73]				
After Death × At least one coauthorship in last 5 years					1.136** [4.23]	1.166** [5.22]		
After Death × Coauthor is Former Trainee							0.893** [2.68]	0.874** [3.01]
Log Quasi-Likelihood	-1,370,986	-1,605,682	-1,371,010	-1,605,661	-1,369,687	-1,604,457	-1,370,755	-1,605,406
Nb. of Obs.	207,412	271,487	207,412	271,487	207,412	271,487	207,412	27,1487
Nb. of Dyads	8,021	10,696	8,021	10,696	8,021	10,696	8,021	10,696
Nb. of Superstars	156	312	156	312	156	312	156	312

Conditional dyad fixed effects quasi-MLE estimates for the determinants of JIF-weighted publications among coauthors of academic life sciences superstar academics. Estimates are displayed as incidence rate ratios (exponentiated coefficients). All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar. We interact the treatment variable with characteristics of the dyad or coauthor.

†significant at 10%; *significant at 5%; **significant at 1%.

Table 10B: Interactions with NIH Grantee Status, Career Age Difference, and Substitution Opportunities

	NIH Grantee Satus		Career Age Difference		Substitution Opportunities	
	w/o Controls	with Controls	w/o Controls	with Controls	w/o Controls	with Controls
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)
After death	0.964	0.973	0.931**	0.954*	0.937**	0.966†
	[1.50]	[1.00]	[3.69]	[2.07]	[3.66]	[1.75]
After Death × Coauthor Holds R01 Grant at Time of Death	0.939*	0.957†				
	[2.56]	[1.66]				
After Death × Coauthor is a Junior to the Star			0.971	0.973		
			[1.00]	[0.86]		
After Death × Coauthor has no other superstar collaborator					0.706**	0.696**
					[7.52]	[8.16]
Log Quasi-Likelihood	-1,370,731	-1,605,591	-1,370,958	-1,605,653	-1,369,273	-1,604,136
Nb. of Obs.	207,412	271,487	207,412	271,487	207,412	271,487
Nb. of Dyads	8,021	10,696	8,021	10,696	8,021	10,696
Nb. of Superstars	156	312	156	312	156	312

Conditional dyad fixed effects quasi-MLE estimates for the determinants of JIF-weighted publications among coauthors of academic life sciences superstar academics. Estimates are displayed as incidence rate ratios (exponentiated coefficients). All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar. We interact the treatment variable with characteristics of the dyad or coauthor.

†significant at 10%; *significant at 5%; **significant at 1%.

Table 10C: Interactions with Relationship Age and Collaborator Age at Time of Death

	old vs. new relationship		Coauthor Old vs. Young at Superstar's Time of Death	
	(1a) w/o Controls	(1b) with Controls	(2a) w/o Controls	(2b) with Controls
After Death × Relationship less than 5 years old	1.017 [0.52]	1.059† [1.67]		
After Death × Relationship b/w 5 and 10 years old	0.922** [3.26]	0.969 [1.16]		
After Death × Relationship b/w 10 and 20 years old	0.867** [6.45]	0.858** [6.28]		
After Death × Relationship more than 20 years old	0.867** [4.11]	0.896** [2.72]		
After Death × Coauthor less than 10 years of career age at TOD			0.801** [3.37]	0.831** [3.31]
After Death × Coauthor b/w 10 and 20 years of career age at TOD			0.878** [4.95]	0.926** [2.96]
After Death × Coauthor b/w 20 and 30 years of career age at TOD			0.963 [1.63]	0.982 [0.74]
After Death × Coauthor more than 30 years of career age at TOD			0.955 0.801**	0.942 0.831**
Log Quasi-Likelihood	-1,369,576	-1,604,173	-1,370,283	-1,605,349
Nb. of Obs.	207,412	271,487	207,412	271,487
Nb. of Dyads	8,021	10,696	8,021	10,696
Nb. of Superstars	156	312	156	312

Conditional dyad fixed effects quasi-MLE estimates for the determinants of JIF-weighted publications among coauthors of academic life sciences superstar academics. Estimates are displayed as incidence rate ratios (exponentiated coefficients). All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar. We interact the treatment variable with characteristics of the dyad or coauthor.

†significant at 10%; *significant at 5%; **significant at 1%.

Table 11: Sensitivity Checks/Reality Checks

	Stars 60 years old or less at time of death		Stars 70 years old or less at time of death		Stars 75 years old or more at time of death		Placebo Death Dates for Control Superstars
	(1a) w/o Controls	(1b) with Controls	(2a) w/o Controls	(2b) with Controls	(3a) w/o Controls	(3b) with Controls	(4) Controls Only
After death	0.917** [4.00]	0.954† [1.76]	0.916** [5.25]	0.948** [3.00]	0.999 [0.02]	0.990 [0.18]	1.003 [0.32]
Log Quasi-Likelihood	-718,986	-823,499	-1,588327	-1,894,830	-207,928	-316,174	-648,821
Nb. of Obs.	101,177	132,742	243,151	325,963	33,349	57,776	113,043
Nb. of Dyads	3,915	5,241	9,409	12,837	1,274	2,256	4,476
Nb. of Superstars	84	168	185	370	30	60	156

Conditional dyad fixed effects quasi-MLE estimates for the determinants of JIF-weighted publications among coauthors of academic life sciences superstar academics. Estimates are displayed as incidence rate ratios (exponentiated coefficients). All models incorporate year effects and seven age category indicator variables (career age less than 5 years is the omitted category). Absolute value of robust (QML) z-statistics in brackets, clustered at the level of the superstar.

†significant at 10%; *significant at 5%; **significant at 1%.

Figure 1: Avoiding Contamination of the Control Sample

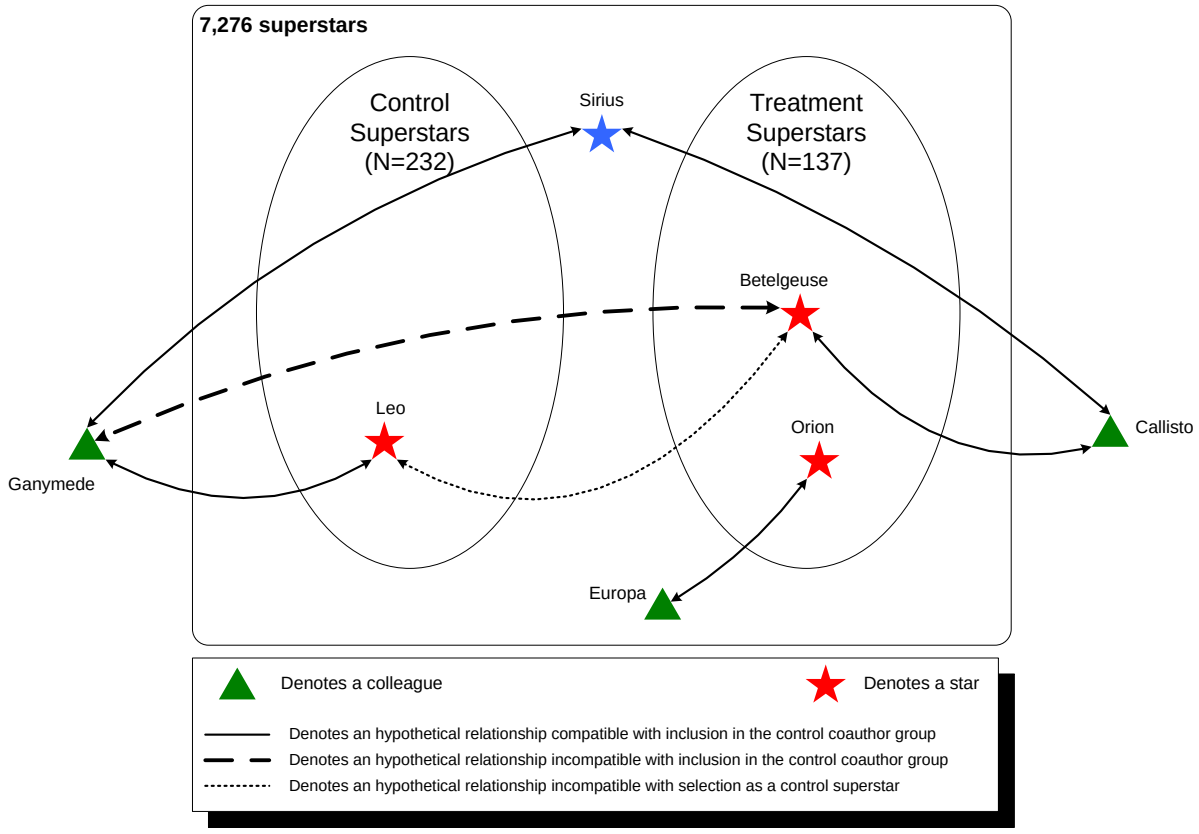


Figure 2: Number of Coauthors per Superstar

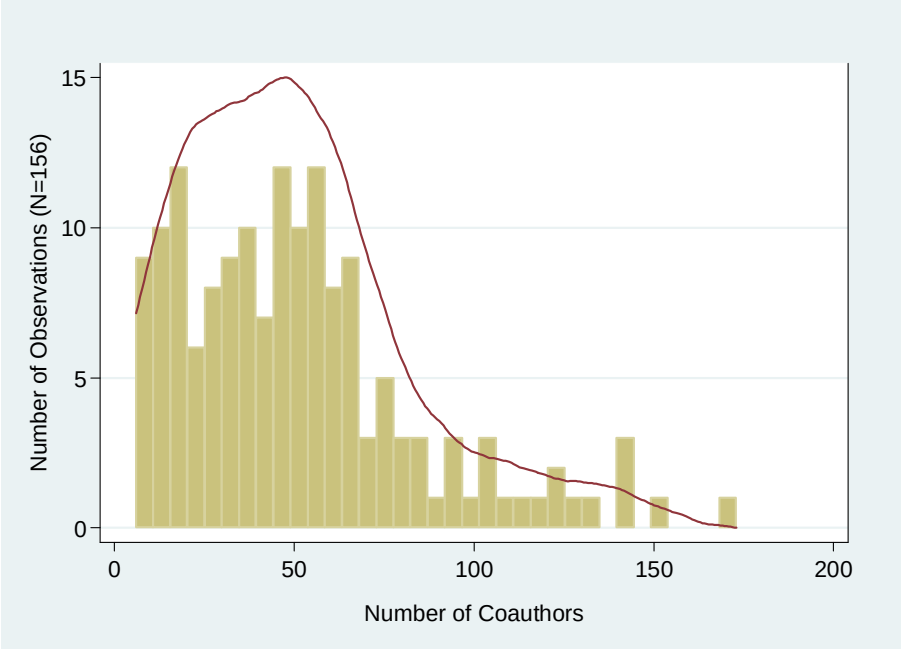


Figure 3: Distribution of Coauthorships at the Superstar/Colleague Level

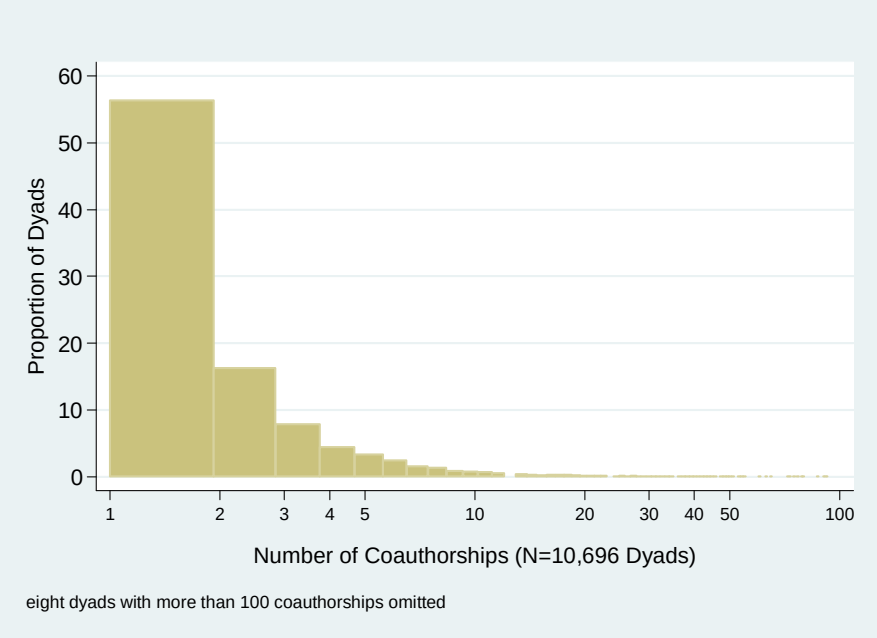
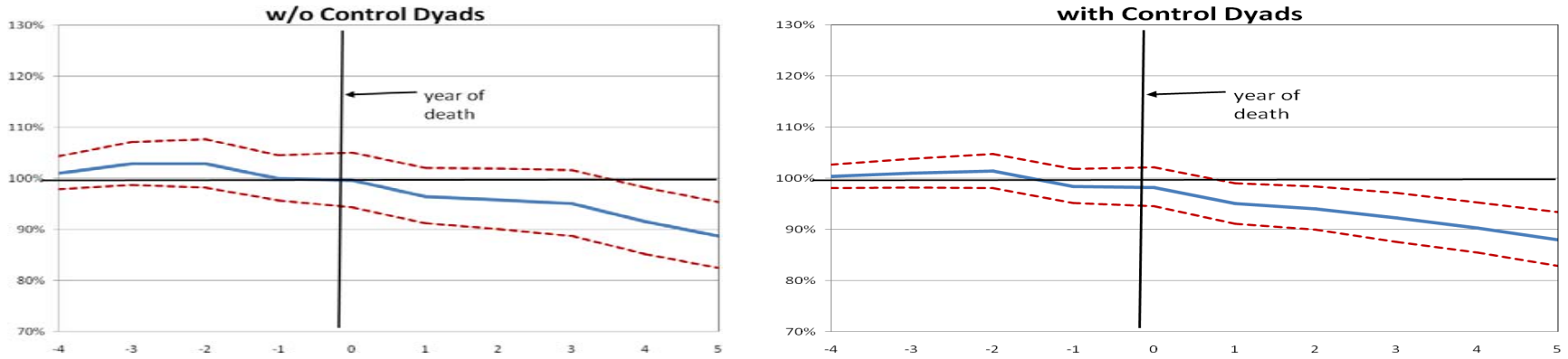


Figure 4: Time plot of coefficient estimates for the treatment effect interacted with years before and after superstar death.



The solid blue lines in the above plots correspond to the coefficient estimates for the incidence rate ratios of a Poisson regression in which the weighted publication output of a colleague with other faculty than the dead superstar is regressed onto year effects, 7 indicator variables corresponding to different age brackets, and interactions of the treatment effect with 11 dummy variables corresponding to 4 years before the year of death, 3 years before the year of death,..., 5 years after the year of death, and 6 years after the year of death and above (not plotted). The 95% confidence interval (corresponding to robust standard errors, clustered around supertsras) around these estimates is plotted with dashed red lines.