



Figure S1 Study design. Flowchart of patient inclusion from the SEER database, covering the period from 1992 to 2020. Two-part analysis: part 1 includes patients diagnosed with MM who developed SPMs; part 2 includes patients initially diagnosed with a PM who later developed MM as a secondary tumor. Clinical data collected included age, sex, race, latency period, total number of malignant tumors, sequence number, and site of additional malignancies. Patients with MM as the sole primary malignancy were excluded. MM, multiple myeloma; SEER, Surveillance, Epidemiology, and End Results; SPM, second primary malignancy; PM, primary malignancy.

Table S1 A summary of the frequency of SPMs in patients in types of solid tumors

Types of solid tumors	Count	Sex		Race			Median latency, years	Median age at MM diagnosis, years	Median age at SPM diagnosis, years
		Male	Female	White	Black	Other			
Prostate	479	249	0	329	112	38	2	68	72
Lung and Bronchus	432	252	180	310	91	31	2	70	73
Breast	296	289	7	207	62	27	2	66	70
Miscellaneous	251	142	109	189	40	22	3	70	74
Melanoma of the Skin	223	162	61	215	4	9	3	67.5	71
Urinary Bladder	189	163	26	167	15	7	2.5	69	73
Kidney and Renal Pelvis	180	133	47	131	37	12	1	66	69
Pancreas	107	61	46	74	24	9	2	72	75
Thyroid	74	33	41	53	7	14	1	70	74
Rectum	67	36	31	51	11	5	3	69	73
Sigmoid Colon	66	47	19	50	10	6	2	70	74
Stomach	64	41	23	37	17	10	3	69	74
Corpus Uteri	62	0	62	44	16	2	3	65	70
Ascending Colon	56	29	27	43	9	4	3	69	74
Cecum	55	33	22	41	11	3	3	71	75.5
Liver	54	36	18	34	5	15	1	68	70
Brain	32	21	11	28	2	2	3	69.5	73
Esophagus	28	24	4	24	4	1	3	70.5	73
Ovary	28	0	28	23	4	1	1.5	65.5	68
Transverse Colon	27	15	12	20	6	1	4	71	77
Other Non-Epithelial Skin	24	18	6	23	1	0	2	71.5	74
Soft Tissue including Heart	23	12	11	14	5	4	3	64	74
Other Biliary	21	17	4	14	4	3	3	69	73
Tongue	21	15	6	16	3	2	3	59	63
Hepatic Flexure	19	10	9	14	2	3	1.5	76	79
Small Intestine	18	12	6	13	5	0	3.5	68.5	73
Larynx	17	13	4	12	5	0	3	68	71
Descending Colon	17	11	6	13	4	0	3	69	73
Rectosigmoid Junction	16	10	6	10	4	2	3.5	66	71
Salivary Gland	16	12	4	9	6	1	4.5	63.5	67.5
Vulva	16	0	16	14	2	0	3.5	68.5	73.5
Cervix Uteri	15	0	15	8	3	4	5	67	71
Anus, Anal Canal and Anorectum	13	6	7	11	2	0	5	64	69
Large Intestine	11	3	8	6	4	1	2	72	78
Other Digestive Organs	10	3	7	6	4	0	0	66	66
Gallbladder	10	4	6	7	3	0	3	69	72
Intrahepatic Bile Duct	10	4	6	7	2	1	2	79	81

MM, multiple myeloma; SPM, second primary malignancy.

Table S2 A summary of the frequency of SPMs in patients with MM in types of hematology when MM was the PM

Types of hematology	Count	Sex		Race			Median latency, years	Median age at MM diagnosis, years	Median age at SPM diagnosis, years
		Male	Female	White	Black	Other			
NHL	200	114	86	163	22	15	1	70	74
AML	134	90	44	103	18	13	5	64	70
CLL	87	57	30	76	9	2	0	74	75
ALL	40	24	16	34	2	4	6	59	66
CML	25	13	12	22	3	0	1	75	78
HL-nodal	25	19	6	23	2	0	4	67	71
Aleukemic, subleukemic	10	4	6	8	1	1	2	67	69
Other AL	4	3	1	4	0	0	2	68.5	70.5
Other myeloid/monocytic leukemia	2	2	0	2	0	0	5	64.5	69.5
Other lymphocytic leukemia	2	2	0	2	0	0	0.5	74	74.5
AMOL	2	1	1	2	0	0	2.5	65	67.5

AL, acute leukemia; ALL, acute lymphocytic leukemia; AML, acute myeloid leukemia; AMOL, acute monocytic leukemia; CLL, chronic lymphocytic leukemia; CML, chronic myeloid leukemia; HL-nodal, Hodgkin lymphoma-nodal; MM, multiple myeloma; NHL, non-Hodgkin's lymphoma; PM, primary malignancy; SPM, second primary malignancy.

Table S3 A summary of the frequency of PMs in patients with MM in different systems

Systems	Count	Sex		Race			Median of latency, years	Median age at MM diagnosis, years	Median age at PM diagnosis, years
		Male	Female	White	Black	Other			
Urinary System	326	286	40	280	41	5	4	77	71
Percent (%)	28.25	91.35	9.48	74.04	19.3	6.67			
Genital System	227	8	219	174	31	22	5	74	68
Percent (%)	19.67	2.8	97.2	70.86	20.98	8.16			
Digestive System	162	102	60	126	22	14	4	77	72
Percent (%)	14.04	60.68	39.32	71.13	19.44	9.43			
Hematology	96	60	36	78	10	8	2	75	72
Percent (%)	8.32	11.3	6.78	14.69	1.88	1.51			
Respiratory System	90	59	31	69	18	3	2	78	73
Percent (%)	7.8	60.93	41.28	73.51	19.21	7.28			
Nervous System	7	5	2	7	0	0	2	81	80
Percent (%)	0.61	63.16	36.84	84.21	7.89	7.89			

PM, primary malignancy; MM, multiple myeloma.

Table S4 A summary of the frequency of PMs in patients with MM of different site of tumors

Types	Subtypes	Count	Sex		Race			Median of latency, years	Median age at MM diagnosis, years	Median age at PM diagnosis, years
			Male	Female	White	Black	Other			
Solid tumors	Prostate	347	347	0	289	50	8	4	77	71
	Breast	241	6	235	183	35	23	5	74	68
	Melanoma of the Skin	178	141	37	176	1	1	5	77.5	72
	Urinary Bladder	113	95	18	100	11	2	4	78	72
	Lung and Bronchus	92	58	34	73	15	4	2	78	74
	Kidney and Renal Pelvis	92	60	32	71	16	5	5	76	68
	Miscellaneous	58	40	18	45	10	3	3	75	73
	Thyroid	37	17	20	32	3	2	4.5	65.5	69
	Sigmoid Colon	36	29	7	27	6	3	3.5	79	74.5
	Rectum	35	22	13	26	6	3	0	66	66
	Corpus Uteri	33	33	0	29	3	1	7	77	72
	Cecum	31	19	12	26	3	2	5.5	78.5	71
	Ascending Colon	27	17	10	22	2	3	6	81	72
	Rectosigmoid Junction	17	13	4	14	3	0	3	76.5	71
	Transverse Colon	15	6	9	10	3	2	3.5	76.5	73.5
	Stomach	15	13	2	11	2	2	2	73	68
	Larynx	12	11	1	9	3	0	7	77	71
	Small Intestine	11	9	2	8	3	0	4	78	73
	Descending Colon	10	4	6	6	3	1	6.5	77	66.5
	Tongue	10	10	0	7	3	0	5	69	65.5
Hematology	NHL	85	56	29	68	11	6	2	74	71.5
	Chronic Lymphocytic Leukemia	23	18	5	22	1	0	3.5	76.5	73.5

MM, multiple myeloma; NHL, non-Hodgkin's lymphoma; PM, primary malignancy.