Supplementary Appendix

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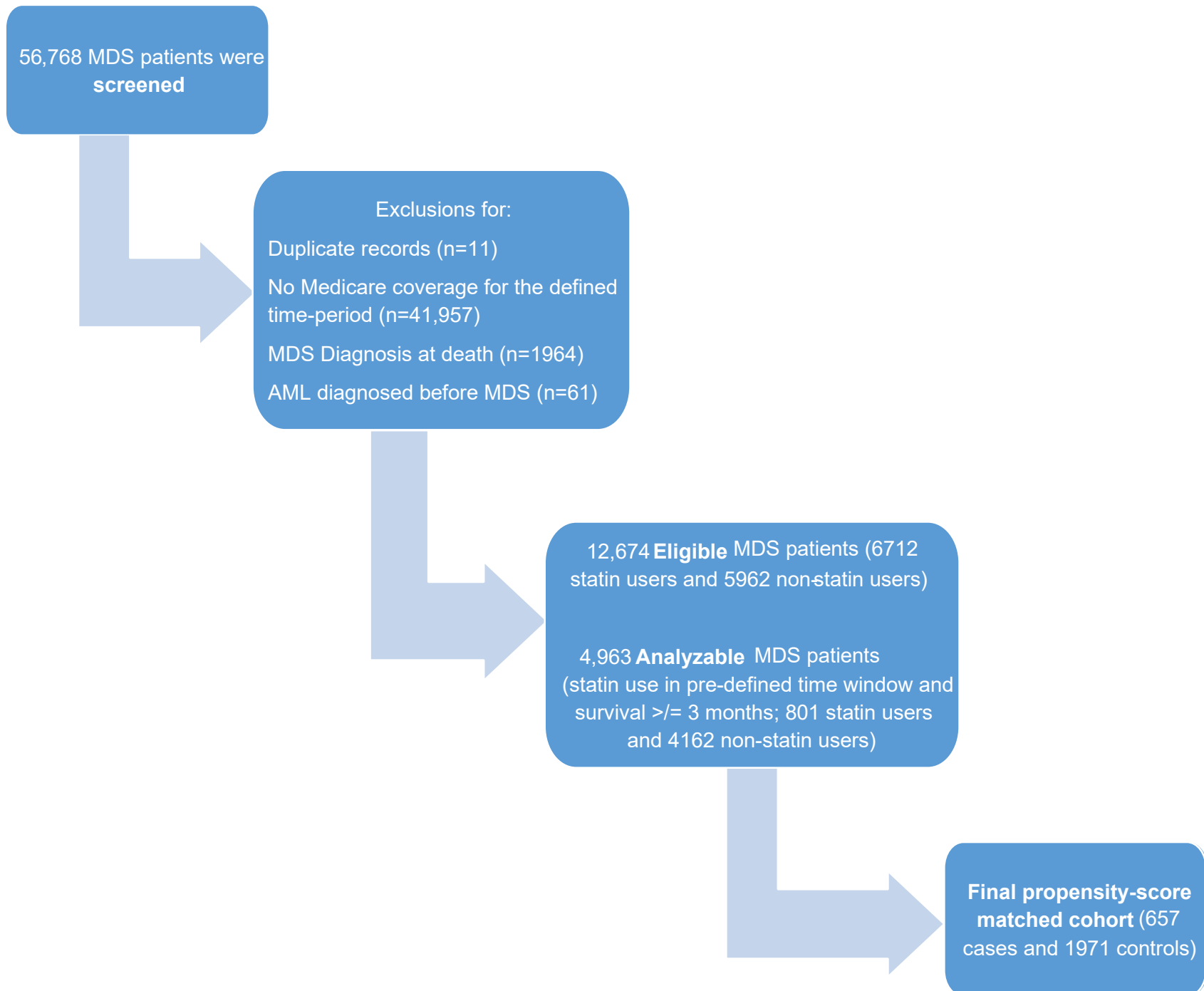| Supplementary Table 1: Identification of MDS, AML and Treatments	
ICD-O-3 histology codes for MDS	9980, 9982, 9983, 9985, 9986, 9987, 9989, 9991, 9992
ICD-O-3 histology codes for AML	9984, 9801, 9805, 9806, 9807, 9808, 9809, 9840, 9860, 9861, 9865, 9866, 9867, 9869, 9870, 9871, 9872, 9873, 9874, 9877, 9878, 9879, 9891, 9895, 9896, 9897, 9910, 9911, 9912
ICD9 codes for AML (inpatient)	205.0, 205.00, 205.01, 205.02, 205.30, 205.31, 205.32, 205.8, 205.80, 205.81, 205.82, 205.9, 205.90, 205.91, 205.92, 206.0, 206.00, 206.01, 206.02, 206.8, 206.80, 206.81, 206.82, 206.9, 206.90, 206.91, 206.92, 207.0, 207.00, 207.01, 207.02, 207.2, 207.20, 207.21, 207.22, 207.8, 207.80, 207.81, 207.82, 208.0, 208.00, 208.01, 208.02, 208.8, 208.80, 208.81, 208.82, 208.9, 208.90, 208.91, 208.92
ICD10 codes for AML (inpatient)	C92.0, C92.00, C92.01, C92.02, C92.3, C92.30, C92.31, C92.32, C92.4, C92.40, C92.41, C92.42, C92.5, C92.50, C92.51, C92.52, C92.6, C92.60, C92.61, C92.62, C92.A, C92.A0, C92.A1, C92.A2, C92.Z, C92.Z0, C92.Z1, C92.Z2, C92.9, C92.90, C92.91, C92.92, C93.0, C93.00, C93.01, C93.02, C93.Z, C93.Z0, C93.Z1, C93.Z2, C93.9, C93.90, C93.91, C93.92, C94.0, C94.00, C94.01, C94.02, C94.2, C94.20, C94.21, C94.22, C94.8, C94.80, C94.81, C94.82
Treatments for MDS	Medicare Claims (Part A, B and D) for blood transfusions, erythropoietin stimulating agents, granulocyte colony-stimulating factors, lenalidomide, azacitidine, decitabine, allogeneic stem cell transplant
Abbreviations: MDS=myelodysplastic syndromes, AML= acute myeloid leukemia, ICD= International Classification of Diseases, CPT = Current Procedural Terminology	

Supplementary Table 2: Cause of Death[1]	Frequency (%) N=2161[2]
Cardiovascular events (Myocardial infarction, stroke, squalene of atherosclerosis)	303 (14.0%)
Hematological Malignancy	309 (14.3%)
Solid tumors	82 (3.8%)
Unspecified Malignancy	501 (23.2%)
Infections	72 (3.3%)
Chronic lung, liver or kidney disease	94 (4.3%)
Diabetes mellitus	33 (1.5%)
Alzheimer's disease	17 (<1.0%)
Accidents/Suicide	23 (1.0%)
Miscellaneous Causes of Death	160 (7.4%)
Missing information	567 (26.2)

1= Data on cause of death was obtained from death certificates where attribution of death to a certain cause relies on the skill of healthcare professional filling the certificate

2= 467 alive at last follow-up

Supplementary Table 3: Multivariable Analysis for the Effect of Statins on Mortality and Progression to AML in MDS patients

Parameter	Adjusted Hazards Ratio for Mortality (95% Confidence Interval)	Adjusted Hazards Ratio for Progression to AML (95% Confidence Interval)
Statin Use	**0.62 (0.45-0.87)**	**0.80 (0.64-0.99)**
Race (Ref: Caucasian)		
African American	**0.76 (0.63-0.91)**	0.87 (0.57-1.299)
Others	**0.82 (0.68-0.99)**	1.01 (0.672-1.503)
Ethnicity (Ref: Not Hispanic)		
Hispanic	0.91 (0.76-1.08)	0.93 (0.62-1.40)
Gender (Ref: Male)		
Female	0.92 (0.84-1.00)	1.10 (0.92-1.33)
Urban-Rural (Ref: non-Metro)		
Metro	0.89 (0.79-1.01)	0.87 (0.66-1.13)
Medicaid Enrollment (Ref: not enrolled)		
Enrolled	**1.14 (1.03-1.26)**	0.89 (0.70-1.13)
SMMRS Category (Ref: SMMRS category 1)		
Category 2	**1.89 (1.67-2.14)**	**1.36 (1.04-1.78)**
Category 3	**2.68 (2.36-3.05)**	**2.01 (1.53-2.64)**
Category 4	**4.18 (3.64-4.79)**	**2.38 (1.78-3.18)**
MDS directed treatments*		
For lower-risk MDS	**1.27 (1.15-1.39)**	1.04 (0.85-1.28)
For higher-risk MDS	**1.70 (1.55-1.87)**	**6.75 (5.55-8.20)**

- Abbreviations: Abbreviations: AML = acute myeloid leukemia, MDS= myelodysplastic syndromes, SMMRS= SEER-Medicare MDS Risk Score, *=Used as a time-dependent variable
- Those who survived less than 3 months after MDS diagnosis were excluded to remove immortal time bias

56,768 MDS patients were **screened**

Exclusions for:

Duplicate records (n=11)

No Medicare coverage for the defined time-period (n=41,957)

MDS Diagnosis at death (n=1964)

AML diagnosed before MDS (n=61)

12,674 **Eligible** MDS patients (6712 statin users and 5962 non-statin users)

4,963 **Analyzable** MDS patients (statin use in pre-defined time window and survival >/= 3 months; 801 statin users and 4162 non-statin users)

Final propensity-score matched cohort (657 cases and 1971 controls)

Supplementary Figure 1: CONSORT DIAGRAM