Supplemental Table 1 - Arthritis conditions associated with coal and silica exposure, adjusted for smoking and age using generalized estimating equations to account for clustering by survey year

	Arthritis (any type) (n=2981)	**Non-RA arthritis (excludes RA)** (n=2641)	**RA* (excludes non-RA)** (n=1607)
Coal and Silica exposure	Odds Ratios (95% Confidence Intervals)		
Coal (+/- silica exposure)	2.3 (2.2, 2.3)	2.1 (2.0, 2.1)	3.5 (3.4, 3.7)
Silica exposure only	2.0 (1.7, 2.3)	1.8 (1.5, 2.1)	3.2 (3.1, 3.4)
Neither	referent	referent	referent
Age (per year)	1.020 (1.014, 1.026)	1.019 (1.016, 1.023)	1.019 (1.005, 1.033)
Cigarette Smoking			
Current/recent smoker	1.3 (1.1, 1.5)	1.3 (1.1, 1.4)	1.5 (1.16, 1.97)
Former smoker	1.1 (1.0, 1.2)	1.0 (0.9, 1.1)	1.8 (1.73, 1.82)
Never smoked	referent	referent	referent

* RA definition based on report of doctor's diagnosis of RA, plus treatment with glucocorticoids.
Recent smokers include those who stopped within past 3 years

Supplemental Table 2 - Rheumatoid arthritis (more specific definition) associated with coal, silica, and ergonomic exposures, adjusted for smoking, and age (2019 sample only)

Risk Factors	**RA (including treatment with both glucocorticoids & DMARDs)** (n=899)
	OR (95% CI)
Coal and/or silica exposure	
No exposure to coal mining or other occupational silica	referent
Coal mining exposure	3.0 (1.36, 6.4)
Silica exposure from non-coal occupations only	2.9 (1.42, 6.0)
Ergonomic hazard score (referent category = 0 points)	
1 point	1.6 (0.55, 4.6)
2-3 points	2.3 (0.93, 5.6)
4-5 points	4.1 (1.63, 10.3)

DMARD = Disease Modifying Anti-Rheumatic Drug
OR=Odds Ratio; CI = Confidence Interval
Model controls for variables shown plus age, smoking (never, former, current/recent).
Model excludes respondents who report arthritis not meeting the more specific definition of glucocorticoids and DMARDs (overall prevalence of RA by this definition = 3% (95% CI 2-4%).

Supplemental Figure Legend

Supplemental Figure 1. Flowchart of sample inclusion for 2017 and 2019 surveys.