

Figure S1. Correlation matrices of HBC-region 2.2 and 4.1 for all atmospheric and air pollution factors (part of the predictor sets for non-ST elevation myocardial infarction (NSTEMI) and tachycardia), using the Spearman Rank Correlation Coefficient, \* = marking significant correlations ( $p \leq 0.05$ ), (a) HBC-region 2.2, (b) HBC-region 4.1

Table S1. Definition of Cardiovascular Diseases according to the International Statistical Classification of Diseases and Related Health Problems, 10<sup>th</sup> revision, German Modification (ICD-10-GM) and the Intensive Care Unit (ICU) criterion

Disease	ICD-10-GM code	ICU criterion*
Myocardial infarction (NSTEMI)	1: I21.4, I21.9, I20.0	1: Independent of ICU
	2: I20.1, I20.8, I20.9, I25.6, I25.8, I25.9	2: ICU
	3: I25.11, I25.12, I25.13, I25.14, I25.15, I25.16	3: ICU exclusive OPS code of 5-361
Tachycardia	I47.0, I47.1, I47.2, I47.9, I48.00, I48.01, I48.10, I48.11, I47.0, I47.1, I47.2, I47.9, I48.0, I48.2, I48.3, I48.4	ICU

\*Definition of ICU according to OPS codes and specialist department codes [19]

Table S2. Regression estimates of multivariable generalized additive models for non-ST elevation myocardial infarction (NSTEMI) and tachycardia for females and males in HBC-region 2.2 and 4.1, focusing on atmospheric pressure

Disease	Sex	HBC-region	Regression estimate	p-value
Tachycardia	Female	2.2	EDF* = 0.885	0.004
Tachycardia	Male	2.2	EDF = 0.855	0.008
NSTEMI	Female	2.2	$\beta = -0.002$	< 0.0001
NSTEMI	Male	2.2	EDF = 0.941	0.0005
NSTEMI	Female	4.1	EDF = 0.873	0.006
NSTEMI	Male	4.1	EDF = 0.806	0.023
Tachycardia	Female	4.1	EDF = 0.706	0.056
Tachycardia	Male	4.1	EDF = 0.877	0.005

\*EDF = effective degree of freedom

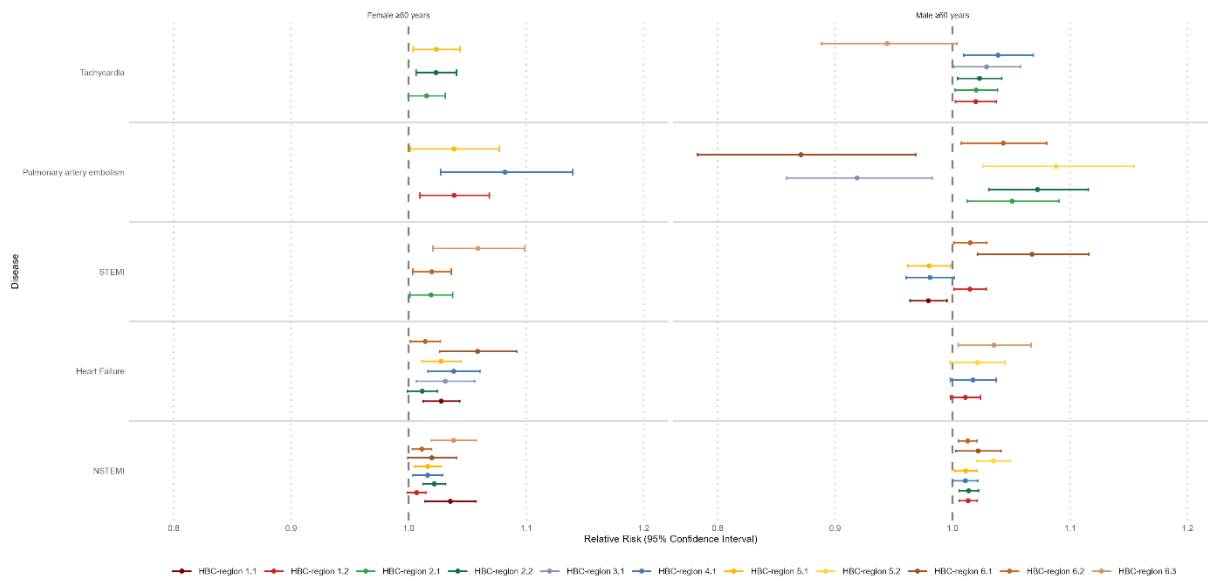


Figure S2. Forest plot of all cardiovascular entities showing Relative Risk and 95% Confidence Interval for significant associations ( $p \leq 0.05$ ) per HBC-region due to a 10hPa atmospheric pressure drop (1016.1hPa to 1006.1hPa)

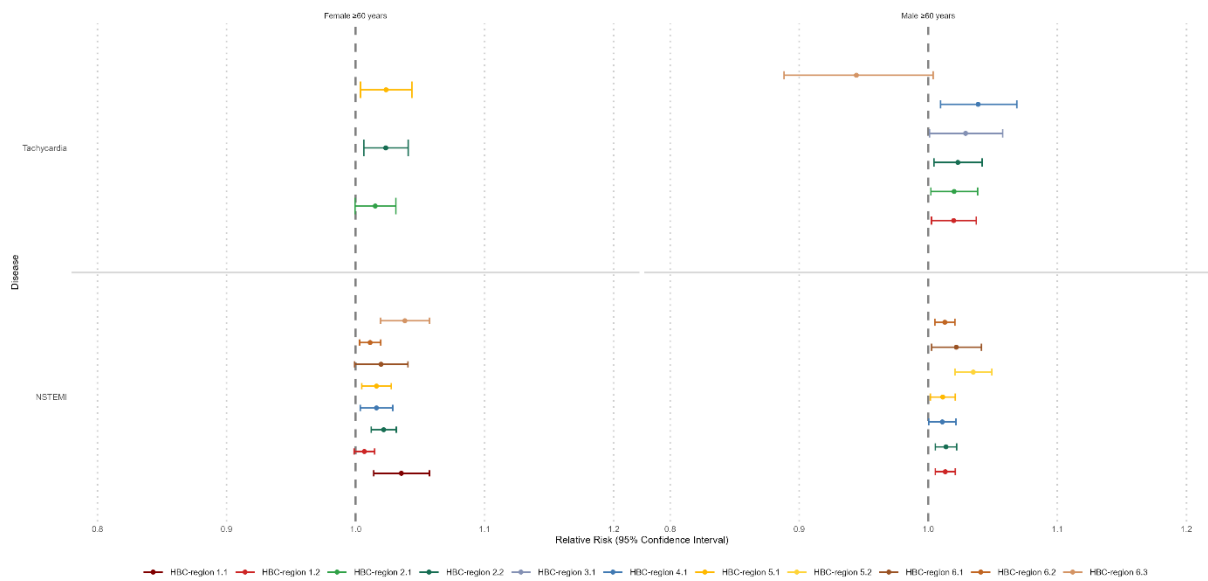


Figure S3. Forest plot of Non-ST elevation myocardial infarction (NSTEMI) and tachycardia showing Relative Risk and 95% Confidence Interval for significant associations ( $p \leq 0.05$ ) per HBC-region due to a 10hPa atmospheric pressure drop (1016.1hPa to 1006.1hPa)

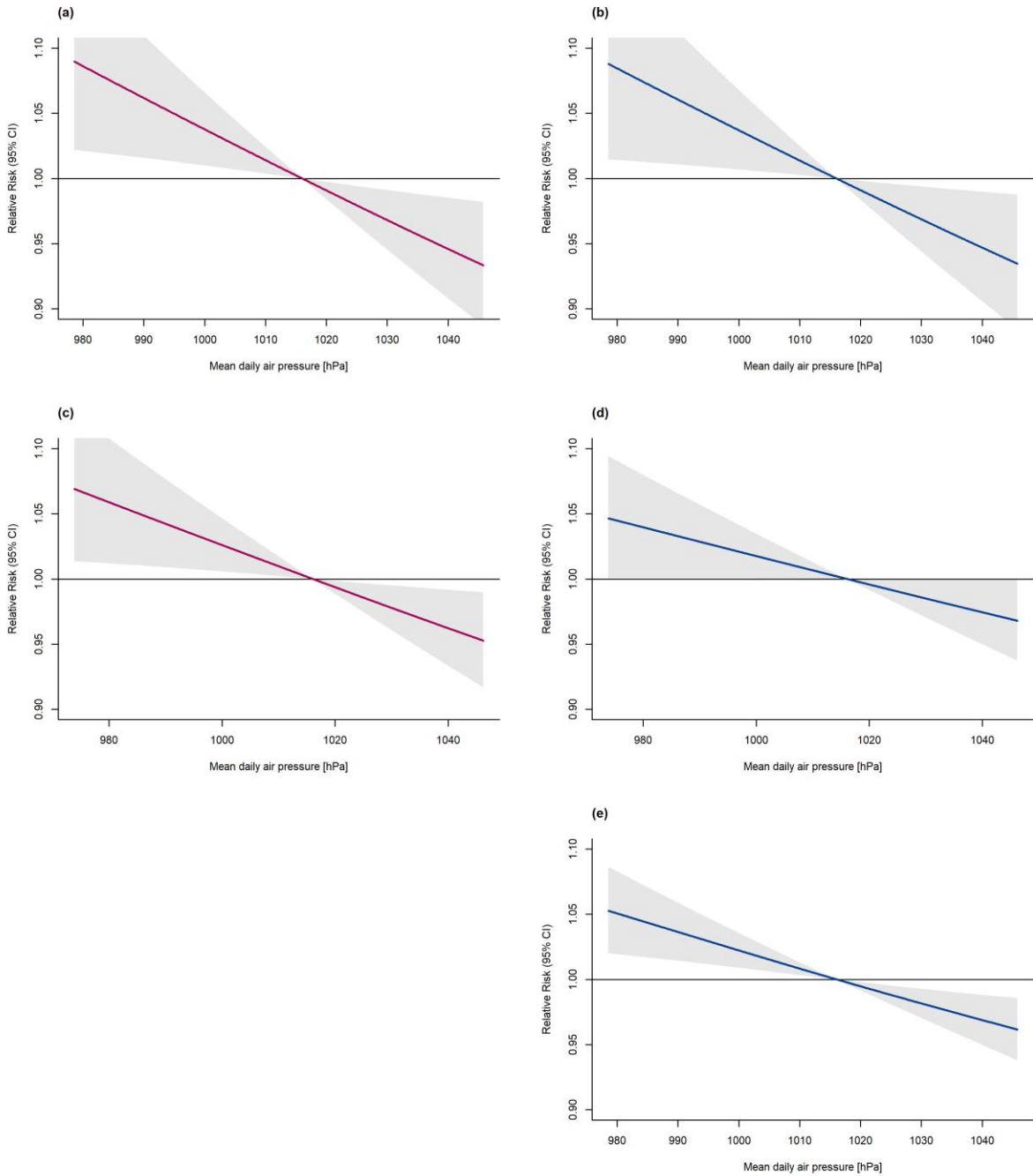


Figure S4. Exposure-response curve of daily atmospheric pressure (non-linear model predictors), (a) Women with tachycardia in HBC-region 2.2, (b) Men with tachycardia in HBC-region 2.2, (c) Women with non-ST elevation myocardial infarction (NSTEMI) in HBC-region 4.1, (d) Men with NSTEMI in HBC-region 4.1, (e) Men with NSTEMI in HBC-region 2.2