

Online Data Supplement
Mortality and Exacerbations by Global Initiative for Chronic Obstructive Lung Disease
Groups ABCD: 2011 Versus 2017 in the COPDGene® Cohort

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Supplementary Table 1. Severe exacerbation frequency of participants with COPD by ABCD groups, GOLD 2011 and 2017^a

| Exacerbations | | |
|-------------------------------|----------------------|----------------------|
| | GOLD 2011 | GOLD 2017 |
| Group A | | |
| Annual rate | 0.1 (0.7) | 0.2 (0.7) |
| Fold increase (HR [95% CI]) | Reference | Reference |
| Group B | | |
| Annual rate | 0.4 (1.1) | 0.6 (1.5) |
| Fold increase (HR [95% CI]) | 3.0 (2.2, 3.5) | 3.6 (3.0, 4.3) |
| Group C | | |
| Annual rate | 0.4 (1.4) | 0.8 (1.9) |
| Fold increase (HR [95% CI]) | 3.9 (3.0, 5.0) | 4.7 (3.6, 6.0) |
| Group D | | |
| Annual rate | 1.1 (2.2) | 1.5 (2.5) |
| Fold increase (HR [95% CI]) | 6.0 (5.0, 7.3) | 6.1 (5.1, 7.3) |
| Overall discrimination | | |
| AUC (95% CI) | 0.694 (0.678, 0.711) | 0.694 (0.676, 0.711) |
| | p = 0.88 | |

^aData presented as mean (standard deviation), unless otherwise specified.
 COPD—chronic obstructive pulmonary disease, GOLD—Global Initiative for Chronic Obstructive Lung Disease, HR—hazard ratio, CI—confidence interval, AUC—area under the curve

Supplementary Table 2. Distribution of participants with COPD by ABCD groups, GOLD 2011 and GOLD 2017

| | GOLD 2011 (%) | GOLD 2017 (%) |
|---------|---------------|---------------|
| Group A | 28.6 | 32.1 |
| Group B | 21.0 | 36.341.2 |
| Group C | 5.7 | 2.2 |
| Group D | 44.7 | 24.5 |
| | | |
| | Agreement | 0.76 |
| | Expected | 0.29 |
| | Kappa | 0.66 |

COPD—chronic obstructive pulmonary disease, GOLD—Global Initiative for Chronic Obstructive Lung Disease

Supplementary Table 3. Mortality^a and exacerbation^b frequency of participants with COPD by ABCD groups, GOLD 2011 and 2017^c

| Mortality | | | Exacerbations | |
|------------------------|----------------------|----------------------|----------------------|----------------------|
| | GOLD 2011 | GOLD 2017 | GOLD 2011 | GOLD 2017 |
| Group A | | | | |
| Frequency | 7.0 % | 7.6 % | 0.2 (0.5) | 0.2 (0.6) |
| HR (95% CI) | Reference | Reference | Reference | Reference |
| Group B | | | | |
| Frequency | 15.6 % | 22.5 % | 0.5 (1.0) | 0.2 (1.6) |
| HR (95% CI) | 2.6 (2.0, 3.3) | 3.4 (2.7, 4.1) | 2.8 (2.4, 3.4) | 3.1 (2.7, 3.6) |
| Group C | | | | |
| Frequency | 13.3 % | 14.1 % | 0.5 (0.9) | 0.6 (1.1) |
| HR (95% CI) | 1.8 (1.2, 2.6) | 1.8 (1.0, 3.1) | 3.0 (2.4, 3.7) | 3.0 (2.3, 4.0) |
| Group D | | | | |
| Frequency | 29.8 % | 30.0 % | 1.1 (1.6) | 1.4 (1.8) |
| HR (95% CI) | 5.2 (4.1, 6.5) | 5.5 (4.4, 6.8) | 6.6 (5.5, 7.4) | 7.2 (6.3, 8.2) |
| Overall discrimination | | | | |
| AUC (95% CI) | 0.676 (0.659, 0.693) | 0.655 (0.637, 0.673) | 0.666 (0.651, 0.681) | 0.656 (0.641, 0.671) |
| | p < 0.001 | | p = 0.05 | |

^aMortality models based on COX proportional hazard models, adjusted for demographics (age, sex, race), cardiovascular comorbidities (a combination of myocardial infarction, angina, congestive heart failure), cardiovascular risk factors (diabetes, obesity, hypertension, hyperlipidemia), musculoskeletal disease (combination of osteoarthritis and osteoporosis) and asthma.

^bExacerbation models based on zero-inflated Poisson models, equally adjusted.

^cData presented as mean (standard deviation), unless otherwise specified.

COPD—chronic obstructive pulmonary disease, GOLD—Global Initiative for Chronic Obstructive Lung Disease, HR—hazard ratio, CI—confidence interval, AUC—area under the curve