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**Title:** Metabolic and cardiovascular comorbidity in COPD patients classified using the GOLD 2011 assessment framework

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**Body:** The GOLD guidelines 2011 proposed a new COPD assessment framework which considers current symptoms and future exacerbation risk of adverse events: (A: less symptoms, low risk; B: more symptoms, low risk; C: less symptoms, high risk; D: more symptoms, high risk). This analysis examined comorbidity rates in patients classified using this method.

GOLD Group	% of total population	Diabetes %	Hypertension %	Hyperlipidaemia %	Coronary artery disease %
A	9.3	4.1	38.1	13.4	3.1
B	48.5	15.8	55.4	29.5	5.5
C	0.7	0	14.3	14.3	0
D	41.5	28.5	65.3	37.3	9.0
Chi-squared		42.0	31.8	23.4	7.3
P value		<0.0001	<0.0001	<0.0001	0.06

Data from 1041 EU COPD patients (39% from primary care) in the 2011 Adelphi Disease Specific Programme were used in which medical diagnosis of comorbidity was recorded. The GOLD groups were defined using the CAT  $\geq 10$  cut-point between patients with less and more symptoms. One third (32.9%) of patients (mean age 64.9 years) had  $\geq 2$  exacerbations in the previous year; 79.5% had FEV<sub>1</sub>  $\geq 50\%$ . The table shows the percentage of patients with metabolic and cardiovascular comorbidities in each GOLD Group. Across the groups there was a significant difference in incidence of comorbidity, except for diagnosed coronary artery disease. With the exception of Group C, where there were too few patients for interpretation, there was a clear trend for higher comorbidity in patients with more symptoms and a higher

risk of adverse events. The new GOLD classification identifies groups of patients with differing incidence of metabolic and cardiovascular comorbidity. This comorbidity rises with worsening GOLD Group, which has implications for clinical practice and an understanding of the pathobiology of the disease.