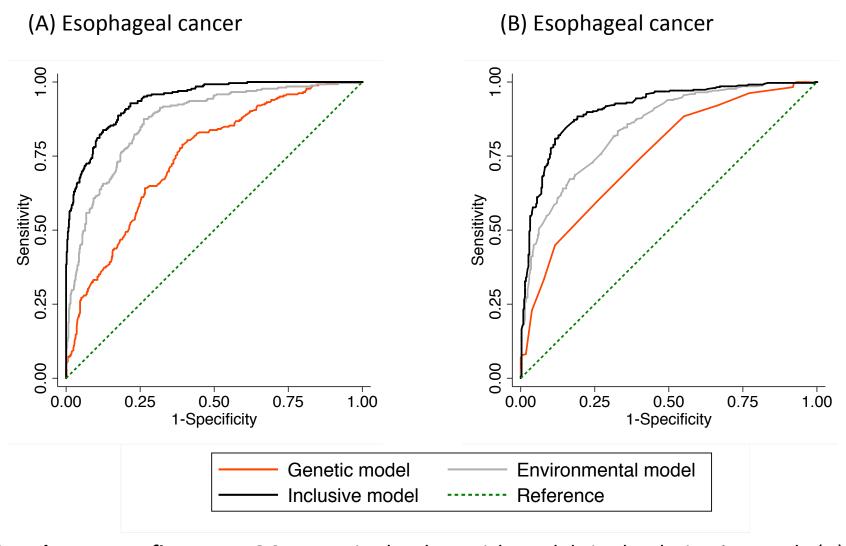
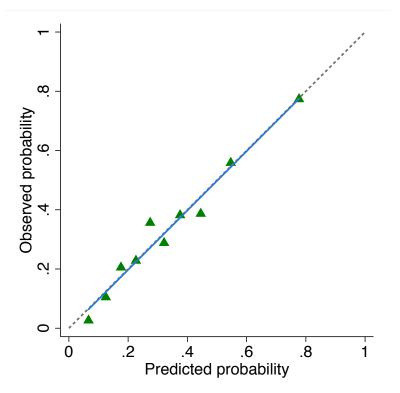


**Supplementary figure 1.** ROC curves in the three risk models in the derivation study (A) and the validation study (B). The straight dashed line with an AUC of 50% is reference. The upper black curved line represents the inclusive risk model, the gray line represents the environmental model, and the orange line represents the genetic model.

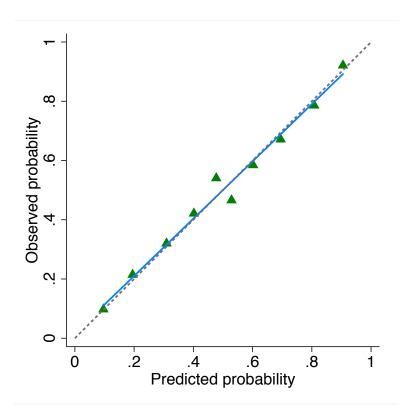


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(A) Head and neck cancer

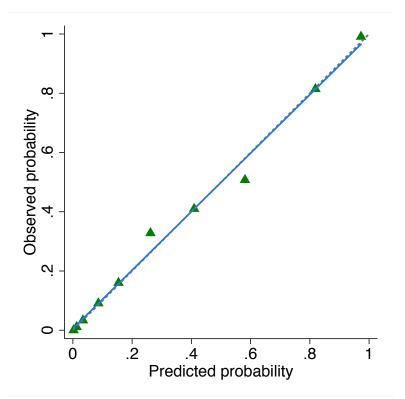


(B) Head and neck cancer

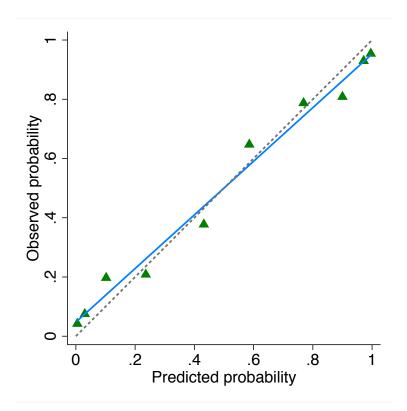


**Supplementary figure 2.** Calibration plots for the inclusive model by cancer site. Predicted and observed probabilities within deciles of predicted probability in the derivation study (A) and validation study (B). The straight dashed line (45° line) represents the ideal calibration line and the solid blue line is the linear calibration line for the risk model.

## (A) Esophageal cancer

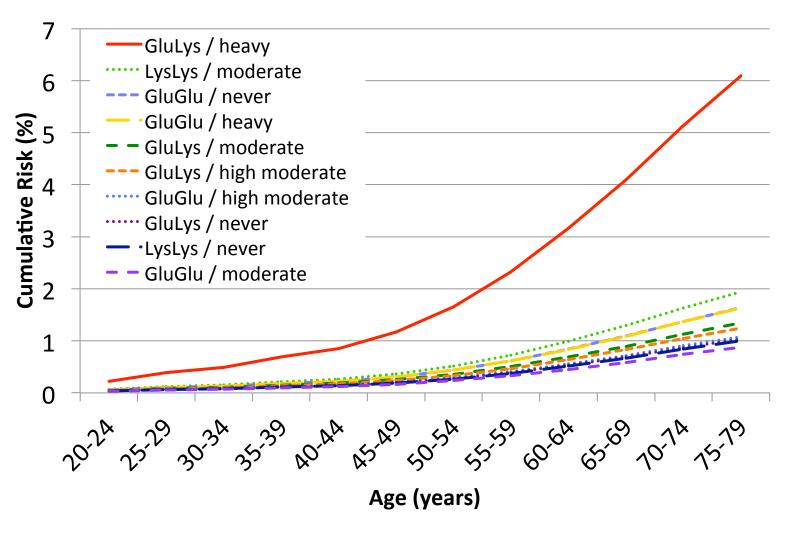


## (B) Esophageal cancer



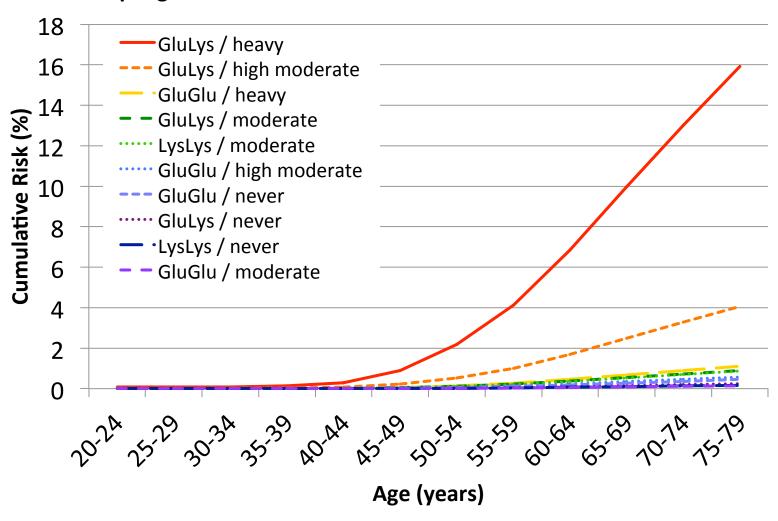
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## Head and neck cancer



**Supplementary figure 3.** Cumulative risk (%) for each risk group (*ALDH2* genotype/alcohol consumption) at various ages up to age 80 years, estimated using the age-specific incidence rate and population size in 2007.

## **Esophageal cancer**



**Supplementary figure 3.** Cumulative risk (%) for each risk group (*ALDH2* genotype/alcohol consumption) at various ages up to age 80 years, estimated using the age-specific incidence rate and population size in 2007.