Methods The study was performed using historical cohort data of workers with exposed to silica dust in an iron ore mine in China. The diagnosis of silicosis was made according to Chinese diagnosis criteria. A multivariable logistic regression model was developed to estimate the probability of silicosis with these predictors, including age of entry cohort, age at first exposed to silica dust, smoking status, index of silica dust exposure (ie, cumulative exposure to total dust, concentration of respirable crystalline silica dust, and job title), lung disease history, etc. We compared the observed incidence rate of silicosis among workers with different chest X-ray interval with the predicted ones obtained from the prediction model. The model's calibration and discrimination was evaluated with Hosmer-Lemeshow test and area under the receiver operating characteristic curve.

Results and conclusions We are working on data collection and the data are not sufficient for us to build a proper prediction model at this stage (data will be presented in the conference). Nevertheless, we believe that this prediction model can be used by occupational physicians to determine workers with optimal chest X-ray interval according to proper predictors, with the potential benefits for helping employers to reduce costs on unnecessary medical surveillance and employees to reduce the overall dose of redundant X-ray investigations.

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BUILDING A PREDICTION MODEL TO DETERMINE AN OPTIMAL INTERVAL FOR WORKERS EXPOSED TO SILICA DUST ABOUT MEDICAL SURVEILLANCE ON CHEST X-RAY

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Objectives The objective of this study is to develop a prediction model to estimate the most optimal interval of medical surveillance for workers exposed to silica dust based on existing data of periodic medical surveillance on chest X-rays.