Analisis risiko dan dampaknya terhadap penurunan fungsi paru pekerja industri semen di plant 06 PT Indocement Citeureup-Bogor Tahun 2016 = Risk analysis and impact on workers lung function decline in plant cement industry 06 PT Indocement Citeureup Bogor 2016

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Abstrak

ABSTRAK
Sumber PM2,5 banyak dihasilkan dari kegiatan antropogenik seperti transportasi industri, dan rumah tangga. Sumber dari kegiatan industri biasanya banyak berasal dari kegiatan pertambangan, cerobong asap pabrik, hasil pembakaran dan industri semen (WHO, 2006). Tujuan utama dalam penelitian ini adalah untuk mengetahui tingkat risiko PM2,5 dan hubungannya dengan penurunan fungsi paru. Jenis penelitian ini adalah analisis risiko dan epidemiologi dengan desain cross sectional, jumlah sample 92 responden dan teknik pengambilan sampel adalah proporsional simple random sampling. Data diperoleh dari kuisioner, pengukuran PM2,5 pengukuran antropometri dan pengukuran fungsi paru. Fungsi paru diperiksa dengan menggunakan spirometri tes untuk mendapatkan nilai FVC dan FEV1. Konsentrasi PM2,5 diukur dengan menggunakan High Volume Air Sampler. Analisis uji statistik menggunakan Chi square dan regresi linear dengan derajat kepercayaan 95%. Untuk menghitung besarnya risiko dilakukan sampling konsentrasi PM2,5 di 6 titik area. Hasil perhitungan risiko lifetime menunjukkan terdapat 5 area berisiko dengan nilai RQ > 1, yaitu storage, raw mill, kiln, finish mill dan packing. Prevalensi penurunan fungsi paru pada pekerja industri semen sebesar 60,9% di mana 50% menagalami restriktif dan 10,9% mengalami obstruktif. Hasil analisis menjukkan hubungan yang signifikan antara gangguan fungsi paru dengan konsntrasi PM2,5 (p= 0,035, OR=2,722), umur (p= 0,020, OR= 2,833), status gizi (p=0,007, OR= 3,323), kebiasaan merokok (p= 0,035, OR= 2,60), aktifitas fisik (p=0,035, OR= 2,667), lama kerja (p=0,028, OR= 3,400), masa kerja (p= 0,018, OR= 3,015). Dengan analisis multivariat, didapatkan faktor yang paling berhubungan terhadadap gangguan fungsi paru adalah, konsentrasi PM2,5, usia, sratus gizi, kebiasaan merokok dan masa kerja. Selanjutnya diperlukan upaya untuk perbaikan lingkungan area kerja dengan memperhatikan risiko yang ditimbulkan dari pajanan PM2,5 dan melakukan manajemen risiko di area kerja.
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ABSTRACT
Source PM2,5 many resulting from anthropogenic activities such as the transport industry and households. Sources from industrial activities usually come from mining activities, smokestacks, the products of combustion and cement

industries (WHO, 2006). The main objective of this research is to determine the level of risk PM2,5 and its relationship with the decline in lung function. This research is a risk analysis and epidemiology with cross-sectional design, the number of samples 92 respondents and sampling techniques is proportional simple random sampling. Data obtained from the questionnaire, anthropometric measurements PM2,5 measurements and measurements of lung function. Lung function is checked by using a spirometry test to get the value of FVC and FEV1 . PM2,5 concentration was measured by using a High Volume Air Sampler. Statistical analysis using Chi-square test and linear regression with 95% confidence level. To calculate the amount of risk sampling PM2,5 concentration in 6 point area. The results show the lifetime risk calculations are five risk areas with RQ values> 1, ie storage, raw mill, kiln, mill and packing finish. The prevalence of lung function decline in cement industry workers amounted to 60.9% where 50% menagalami restrictive and 10.9% had obstructive. The results of the analysis is significant association between impaired lung function by consentration PM2,5 ($p = 0.035$, OR = 2.722), age ($p = 0.020$, OR = 2.833), nutritional status ($p = 0.007$, OR = 3.323), smoking ($p = 0.035$, OR = 2.60), physical activity ($p = 0.035$, OR = 2.667), duration of action ($p = 0.028$, OR = 3.400), age ($p = 0.018$, OR = 3.015). By multivariate analysis, it was found the factors most associated to lung function impairment is, the concentration of PM2,5, age, sratus nutrition, smoking habits and tenure. Further efforts are needed for environmental improvement work area by taking into account risks arising from exposure to PM2,5 and perform risk management in the work area.