

## Dampak Air Limbah Industri terhadap Kesehatan Gigi dan Jaringan Lunak Mulut Anak Prasekolah

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### Abstrak

Penelitian epidemiologik dan laboratorik dilakukan di daerah dekat aliran sungai Cisadane di Kabupaten Tangerang. Tujuan penelitian adalah mencari hubungan antara kandungan mineral dan logam berat di dalam air minum dengan kesehatan gigi dan jaringan lunak anak prasekolah di daerah aliran sungai Cisadane. Dilakukan pada 2 lokasi: daerah Serpong, yaitu daerah hulu sungai yang belum ada pabrik industri dan daerah Teluk Naga, yaitu daerah hilir sungai yang telah didirikan dan dioperasikan berbagai pabrik industri, dengan limbah yang dialirkan ke dalam sungai. Subyek penelitian adalah anak prasekolah usia 1-5 tahun, tinggal dan dibesarkan di lokasi penelitian, dan air sumur yang digunakan sehari-hari oleh anak dan diduga terkontaminasi oleh air sungai. Jumlah anak yang diperiksa 345, terdiri dari 155 anak dari daerah Serpong yang meliputi 14 posyandu dan 190 anak dari daerah Teluk Naga yang meliputi 6 posyandu. Dari pemeriksaan tersebut diperoleh hasil sbb: kebersihan mulut anak dari kedua daerah buruk dengan indeks plak masing-masing 2,26 (SD 0,80) untuk daerah Serpong dan 2,41 (SD 0,90) untuk daerah Teluk Naga pada indeks plak minimum 0,00 dan indeks maksimum 3,00). Prevalensi karies di daerah Serpong 80% dengan def-t dan def-s rata-rata 5,25 dan 11,85 dan prevalensi karies daerah Teluk Naga 80% dengan def-t dan def-s rata-rata 5,78 dan 12,77. Pada kedua daerah, def-t makin meningkat dengan makin bertambahnya usia. Prosentasi anak yang mengalami hipoplasia email, pewarnaan gigi, gingivitis dan pewarnaan gingiva di daerah Teluk Naga lebih tinggi dibandingkan dengan daerah Serpong. Pemeriksaan air di laboratorium meliputi kadar Ca, Fe, Cu, Zn, Pb, dan Hg. Kandungan Ca di dalam air minum di daerah Serpong lebih tinggi daripada daerah Teluk Naga. Sedangkan kandungan logam berat dalam air minum di daerah Teluk Naga lebih tinggi daripada di daerah Serpong. Logam Cu pada kedua daerah tidak terdeteksi. Kandungan Hg jauh melebihi standart yang ditentukan untuk air minum, terutama daerah Teluk Naga. Hubungan antara kalsium dengan gingivitis agak nyata, lebih jelas lagi hubungan antara kandungan Pb dan Hg dengan gingivitis dan pewarnaan gigi.

.....The Effect of the Industrial Material Waste Product to the Dental Health of the Preschool Children  
The epidemiological and laboratoric studies were conducted at the areas close to the Cisadane river in Tangerang. The objectives of the studies were to find out the correlation between the mineral and heavy metals contain in the well drinking water with the dental health of the pre-school children who lived and reared at the areas of the up-stream and downstream of the Cisadane river. The studies have been conducted at Serpong, the area of the upstream of the river where there has not been industrial factory yet and Teluk Naga, the area of the downstream of the river where many industrial factories were situated, and their waste product were flushed into the river. The number of the examined children were 345, consist of 155 children of Serpong area who came from 14 posyandus and 190 children of Teluk Naga area who came from 6 posyandus. The oral hygiene of the children of that both areas were poor. The same prevalence of the dental caries of that both areas were 80%. The mean def-t and def-s of the area of Serpong were 5,25 and 11,85 respectively, and for the area of Teluk Naga were 5,78 and 12,77 respectively. The mean def-t by age of the

both areas were increasing by the increasing of the children age. The percentage of the children who suffered from enamel hypoplasia, discoloration of the teeth, gingivitis, and the discoloration of the gingiva at Teluk Naga were higher than Serpong. The collected water from 5 wells for each posyandu were sent to the laboratory to examine the level of Ca, Fe, Cu, Zn, Pb, and Hg. The contain of Ca in the well drinking water in Serpong was higher than in Teluk Naga, but the contain of heavy metals in the drinking water in Teluk Naga were higher than in Serpong. The laboratory examination, the element of Cu did not exist in both areas. The contain of Hg in the drinking water is much higher than the standart contain Hg in the drinking water. The correlation between Ca and gingivitis was a little bit clear. It was more clear the correlation between Pb and Hg with gingivitis and the discoloration of the gingiva.