

# KADAR IODIUM DALAM AIR PADA INTERVENSI IODIUM DALAM AIR PERPIPAAN

## IODINE CONCENTRATION IN IODINE INTERVENTION OF PIPING WATER

Muhamad Arif Musoddaq<sup>1</sup>, Ina Kusri<sup>1</sup>, Rina Purwandari<sup>1</sup>, Sidiq Purwoko<sup>1</sup>  
<sup>1</sup>Balai Penelitian dan Pengembangan Kesehatan Magelang  
Kavling Jayan, Borobudur, Magelang, Jawa Tengah 56553  
\*e-mail: senamata2009@yahoo.com

### ABSTRACT

**Background.** Iodine Deficiency Disorders (IDD) was public health problem in Indonesia. Water has the potential to be a useful vehicle for iodine fortification specially in IDD's problem area with low iodine drinking water concentration. Adequacy of iodine concentration in water was main factor in iodine water intervention. **Objective.** Aims of this study was to define iodine concentration adequacy in water during iodine intervention. **Method.** The iodine concentration and piping water flow of 22 community piping water in IDD's endemic area in Central Java Province and Yogyakarta Special Region. Iodine intervention was carried through controlled addition of potassium iodate concentrate solution into piping water flow to reach adequacy of iodine water concentration, 10 to 20 ug/L and measuring iodine water content during 48 hours. Intervention and iodine water content measurement was conducted in laboratory of Health Research and Development Center Magelang. Iodine water content measured via spectrophotometric method. **Result.** Iodine concentration in community piping water in IDD's endemic area ranged between 0 to 15 ug/L, where 19 among them were low, less than 10 ug/L. Community piping water flow ranged between 0.48 to 2.03 L/sec. Intervention in low iodine concentration water reached iodine concentration between 10 to 20 ug/L after 3 hours of intervention. **Conclusion.** Iodine intervention via controlled addition of potassium iodate solution water able to provide adequate iodine concentration of piping water.

*Keyword: iodine, water, concentration, intervention, potassium iodate*

### ABSTRAK

**Latar Belakang.** Gangguan Kekurangan Iodium (GAKI) adalah masalah kesehatan masyarakat di Indonesia. Air memiliki potensi untuk menjadi media untuk fortifikasi iodium, khususnya di daerah bermasalah GAKI dengan kadar iodium air minum yang rendah. Kecukupan kadar iodium dalam air adalah faktor utama dalam intervensi iodium dalam air. **Tujuan.** Tujuan dari penelitian ini adalah mengetahui kecukupan kadar iodium dalam air selama intervensi iodium. **Metode.** Konsentrasi iodium dan aliran air perpipaan dari 22 air perpipaan masyarakat di daerah endemik GAKI di Provinsi Jawa Tengah dan Daerah Istimewa Yogyakarta. Intervensi iodium dilakukan melalui penambahan larutan konsentrat kalium iodat secara terkendali ke dalam aliran air perpipaan untuk mencapai kecukupan konsentrasi air iodium, yaitu 10 hingga 20 ug / L dan mengukur kadar air iodium selama 48 jam. Intervensi dan pengukuran kadar air yodium dilakukan di laboratorium Pusat Penelitian dan Pengembangan Kesehatan Magelang. Kadar air iodium diukur melalui metode spektrofotometri. **Hasil.** Kadar iodium dalam air perpipaan masyarakat di daerah endemik GAKI berkisar antara 0 hingga 15 ug/L, di mana 19 di antaranya rendah iodium, yaitu kurang dari 10 ug/L. Aliran air perpipaan masyarakat berkisar antara 0,48 hingga 2,03 L/detik. Intervensi pada air dengan kadar iodium rendah mencapai konsentrasi iodium antara 10 hingga 20 ug/L setelah 3 jam intervensi. **Kesimpulan.** Intervensi yodium melalui penambahan terkontrol air larutan kalium iodat mampu memberikan konsentrasi yodium yang cukup dari air perpipaan.

**Kata kunci:** iodium, air, kadar, intervensi, potassium iodate