



The Netherlands-Indonesia Study
in Epidemiology of Antimicrobial Resistance of *Neisseria gonorrhoeae*

Neisseria gonorrhoeae In Indonesia : Prevalence and Antimicrobial Susceptibility Among STI Clinics Patients in Jakarta, Yogyakarta And Denpasar

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Background

In Indonesia, syndromic management is used for treatment of STIs, but this approach does not provide accurate data to assess the epidemiology of gonorrhea and antimicrobial susceptibility of circulating *Neisseria gonorrhoeae* strains. Antimicrobial susceptibility of *N. gonorrhoeae* in Indonesia was last reported by Donegan et al. (2003) describing penicilin resistance in several centers in Java, and by Ieven et al. (2004) especially related to fluoroquinolone resistance in Bali.

Objectives

To study gonorrhea prevalence and antimicrobial resistance of *N. gonorrhoeae* among patients of STI clinics in 3 large cities in Indonesia.

Conclusions

- This is the first study since 2004 describing the epidemiology of gonorrhea and antimicrobial resistance pattern in Indonesia.
- Prevalence of gonorrhea (tested positive by NAAT) is very high among STI clinic clients (28%).
- Prevalence for gonorrhea differs significantly by gender: males (26%), females (32%) and male-to-female transgenders patients (22%), and also by clinics location : Jakarta (31%), Yogyakarta (27%) and Denpasar (14%).
- In view of the extensive resistance against doxycycline and ciprofloxacin (almost 100% resistance), these antibiotics are not appropriate treatment options for gonorrhea; instead, extended spectrum cephalosporins are still advised.

Results

Table 1. Subjects' characteristics

	N	%		N	%
Gender			Marital status		
Male	346	45	Single	317	42
Female	321	42	Partnered	174	23
M to F transgender	97	13	Married	140	18
Sexual preference of male subjects			Widowed/divorced	133	17
MSW	34	10	No. of sex partners in last 6 months		
MSM	312	90	1	109	15
Age group			2-4	166	22
17-24 years	216	28	5-9	68	9
25-34 years	323	42	10-49	213	28
35-44 years	136	18	>=50	196	26
>=45 years	89	12	Sex worker		
Education			Yes	474	62
Elementary	118	15	No	290	38
Junior high	201	26	Condom use		
Senior high	334	44	Consistent	264	35
College	111	15	Inconsistent	500	65
Occupation			Had STI related complaint(s)		
Office job	72	9	Male and m-to-f trans		
Student	67	9	No/no answer	285	64
Others	547	72	Yes	158	36
No job	77	10	Female		
Monthly income			No/no answer	193	60
No regular income	145	19	Yes	128	40
<50 USD	62	8	Notified		
50-100 USD	125	16	Yes	253	33
100-200 USD	215	28	No	511	67
200-500 USD	170	22			
>500 USD	47	6			

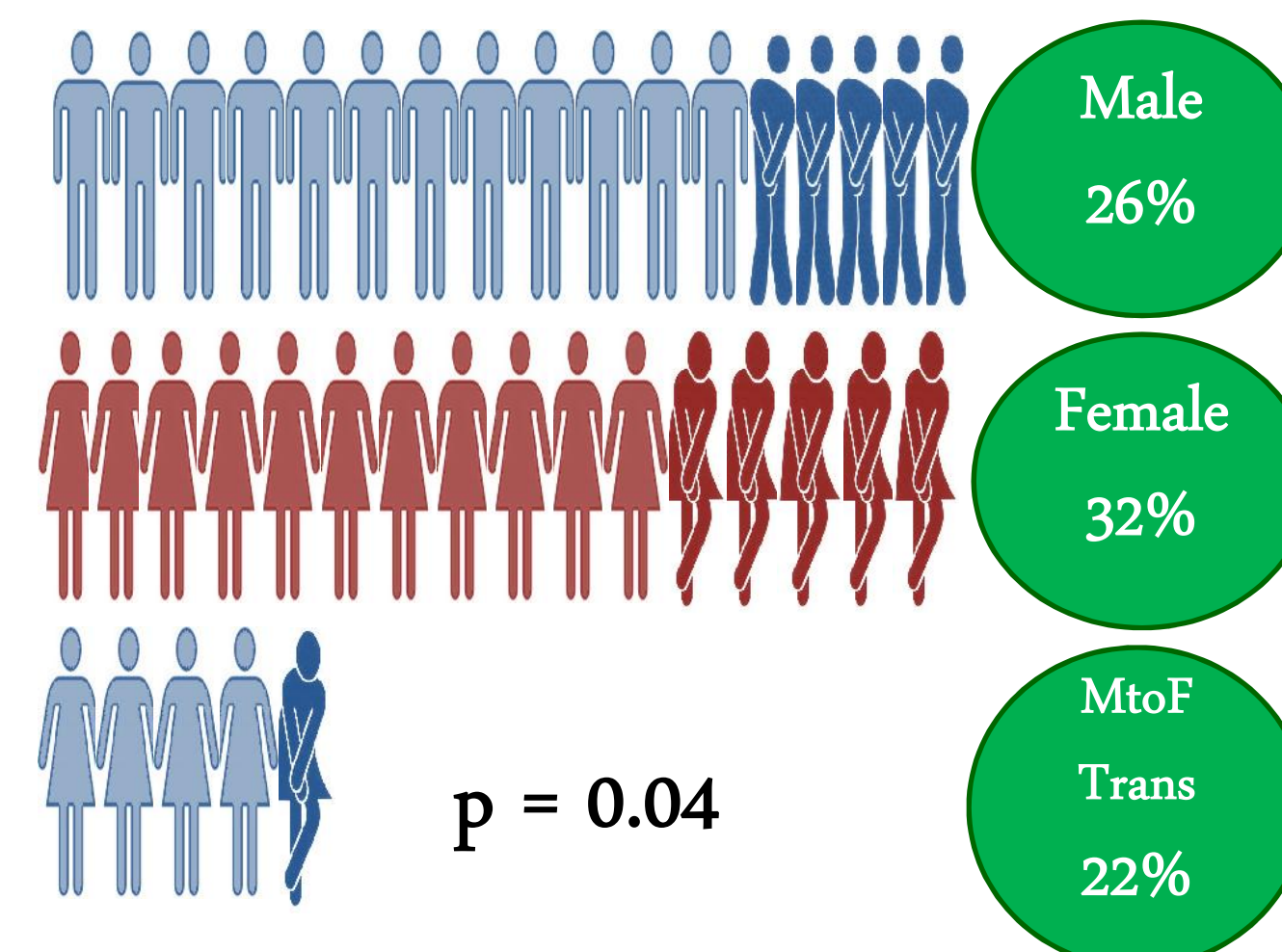


Figure 1. Prevalence of gonorrhea by gender

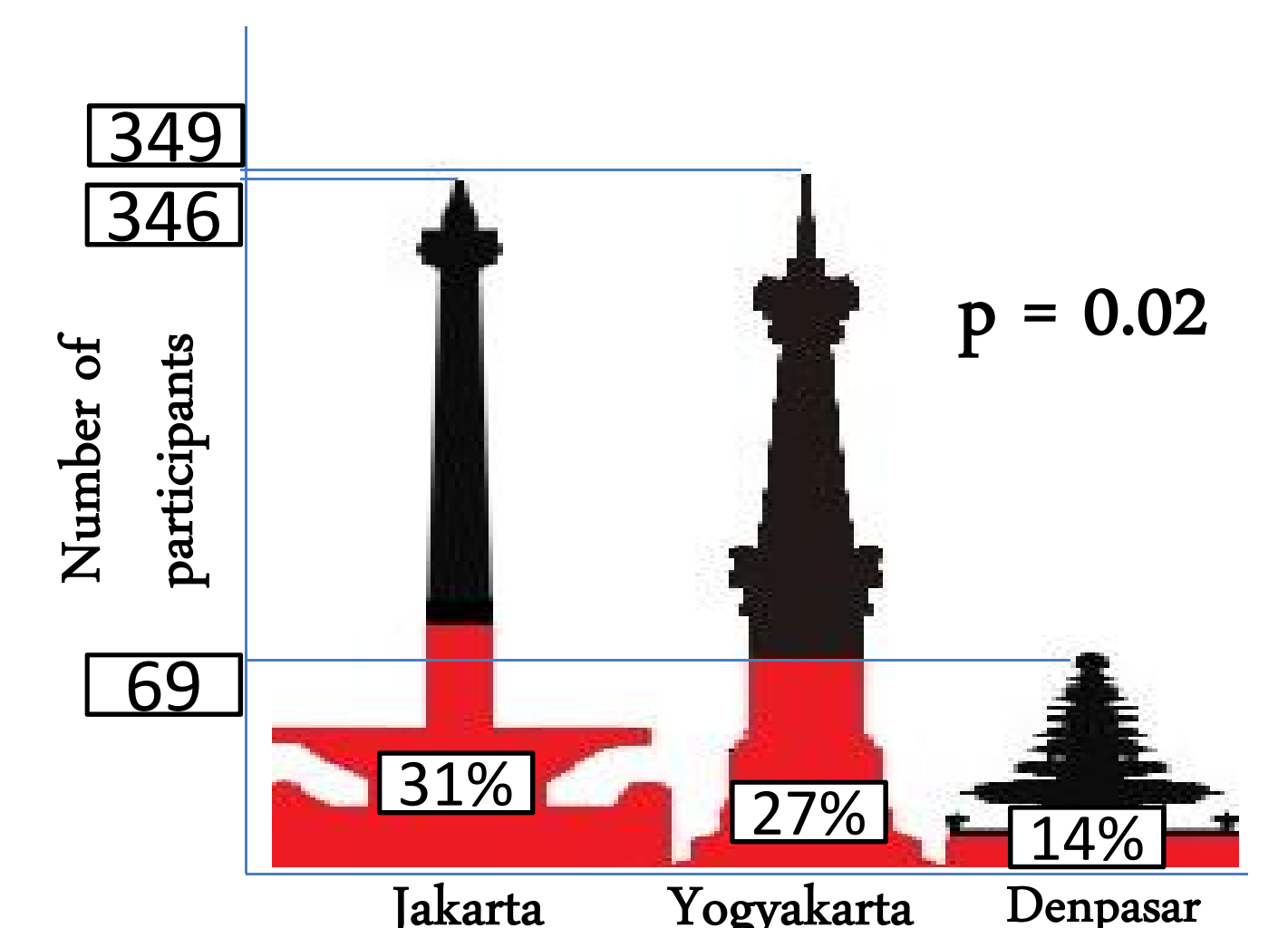


Figure 2. Prevalence of gonorrhea by clinic location

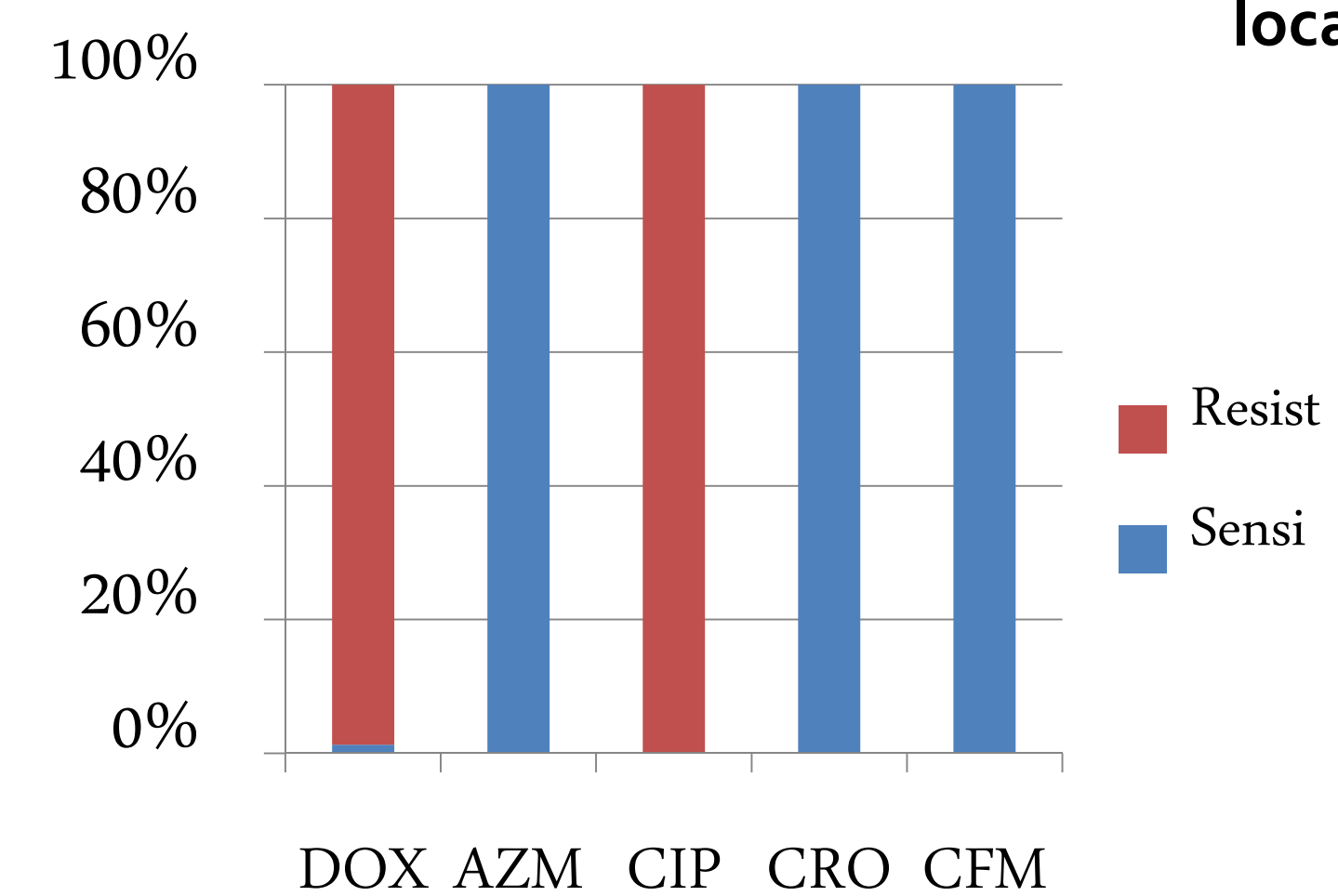


Figure 3. Proportion of resistant – sensitive strain to several types of antimicrobials

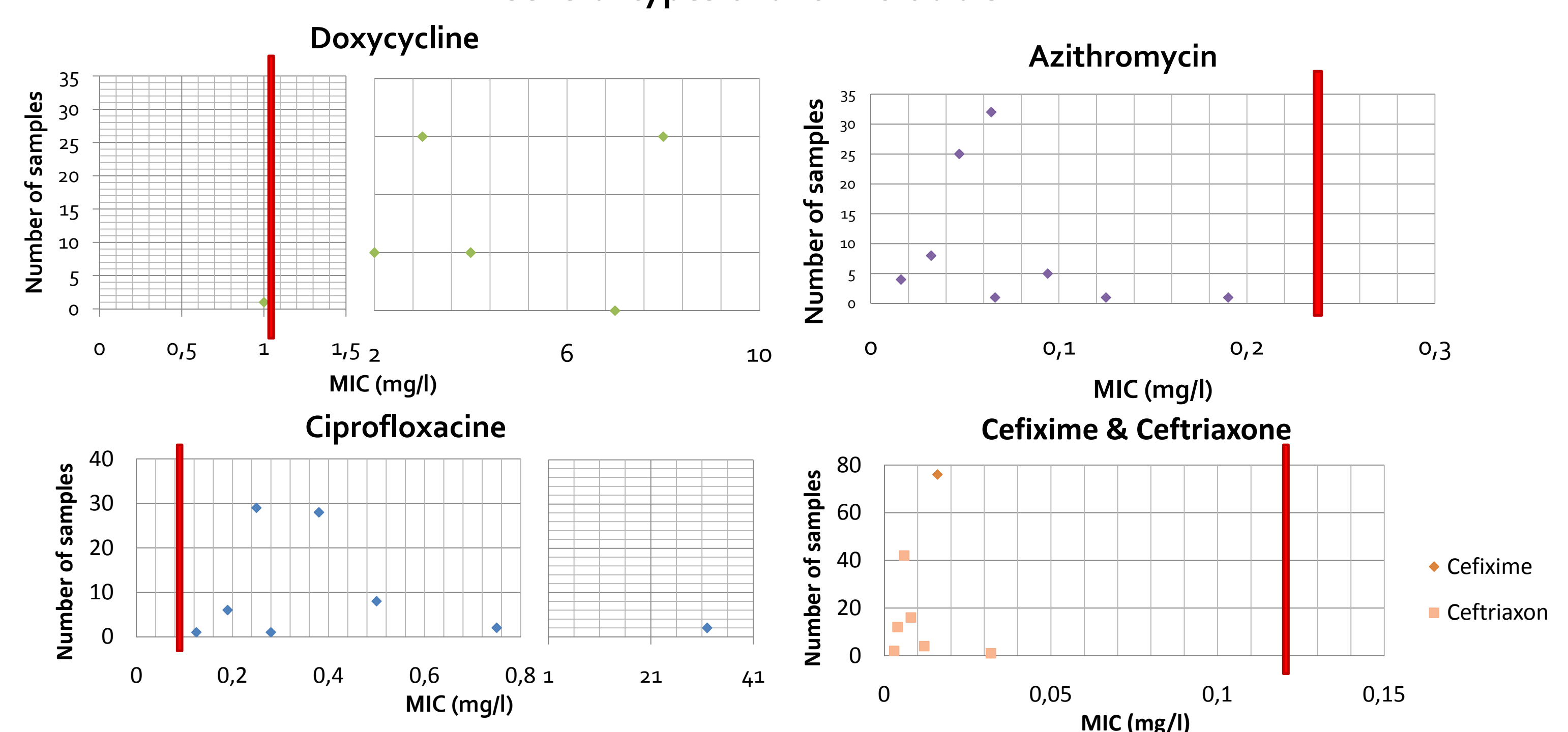


Figure 4. MIC result in *N. gonorrhoeae* antimicrobial susceptibility test

Methods

In 2014, 764 urogenital swabs were obtained from 764 sexually active adults, mainly female sex workers, men who have sex with men, and male-to-female transgenders attending STI clinics in Jakarta, Yogyakarta, and Denpasar. Additional 23 rectal and 13 pharyngeal swabs were also taken from some patients. Demographic, clinical and sexual history data were collected using a self-administered questionnaire.

Diagnosis of *N. gonorrhoeae* infection was established by real time PCR targeting Opa genes. A number of 77 culture isolates of *N. gonorrhoeae* from 75 patients were tested for antimicrobial susceptibility against doxycycline (DOX), ciprofloxacin (CIP), azithromycin (AZM), ceftriaxone (CRO) and cefixime (CFM) by E-test™ using EUCAST breakpoints.

Discussion

Here we describe the gonorrhea prevalence in a very high risk population consisting of sex workers, male-to-female transgenders and MSM. The study population is limited to the islands of Java and Bali only. We plan to further analyze the antimicrobial resistance patterns including its molecular origin.

