

Duration of syphilis symptoms at presentations in men who have sex with men in Australia: are current public health campaigns effective?

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BACKGROUND

- Syphilis notification among men who have sex with men (MSM) in Victoria, Australia increased from 9 cases in 2003 to 232 cases in 2006 and 660 cases in 2013.
- >90% of syphilis cases are males and >75% are attributed to male-to-male sexual contact.
- A number of health promotion campaigns for STI have been implemented in Victoria to increase health-seeking behaviours, awareness of typical STI symptoms, HIV/STI testing rates and condom use among MSM.
- Early symptoms recognition has the potential to lead to earlier diagnosis and treatment of infectious syphilis.

OBJECTIVES

- One way to measure the effectiveness of these campaigns in the community is to determine whether the duration of symptoms reported by patients has shortened over time.
- Another approximate measure of early diagnosis of infectious syphilis could be using the rapid plasma reagin (RPR); a rise in the median RPR titre over time could indicate an increasing delay in diagnosis.

AIMS

- To investigate if the duration of symptoms, or the median titre of the RPR test of infectious syphilis among MSM has reduced from 2007 to 2013.

METHODS

- A retrospective study of clinical records of MSM diagnosed with infectious syphilis (primary, secondary, early latent) at Melbourne Sexual Health Centre (MSHC) in Australia, from 1st January 2007 to 31st December 2013.
- MSM were defined as men who had had sex with other men in last 12 months.
- Symptoms, including the self-reported duration, of each patients were collected.
- All syphilis cases were serologically confirmed by the RPR test, *Treponema pallidum* enzyme immunoassay (EIA) and *T. pallidum* particle agglutination assay (TPPA).
- Definition of syphilis stage:
 - **Primary syphilis** – the presence of a genital ulcer with morphology typical of a chancre, together with a reactive syphilis serology, and/or positive dark-ground microscopy and/or *T. pallidum* PCR result.
 - **Secondary syphilis** – presence of rash typical of secondary syphilis and/or mucosal lesions which were positive by dark-ground microscopy and/or *T. pallidum* PCR, and reactive syphilis serology with an RPR titre >4.
 - **Early latent syphilis** – reactive syphilis serology in the absence of symptoms or signs of syphilis, and documented to be of <2 years duration.

ANALYSIS

- Duration of self-reported symptoms with symptomatic syphilis (primary and secondary) were calculated in each calendar year.
- RPR titres were calculated in each calendar year for all infectious stages (primary, secondary, early latent).
- Jonckheere-Terpstra test was performed to examine any temporal trends in the median duration of symptoms, and RPR titre over time.
- One-way analysis of variance was used to compare the mean duration of symptoms over time.
- The differences in mean duration of symptoms between risk factors were tested by independent two-sample *t* test; while the differences in median duration of symptoms between risk factors were tested by non-parametric Mann-Whitney *U* test.
- Spearman's rank correlation was performed to investigate the association between duration of symptoms and RPR titre in primary and secondary syphilis.

RESULTS

- A total of **761** infectious syphilis cases (237 primary, 211 secondary, 309 early latent, and 4 primary/secondary) were diagnosed in MSM from 2007 to 2013 (Figure 1), and **228 (30.1%)** were also HIV positive.

Primary Syphilis (N=237)

- No temporal trend in median RPR titre: from 8 (IQR=1-32) in 2007 to 4 (IQR=1-16) in 2013 ($p=0.35$) (Figure 2).
- Duration of symptoms did not change over time: mean=13.6 (SD=14.3), median=9 (IQR=6-14) days (Figure 3).
- Strong positive correlation between duration of symptoms and RPR titre ($r=0.36$, $p<0.001$).

Secondary Syphilis (N=211)

- No temporal trend in median RPR titre: from 64 in 2007/2008 to 128 in 2010/2011 and to 256 in 2013 ($p=0.08$) (Figure 2).
- Duration of symptoms did not change over time: mean=23.7 (SD=26.8), median=14 (IQR=7-30) days (Figure 4).
- Strong positive correlation between duration of symptoms and RPR titre ($r=0.16$, $p=0.05$).

Early Latent Syphilis (N=309)

- Overall median RPR titre was 32 (IQR=4-64), it remained stable at the level of 32 across the period ($p=0.85$) (Figure 2).
- 36.9% (N=114) were also HIV positive.

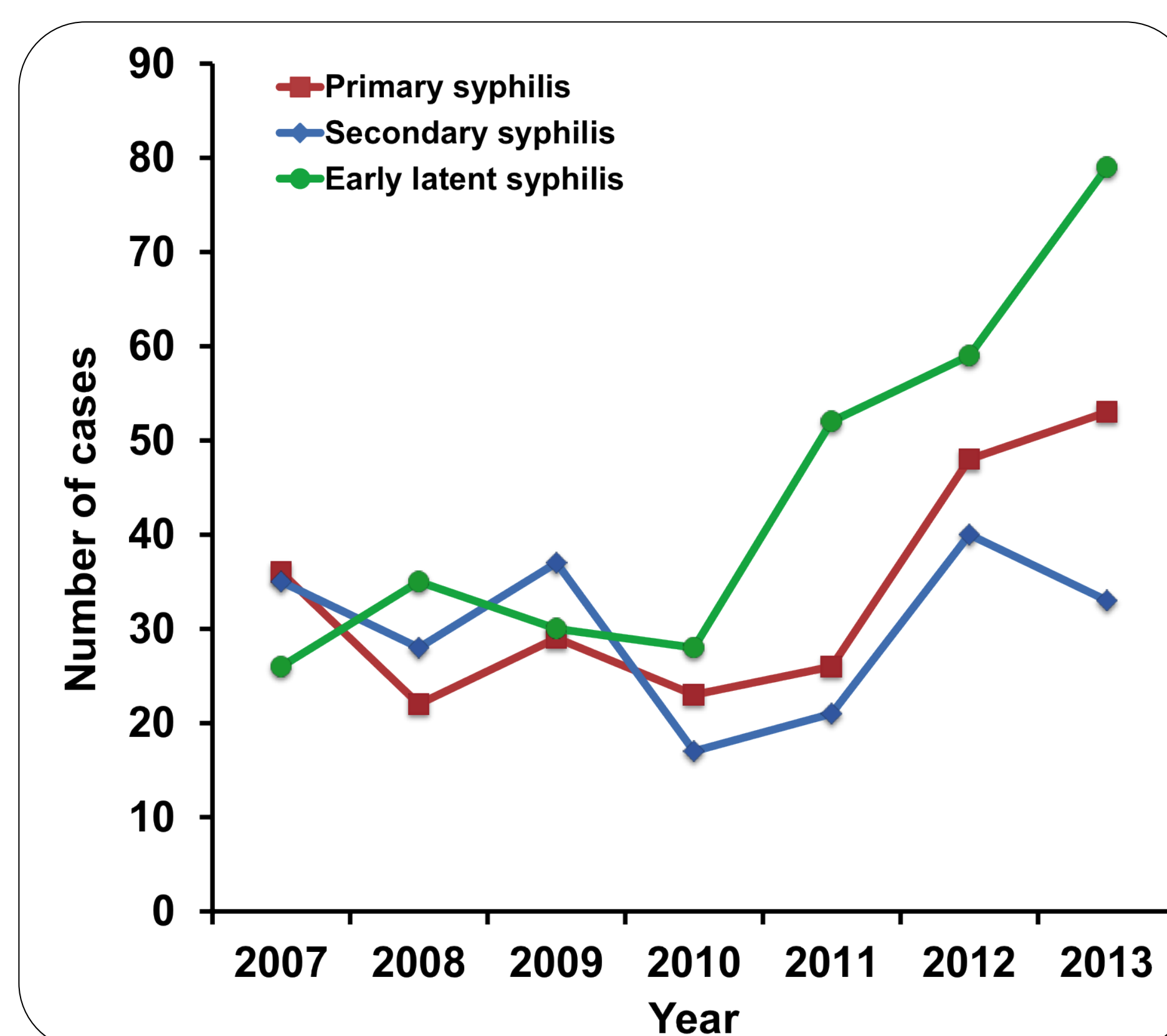


Figure 1. Number of primary, secondary, and early latent syphilis cases in men who have sex with men attending MSHC, 2007–2013.

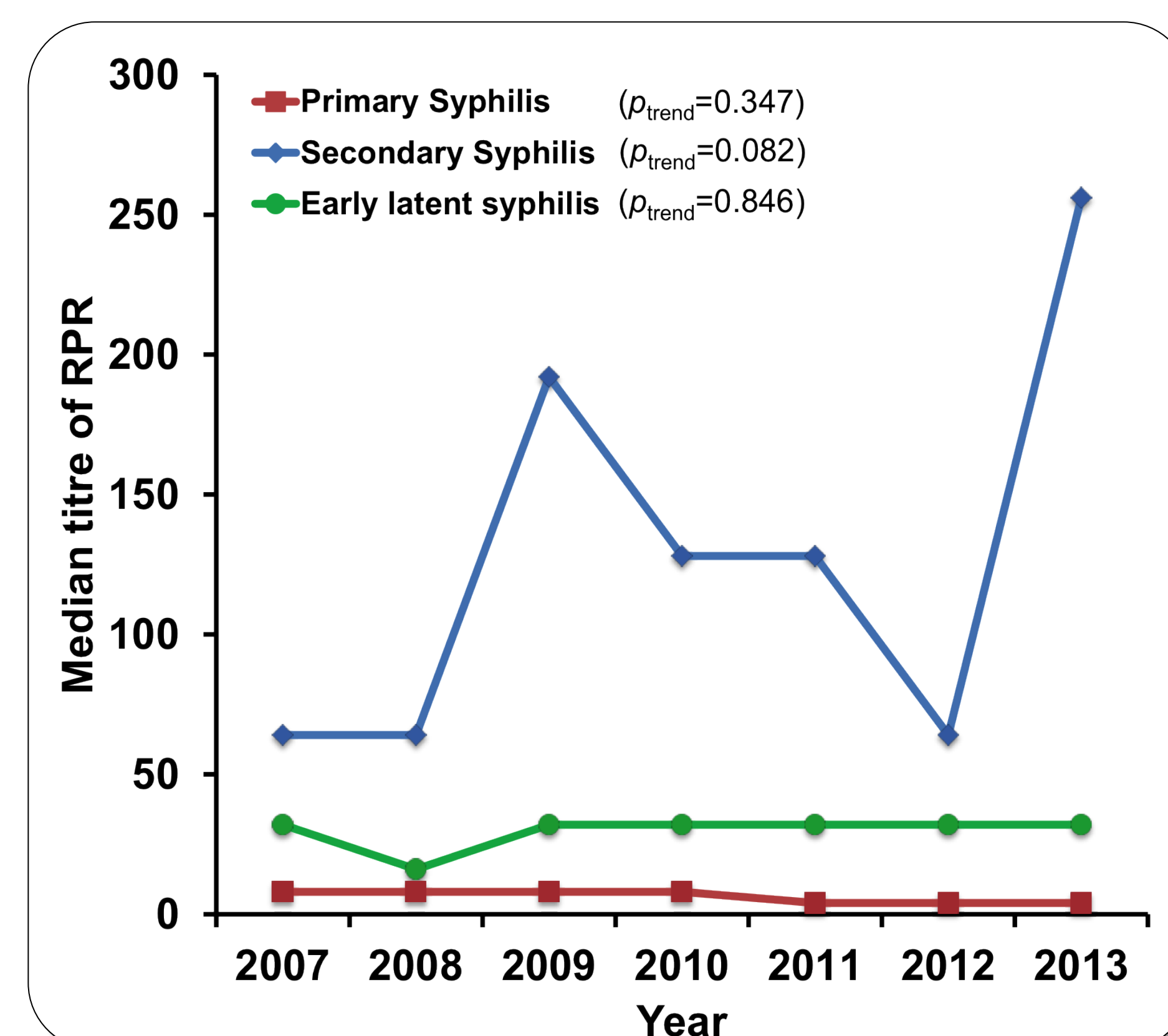


Figure 2. The median rapid plasma reagin (RPR) titre with different stage of syphilis in men who have sex with men, 2007–2013.

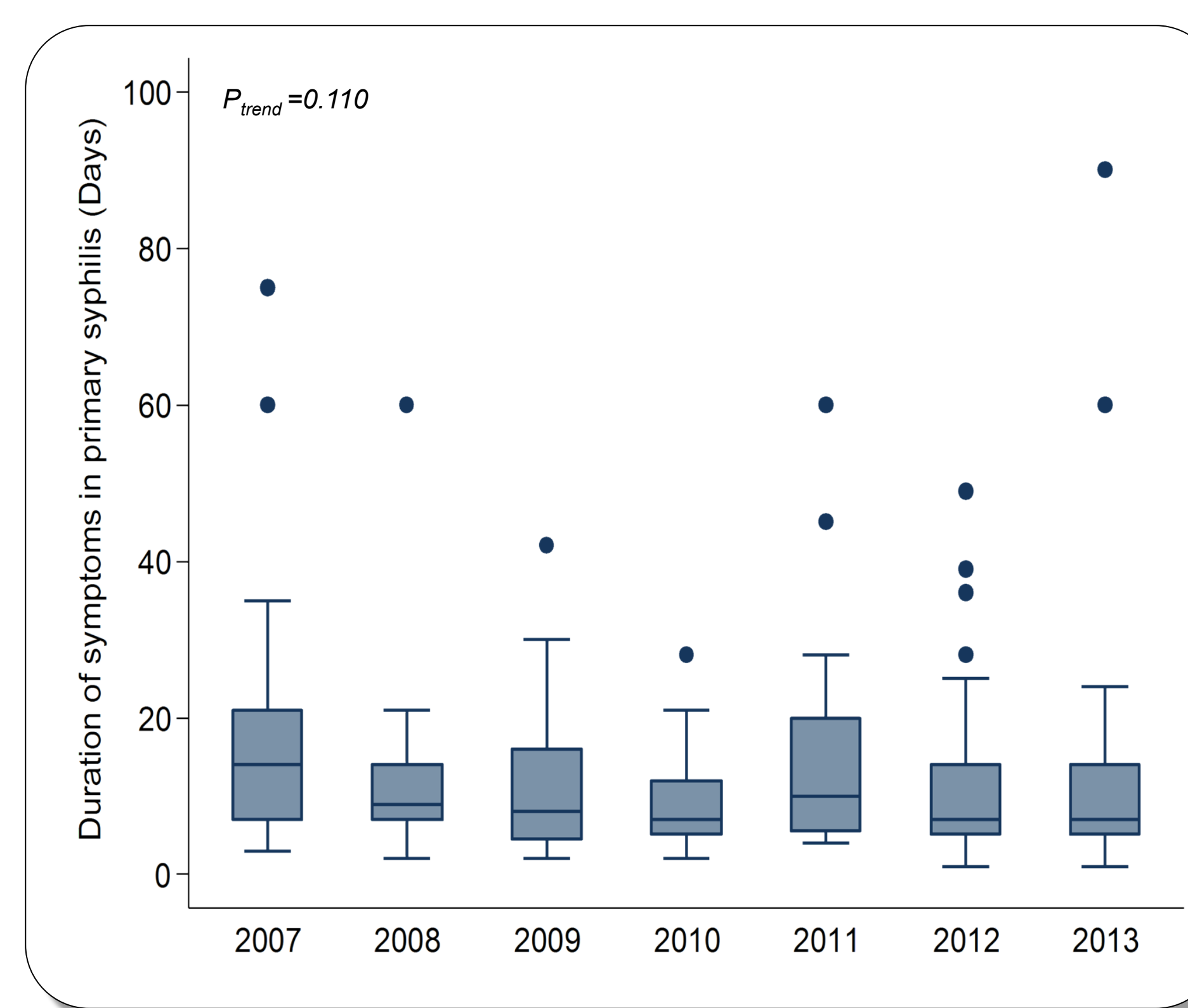


Figure 3. Boxplot of duration of symptoms among MSM with primary syphilis, 2007–2013.

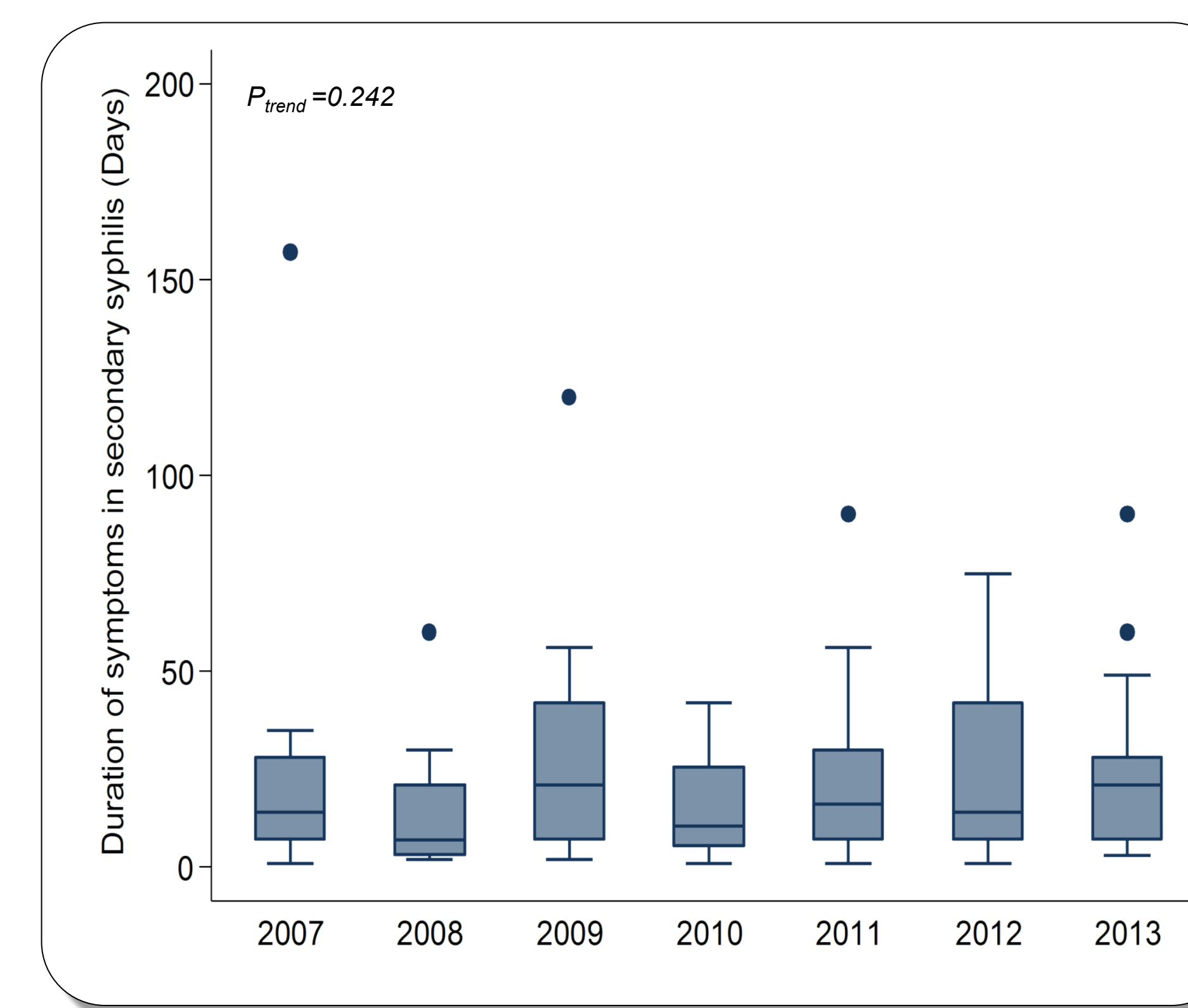


Figure 4. Boxplot of duration of symptoms among MSM with secondary syphilis, 2007–2013.

CONCLUSION

- The median duration of symptoms for primary syphilis, secondary syphilis and titre of RPR level did not change over time.
- Public health campaigns were not associated with a significant shorter time from onset of symptoms to treatment.
- Alternative strategies such as more frequent testing of MSM should be promoted to control the syphilis epidemic in Australia.

CITATION

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