

APPENDIX 1: SAMPLE SIZE CALCULATION

H_0 = No difference is found in STI and HIV prevalence between MSW and MSM.

H_1 = A significant difference is ST and HIV between MSW and MSM.

In order to challenge this null hypothesis, the following calculation for sample size will be used:

Type I error= 0.05 ($\alpha=5\%$)

Type II error= 0.20 ($\beta=20\%$)

STI prevalence among MSW in Antwerp and Sydney (excluding hepatitis B) 31.4% [1], 31.9% [2], respectively.

HIV prevalence among MSW in Sydney was 10.8% [2], 6.5% in Belgium [1] and 12.2% in Spain [3].

Expected HIV prevalence among MSM in Israel is 1% [4] and in a study from other developed countries is 1.5% [5].

The difference (d) in STI rates between MSW and MSM is supposed to be 10%.

Sample size for proportions= $n = Z_{2\alpha}^2 \pi(1-\pi)/d^2$. Continuity correction will be calculated $2/|\pi_1-\pi_2|$. π_1 is the proportion of STD in the study group and π_2 is the proportion of STI in the control group.

Sample size for STI= $1.96^2 * 0.1 * 0.9 / 0.1^2 = 34.5$

Continuity correction= $2/|0.3-0.1|=10$

Thus, the total number of participants in each group: study (MSW) and control (MSM) should be greater than 45.

A sample of 50 participants in each group will increase both the precision and the power of the study, and decrease the standard error in this non-matched case-control study.

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