Supplementary Materials for "Optimality of Group Testing with Differential Misclassification" by

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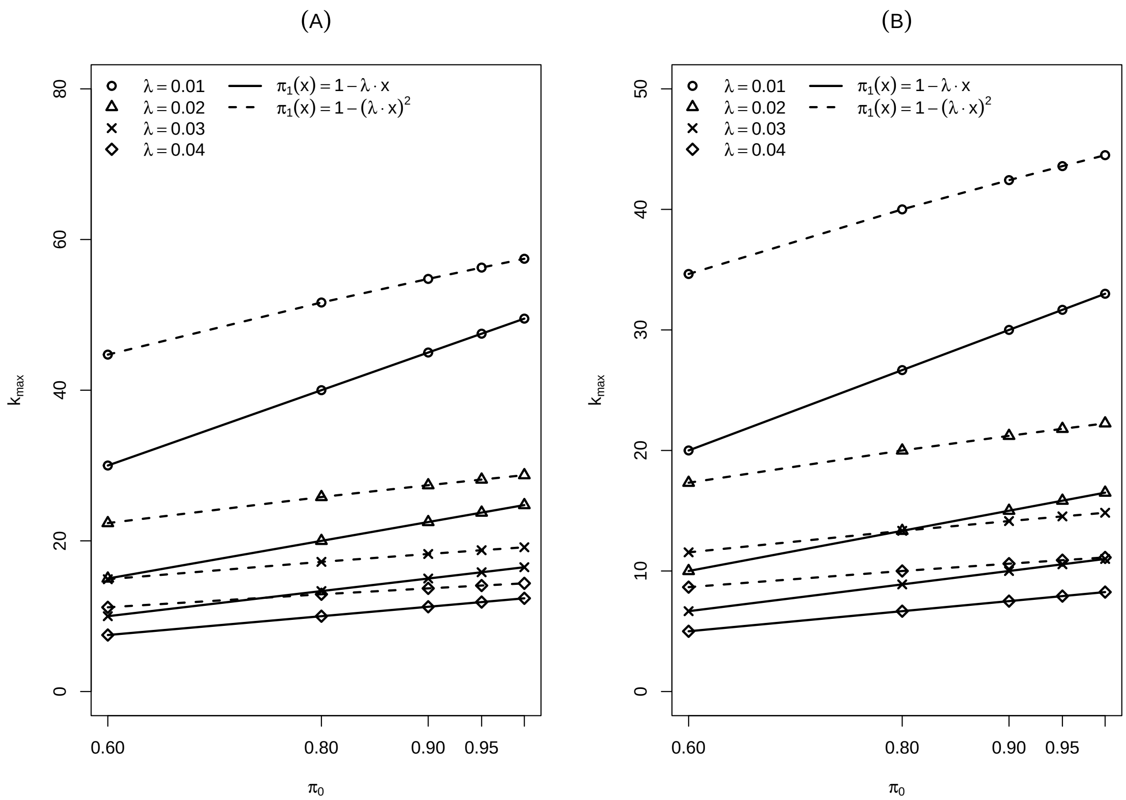

Figure S1: The maximal value $k_{\max}$ of group sizes under which the group testing (group size $k \geq 2$) is more efficient than non-group testing (group size $= 1$). (A) The number of groups are the same for the test strategies so that the number of individuals are kn and n, respectively. (B) The total number of individuals are the same (both are kn) for the test strategies.

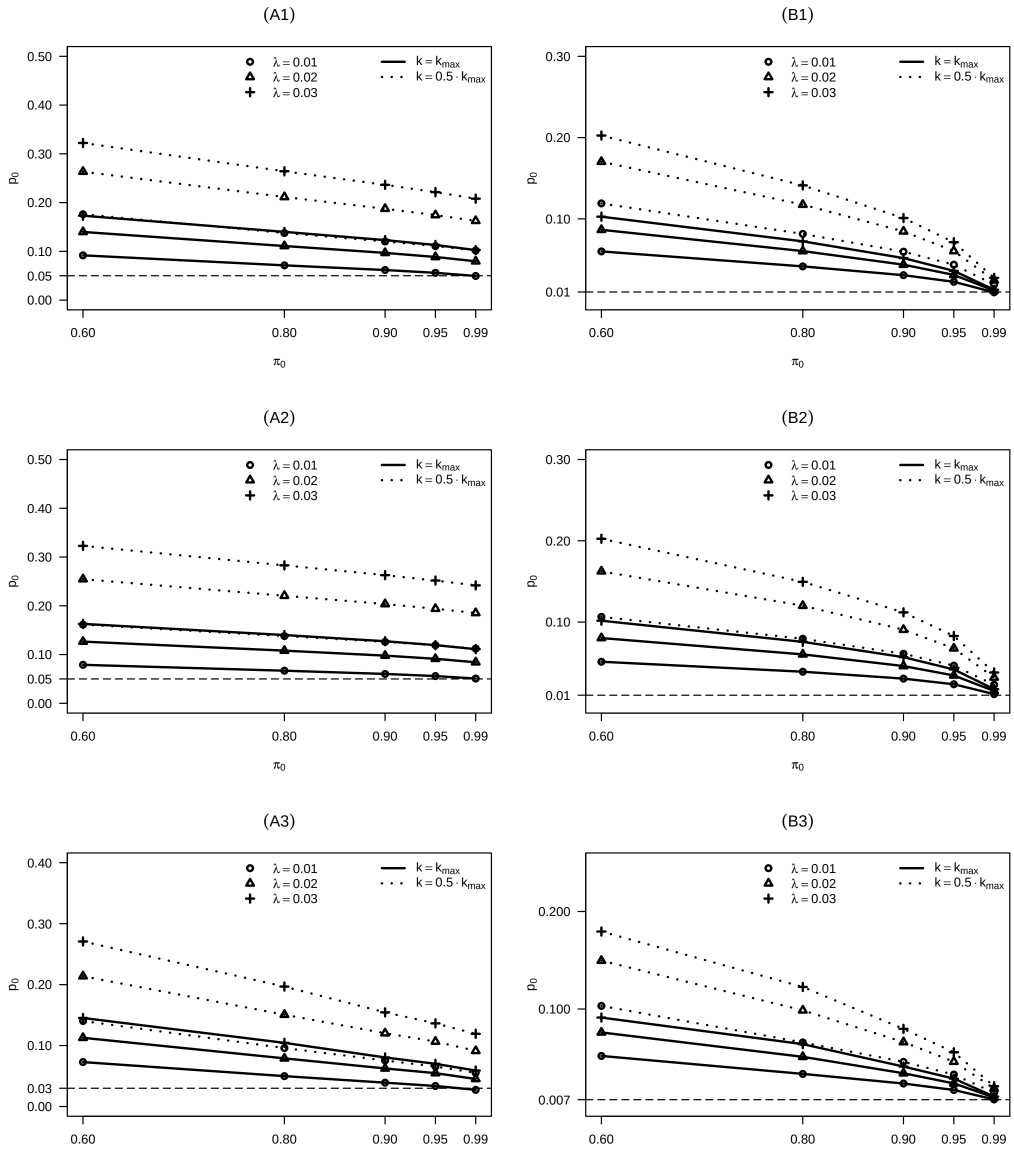

Figure S2: The values of prevalence p_0 such that the variances of $\hat{p}$ are equal for the group testing and non-group testing, where the value of $k_{\max}$ is the maximal value of group sizes satisfying Condition 1 (column (A)) or Condition 2 (column (B)) given in Figure S1. (A) The group testing (n groups with group size k) and non-group testing (n groups with group size 1) have the same number of groups; (B) The group testing (n groups with group size k) and non-group testing (kn groups with group size 1) have the same number of individuals. Row 1, 2 and 3 represent $\pi_1(x) = 1 - \lambda x$, $\pi_1(x) = e^{-\lambda x}$ and $\pi_1(x) = 1 - (\lambda x)^2$, respectively.

We can easily derive the following corollary from Theorem 1.

Corollary S1 *If Condition 1 holds, then the group testing (n groups with a common size $k \geq 2$) is more efficient than the non-group testing (n individuals) in estimating the disease prevalence p if and only if $p < p_0$, where p_0 is the unique solution to the equation $\sigma^2(p_0, k, n) = \sigma^2(p_0, 1, n)$.*

We can easily derive the following corollary from Theorem 2.

Corollary S2 *If Condition 2 holds, then the group testing (n groups with a common group size k) is more efficient than the non-group testing (kn individuals) in estimating the disease prevalence p if and only if $p < p_0$, where p_0 is the unique solution to the equation $\sigma^2(p_0, k, n) = \sigma^2(p_0, 1, nk)$.*