

Oral Session:

The Effectiveness of Class Suspension on Containing Enterovirus Infection Clusters in Preschools—New Taipei City, Taiwan, 2013–2017

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Background:

Enterovirus infection (EVI) could cause severe complications and deaths in children, which poses significant threat. Class suspension is considered for controlling EVI clusters in schools given that limiting contact among children could prevent transmission. However, the effectiveness is controversial. We aimed to evaluate the effectiveness of class suspension on containing EVI clusters in preschools.

Methods:

We identified EVI clusters during 2013–2017 from school-based surveillance system in New Taipei City, Taiwan. We defined an EVI cluster as ≥ 2 children in the same class diagnosed with EVI within 7 days, and class suspension as class activities cancelled ≥ 1 day. We reviewed the cluster reports and recorded several epidemiological characteristics, including class size, attack rate (AR), time to notification and cluster period. We conducted bivariate analysis to compare these factors of clusters with and without class suspension then used multiple linear regression to model the association between explanatory variables and AR and cluster period. The p value <0.01 was considered statistically significant.

Results:

Of 5,485 EVI clusters, 3,457 implemented class suspension. The median number of infected children in clusters was 3 (range: 2–22). Class suspension was more likely to be implemented in public preschools (OR: 2.3, 95% CI: 2.1–2.6), with larger class size (median: 25 vs 24, $p<0.01$) and higher AR at notification (12.0% vs 10.7%, $p<0.01$). We found class suspension had no significant effect on reducing AR (β coefficients: -1.87–0.63, $p>0.01$) and cluster period (β coefficients: -0.88–0.16, $p>0.01$). Larger class size, higher AR when notified, longer decision making time of class suspension were associated with increase of AR (β coefficients: 0.1–2.5, $p<0.01$) and cluster period (β coefficients: 0.1–0.6, $p<0.01$).

Conclusions:

The effectiveness of class suspension on containing EVI clusters might be limited. Preschools should simultaneously consider other interventions, including personal hygiene enhancement, environment disinfection, and timely notification for containing EVI cluster transmission.