



MARK B HORTON, MD, MSPH
Director

State of California—Health and Human Services Agency
California Department of Public Health



ARNOLD SCHWARZENEGGER
Governor

Dear Colleague,

During an influenza pandemic, vaccination is considered the most effective way to interrupt transmission of influenza; however, a vaccine targeted to the pandemic strain will not be available early in a pandemic. The effectiveness of currently available antiviral medications for treatment or prevention of pandemic influenza is unknown, although presumed from experience with seasonal influenza. Therefore, community based, non-pharmacological interventions (NPIs) will be the main strategies to reduce influenza transmission early in a pandemic, including infection control measures, "social distancing" to reduce contact between people, and student dismissals from schools.

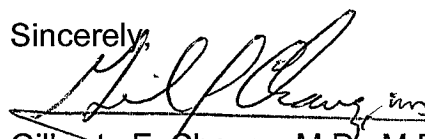
The California Department of Public Health (CDPH) is issuing the *Guidance for Student Dismissals During an Influenza Pandemic*. This document provides pre-pandemic planning guidance about student dismissal from schools including elementary and secondary schools, colleges, and universities.

While CDPH generally endorses the triggers for implementation of community mitigation measures during a pandemic described in the Centers for Disease Control and Prevention (CDC) "Interim Pre-Pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States – Early, Targeted, Layered Use of Nonpharmaceutical Interventions (February 2008)", CDPH will implement NPIs, including student dismissals earlier than CDC recommends.

Please address any questions or comments about the *Guidance for Student Dismissals during an Influenza Pandemic* to Dr. Howard Backer, Chief, Immunization Branch, at howard.backer@cdph.ca.gov.

Thank you for your ongoing pandemic influenza planning and preparedness efforts.

Sincerely,


Gilberto F. Chavez, M.D., M.P.H.
State Epidemiologist
Deputy Director

Enclosure: Guidance for Student Dismissals During an Influenza Pandemic



MARK B HORTON, MD, MSPH
Director

State of California—Health and Human Services Agency
California Department of Public Health



ARNOLD SCHWARZENEGGER
Governor

Guidance for Student Dismissals During an Influenza Pandemic July 2008

Introduction

During an influenza pandemic, vaccination is considered the most effective way to interrupt transmission of influenza; however, a vaccine targeted to the pandemic strain will not be available early in a pandemic. The effectiveness of currently available antiviral medications for treatment or prevention of pandemic influenza is unknown, although presumed from experience with seasonal influenza. Therefore, community-based, non-pharmacological interventions (NPIs) will be the main strategies to reduce influenza transmission early in a pandemic, including infection control measures, "social distancing" to reduce contact between people, and student dismissals from schools.

This document provides pre-pandemic planning guidance about student dismissal from schools including elementary and secondary schools, colleges, and universities. Student dismissals will be ordered to reduce pandemic influenza transmission under the following conditions:

- World Health Organization (WHO) pandemic phase 6 has been declared; **and**
- The Pandemic Severity Index (PSI) is a category 2 to 3 or greater; **and**
- The first human pandemic influenza case in California has been confirmed by laboratory evidence.

Student dismissals will be implemented concurrently with other community-wide NPIs since no single intervention is highly effective on its own.

In developing this guidance, the California Department of Public Health (CDPH) reviewed the Centers for Disease Control and Prevention (CDC) "Interim Pre-Pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States— Early, Targeted, Layered Use of Nonpharmaceutical Interventions [1]," the Institute of Medicine (IOM) "Modeling Community Containment for Pandemic Influenza Letter Report [2] (December 11, 2006)," and other scientific and modeling studies [3-9]. The CDC recommendations were reviewed and generally endorsed by the State Public Health Officer, CDPH Executive Policy Group for Emergency Response, and the California Conference of Local Health Officers (CCLHO).

Background

Consistent with CDC guidance, CDPH recommendations for student dismissals are matched to the severity of the pandemic influenza strain using the CDC Pandemic Severity Index (PSI). Once a strain of novel influenza with potential for human pandemic has emerged, recommendations will be modified as necessary to reflect the epidemiology of the strain.

CDC Pandemic Severity Index

The CDC PSI uses case-fatality ratio (CFR) as the critical factor for categorizing the severity of the pandemic. The CDC's Director shall designate the category of the emerging pandemic based on the PSI and consideration of other available evidence.

Category 1: CFR of <0.1%

Category 2: CFR of 0.1-<0.5%

Category 3: CFR of 0.5-<1.0%

Category 4: CFR of 1.0-<2.0%

Category 5: CFR of >2.0%

Rationale for Student Dismissal as a Community Mitigation Strategy

The early use of combinations of NPIs, including student dismissals, which are strategically targeted, layered, and implemented in a coordinated manner across neighboring jurisdictions, is a crucial component to reduce community disease transmission and mitigate illness and death. NPIs that reduce contact between people may be the only measures available in the early stages of a pandemic due to the time required to develop and produce a vaccine matched to the pandemic strain and the limited availability and unknown effectiveness of antiviral medications.

The Federal Government developed pandemic intervals representing the sequential units of time that occur along a hypothetical pandemic curve including *investigation, recognition, initiation, acceleration, peak transmission, deceleration, and resolution intervals* [10]. The intervals can assist in identifying when to intervene in affected communities and are a means for communicating the status of the pandemic by quantifying different levels of disease, and linking that status with triggers for interventions. The *acceleration interval* begins in a state when public health officials have identified that containment efforts have not worked and onward transmission is occurring, or there are two or more laboratory-confirmed cases in the state that are not linked epidemiologically to any previous case. At this acceleration interval of the pandemic wave, CDC recommends rapidly initiating community mitigation measures.

One of the four primary NPIs recommended by CDC is child social distancing, including dismissal of students from schools, closure of childcare programs, reduced out-of-school social contacts, and community mixing. Children are particularly important in the transmission of influenza because they:

- Are responsible for the majority of secondary transmission within households;
- Shed more influenza virus than adults and shed virus for a longer period of time;
- Are not as skilled in handling their secretions; and
- Are in close proximity with many other children for most of the day at school.

Studies demonstrate that schools serve as amplifiers for seasonal influenza epidemics in the community and that children play a significant role in introducing and transmitting influenza virus within their households. There is also evidence to suggest that school dismissal and limiting the social interactions of children outside of school will disrupt the spread of influenza.

Rationale for Inclusion of Adolescents and Teens

The rationale for including adolescents in child social-distancing strategies arises from both scientific and policy considerations. Adolescents do not shed influenza virus with the same intensity or duration as younger children. However, due to their placement in socially dense school settings and their high numbers of social contacts, adolescents still play a disproportionate role in amplifying pandemic influenza transmission. To ensure the greatest potential benefit from school dismissals during a severe pandemic, CDC recommends the inclusion of adolescents in student dismissal policies.

From a behavioral and psychosocial perspective, adolescents may not understand the potential consequences associated with other forms of social distancing (e.g., keeping a specific physical distance from other persons while in school), and therefore may not be compliant with alternative approaches. Additionally, from a policy perspective, parental/societal concern for the well-being of children includes adolescents, especially when there is advance knowledge indicating high risk of illness or death. This concern rationally leads to family self-isolation, which leads to student dismissals due to high absenteeism.

Rationale for Inclusion of Colleges and Universities

Many of the same issues involving adolescents are also the rationale for including colleges and universities in student dismissal recommendations. Due to the dense living and intimate social environment, college and university settings play a role in transmission of disease. In addition, colleges and universities may not have the resources to care for large numbers of ill students.

Cancellation of classes will only be effective if many students leave campus to decompress dormitories and group living arrangements. Many students, especially foreign students, may not be able to go home and colleges and universities will need to continue activities and support of these individuals. In addition, universities will need to continue essential functions such as research. However, colleges and universities may also be better positioned to impose social distancing and other NPIs among the student populations with a higher level of compliance. For this reason, colleges and universities may operate on a reduced scale, while implementing social distancing and NPIs among students and staff.

Triggers for Initiating Student Dismissals

During WHO pandemic phase 6, the CDC recommended trigger for initiating student dismissal and other NPIs is the first laboratory-confirmed cluster of cases with evidence of community transmission (e.g., epidemiologically linked cases from more than one household).

CDPH differs from CDC and recommends the following triggers for initiating NPIs (community mitigation measures), subject to the epidemiologic characteristics and other relevant information known at the time, including the severity and initial epidemiology of the virus:

- WHO pandemic phase 6 has been declared; **and**
- PSI is a category 2 or greater; **and**
- The **first human** laboratory-confirmed pandemic influenza case in California.

CDPH assumes that due to the high communicability of influenza, the rapid incubation period of one to three days, and the extensive daily travel that occurs throughout California, many more cases would be incubating and presenting during the time required for verification. Since efficient human-to-human transmission has already been demonstrated elsewhere, waiting for epidemiologic confirmation of linked transmission would only delay implementation of NPIs. Moreover, additional delays are likely to occur as the order for school dismissal is initiated, disseminated, and implemented.

In the absence of a WHO/CDC-declared phase 6 pandemic, confirmation of efficient linked transmission in California would be required. CDPH reserves the option of initiating NPIs based on laboratory confirmation of pandemic influenza cases outside of California, depending on the epidemiologic characteristics of the pandemic strain.

CDPH Student Dismissal Recommendations by PSI

PSI Category 1

CDPH will not generally recommend dismissal of students from schools and school-based activities.

PSI Categories 2-3

CDPH will *consider* short-term student dismissals (e.g., less than four weeks) after weighing available evidence about the characteristics of the pandemic strain including the age-specific illness rate, geographic distribution and the magnitude of adverse consequences of dismissal. Dismissals would include students from schools, universities and colleges, school-based activities, and childcare programs with more than six children. Dismissals would occur in combination with strategies to reduce recongregation of children outside of these settings.

PSI Categories 4-5

CDPH will recommend concurrent dismissal students in all public and private schools statewide for eight to 12 weeks or longer, consistent with CDC recommendations at the time of the pandemic. The actual dismissal period may vary depending on the duration of the pandemic wave in California (pandemic waves are expected to last six to eight weeks). Dismissals will include students from schools, universities and colleges, school-based activities, and childcare programs with more than six children. Dismissals will occur in combination with strategies to reduce recongregation of children outside of these settings.

NPI and Student Dismissal Activation

The steps between recognition of a pandemic threat and the decision to activate a response are critical to successful implementation. The CDC guidance provides a progressive escalating response utilizing a framework of *alert*, *standby*, and *activate* [11]. California will follow the CDC guidelines for the response phases.

- *Alert* stimulates notification of critical systems and personnel of their impending activation.
- *Standby* initiates decision-making processes for imminent activation, including mobilization of resources and personnel.
- *Activate* implements specified pandemic mitigation measures, including student dismissals.

An *alert* will be declared by CDC during WHO pandemic phase 6, when there are widespread human outbreaks in multiple locations outside of the United States.

Standby will be declared by CDC when the first human laboratory-confirmed case occurs anywhere in the United States.

Activation may be declared with the first laboratory-confirmed human pandemic influenza case identified in California depending on the epidemiologic characteristics of the pandemic strain and other relevant factors. The decision to activate in California will be made by the State Health Officer (CDPH), in consultation with local health officers, either through a multi-agency coordinating group or by an all-county phone conference.

Geospatial Boundary for California Recommendations

CDPH will use the State of California as the geospatial boundary for NPIs in accordance with the CDC recommendations. In a state as large as California, it is appealing to divide the state into regions for the purpose of implementing community interventions to minimize the burden of these measures in temporally unaffected areas. Because there is extensive travel within the state, it is highly probable that all areas of the state will be affected within a very short timeframe. It is likely the virus would have already spread to different regions within the state by the time the first case is confirmed by the laboratory and multiple cases will emerge within 24 hours.

Modeling and prior experience suggest that NPIs must be initiated simultaneously and as early as possible for maximum effectiveness. Time must be allotted to approve, disseminate, and implement emergency orders for NPIs. The public will be aware of the rapid worldwide spread and impact of pandemic influenza, and other states will be implementing similar NPIs. A regional approach will delay implementation and diminish the effectiveness of the simultaneous implementation of NPIs.

Similarly, student dismissals would be implemented across the geospatial boundary (State of California), even if a given community was not yet impacted. Waiting until pandemic influenza cases are widespread before dismissing students in a given area will minimize the effectiveness of NPIs.

California Statutory Authorities for School Dismissals

A number of entities have the authority to order school dismissal in California:

- State Public Health Officer;
- Local Health Officers;
- State Superintendent of Public Education;
- School District Superintendents; and
- Governor (using emergency powers)

Uniform implementation of early, layered, and targeted measures is crucial. Allowing individual school district superintendents and local health officers to close schools in an uncoordinated fashion in the early stages of a pandemic would reduce the effectiveness of the measures.

Therefore, in the event that student dismissals are necessary, the State Public Health Officer will issue a statewide order. An order issued by the State Public Health Officer will ensure rapid, simultaneous, and uniform implementation of school dismissal across the state.

The intent is to accomplish school dismissals in a uniform manner statewide, rather than county by county or district by district, in order to optimize the opportunity to disrupt transmission of the pandemic influenza virus. A statewide order may also avoid individual debates in each county and local political pressure on health officers. If deemed appropriate for a local jurisdiction, a local health officer may initiate student dismissals prior to the State Health Officer's order, after first notifying the State Health Officer of the intent to do so.

Minimizing the Secondary Consequences of Student Dismissals

CDC and CDPH recognize that implementing student dismissals will impact the daily lives and activities of Californians. In addition to the direct impacts of the pandemic itself, cascading second- and third-order consequences of the interventions include increased workplace absenteeism related to child-care responsibilities. Increased absenteeism in critical infrastructure industries may cause disruptions in essential services. Pandemic planning at the local level must address both the consequences of the direct effects of the pandemic and implementation of NPI, including student dismissals.

Summary

This guidance is intended for pre-event planning and will be revised, as needed, as new information becomes available.

Endnotes

[1] Centers for Disease Control and Prevention, "Interim Pre-Pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States— Early, Targeted, Layered Use of Nonpharmaceutical Interventions, February 2007. Document can be accessed at: http://www.pandemicflu.gov/plan/community/community_mitigation.pdf.

[2] Institute of Medicine. Modeling Community Containment for Pandemic Influenza: A Letter Report. 2006. Document can be accessed at: www.iom.edu.

[3] Longini IM, Nizam A, Xu , Ungchusak K, Hanshaworakul W, Cummings DAT, Halloran M E. Containing pandemic influenza at the source. *Science* 2005;309:1083-7.

[4] Ferguson NM, Cummings DAT, Cauchemez S, Fraser C, Riley S, Meeya A, Iamsirithworn S, Burke DS. Strategies for containing an emerging influenza in Southeast Asia. *Nature* 2005;437:209-14.

[5] Wu JT, Riely S, Fraser C, Leung GM. Reducing the impact of the next influenza pandemic using household-based public health interventions. 2006 *PLoS Med* 3(9):e361. doi:10.1371/journal.pmed.0030361.

[6] Glass RJ, Glass LM, Beyeler WE, Min HJ. Targeted social distancing design for pandemic influenza. *Emerg Infect Dis.* 2006;12:1671-81.

[7] Carrat F, Luong J, Lao H, Salle A, Lajaunie C, Wackernagel H. A 'small-world-like' model for comparing interventions aimed at preventing and controlling influenza pandemics. *BMC Medicine* 2006, 4:26. doi:10.1186/1741-7015-4-26.

[8] Germann TC, Kadau K, Longini IM, Macken CA. Mitigation strategies for pandemic influenza in the United States. *Proc Natl Acad Sci USA* 2006;103:5935-40.

[9] Ferguson NM, Cummings DAT, Fraser C, Cajka JC, Cooley PC, Burke DS. Strategies for mitigating an influenza pandemic. *Nature* 2006;442:448-52. doi:10/1038/nature04795.

[10] U.S. Government, "Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans", March 11, 2008.

[11] Centers for Disease Control and Prevention, "Interim Pre-Pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States— Early, Targeted, Layered Use of Nonpharmaceutical Interventions, February 2007.