

Kansas Department of Health and Environment

Analysis and Guidance Plan for

Pandemic Influenza Mitigation



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Kansas Department of Health and Environment (KDHE) Guidance Plan for Pandemic Influenza Mitigation

Containing Pandemic Influenza

Social distancing as viable option for mitigating the impact of pandemic influenza is an integral part of the national strategy for non-pharmaceutical interventions (NPI). Since the introduction of that strategy, Community Containment has emerged as a core component of the pandemic response plan.¹

Until recently, there has been no consensus and very little quantifiable data to support any of the known NPI's. However, many historical documents and studies have been re-visited, and extensive epidemiological modeling has been performed, in attempt to objectively assess the effectiveness of social distancing strategies. An example is a recent article illustrating the impact of interventions in 23 U.S. cities by Hatchet, Mecher and Lipsitch that states, "Cities that introduced measures early in their epidemics achieved moderate but significant reductions in overall mortality."² In October of 2006, the Institute of Medicine (IOM) convened an expert committee to specifically look at these issues. Their report resulted in the first attempts to establish guidelines for initiating NPI's in a targeted fashion during a pandemic.³

The most compelling concept to arise from that report is the introduction of what was termed 'Early Targeted Layered Containment' or TLC.⁴ This concept will very likely come to represent the core strategy for combating pandemic influenza in countries with well developed socio-political and public health infrastructures such as in Europe and North America. "TLC includes a combination of interventions that includes: targeted antiviral treatment and isolation of ascertained cases, targeted prophylaxis and quarantine of household contacts of index cases, school closure and keeping children at home for the duration of the closure; social distancing in the workplace (e.g. via telecommuting), and social distancing in the community (e.g. cancellation of public events)."⁵

Importantly, the IOM report specifically notes that, "It is almost impossible to say that any of the community interventions have been proven ineffective.... However, it is also almost impossible to say that the interventions, either individually or in combination, will be effective in mitigating an influenza pandemic." While TLC represents a viable strategy for pandemic mitigation, it remains an untested one. There are no easily identifiable or quantifiable triggers for implementing school closure or any other NPI's. This new field of endeavor relies in large part on data and models that are rife with uncertainties. As noted in the Center for Infectious Disease Research and Policy newsletter speaking to the IOM Report Letter (Robert Roos/News Editor/ December 14, 2006), "...the panel warned that public health officials...should take care not to overstate the evidence for their effectiveness." and further said, "any plans to use such measures should be linked with plans for mitigating their side effects."

¹ National Strategy for Influenza, Nov 2006, pg 8.

² Public health interventions and epidemic intensity during the 1918 influenza pandemic, Richard J. Hatchett, Carter E. Mecher, and Marc Lipsitch PNAS published April 6, 2007, 10.1073/pnas.0610941104 (American Journal of Public Health)

³ Modeling Community Containment for Pandemic Influenza: A Letter Report, Institute of Medicine, December 10th, 2006

⁴ *ibid* 3 pg. 6

⁵ *ibid* 3 pg. 6

Pandemic Severity Index

Given that there are no easily identifiable or quantifiable triggers, it has been recognized that some qualitative method of assessing the potential impact of pandemic influenza upon a community is necessary and that this measure can be used as a trigger for levels of response. New guidance from the federal government has created a Pandemic Severity Index (PSI, summarized in chart 1 below) to help address the need for some form of trigger.⁶ The Pandemic Severity Index (PSI) is a domestic planning tool to help categorize a pandemic by severity. It is not perfect, but it does provide a conceptual structure within which to place potential “triggers” for activating community containment actions.

Communities can then make decisions on what measures to take based on how harmful the pandemic is projected to be. The index is divided into five categories. A Category 1 pandemic is as harmful as a severe seasonal influenza season, while a pandemic with the same intensity as the 1918 flu pandemic (thought to have killed anywhere from 20 million to 100 million people around the world), would be classified as Category 5. Estimating the severity of a pandemic will be primarily based on the percentage of deaths among ill persons (chart 1). Based on this projection, the government and health officials may recommend different actions communities can take in order to try to limit the spread of disease by reducing contact between sick and well individuals.

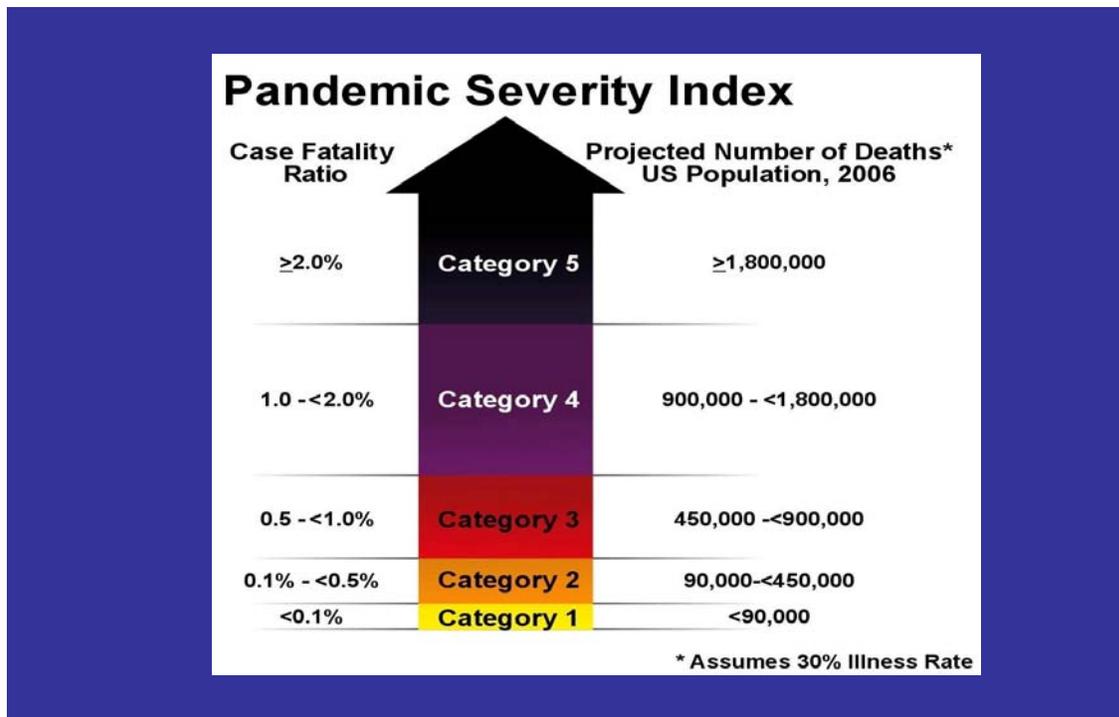


Chart 1

The guidance is conceptually designed around the idea that combinations of infection control measures, while individually of only limited benefit, may be highly effective in influencing the magnitude and impact of a pandemic event over time when implemented early and uniformly across a community. During a pandemic, public health recommendations should be tailored to the transmission

⁶ Department of Health and Human Services/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 1, 2007

characteristics of the particular pandemic virus, and revised as “real-time” assessments of the efficacy of interventions becomes available. These scenarios reinforce the basis of the Kansas plan, focusing attention on community resilience while also being relevant to an all-hazards preparedness approach. The array of interventions tied to severity include those indicated in the national mitigation guidance and illustrated below in tables 1 and 2.⁷

Community Strategies by Pandemic Flu Severity (1)			
Interventions by Setting	Pandemic Severity Index		
	1	2 and 3	4 and 5
Home			
Voluntary isolation of ill at home (adults and children); combine with use of antiviral treatment as available and indicated	Recommend	Recommend	Recommend
Voluntary quarantine of household members in homes with ill persons (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally not recommended	Consider	Recommend
School			
Child social distancing –dismissal of students from schools and school-based activities, and closure of child care programs –reduce out-of-school contacts and community mixing	Generally not recommended	Consider: ? 4 weeks	Recommend: ? 12 weeks
	Generally not recommended	Consider: ? 4 weeks	Recommend: ? 12 weeks

Table 1

Community Strategies by Pandemic Flu Severity (2)			
Interventions by Setting	Pandemic Severity Index		
	1	2 and 3	4 and 5
Workplace/Community			
Adult social distancing			
–decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	Generally not recommended	Consider	Recommend
–increase distance between persons (e.g., reduce density in public transit, workplace)	Generally not recommended	Consider	Recommend
–modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)	Generally not recommended	Consider	Recommend
–modify workplace schedules and practices (e.g., telework, staggered shifts)	Generally not recommended	Consider	Recommend

Table 2.

⁷ ibid 3

The Kansas Plan

This document provides the general plan for implementing community containment strategies focused on minimizing the impact of an influenza pandemic in Kansas. This plan works in conjunction with other standard operating guidelines (SOG's) and tools developed in association with community containment in Kansas including the Kansas Community Containment For Disease Tool Box and the inter-related Pandemic Influenza Preparedness Action Kit developed by the Kansas Association of School Boards (KASB) and KDHE. All of these planning tools are designed to work together.

It's critical to note that these tools do not suggest that a "one size fits all" approach is either optimal or desirable. The use of non-pharmaceutical interventions needs to be understood in the context of a geographically large state with large urban population concentrations contrasted with vast expanses of geography and very low population densities. NPI's within a TLC based strategy may need to target urban areas and rural areas of the state differently.^{8 9} The epidemiology of a particular pandemic will determine the magnitude and scope of actions.

School closure has been targeted as a special tactical element of an effective TLC strategy. The effectiveness of this part of the overall strategy will be affected by geographic and population aspects noted above that could have an impact on the efficacy of compliance issues associated with self shielding or community quarantine. Community compliance has been identified as a critical element of the success of mitigation strategies.¹⁰ Historically, during the 1918 pandemic, even though schools were closed children continued to mingle on street corners, furthering transmission outside of the school setting. That historical notation is why the TLC interventions discuss "keeping children at home for the duration..." of the pandemic period.

Communities will need to consider issues regarding how to enhance communication regarding preventive measures within and across age groups. Mass media strategies must be developed to continue public education and provide alternate means of communication to facilitate social distancing measures within a targeted layered strategy.

Operational Goals and Parameters

Certain foundational assumptions can be made from the research and experiences to this point. The first is that a Pandemic cannot be stopped or sharply curtailed unless there is vaccine for the appropriate viral strain and/or well-timed prophylactic antiviral medications for every person.

Given these assumptions, a distinct set of goals for community containment programs can be identified.^{11 12 13} These are to:

1. Delay disease transmission and outbreak peak
2. Decompress peak burden on healthcare infrastructure

⁸ World Health Organization Writing Group, "Nonpharmaceutical Interventions for Pandemic Influenza, National and Community Measures" Emerging Infectious Diseases Vol. 12, No 1. January 2006 pg. 90

⁹ Targeted Social Distancing Design for Pandemic Influenza Emerging Infectious Diseases Vol. 12, Number 11, November 2006

¹⁰ *ibid*, 4, 5, 6.

¹¹ Targeted Layered Containment: Policy Perspective, Rajeev Venkayya, Homeland Security Council powerpoint; Modeling Community Containment, IOM workshop October 25, 2006

¹² Targeted Layered Containment: Scientific Underpinnings, Martin Cetron, Centers for Disease Control and Prevention powerpoint; Modeling Community Containment, IOM workshop October 25, 2006

¹³ *ibid* 4

3. Diminish overall cases and health impacts

These goals assume (as previously discussed) that:

- Our best countermeasure – vaccine – will probably be unavailable during the first wave of a pandemic
- Antiviral treatment may improve outcomes but will have only modest effects on transmission¹⁴

Other key parameters contributing to achieving these goals include: ¹⁵

Epidemiologic

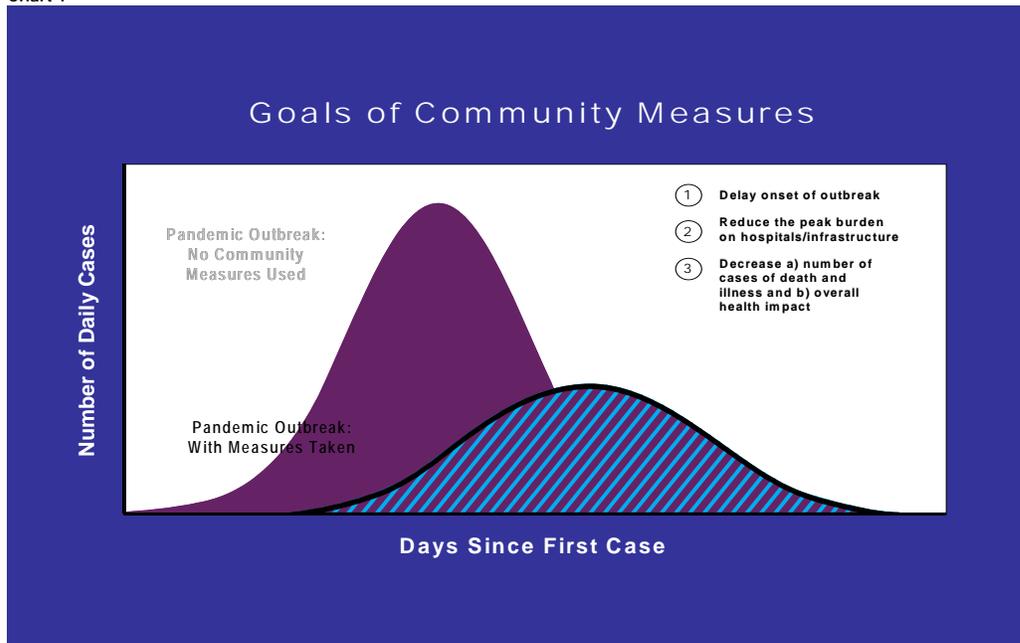
- Case incidence rate
- Case fatality rate
- Incubation period
- Infectious Period
- Symptoms
- Age distribution
- Reproductive rate
- Intergeneration time
- Susceptability/Immunity

Social

- Mixing patterns
- Mobility
- Acceptability of collective actions
- Acceptability of imposed restrictions
- Expectations
- Affordability
- Resiliency

A full discussion of these individual parameters is beyond the scope of this work. Many resources discussing each of these points is available to the interested reader. Chart 1 below illustrates how the federal guidance anticipates the impact of effective community mitigation interventions.

Chart 1



¹⁴ ibid 5 and 6

¹⁵ ibid 6

Timing and Robustness of Policy Options

A key variable underlying the effective use of NPI's is the timing of actions. The intrinsic uncertainties of both a pandemic and the effectiveness of NPI's can result in a tentative response.

Tied closely to this is the need to have "robust" policy options that decision makers can have confidence in. "Uncertainties are frequently underestimated" in the process of human decision making. "Human probability judgments (are) subject to systematic bias over confidence and even quantitative uncertainty calculations tend to be too small."¹⁶ Robust in this case means that the portfolio of NPI's must be capable of mitigating a pandemic across a wide range of assumptions. The Kansas approach developed to this point dovetails well with this.

When should the public health system respond to an emergency? A great deal of training has been provided on the mechanics and structure of crisis response. Most of this has centered on a National Incident Management System (NIMS) approach that incorporates an Incident Command Structure (ICS) activated when a situation arises to the level where a structured and organized public health response is necessary. Failure to recognize when to respond to a public health event can place decision makers in a reactive posture.

An example of this problem occurred during the Kansas Mumps Outbreak in 2006. While utilizing a National Incident Management Systems (NIMS) based approach, Kansas chose to activate its state Incident Command System (ICS) at a point in time that, in retrospect, might have been improved. It may be better to err on the side of deciding to take preparatory actions early rather than late. Once placed in a reactive mode of operation, the situation is likely irretrievable from the standpoint of "mitigation" as represented in this document.

In all likelihood, a pandemic in Kansas will produce examples of both types of localized responses. There will be lessons to be learned from all. A core objective of present planning must be to minimize the number of "reactive" approaches caused by a failure to act.

Partners and Roles

In a pandemic, community guidance from the public health infrastructure charged with "mitigating" the impact of pandemic influenza must be clear. The National Association of County and City Health Officials (NACCHO) and Infectious Diseases Society of America have stated that, "Guidance on community mitigation strategies must include clear and practical recommendations such as specific thresholds and criteria for implementation, discontinuation, and modification of individual measures and combinations of measures, and on how the impact of the strategies will be assessed."¹⁷ This is the core expectation of both state and local public health authorities.

Key stakeholders including the Kansas Association of Counties and the Kansas Association of Local Health Departments have been instrumental in the development of the Kansas standard

¹⁶ Robust Models of non-pharmaceutical interventions for Pandemic Influenza, Steve Banks, The Rand Corporation powerpoint, Modeling Community Containment, IOM workshop October 25, 2006

¹⁷ The Role of Community Based Mitigation During an Influenza Pandemic, NACCHO/Infectious Diseases Society of America powerpoint, Jeffrey Duchin, Seattle-King County and University of Washington, Modeling Community Containment, IOM workshop October 25, 2006

operating guidelines and the Community Containment Tool Box. These efforts are designed to provide local authorities with the “portfolio of NPI’s” that will be needed in the event of an outbreak of pandemic influenza or other significant infectious disease. The Kansas Department of Health and Environment (KDHE) has also worked with the Kansas Association of School Boards (KASB) to create a Pandemic Influenza Preparedness Action Kit to assist Kansas school systems in the event of a pandemic. These documents are dynamic, and will be edited over time to reflect the state of the art knowledge reflecting NPI’s and their use as tools, either alone or in combination, for mitigating the impact of a pandemic.

It will be the role of KDHE to set the tone of the response, establish expertise in the use of a range of NPI’s, monitor the health status of the state, and initiate appropriate action at the state level in the case of a pandemic. Local Health Departments will be responsible for activating their local Health and Medical Task Forces in association with their Biological Incidence Annex SOG’s to determine the local array of NPI’s that will need to be deployed with the assistance and guidance of KDHE. Local health departments will need to base their actions on the biological incidence annex, community containment SOG, and supporting Community Containment/Isolation and Quarantine Tool Box. Coordination with other emergency preparedness authorities and community partners is integral to the process.

The role of the local school system(s) and individual schools will be to work closely with the local public health authorities and implement tools like those in the preparedness action kit adapted for local use. Training at various levels in the implementation of NIMS would be an essential element of appropriate structural preparedness and should be prioritized as this training also has a great deal of value in all types of hazardous response.

Other local emergency preparedness authorities must be involved in local health and medical task forces that comprise the primary decision making bodies at local levels. Active implementation of crisis communications plans at all levels will be essential for the transparent provision of information to the community at large.

Ultimately, it will be the citizens of a community, both individually and in the whole, who will determine the success of all efforts. In association with the October IOM workshop, a presentation was also made on public opinion regarding cooperating with authorities in the case of a pandemic.¹⁸ In that survey, when asked about their “willingness to cooperate with public health officials”, at least 88% indicated that they would follow recommendations for one month to avoid air travel, avoid public events, avoid malls/department stores, not use public transport, cancel non-critical doctor appointments, and reduce contact with people outside of the household. 82% indicated they would avoid church services and 79% said they were willing to postpone family events.

Even when questions were much more detailed, the survey indicated a high degree of willingness to actively cooperate with public authorities in the event of a pandemic. Kansas is also doing some state-specific research in this area. The KDHE Office of Surveillance and Epidemiology is presently examining data from a survey performed with parents and faculty of school systems in

¹⁸ Pandemic Influenza and the Public: Survey Findings, Harvard School of Public Health powerpoint, Robert J. Blendon et al, Modeling Community Containment, IOM workshop October 25, 2006

Kansas that had to close due to outbreaks of seasonal influenza early in 2007. This data should provide further information that will allow Kansas to better target its communications strategy in preparation for a pandemic.

2nd and 3rd Order Impacts Upon the Community and Communications

Communications will be the foundation for obtaining the required cooperation of the citizens and community in a Pandemic situation. Proactive transparency will be the key. It must be an explicit “given” that there must be nothing to hide. Present communications plans at KDHE specifically emphasize this point. In order to promote effective communications with the public, planning documents need to acknowledge that, “the scientific basis and public health rationale for the prescribed measures...encompassing discussion of limitations, assumptions, and potential social and economic consequences of such measures on local communities.”¹⁹

The consequences are described as 2nd and 3rd order impacts in the December IOM Letter Report and associated workshop.²⁰ They include the direct physical consequences that stress the healthcare infrastructures and cause increased mortality, to issues associated with closure of schools and sequestration of children, alteration of the services schools provide, and job related absenteeism as it relates to school closure and child minding. The U.S. Department of Labor 2006 Household Survey estimated that 40 million households (1 or 2 parents with children <18 at home) would have to potentially deal with the issue of minding the children in the case of school closures. Unrelated to sickness or infrastructure breakdown issues, this impact alone will have significant implications for our population.²¹ Effects upon children that receive meals in school, and parents on living at or below poverty levels with few resources to prepare are other examples. The impacts will ripple through our society in a host of ways, many still unknown and unanticipated.

Those who are charged with directing preparedness for a community must be acutely aware of these issues. The challenge is to communicate all of this to the community in such a way that they internalize the reality but respond rationally? The Chief Medical Officer for Australia defined the problem well in a presentation stating, “The competing temptations are “it won’t happen here complacency, “there’s nothing we can do” fatalism, or “no precaution is too great” alarmism...Even so, it’s hard to discuss potential disasters outside of people’s ordinary experience without generating the sort of lurid headlines which make some scoff and others panic. It’s important not to over-react to potential threats. On the other hand, people and governments need to take credible threats seriously and take reasonable and proportionate precautions against them.”²²

All Kansans will be challenged in the face of significant societal events. Kansans must assume that all be severely shaken by a moderate to severe influenza pandemic. This plan is part of the process of mitigating the impact.

Summary

This analysis and the resultant guidance are designed around the goal of justifying and creating a plan of action with community mitigation strategies that are “...acceptable and can be endorsed by, key

¹⁹ *ibid* 5 and 6

²⁰ 2nd and 3rd Order Consequences of Mitigation Strategies, United States Department of Veterans Affairs powerpoint, Carter Mecher, Modeling Community Containment, IOM workshop October 25, 2006

²¹ *ibid* 16

²² Kansas Department of Health and Environment, Crisis Emergency Risk Communications Plan Appendix 12 “Avian And Pandemic Influenza” Pg. 5

stakeholders” as stated by the National Association of County and City Health Officials.²³ This acceptance can be “...facilitated by stakeholder participation in the development of recommendations and through public discussion of the recommended strategies, including their scientific and public health rationale, remaining uncertainties and costs of implementation.

KDHE has been working closely and directly with partners including the Kansas Association of Counties, the Kansas Association of Local Health Departments and the Kansas Association of School Boards to develop the Plans, Annexes, Standard Operating Guidelines, Community Containment Tool Kits, and Action Kits that will comprise the foundation for a localized and resilient community response. The Department has made great effort to involve and inform many other affected organizations, agencies and community bodies of the potential impact of a future pandemic.

The new national mitigation guidance can easily be integrated into existing documents and local plans that are already in place. The new guidance begins to address one of the main questions faced at the state and local levels of the “triggers” for aggressive community action. The PSI may not be a perfect tool, but it represents a significant step forward.

²³ ibid 16

Appendix I

Kansas Pandemic Influenza Mitigation Recommendations

Introduction

Kansas will utilize a portfolio of early targeted and layered non-pharmaceutical interventions (NPI's) as a primary strategy to contain a pandemic influenza event. A strategy of Early Targeted Layered Containment (TLC) is a combination of NPI's that have been determined by consensus of international experts to be able to influence the course of a pandemic in the United States.²⁴ The NPI types to be used are listed in the Kansas Department of Health, Kansas Association of Counties and Kansas Association of Local Health Departments "Kansas Community Containment for Diseases Tool Box."²⁵ The tool box is designed to work in conjunction with local county health department "Community Disease Containment" standard operating guidelines (SOG), which themselves are part of local county Biological Incidence Annexes relative to emergency preparedness.

School closures may represent a foundational intervention associated with the need for social distancing. Targeting of school closures as an NPI in a TLC based strategy may be tailored to meet the geographic and population factors in varying parts of the state. School closures will be but one facet of the larger effort to mitigate the impact.

Goals

1. Delay disease transmission and outbreak peak
2. Decompress peak burden on healthcare infrastructure
3. Diminish overall cases and health impacts

Assumptions

- Our best countermeasure – vaccine – will probably be unavailable during the first wave of a pandemic
- Antiviral treatment may improve outcomes but will have only modest effects on transmission

Key Parameters

- | Epidemiologic | Social |
|---|--|
| <ul style="list-style-type: none">• Case incidence rate• Case fatality rate• Incubation period• Infectious Period• Symptoms• Age distribution• Reproductive rate• Intergeneration time• Susceptability/Immunity | <ul style="list-style-type: none">• Mixing patterns• Mobility• Acceptability of collective actions• Acceptability of imposed restrictions• Expectations• Affordability• Resiliency |

²⁴ Ibid 7, 9, 10

²⁵ Kansas Department of Health, Kansas Association of Counties and Kansas Association of Local Health Departments "Kansas Community Containment for Diseases Tool Box"

The relative interaction of the above noted variables will determine the extent and nature of the NPI's to be used in the event of a pandemic.

Timing of Closures (Triggers for action)

The timing of closures will be a function of the dynamic nature of the event. Recommendations will be based upon guidance documents and direction from the national level, and an evolving state of the art analyses of the mitigating impact of TLC strategies within a given pandemic scenario.

In February of 2007, the U.S. Department of Health and Human Services (HHS) in conjunction with the Centers for Disease Control and Prevention (CDC) provided guidance on mitigating the impact of pandemic influenza in the U.S. As part of that guidance, HHS created a Pandemic Severity Index.²⁶ The Pandemic Severity Index (PSI) is a domestic planning tool to help categorize a pandemic by severity based on case fatality rates. Communities can then make decisions on what measures to take based on how harmful the pandemic is projected to be.

The index is divided into five categories. A Category 1 pandemic is as harmful as a severe seasonal influenza season, while a pandemic with the same intensity as the 1918 flu pandemic (thought to have killed anywhere from 20 million to 100 million people around the world), would be classified as Category 5. Estimating the severity of a pandemic will be primarily based on the percentage of deaths among ill persons. Based on this projection, the government and health officials may recommend different actions communities can take in order to try to limit the spread of disease by reducing contact between sick and well individuals. Table 1 below is from the guidance and illustrates the PSI in relation to various severity levels.

Characteristics	Pandemic Severity Index (PSI)				
	Category 1	Category 2	Category 3	Category 4	Category 5
Case Fatality Ratio (percentage)	<0.1	0.1-<0.5	0.5-<1.0	1.0-<2.0	≥2.0
Excess Death Rate (per 100,000)	<30	30-<150	150-<300	300-<600	≥600
Illness Rate (percentage of the population)	20-40	20-40	20-40	20-40	20-40
Potential Number of Deaths (based on 2006 U.S. population)	<90,000	90,000-<450,000	450,000-<900,000	900,000-<1.8 million	≥1.8 million
20 th Century U.S.Experience	Seasonal Influenza (illness rate 5-20%)	1957,1968	None	None	1918 Pandemic

Table 1.

²⁶ ibid 4 CDC Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States Early Targeted Layered use of Non-Pharmaceutical Interventions http://www.pandemicflu.gov/plan/community/community_mitigation.pdf

The PSI is designed to also relate to the World Health Organizations Pandemic Influenza Phases as indicated in Table 2. These trigger points also relate to the United States Response Stages, which further relate to Kansas activation levels as noted in the Kansas Pandemic Influenza Preparedness and Response Plan. Attachment 2 has a table showing the relationship between the response systems and Kansas activation levels.

Pandemic Severity Index	WHO Phase 6, U.S. Government stage 3*	WHO Phase 6, U.S. Government Stage 4† and First human case in the United States	WHO Phase 6, U.S. Government Stage 5§ and First laboratory confirmed cluster in state or region¶
1	Alert	Standby	Activate
2 and 3	Alert	Standby	Activate
4 and 5	Standby**	Standby/Activate††	Activate

Table 2.

Alert: Notification of critical systems and personnel of their impending activation.

Standby: Initiate decision-making processes for imminent activation, including mobilization of resources and personnel.

Activate: Implementation of the community mitigation strategy.

*Widespread human outbreaks in multiple locations overseas.

†First human case in North America.

§Spread throughout the United States.

¶Recommendations for regional planning acknowledge the tight linkages that may exist between cities and metropolitan areas that are not encompassed within state boundaries.

**Standby applies. However, Alert actions for Category 4 and 5 should occur during WHO Phase 5, which corresponds to U.S. Government Stage 2.

††Standby/Activate Standby applies unless the laboratory-confirmed case cluster and community transmission occurs within a given jurisdiction, in which case that jurisdiction should proceed directly to Activate community interventions defined in Table 2.

KDHE will monitor federal directions and surveillance data to develop recommendations to the on activation of their local BIA's and relational SOG's. Local Health and Medical Task Forces will monitor local situationals in conjunction with emergency preparedness infrastructure to determine specific mitigation recommendations contained within the portfolio of targeted and layered NPI's outlined in Section II of the Kansas Community Containment Tool Box. Other information must also be considered when making local decision. For example, school closure without a concurrent limitation of interactions outside of school settings has the potential for causing more harm than good. Public compliance is a critical factor for success.

The HHS guidance notes, "Determining the likely time frames for progression through *Alert*, *Standby*, and *Activate* postures is difficult. Predicting this progression would involve knowing 1) the speed at which the pandemic is progressing and 2) the segments of the population most likely to have severe illness. These two factors are dependent on a complex interaction of multiple factors, including but not limited to the novelty of the virus, efficiency of transmission, seasonal

effects, and the use of countermeasures. Thus it is not possible to use these two factors to forecast progression prior to recognition and characterization of a pandemic outbreak, and predictions within the context of an initial outbreak investigation are subject to significant limitations. Therefore, from a pre-pandemic planning perspective and given the potential for exponential spread of pandemic disease, it is prudent to plan for a process of rapid implementation of the recommended measures."

Present state of the art documents on mitigation and compliance issues include:
Glass RJ, Glass LM, Beyeler WE, Min HJ. Targeted social distancing design for pandemic influenza. *Emerging Infectious Disease* Vol 12 #11, 2006 Nov. Available from <http://www.cdc.gov/ncidod/EID/vol12no11/06-0255.htm>

Kahn LH. Pandemic Influenza school closure policies (letter). *Emerging Infectious Disease* Vol 13 #2. Feb 2007. Available from <http://www.cdc.gov/ncidod/EID/content/13/06-1109.htm>

Haber MJ, Shay DK, Davis XM, Patel R, Jin X, Weintraub E, et al. Effectiveness of interventions to reduce contact rates during a simulated influenza pandemic. *Emerging Infectious Dis* [serial on the internet]. 2007 Apr. [March 15, 2007] Available from <http://www.cdc.gov/EID/content/13/4/581.htm>

Authority for Closure, Key Considerations and Roles

State and Local County Health Officials

KSA 65-129 provides local health officers and the Secretary of the Kansas Department of Health and Environment (KDHE) with the authority to act in the presence of an infectious or contagious disease. An analysis performed by the Kansas Association of Counties notes: "After the passage in 2005 of 65-129, the local health officer or secretary of health and environment has clearer authority to take action for the treatment, isolation and quarantine of any individual or group when they have reason to believe one of the infectious or contagious diseases is involved. Although it is expected that compliance with the directives of the local health officer will be voluntary, the statute provides for the circumstances when an individual or group may not be cooperative."²⁷

Used effectively, the elements in an early-targeted layered containment strategy are designed to reduce human interactions that facilitate the transmission of influenza. Authority to implement does not, however, guarantee public compliance. As previously noted, closure without compliance outside of controlled settings like schools could potentially enhance transmission. Crisis communications messages should anticipate and address second order elements of this type. This also represents another example of where population density, geographic and socio-economic factors complicate local and statewide decision making.

The Community Containment/Isolation and Quarantine Tool Box utilized in conjunction with the local health department Standard Operating Guidelines jointly assist in understanding the feasibility of certain actions in the midst of an infectious or contagious public health emergency. That tool is designed to work in concert with other emergency preparedness processes such as the Kansas Association of School Boards Pandemic Preparedness Tool Kit that mirrors this guidance and recommendations. (The schools resource is available at <http://www.kasb.org/panflu/index.html>.)

²⁷ *ibid* 24. Section V

If the Pandemic Severity Index triggers a mitigation action, state and local public health authorities will be responsible for implementing targeted and layered community-based containment measures. These measures can be grouped into two broad categories: measures that affect groups of exposed or at-risk persons, and measures that affect entire communities. Prior to implementing any community-based interventions, key questions must be asked:

Key Considerations: ²⁸

- Do Public Health and medical analyses warrant the imposition of large-scale quarantine (**or Community Containment**)?
- Are implementation and maintenance feasible (**Including Compliance**)?
- Is there a plausible way to determine who should be quarantined (**affected by Community Containment actions**)?
- Are resources available to enforce confinement (**or ensure compliance within parameters for mitigation**)? ²⁹
- Can the quarantined group be confined for the duration during which they could transmit disease?
- Do the potential benefits outweigh the possible adverse consequences?

JAMA Vol. 286 No. 21, Dec 5, 2001 "Large Scale Quarantine Following Biological Terrorism in the US;" 286:2711-2717

If a policymaker or a decision-making body is able to answer **yes to all** of these considerations in consultation with state and/or local public health, emergency preparedness, and education authorities, then community containment measures may be implemented. Care must be taken to ensure that all affected authorities are informed and actively participating in the processes.

If the answer to any of these considerations is **no**, consultation with partners noted in the local SOG is appropriate to determine what level of community containment measures may be warranted. All containment actions will need to be periodically reviewed, both locally and at the state level.³⁰

Communications

Communications must be coordinated between public health, and emergency preparedness officials and schools and school systems. The communications should be transparent at all levels and inform the public of all aspects of the threat faced.

Public Health Preparedness and Local School Officials

Schools are often singled out in mitigation strategies, as children are epidemiologically considered to be core transmitters in the spread of influenza. Local school officials should actively involve themselves as members of local Health and Medical Task Forces convened by local health departments. Schools will be responsible for coordinating with local public health officials in preparing parents for the event of a pandemic, and may play a critical role in communicating the importance of preparation to the public. Local school officials should also implement training at appropriate levels (schools and/or school systems) regarding the National Incident Management System (NIMS) and develop incident command structures to better coordinate actions at both school and community levels for all potential hazards.

²⁸ *ibid* 24, Section I (Kansas Community Containment Flow Chart)/Section II (Community Based Containment Measures)

²⁹ *ibid* 28

³⁰ Portions adapted from United Kingdom Department for Education and Skills. Planning for a human influenza pandemic. Guidance to schools and children's services 2006. Available from www.teachernet.gov.uk/doc/9942/FullGuidance.pdf

It must be noted that NIMS training is required nationally of all local health departments, and other emergency preparedness agencies that might receive federal funding including fire, police and even local hospitals. NIMS training within local agencies helps ensure that when a serious event occurs, schools and/or school systems will be able to both integrate their internal responses and communicate effectively with other emergency preparedness officials within the same tactical framework.

Schools and/or school systems should also utilize resources such as the Kansas Pandemic Influenza Preparedness Action Kit For Schools developed by the Kansas Association of School Boards and the Kansas Department of Health and Environment (This resource can be found at KASB.org <http://www.kasb.org/panflu> . The Action Kit provides templates for local Pandemic Flu plan development and examples of communications elements that can be used locally, including those for seasonal influenza. Other links and resources, including NIMS training, are also available through this site.

Attachment 1

Response Phases/KS Activation Levels/US Stages	KS I US Stage 0 - 1 Day-to-Day Operations	KS II US Stage 2 Active Surveillance	KS III US Stage 2 Health Response	KS IV US Stages 3–4-5 Full-Scale Activation	KS V US Stage 6 Recovery
WHO Pandemic Phases	Inter-pandemic Period Phase 1, 2, & 3	Pandemic Alert Period Phase 4 & 5	Pandemic Alert Period Phase 5	Pandemic Period Phase 6	Postpandemic Period
Surveillance	Normal operation	Enhanced surveillance per plan	Enhanced surveillance per plan	Enhanced surveillance per plan	Epidemiological studies as outlined in the plan
Disease Investigation	Normal operation	Broad dissemination of case definition for active case finding of novel virus in KS resident.	Case finding of pandemic strain in KS residents	Case investigation limited to determining age-specific attack rates, morbidity and mortality	Return to normal case investigation.
Vaccination/ Prophylaxis	PIPC review and update the Vaccine and Antiviral Delivery section of the plan as needed	Initiate Vaccine and Antiviral acquisition	Continue to identify high-risk groups for possible treatment with antivirals and prepare for mass vaccination.	Conduct mass immunizations when vaccine is available. Continue treatment with antivirals if available.	Assess the effectiveness of vaccine and antivirals.
Quarantine/ Isolation	Prepare and distribute Isolation and Quarantine Order Templates to LHD.	Advise hospitals and clinicians of control measures, including quarantine and isolation orders for novel virus cases.	Review community control measures. Consider group isolation measures.	Implement community control measures including group isolation.	Review effectiveness of control.
Mass Care	Planning with KDEM, KHA, KS Bd of EMS, KAHD, and KS VOAD.	Alert KDEM, KHA, KAHD, and KS VOAD.	Activate KDEM, KHA and Hospital Emergency Incident Command System (HEICS) in affected healthcare facilities	HEICS continue to operate. KDEM, KDHE, and EMS coordinate temporary facilities.	Continues until patient load normalizes and disease transmission is interrupted
Mass Fatality		Alert KDEM and KFSA	Activate Mass Fatality Plan	Activate State EOC and request federal DMORT assistance.	Stand down as fatalities return to normal levels.
Public Information	Review and update CERC plan and the communications section of this plan	KDHE PIO will review CERC Plan with PIPC.	KDHE PIO conducts communication activities outlined in the plan.	KDHE PIO conducts communication activities outlined in the CERC plan.	KDHE PIO reviews communication strategies used during the pandemic.
Command/ Control	Readiness Training Exercises and Surge Capacity Training	No or Minimal Response. EPI Resources. Alert KDEM and KHA	Minimal or Extended Response. DOH Resources. EOC and SERT activated to Level 3	Maximal Response. KDHE Resources. EOC and SERT activated Level 3 or Level 4	Stand down as event closes.

