



APT STANDARDS DEVELOPMENT PROGRAM RECOMMENDED PRACTICE

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Developing a Contagious Virus Response Plan

Abstract: This *Recommended Practice* covers the creation and implementation of a contagious virus response plan by a transit agency.

Keywords: Contagious Virus Response Plan (CVRP) Continuity of Operations Plan (COOP), pandemic, response, transit, virus

Summary: Given the outbreak of a contagious virus, the Contagious Virus Response Plan might serve as a single reference guide. Once an outbreak reaches pandemic proportions, however, the CVRP will likely need to be used in conjunction with the Continuity of Operations Plan (COOP) to provide comprehensive response planning. This *Recommended Practice* includes the basic elements of a CVRP for a contagious virus such as the avian influenza.

Scope and purpose: The purpose of this *Recommended Practice* is to aid transit agencies in the development of a CVRP. It outlines elements that might be covered by the plan and provides implementation and format suggestions and examples. It does not provide background information on various contagious viruses. Ample background information and answers to frequently asked question are readily available in a number of guidelines developed by public health departments, the Department of Homeland Security and APTA (see References section). This document assumes that the CVRP will not serve alone as a comprehensive response plan in the case of a pandemic viral outbreak. It is intended to cover extraordinary aspects specific to a contagious virus that are not normally covered in the all-hazards COOP. Consequently, if a contagious virus spreads to the degree that it limits or restricts a transit agency's availability of personnel or cripples its ability to deliver normal service, the COOP should be triggered and used in conjunction with the CVRP. Transit agencies should consider determining the applicability of the various elements in this *Recommended Practice* with regard to the requirements, plans and policies of their local health departments. Once the CVRP is drafted, the transit agency should consider sharing it with the local health department for review and comment before issuing it as a final document.

This Recommended Practice represents a common viewpoint of those parties concerned with its provisions, namely, transit operating/planning agencies, manufacturers, consultants, engineers and general interest groups. The application of any standards, practices or guidelines contained herein is voluntary. In some cases, federal and/or state regulations govern portions of a rail transit system's operations. In those cases, the government regulations take precedence over this standard. APTA recognizes that for certain applications, the standards or practices, as implemented by individual transit agencies, may be either more or less restrictive than those given in this document.

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1. Approval of a Contagious Virus Response Plan

The CEO or other pertinent executive manager of the transit agency should consider defining the process for approval of the initial CVRP, periodic reviews of the CVRP and revisions to the CVRP. People with authority to revise the CVRP should be clearly identified. The CVRP should be a living document that is updated as lessons are learned and new information is gained.

This process should be defined within the CVRP itself or in other pertinent transit agency administrative documentation.

2. Elements of a CVRP

The CVRP should cover only elements specific to a contagious virus that are outside the scope of an all-hazards COOP. These specific elements include the following:

- identification of alert phases that trigger specific action
- information and education program
- disinfection program
- sanitary aids to limit spread
- vaccine/antiviral medications
- service reduction, shutdown and restoration

2.1 Identification of alert phases that trigger specific action

Planning and response to a contagious virus will depend on the risk involved. Unlike a catastrophic event such as an earthquake, a contagious virus likely will have various phases in the lifecycle of its spread. Each phase will likely need a different response strategy. For example, one phase might be the presence of unfounded fears and concern regarding a certain virus, and the response might call for education and public awareness regarding the low risk involved. Another phase, however, may be the onset of a full pandemic, which calls for extreme measures to limit its spread.

The CVRP might identify phases and subphases early in the plan. These phases can then be used as indexes or trigger points to spur different levels of response for the various remaining elements covered in the plan.

A table might be beneficial to identify the phases and subphases. The World Health Organization (WHO) has identified six avian influenza pandemic alert phases. These WHO phases have been universally accepted by most health departments and other government and private organizations. It is recommended that a transit agency consider adopting the WHO phases, and then develop subphases for each WHO phase. The subphases need to be meaningful to the transit agency. For example, while the WHO Phase 1 states that the virus may be present in animals, but the risk of human infection or disease is considered low, a transit agency's subphases might break this down to include the levels of virus detected in animals in the United States, in its state and in its service area. A similar breakdown may be used for the other WHO phases. Progression through subphases would intensify the risk to the transit agency and would likely trigger different levels of response.

An example of a table listing phases and subphases is shown as Appendix A.

2.2 Information and education program

Communications, in the form of information and educational programs, might be a major part of any CVRP. Communications might be divided into two distinct areas: communications to employees (internal) and communications to the riding public (external).

Response tasks might be identified as a function of the various subphases discussed in Section 2.1 above. As a subphase of the virus is reached, the agency could perform identified tasks. Those tasks might include press releases to the public regarding the risks involved and the actions taken by the agency to reduce the risk of infection on the system, dissemination of appropriate information to employees and training sessions for employees regarding personal hygiene at work and at home. Responsibility for each task to be performed should be clearly identified in the plan.

Information and educational training ideally would be consistent with that recommended by local and state health departments, and transit agency staff should consider partnering with those agencies to ensure that accurate and appropriate information is being released. As the risk increases (different subphases are reached), the degree of informational outreach to both the riding public and employees will likely need to be intensified, and the amount of educational training increased.

An example listing internal information and education responses to different alert phases is shown as Appendix B, and an example listing external information and education responses is shown as Appendix C.

2.3 Disinfection program

Various contagious viruses can survive on surface materials for several days or longer. Consequently, a transit agency should consider doing whatever is practical to improve the overall level of cleanliness and to decontaminate all surfaces that patrons are likely to touch (hand-contact surfaces) both onboard the vehicles and in stations or terminuses. These surfaces might include handrails, seat armrests, escalator hand grips, ticket machines, access gates and other surfaces that patrons might touch.

Specific tasks might be identified to implement a disinfection program at the appropriate risk level (i.e., when a predetermined, specific subphase of the virus is reached). Additionally, a disinfection program might be tiered up as the risk increases. For example, the frequency of disinfecting various hand-contact surfaces might change considerably as the risk of infection intensifies.

Responsibility for each task to be performed should be clearly identified in the plan, and consideration given to the resources required. When the risk of the virus is low, a transit agency might use its own personnel to carry out periodic disinfection of hand-contact surfaces. But when the risk increases, hand-contact surfaces likely would need to be disinfected several times a day, and the general level of cleanliness onboard vehicles and in passenger stations or terminuses would probably be increased considerably. A transit agency might need the services of an outside contractor to conduct the appropriate level of cleaning.

An example of a table listing possible disinfection responses to different alert phases is shown as Appendix D.

2.4 Sanitary aid to limit spread

Sanitary aids can assist significantly in limiting the spread of a virus. Except for a pandemic outbreak perhaps, sanitary aids along with a disinfection program can alleviate health concerns of the riding public and assist in building confidence that the transit agency is a safe and viable means of transportation. Additionally, sanitary aids can reassure transit employees and provide them with an added layer of protection in performing their daily functions.

Two forms of sanitary aids that a transit agency should consider including in their planning are disposable face masks effective against the H5N1 virus, and disinfectant hand gels.

Specific tasks might be identified to implement the acquisition and distribution of sanitary aids to patrons and employees as a function of the various virus-spread subphases. Responsibility for each task to be performed should be clearly identified in the plan.

Disinfectant gels could be made available at various access points (stations, bus stops, and ferry terminuses, for example) for passenger use before embarking on trains, buses, or ferries. This would not only enhance the hygiene of the user patron (i.e., mitigate hand-to-face spread), but mitigate the spread of the virus from one patron's hand to other patrons riding the system. Disinfectant gels could also be made available to transit agency employees at various locations throughout the work environment. Providing free access to disinfectant gels by all members of the riding public, as well as employees, would be a relatively low expenditure.

Disposable face masks require careful planning. First, the time of supplying face masks to employees such as train operators, bus drivers, or ferry operators should be appropriate. Providing face masks to agency operators or drivers due to unfounded or unsubstantiated concerns when the actual risk of viral infection is relatively low would be irresponsible. It could spread baseless concern and fear to patrons and possibly lead to an unnecessary drop in ridership. On the other hand, not providing face masks to employees when there is risk of viral spread is unconscionable. Every employer has the responsibility to provide appropriate personal protective equipment to its employees.

Face masks might be provided to different employees at different subphases of the virus spread. Employees who work in patron high-density environments, such as station agents and revenue vehicle operators, might be issued masks earlier than those who work in a more socially distant environment.

Another consideration involving face masks is whether a transit agency should try to provide these aids to patrons, and if so, whether the masks should be provided at no cost. If each patron used one disposable mask per trip, which is not unreasonable if masks are provided free of charge, the cost to the transit agency at one dollar per mask would equal its ridership. This would amount to millions of dollars per week for many transit agencies, and would likely not be an expenditure that could be sustained for any period of time.

Regardless of whether face masks are provided to patrons or simply required by the transit agency as a condition of passage, they are an excellent device, not only to protect against inhaling viral microbes, but also to protect against spreading the virus to others.

An example of a table listing sanitary aid responses to different alert phases is shown as Appendix E.

2.5 Vaccine/antiviral medications

Given the spread of a contagious virus, transit agencies should consider soliciting vaccinations and/or antiviral medications for its front-line transit agency employees. Vaccines and antiviral medications, however, may not be available in the early stages of a viral pandemic. Additionally, once they become available, there will likely be federal controls over the distribution of the products based on predetermined groupings and risks. Opinions may differ regarding whether short supplies of medications should be used for those already infected or used to prevent further spread of a pandemic.

Transit agencies might identify specific tasks for working with state and local health departments to track and influence U.S. government guidelines for the allocation of vaccines and antiviral medications. Transit agencies also should consider mustering the influence of trade organizations to lobby the federal government to have front-line transit agencies placed high on vaccine and antiviral medication priority lists. Lastly, transit agencies should consider purchasing vaccines and antiviral medications in the open market for their employees, if no other assistance is forthcoming.

An example of a table listing vaccine and antiviral medication responses to different alert phases is shown as Appendix F.

2.6 Service reduction, shutdown and restoration

It is assumed that most transit agencies will intend to provide service throughout the life cycle of a pandemic to the extent that they can comply with public health department recommendations and directives, and to the extent that their employees are available to maintain and operate transit vehicles. Nevertheless, it is likely that a transit agency will need to reduce service, and may need to shut down the system, in the event of a pandemic.

Transit agencies might identify tasks related to developing service reduction plans, system shutdown plans, and possibly system restoration plans. Service reduction planning might identify indicators that will be monitored (both externally with regard to ridership and internally with regard to employee availability) and include strategies for tiering down service.

System shutdown planning might include a systematic approach to ensure that final-run passengers reach their destinations, that transit vehicles or ferries are returned to their storage yards or docking stations, and that all system equipment is adequately secured. Planning also might include inspection and security operations during the shutdown period.

Lastly, restoration of service should be considered. This might include indicators that would trigger restoration as well as identification of tasks to implement restoration. Implementation of restoration might include safety checks of appropriate equipment and approval by appropriate agency officials.

An example of an outline for service reduction, shutdown and restoration is shown as Appendix G.

Appendix A: Example of phases and subphases table

NOTE: The relevance of the table contents may vary from agency to agency, and may change over time as knowledge progresses and information expands.

TABLE 1
Avian Influenza Pandemic Alert Phases

World Health Organization Phases		Subphases	
1	Virus may be present in animals, but the risk of human infection or disease is considered low.	1.a	No human nor animal cases within the U.S.
		1.b	No human cases, but evidence of animal cases in some areas of the U.S.
		1.c	Rare animal-close-contact human transmission in the U.S., but outside of state
		1.d	Rare animal-close-contact human transmission within the state, but outside of the local area
		1.e	Rare animal-close-contact human transmission in the local area
2	No new influenza virus subtypes have been detected in humans. Animal virus subtype poses a substantial risk to humans.	2.a	Reports of increased animal-to-human transmissions outside the U.S.
		2.b	Reports of increased animal-to-human transmission within the U.S.
3	Human infection(s) with a new subtype, but no human-to-human spread, except for rare close-contact instances.	3.a	Report of human infections with a new virus subtype, but no human-to-human spread, except for rare animal-close-contact instances outside the U.S.
		3.b	Report of human infections with a new virus subtype, but no human-to-human spread, except for rare animal-close-contact instances within the U.S.
4	Small cluster(s) of highly localized human-to-human transmission.	4.a	Report of small clusters of highly localized human-to-human transmission outside the U.S.
		4.b	Report of small clusters of highly localized human-to-human transmission within the U.S.
5	Larger cluster(s) of human-to-human spread, but still localized.	5.a	Larger cluster(s) of human-to-human spread, but still localized, outside the U.S.
		5.b	Larger cluster(s) of human-to-human spread, but still localized, within the U.S.
6	Increased and sustained transmission in general population.	6.a	Increased and sustained transmission in general populations outside the U.S.
		6.b	Increased and sustained transmission in general population within the U.S.
7		7.a	Post pandemic phase

Appendix B: Example of an internal information and education table

NOTE: The relevance of the table contents may vary from agency to agency, and may change over time as knowledge progresses and information expands.

TABLE 2
Internal Communications

Alert Phase	Actions	Responsibility
1.a	<ul style="list-style-type: none"> Update the district's Injury and Illness Program Plan (IIPP) with a section on precautions against Contagious Viruses. Distribute personal hygiene information through the Safety Reminders Program. 	Safety Department
1.b	<ul style="list-style-type: none"> Develop articles on employee personal hygiene and precautions against contagious viruses. Publish articles in various district publications. 	Media and Public Affairs and Marketing departments
1.c	<ul style="list-style-type: none"> Disseminate articles developed in 1.b through Lotus Notes emails, the district website and other forms of outreach. Partner with public health departments, especially their Risk Communication Message and Education sections, to acquire timely information, and to coordinate appropriate news releases to employees and riding public. 	Media and Public Affairs Department
1.d	<ul style="list-style-type: none"> Develop a training video and poster(s) on hygiene and precautionary measures against viruses both at work and in the home. Commence disseminating the video and poster(s) to district departments. Place pertinent information on the district website. 	Media and Public Affairs Department, with support from Safety Department as needed
1.e, 2.b, 3.a and beyond	<ul style="list-style-type: none"> Develop and deliver a more formal awareness program that includes personal visits to employee work locations to disseminate facts and to address concerns. This will commence with briefings to managers and unions to solicit their support. Continue to update employees with status reports of the virus condition, using all appropriate means of distribution. 	Safety Department, Media and Public Affairs Department, select executive and department managers

Appendix C: Example of an external information and education table

NOTE: The relevance of the table contents may vary from agency to agency, and may change over time as knowledge progresses and information expands.

TABLE 3
External Communications

Alert Phase	Actions	Responsibility
1.b	<ul style="list-style-type: none"> In accordance with information provided by Health Services "Risk Communication Message and Education Group," put out passenger bulletins in the form of a fact sheet on the risks involved. 	Media and Public Affairs Department
1.c	<ul style="list-style-type: none"> Prepare outreach/education materials in the form of news releases, passenger bulletins and website articles that provide guidance on personal hygiene, and keep patrons informed on the risks involved. Commence disseminating information prepared. 	Media and Public Affairs and Marketing departments
1.d	<ul style="list-style-type: none"> Develop a video and poster(s) on personal hygiene and precautionary measures to take while riding on the system. Disseminate the video (including placing it on the website) and poster(s) and continue to disseminate information prepared in 1.b. Partner with public health departments, especially the Health Department's "Risk Communication Message and Education Group," to acquire timely information, and to coordinate appropriate news releases to employees and riding public. Prepare letters to public officials regarding what the TA is doing. Develop partnerships with private corporations to promote cleaner trains/buses/stations (trade advertising for services). 	Media and Public Affairs and Marketing departments Government and Community Relations, Marketing
1.e, 2.b., 3.a and beyond	<ul style="list-style-type: none"> Continue to disseminate timely information to patrons. Start utilizing station signage and on-vehicle posters to further the promotion of information. Issue letters to public officials. 	Media and Public Affairs and Marketing Government and Community Relations

Appendix D: Example of a disinfection program table

NOTE: The relevance of the table contents may vary from agency to agency, and may change over time as knowledge progresses and information expands.

TABLE 4
Disinfection Program

Alert Phase	Action	Responsibility
1.b	Commence planning for enhanced cleanliness of the system's buses, trains and stations, particularly hand-contact surfaces. The plan should assess in-house resources and explore contract services that are geared to the different alert phases. An estimate of the costs involved should be part of the planning process.	Transportation and RS&S
1.c	Commence the initiative to provide cleaner buses, trains and stations so that patrons perceive the TA to be a safe environment.	Transportation and RS&S
1.e, 2.b, 3a, and beyond	Commence program of disinfecting hand-contact surfaces in stations and on trains and buses several times throughout each day.	Transportation and RS&S

Appendix E: Example of a sanitary aids table

NOTE: The relevance of the table contents may vary from agency to agency, and may change over time as knowledge progresses and information expands.

TABLE 5
Sanitary Aids

Alert Phase	Action	Responsibility
1.b	<ul style="list-style-type: none"> Establish funding authorization for pending sanitary aid expenses related to the pandemic. Procure a supply of face masks and disinfectant gel in district stores in reserve for use by district employees. Work with suppliers to ensure a steady flow of these aids for employees, given a progression of the virus to higher alert levels. Estimate supplies needed for each alert phase. With reference to alert phase 4.b (below) estimate disinfectant gel needed for patrons, and work with suppliers to ensure a steady flow of this item when the time arrives. 	<p>Procurement</p> <p>Procurement, supported by user departments</p> <p>Procurement</p> <p>Procurement</p>
1.e, 2.b, 3a, and beyond	<ul style="list-style-type: none"> Disseminate disinfectant gels throughout the district for employee use, including transportation reporting locations, stations, shops and office building. 	Affected departments
4.b	<ul style="list-style-type: none"> Require employees who work in patron high-density environments (including train and bus operators and station agents) to wear protective masks. Provide disinfectant gels for use by patrons at each station. 	<p>Operations</p> <p>Transportation</p>
5.b	<ul style="list-style-type: none"> Provide protective masks to office employees for use within office environments. Promote social distancing (avoid face contact meetings, explore telecommuting). 	Affected departments

Appendix F: Example of a vaccine/antiviral medications table

NOTE: The relevance of the table contents may vary from agency to agency, and may change over time as knowledge progresses and information expands.

TABLE 6
Vaccines and Antiviral Medications

Alert Phase	Action	Responsibility
1.c	<ul style="list-style-type: none"> • Work with state and local health departments to track the U.S. government development of guidelines for the allocation of Contagious Virus vaccine and antiviral medications. • Partner with agencies such as APTA and the California Transit Association to lobby for prioritizing transit employees to receive vaccines and antiviral medications. 	Safety Department
1.e, 3.b	<ul style="list-style-type: none"> • Determine the availability and costs of purchasing vaccines and antiviral medications on the open market. • Commence contracting process to engage appropriate medical assistance for administering these precautionary treatments to employees. 	Purchasing Department HR, System Safety
4.b	<ul style="list-style-type: none"> • Assuming vaccines and/or antiviral medications were acquired either through state/local health departments or purchased on the open market, commence administering these precautionary treatments to employees. Priority should be given to those employees with the greatest exposure to high-density patron environments. 	HR to oversee process, affected departments to assist

Appendix G: Service reduction, shutdown and restoration outline

NOTE: The relevance of the outline may vary from agency to agency, and may change over time as knowledge progresses and information expands.

Service reduction

The following indicators will be monitored by Operations as potential service reduction triggers:

- Ridership
- Employee attendance
- Asset availability

Service levels will be adjusted as necessary, with the following anticipated progression:

- Shorten trains
- Drop certain train/bus runs from the schedule
- Adopt Saturday service schedule
- Adopt Sunday service schedule
- Shut down the system

Service reduction issues are anticipated to include the following:

- Labor contract language
- Employee welfare
- Development of work rules/guidelines regarding hygiene practices in the work environment

Service shutdown

Given the need to shut down service, the primary objective will be to execute an orderly, safe conclusion of service, which preserves district assets in a condition that will facilitate later service restoration.

Major tasks involved in the shutdown of the system consist of the following:

- Complete operations (complete final service runs and store all trains)
- Close stations/bus terminals
- Secure shop/yard buildings
- Recover all types of maintenance equipment
- Complete revenue pickup and processing
- Deploy property protection
- Establish communications and logistics plan for administrative work (possible coordination from home, individual office or other location as needed)

Initial shutdown of rail/bus operations

- Transportation will arrange for qualified personnel to complete service, including staffing of the Control Center.
- All revenue vehicles will be appropriately positioned in the yards at close of operations for the night.
- Notifications will be provided to the dispatch centers of other transit providers in the area.

Initial shutdown of train/bus maintenance

- Rail/bus operations will secure trains/buses in yards.
- Train/bus maintenance will inspect and key-off fleet
- Property protection will be provided by transit police, supported by other TA departments as necessary.

Initial shutdown of stations and shops

- Transportation will post personnel at stations/bus terminals and yard towers.
- Maintenance and Engineering will post personnel at maintenance shops and provide personnel for train control, power and mechanical, and computer support.
- Rail/bus maintenance will post personnel at each of the train/bus yards.
- Revenue collections will commence after station closing.
- Ongoing property protection will be provided by transit police.

Initial shutdown of TA training center and district offices

- The training center will be closed and secured upon receipt of a shutdown order.
- Managers of other district offices will evaluate their essential functions and either suspend work or develop contingency work plans as needed.
- Ongoing security will be provided by transit police.
- Special security provisions will be implemented at the TA main offices.

Property/assets protection

After the shutdown phase, Operations will run circulations trains to keep the system exercised. Operations staff will be assigned as follows:

- personnel for Control Center
- personnel for three circulation trains
- personnel for yard towers
- personnel for end-of-line storage locations
- personnel for shared-stations (i.e., with other transit agencies that are still operating)
- personnel for non-shared stations
- personnel for rail/bus maintenance support of circulation trains
- personnel for Maintenance and Engineering support of train control, power and mechanical, revenue collection and computer systems
- personnel for the Logistics Center

Property protection will be provided by the transit police department with the following support:

- Roving patrols by TA personnel to augment station/yard/shop checks
- Transportation to supply yard fire watch
- Rail/bus maintenance to supply shop fire watch

Restoration of service

In anticipation of service restoration, the following actions will be performed:

- Conduct complete system inspection before start-up. This will include track, train control, power, communications and ventilation systems.
- Inspect stations/bus terminals, including power and operational checks of all equipment and supplies (cash, tickets, schedules and brochures).
- Complete any repairs or maintenance identified during the start-up inspections.
- Inspect revenue vehicle fleet.

Service will commence after the aforementioned actions have been accomplished, and contingent upon approvals by the AGM of operations, chief of transit police and the chief safety officer.

Reference

Department of Homeland Security, *Pandemic Influenza Preparedness, Response, and Recovery: Guide for Critical Infrastructure and Key Resources*, 2006.

<http://www.flu.gov/professional/pdf/cikrpandemicinfluenzaguide.pdf>

Abbreviations and acronyms

AGM	assistant general manager
CEO	chief executive officer
COOP	Continuity of Operation Plan
CVRP	Contagious Virus Response Plan
IIPP	Injury and Illness Program Plan
M&E	maintenance and engineering
OCC	operations control center
RS&S	rolling stock and shops
TA	transit agency
WHO	World Health Organization
HR	Human Resources