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## Influenza Antiviral Shortages Reported by State and Territorial Public Health Officials, 2022-2023

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### Introduction

The Centers for Disease Control and Prevention (CDC) recommends prompt antiviral treatment of influenza in outpatients at increased risk of complications; severe, complicated, or progressive illness; and hospitalized patients.<sup>1</sup> Jointly with antiviral treatment, antiviral chemoprophylaxis is recommended to control influenza outbreaks in long-term care facilities.<sup>1,2</sup>

During the 2022-2023 respiratory viral season, US health care facilities and local health jurisdictions were strained due to early respiratory syncytial virus and influenza activity and the ongoing COVID-19 pandemic. There are no publicly available data on the supply and availability of influenza antivirals, but the CDC received reports from patients and

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pharmacists of limited availability of generic oseltamivir in several domestic locations. In December 2022, the CDC issued a health advisory that emphasized prioritizing oseltamivir treatment for hospitalized patients and outpatients at highest risk of complications.<sup>3</sup> In addition, for the first time, the US Department of Health and Human Services (HHS) Administration for Strategic Preparedness and Response allowed jurisdictions to utilize brand-name oseltamivir (Tamiflu) held in state or territorial stockpiles for pandemic influenza use and allowed jurisdictions without antiviral stockpiles to request Tamiflu that was originally reserved for pandemic influenza from the Strategic National Stockpile.<sup>4,5</sup>

Although temporary spot shortages of oseltamivir have occurred previously, there is scant information about such shortages, and additional data would help inform future public health responses. To understand influenza antiviral shortages, we assessed the extent of antiviral shortages and related actions taken by state and territorial public health partners during the 2022-2023 influenza season.

## Methods |

In collaboration with the Association of State and Territorial Health Officials, an online survey was administered to state and territorial public health preparedness directors (PHPDs) about shortages of influenza antivirals in their respective jurisdictions, actions in response to antiviral shortages, and use of state, territory, or national influenza antiviral stockpiles (Supplement 1). The survey was distributed to PHPDs and open for responses from January 31, 2023, through August 8, 2023. Responses were captured using a REDCap database and analyzed using descriptive statistics. This activity was determined by CDC to be public health surveillance, consistent with applicable federal law and CDC policy.

## Results |

The survey was distributed to 61 PHPDs representing state, territorial, and large independent metropolitan health departments. Among the 38 (62.3%) respondents, all 10 HHS regions were represented (Table). Of these, 20 (52.6%) reported local antiviral shortages, including at least 1 respondent in each HHS region. Reported antiviral shortages included different formulations of oseltamivir, baloxavir, and zanamivir. In response to antiviral shortages, 16 (42.1%) respondents reported promotion of influenza vaccination in their jurisdiction by clinicians or public health officials. Thirteen (34.2%) respondents reported influenza outbreaks during the influenza season in long-term care facilities in which oseltamivir was unavailable for treatment of symptomatic residents or prophylaxis of exposed persons.

Among 22 respondents who reported having state or territory stockpiles of antivirals for pandemic influenza, 10 (45.5%) reported deployment of stockpiled oseltamivir in response to those shortages. Among 15 respondents in jurisdictions without an antiviral stockpile, 7 (46.7%) reported requesting oseltamivir from the Strategic National Stockpile.

## Discussion |

Slightly more than half of PHPDs reported local influenza antiviral shortages during the 2022-2023 respiratory viral season, and many obtained these medications from state or

national stockpiles. It is possible that local antiviral shortages were due to earlier and higher than expected influenza activity in the 2022-2023 influenza season compared with the 2020-2021 and 2021-2022 influenza seasons,<sup>6</sup> with consequent higher demand for oseltamivir. This study's findings are limited because the survey was designed to be anonymous without collecting identifying information from respondents, and therefore, the specific jurisdictions where antiviral shortages were reported could not be determined. Also, not all eligible PHPDs responded to the survey. Local antiviral shortages reported during the 2022-2023 season highlight the need for ongoing efforts to monitor antiviral supply distribution nationally and locally and to ensure the availability of antivirals for mitigating seasonal influenza epidemics and influenza pandemics.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Data Sharing Statement:

See Supplement 2.

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Survey Results From State and Territorial Public Health Officials on Influenza Antiviral Shortages, 2022-2023<sup>a</sup>

Table.

Survey questions sent to 61 public health preparedness directors	No. (%) of respondents (n = 38)
US Department of Health and Human Services regions	
1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) (n = 6)	5 (13.2)
2 (New Jersey, New York, Puerto Rico, US Virgin Islands; and New York City) (n = 5)	3 (7.9)
3 (Delaware, Maryland, Pennsylvania, Virginia, West Virginia; and Washington, DC) (n = 6)	3 (7.9)
4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee) (n = 8)	6 (15.8)
5 (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin; and Chicago, Illinois) (n = 7)	4 (10.5)
6 (Arkansas, Louisiana, New Mexico, Oklahoma, Texas) (n = 5)	3 (7.9)
7 (Iowa, Kansas, Missouri, Nebraska) (n = 4)	2 (5.3)
8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming) (n = 6)	4 (10.5)
9 (Arizona, California, Hawaii, Nevada, US-affiliated Pacific Islands; and Los Angeles, California) (n = 11) <sup>b</sup>	5 (13.2)
10 (Alaska, Idaho, Oregon, Washington) (n = 3) <sup>c</sup>	3 (7.9)
Local antiviral shortages?	(n = 38)
Yes	20 (52.6)
No	15 (39.5)
Don't know	3 (7.9)
Specific antiviral drugs temporarily unavailable?	(n = 20)
Baloxavir tablets (Xofluza)	1 (5.0)
Oseltamivir pediatric suspension (generic or Tamiflu)	11 (55.0)
Oseltamivir capsules (generic or Tamiflu)	18 (90.0)
Zanamivir for inhalation (Relenza)	1 (5.0)
Peramivir for infusion (Rapivab)	0 (0.0)
Don't know	2 (10.0)
Increased promotion of influenza vaccination by clinicians or public health officials?	(n = 38)
Yes	16 (42.1)
No	8 (21.1)
Don't know	14 (36.8)
Oseltamivir shortages for controlling influenza outbreaks in long-term care facilities?	(n = 38)
Yes	13 (34.2)

Survey questions sent to 61 public health preparedness directors	No. (%) of respondents (n = 38)
No	7 (18.4)
Don't know	17 (47.4)
Antiviral stockpile in state or territory?	(n = 38)
Yes	22 (57.9)
No	15 (39.5)
Don't know	1 (2.6)
Antivirals included in state or territorial stockpile?	(n = 22)
Oseltamivir pediatric suspension (generic or Tamiflu)	3 (13.6)
Oseltamivir capsules (generic or Tamiflu)	22
Zanamivir for inhalation (Relenza)	6 (27.3)
Oseltamivir deployed from state or territorial stockpile?	(n = 22)
Yes	10 (45.5)
No	12 (54.5)
If no antiviral stockpile, was oseltamivir requested from the Strategic National Stockpile?	(n = 15)
Yes	7 (46.7)
No	7 (46.7)
Don't know	1 (6.7)

Abbreviation: CDC, Centers for Disease Control and Prevention.

<sup>a</sup>This activity was determined by the CDC to be public health surveillance, consistent with applicable federal law and CDC policy (45 CFR part 46.102(l)(2); 21 CFR part 56; 42 USC §241(d); 5 USC §552a; 44 USC §3501 et seq).

<sup>b</sup>US-affiliated Pacific Islands: American Samoa, Commonwealth of Northern Mariana Islands, Federated States of Micronesia, Guam, Republic of Marshall Islands, Republic of Palau.

<sup>c</sup>One state did not have a public health preparedness director during the survey period.