

# H1N1 Experiences Point to Control Strategies

BY MARY ANN MOON

FROM THE NEW ENGLAND JOURNAL OF  
MEDICINE

Strategies to control the spread of seasonal influenza outbreaks work to help curb influenza A(H1N1) outbreaks as well, suggest two studies conducted in Singapore and Hong Kong.

In the first report, standard containment strategies along with “ring chemoprophylaxis” were effective at controlling transmission of H1N1 in Singapore early in the course of the 2009 pandemic, according to Dr. Vernon J. Lee of the Singapore Ministry of Defense’s Center for Health Services Research.

In a separate report on the early H1N1 experience in Hong Kong, researchers found that in community households, the virus showed traits that were broadly similar to those of seasonal influenza A in transmissibility, viral shedding, and clinical illness.

While these findings have implications for future outbreaks, they do not necessarily “inform the success of potential containment efforts imple-

**Ring chemoprophylaxis entails containing a viral outbreak within a targeted geographic area surrounding an index case by administering a drug to everyone in the area.**

mented at the source of the next influenza pandemic or implemented to prevent the introduction of influenza into a community,” Dr. Timothy M. Uyeki of the Centers for Disease Control and Prevention, Atlanta, pointed out in an editorial accompanying the two reports (N. Engl. J. Med. 2010; 362:2221-3).

In the first study, Dr. Lee and associates described early H1N1 outbreaks in four military camps, including one military hospital. This is one of the first studies to document the real-world effectiveness antiviral “ring chemoprophylaxis” in a pandemic, they said.

“Ring chemoprophylaxis” entails containing a viral outbreak within a targeted geographic area surrounding an index case by administering a drug—in this case, oseltamivir—to everyone in the area, not just to known, close contacts. In this study, all members of the affected military units, where opportunities for contact were substantial, were included in prophylaxis effort, even though they did not fulfill standard criteria as close contacts. Larger “rings” of prophylaxis were established if cases developed in multiple units.

All personnel suspected of being infected were isolated in the hospital if they tested positive. All asymptomatic personnel in the same unit were screened 3 times per week using nasopharyngeal swabs and PCR testing plus symptom questionnaires and mon-

itoring of body temperature, until the outbreak subsided.

Such a strategy had the potential for intense transmission of the virus, similar to environments such as hospital wards, schools, and long-term care facilities. However, the “ring” approach based on spatial proximity brought an early halt to transmission, they noted.

Among a total of 1,175 personnel, a total of 82 confirmed cases of H1N1 virus

were documented during the 4 outbreaks. Only 7 of these patients (0.6% of the study population) developed symptoms after the prophylaxis program had begun; the remaining 75 had been infected before the intervention was implemented. The overall infection rate was 5.9%.

By comparison, the rate of influenza infection was 57% in another study of Taiwanese military recruits, 42% aboard

a U.S. Navy ship, 71% in a British boarding school, and 35% in a New York City school, Dr. Lee and his colleagues said (N. Engl. J. Med. 2010;362:2166-74).

“Our experience provides evidence that early case detection and the use of antiviral ring prophylaxis effectively truncate the spread of infection during an epidemic, giving empirical support to theoretical mathematical models,” they said.

## Easy to teach<sup>1</sup>

- Can be used in 6 straightforward steps

## Easy to use<sup>1</sup>

- Only long-acting insulin pen in which dose can be set from 1 to 80 units in 1-unit steps, dialed both up and down
- Once opened, Lantus<sup>®</sup> SoloSTAR<sup>®</sup> can be used for up to 28 days and is not refrigerated

## Easy to inject<sup>1</sup>

- Dose cannot be dialed past the number of units left in the pen
- It is important to keep the injection button pressed all the way in and to **slowly count to 10 before withdrawing the needle from the skin**. After a full injection, the number in the dose window will return to zero. These steps help ensure that the full dose has been delivered
- To help ensure an accurate dose each time, patients should follow all steps in the Instruction Leaflet accompanying the pen; otherwise they may not get the correct amount of insulin, which may affect their blood glucose

## Important Safety Information for Lantus<sup>®</sup>

### Contraindications

Lantus<sup>®</sup> is contraindicated in patients hypersensitive to insulin glargine or one of its excipients.

### Warnings and precautions

Monitor blood glucose in all patients treated with insulin. Insulin regimens should be modified cautiously and only under medical supervision. Changes in insulin strength, manufacturer, type, or method of administration may result in the need for a change in insulin dose or an adjustment in concomitant oral antidiabetic treatment.

Do not dilute or mix Lantus<sup>®</sup> with any other insulin or solution. If mixed or diluted, the solution may become cloudy, and the onset of action/time to peak effect may be altered in an unpredictable manner. Do not administer Lantus<sup>®</sup> via an insulin pump or intravenously because severe hypoglycemia can occur. Insulin devices and needles must not be shared between patients.

Hypoglycemia is the most common adverse reaction of insulin therapy, including Lantus<sup>®</sup>, and may be life-threatening.

Severe life-threatening, generalized allergy, including anaphylaxis, can occur.

A reduction in the Lantus<sup>®</sup> dose may be required in patients with renal or hepatic impairment.

### Drug interactions

Certain drugs may affect glucose metabolism, requiring insulin dose adjustment and close monitoring of blood glucose. The signs of hypoglycemia may be reduced in patients taking anti-adrenergic drugs (e.g., beta-blockers, clonidine, guanethidine, and reserpine).

### Adverse reactions

Other adverse reactions commonly associated with Lantus<sup>®</sup> are injection site reaction, lipodystrophy, pruritus, and rash.

## Indications and Usage for Lantus<sup>®</sup>

Lantus<sup>®</sup> is a long-acting insulin analog indicated to improve glycemic control in adults and children (6 years and older) with type 1 diabetes mellitus and in adults with type 2 diabetes mellitus. Lantus<sup>®</sup> should be administered once a day at the same time every day.

Important Limitations of Use: Lantus<sup>®</sup> is not recommended for the treatment of diabetic ketoacidosis. Use intravenous short-acting insulin instead.

Lantus<sup>®</sup> SoloSTAR<sup>®</sup> is a disposable prefilled insulin pen.

**Please see brief summary of full prescribing information for Lantus<sup>®</sup> on the next page.**

References: 1. Data on file, sanofi-aventis U.S. LLC. 2. Lantus Prescribing Information. September 2009.

“Aggressive prophylaxis may be justifiable ... to protect vulnerable populations such as frail or elderly residents of long-term care facilities or persons in closed or semiclosed environments such as schools, prisons, and military camps,” Dr. Lee and his associates added.

In the second study, Benjamin J. Cowling, Ph.D., of the University of Hong Kong, and his associates assessed both H1N1 and seasonal flu transmission among 99 index patients and their 284 contacts in 99 households throughout the city at the beginning of the pan-

demic.

Clinical illness was similar between H1N1 and the seasonal flu. The incubation period was estimated to be 3.2 days for H1N1, very similar to the 3.4-day incubation period for the seasonal flu. Also similar was the duration of viral shedding, which was 5-7 days for both infections.

The secondary attack rate—the rate at which household contacts acquired the virus from index cases—also was similar between H1N1 and seasonal flu. However, the initial attack rate, meaning the rate at which index cases became infect-

ed, was much higher with H1N1 than with seasonal flu, as was reported worldwide.

“This difference in attack rates could be associated with the lack of preexisting immunity against the pandemic influenza virus, rather than an inherent difference in transmissibility” between H1N1 and seasonal flu, Dr. Cowling and his colleagues pointed out (N. Engl. J. Med. 2010;362:2175-84).

Overall, their findings suggest that H1N1 flu and seasonal flu viruses “are associated with similar viral-load dynamics, severity of clinical illness, and trans-

missibility,” the investigators said. ■

**Disclosures:** Dr. Lee’s study was supported by the Singapore Ministry of Defense; the National University of Singapore; and the Singapore Agency for Science, Research, and Technology. Dr. Cowling’s study was supported by the National Institute of Allergy and Infectious Diseases (U.S.) and Hong Kong University. Dr. Lee’s associates reported ties to GlaxoSmithKline, Novartis, Adamas Pharmaceuticals, Baxter, MerLion Pharmaceuticals, Pfizer, and Wyeth.

For patients with diabetes using an insulin vial and syringe

# Take aim with the Lantus® SoloSTAR® pen

**Delivers 50% more insulin units per prescription for the same co-pay as a vial and syringe on most insurance plans**



Prefilled with Lantus®, the only 24-hour insulin approved exclusively for use once a day to help patients with diabetes aim toward glycemic control<sup>2</sup>

Once-Daily 24-HOUR  
**LANTUS® SoloSTAR®**  
 insulin glargine [rDNA origin] injection  
**STARring the #1-prescribed insulin<sup>a</sup>**

<sup>a</sup>Based on TRx data from IMS Health, NPA™ Monthly database, time period from May 2003 to March 2010.

sanofi aventis  
 Because health matters