

## **Are Patients with Malignancy More Prone to Swine Flu Complications? Current Status and Future Strategic Plans**

**Behnam Sabayan\*, Kamran Bagheri Lankarani\*\*†, Azadeh Vaghefikia\***

*\*Health Policy Research Center, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran*

### **Background**

Shortly after detection of a new emerging swine flu, H1N1, the World Health Organization (WHO) announced that the pandemic level of phase 6 had begun. This meant that the world would face the first infectious pandemic of the twenty first century. The unique nature of this type of influenza has led to more than 414,000 laboratory confirmed cases of H1N1 and greater than 6,000 deaths reported to WHO just 42 weeks after the onset of the pandemic.<sup>1</sup> One of the main concerns since the evolution of this event has been the determination of high risk groups which could develop swine flu complications such as hospitalization, intensive care unit (ICU) admission and death. Since this influenza has presented with some unusual behaviors and presentation in initial reports; such as a higher rate of hospitalization and death among younger people rather than the extremely young or elderly,<sup>2</sup> the prediction of underlying medical conditions which make patients more

susceptible for severe influenza complications has become confusing. It can be stated that recognition of the more susceptible populations provides us with invaluable information for establishing global, regional and national preparedness plans.

### **Current status**

Although some initial reports emphasized that the majority of cases did not have underlying co-morbid illnesses, current evidence indicates that a significant proportion of those hospitalized or who died as a result of swine flu did have chronic diseases.<sup>3</sup> Figures from studies and reports yet to be published demonstrate different types of underlying medical conditions, including immunosuppressive states such as immune suppressant therapy and cancer which can make patients more prone to develop swine flu complications leading to hospitalization and death. It seems that chronic lung disease, especially asthma, ranks first in the list of co-morbid illnesses

**†Corresponding Author:**

Kamran Bagheri Lankarani,  
MD, Health Policy Research  
Center, School of Medicine,  
Shiraz University of Medical  
Sciences, Shiraz, Iran  
Tel/ Fax: +98-711-2309715  
E-mail: lankaran@sums.ac.ir

**Table 1.** Information from studies which investigated immunosuppressive conditions in patient with swine flu.

Authors	Date	Location	Hospitalized cases	No. of deaths (%)	Males (%)	Patients with underlying medical conditions (%)	Patients with immunosuppressive conditions including cancer (%)
Janice K. Louie	April 23 and, August 11 2009	USA/CA	1088	118(11)	532(49)	741(68)	155(14)
Seema Jain	April - June 2009	USA	272	19(7)	140(51)	198(73)	40(15)
ECDC Weekly Surveillance Report	12-19 Oct Week 42/2009	European Countries	53	1(2)	25(47)	28(53)	4(8)
ECDC Weekly Surveillance Report	19-25 Oct Week 43/2009	European Countries	139	2(2)	63(45)	86(62)	12(9)*
ECDC Weekly Surveillance Report	25-31 Oct Week 44/2009	European Countries	169	7(4)	86(51)	86(51)	12(7)**

\*4 patients had cancer \*\*4 patients had cancer

that have been associated with hospitalizations and deaths however in other studies, other chronic illnesses have different rankings on the lists.<sup>4</sup> In the majority of available data, conditions associated with immune suppression have not been fully separated,<sup>4,5</sup> therefore we do not know which proportion of these patients belongs to cancer patients (Table 1). A few reports, such as the weekly surveillance report of the European Centre for Disease Prevention and Control (ECDC) released in October 2009, concluded that cancer itself had a significant role. For example, in the aforementioned report cancer was the second co-morbid disorder which leads to hospitalization following asthma.<sup>6</sup> On the other hand in a recently published report on epidemiologic features of fatal cases associated with H1N1 pandemics, approximately 47% of patients who died had an underlying medical disorder. Only 7.5% of the co-morbid illnesses included any immunosuppressive condition including five cases or 1% of mortalities, with a cancer diagnosis.<sup>7</sup>

## Conclusion

The current evidence, although limited and

not fully organized, implies that immune suppression can predispose patients to swine flu complications. Patients with malignancy suffer not only from immune suppression of both the disease and chemotherapy but they also have additional problems such as impairment of mobilization and self care.<sup>8</sup> In this setting the questions to be asked are: "What should be our strategy? Early vaccination? Changing our threshold for prescribing antiviral medication? Isolation of those patients from social activities?"

Clearly those with cancer should be informed more about hygienic precautions such as hand washing and health education can play an important role in disease prevention. It is recommended that physicians start oseltamivir as early as possible in suspected cases with underlying medical conditions. Such patients should avoid crowded places.

Vaccination of this high risk group might be attractive as a strategic plan, but it is not applicable even for developed countries. Unfortunately, the magnitude of the problem is much higher for developing countries such as Middle Eastern countries. Some countries lack a fully prepared health system and others cannot afford the costs

of vaccination and drug preparation.<sup>9</sup> Additionally, the Middle East countries, of which most of their inhabitants are Muslim, will probably face a second wave of swine flu during and after the Hajj pilgrimage.<sup>10</sup> This would be a matter of debate as to how we should allocate our limited facilities in order to handle these pandemics? Are patients with malignancies among our priorities for allocation of our resources? Furthermore, such patients might be at risk for the development of potential adverse reactions with a live vaccine.<sup>11</sup>

In conclusion, the importance of early detection of an H1N1 influenza infection, prompt treatment and close attention to cancer patients' hygiene should be considered by health care staff, health policy makers and patients' care givers.

## References

1. World Health Organization 2009 [cited 2009 Sep 29]. Available from: <http://www.who.int/feeds/entity/csr/disease/swineflu/en/rss.xml>.
2. Update: infections with a swine-origin influenza A (H1N1) virus--United States and other countries, April 28, 2009. Centers for Disease Control and Prevention (CDC). *MMWR Morb Mortal Wkly Rep* 2009;58(16):431-3.
3. 2009 pandemic influenza A (H1N1) virus infections - Chicago, Illinois, April-July 2009. Centers for Disease Control and Prevention (CDC). *MMWR Morb Mortal Wkly Rep* 2009;58(33):913-8.
4. Louie JK, Acosta M, Winter K, Jean C, Gavali S, Schechter R, et al. Factors associated with death or hospitalization due to pandemic 2009 influenza A (H1N1) infection in California. *JAMA* 2009;302(17):1896-1902.
5. Jain S, Kamimoto L, Bramley AM, Schmitz AM, Benoit SR, Louie J, et al. Hospitalized patients with 2009 H1N1 influenza in the United States, April-June 2009. *N Engl J Med* 2009;361(20):1934-1945.
6. European Center of for Disease Prevention and Control (ECDC) 2009 [cited 2009 Oct 3]. Available from: [http://ecdc.europa.eu/en/healthtopics/Pages/Influenza\\_A\(H1N1\)\\_Outbreak.aspx](http://ecdc.europa.eu/en/healthtopics/Pages/Influenza_A(H1N1)_Outbreak.aspx).
7. Vaillant L, La Ruche G, Tarantola A, Barboza P; Epidemic intelligence team at InVS. Epidemiology of fatal cases associated with pandemic H1N1 influenza 2009. *Euro Surveill* 2009 ;14(33). pii: 19309.
8. MacDonald V. Chemotherapy: Managing side effects and safe handling. *Can Vet J* 2009 ;50(6):665-8.
9. Kennedy A, Khoja TA, Abou-Zeid AH, Ghannem H, Ijsselmuiden C. National health research system mapping in 10 Eastern Mediterranean countries. WHO-EMRO/COHRED/GCC NHRS Collaborative Group. *East Mediterr Health J* 2008;14(3):502-17.
10. Lankarani KB. Hajj and swine flu pandemic (H1N1, 2009): What is expected and what should be done? *Iranian Red Crescent Medical Journal* 2010;12(1):4-6.
11. Cono J, Casey CG, Bell DM. Smallpox vaccination and adverse reactions. Guidance for clinicians. Centers for Disease Control and Prevention. *MMWR Recomm Rep* 2003;52(RR-4):1-28.