

*Full Length Research Paper*

# The cost of double standard risk communication during the swine-flu epidemic: Reflections from Norway

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Accepted 16 December, 2010

The pandaemia of swine influenza 2009 released a multitude of reactions and actions of public authorities and private enterprises. After the first announcement of a probable new epidemic in May 2009 WHO issued a pandaemia warning in June 2009. Norwegian health authorities reacted swiftly to the WHO recommendations and Norway became the first country opting for buying vaccines for the whole population. The background of the strategy in Norway is described using paper media communications and with reference to television broadcasts. The emanating maximizing and minimizing strategy followed by the Norwegian health authorities was followed. Tests of the swine flu virus were not performed on a scale sufficient to indicate the magnitude of the purported pandaemia. Both strategies were followed simultaneously. WHO indicated in June 2010 that hitherto 18 337 people died of the H1N1 influenza virus compared to some 500 000 from the common flu each year (Aftenposten 25<sup>th</sup> July 2010, p. 2). More than \$ 14 billion had been spent on vaccines and other medical tasks (> \$ 750 000 per fatality). In Norway the cost of 9.4 mill. doses of vaccines bought was equivalent to \$ 3.7 mill. per fatality in 2009. An initial communication of immense risk and purchase of two vaccine doses for the total population led to rationing of vaccines when people subsequently wanted them. The cost of this decision was far above accepted limits for resource spending on health care. This was followed by communicating a small risk of infection for most of the population. Experts exposed differing views on the developing epidemic. Risk communication from high decision levels was inadequate. Strategies for handling emerging high risk epidemics must be developed and applied in order to reduce fear in the population and huge costs to society.

**Key words:** Swine influenza, pandaemia, risk communication, cost effectiveness of public health.

## INTRODUCTION

Strategies for curbing communicable diseases are well developed and exercised, but new infections may not be handled in a cost efficient and supporting way for the public at risk. However, effective remedies are available and logistics may function according to needs in developed countries. During the early face of a pandaemia relevant information may be hard to get as shown in a study by Norgaard and Lazarus (2010). Using PubMed as a source they found that only 27.8 records out of 44.3 potential records per week were relevant. Search strategies are sensitive to inconsistent naming or changing nomenclature. If a pandaemia occurs, the risk for health care professionals at work, especially in hospitals, could increase. Hospital effectiveness may thus, be hampered (Damery et al., 2009). In some areas of the world access to and delivery of vaccines are

restricted because of socio-economic, logistic or religious disparities.

Persons with influenza like virus diseases have been treated with prophylactic vaccines at a voluntary basis each year in Norway, that is, the common flu or seasonal influenza. The death toll for a population of 4.7 million inhabitants has been fluctuating between less than hundred and 250 per year. Vaccination of elderly and immune-depressed people has been recommended. The vaccines have been given free of charge for patients in institutions and rest homes. Generally, doctors and nurses giving the vaccine did not always get themselves vaccinated. Many employers, within healthcare organizations and in private companies have offered the vaccine to employees, in order to curb sickness absence when getting ill. The death toll of the common flu is

not much referred to in media, whereas the new influenza with 29 persons certified deceased during 2009 in Norway, was intensely focused in media (Table 1).

Healthcare workers wanting to keep up to date consult information sources of differing quality and quantity, from scientific journals to public internet information sites. There are some evidence that prestigious journals which are associated with publications of papers partly funded by industry. There is no straightforward relation between study quality, concordance, funding and impact in studies of influenza vaccines (Jefferson et al., 2009). The director general of World Health Organisation (WHO) Dr Chan recently dismissed the allegations of influence over decisions at WHO from the pharmaceutical industry during the first face of the pandemic (Zaracostas, 2010). The British Department of health renegotiated the initial deal over swine flu vaccine order when it turned out that much less was needed (Mayor, 2010).

A study of influenza pandemic preparedness has indicated low interest among many employers (Watkins et al., 2007). Another survey during the swine flu pandemic showed an increased perceived risk (Seale et al., 2010). The survey measured perceived risk, seriousness of disease, recent behavioural changes and acceptance of the vaccine in 627 respondents. When asked how much affected you would be 61.4% indicated somewhat affected. 57.7% thought the authorities were doing a good job and half the respondents thought that getting the flu would be out of their control. Washing of hands was increased in half the respondents. There was a greater willingness of taking the vaccine among women compared to men.

Risk communication is thus difficult. The general public may have difficulties understanding standard epidemiological jargon. For instance, the difference between relative and absolute risks is not understood by many. In an online survey of 1290 US adults respondents from larger households reported stronger interest in taking medications and stick to hygienic measures (Ibuka et al., 2010). Perceived risk increased over time, but interest in pharmaceutical preventive measures and in precautionary hygienic activities decreased over time. A high risk in the state did not predict greater interest in pharmacological interventions. Five hundred parents indicate a willingness to vaccinate against swine-flu if they had previously let their children be vaccinated (Flood et al., 2010).

Generally, they would follow the advice of the GP. Among parents who did not usually let their children get vaccines 44% even stated a perception of the vaccine giving influenza. Cowling et al. (2010) sampled 12,965 Hong Kong residents in a telephone survey between April and November 2009 (Cowling et al., 2010). Respondents reported low anxiety levels throughout the epidemic. Perceived severity was initially high, but declined during the epidemic. Knowledge of modes of transmission did not increase during the epidemic. Community mitigation

activities had little effect. Paradoxical risk perception was observed in the urban population of Laos as a result of an educational campaign against the avian flu (Barennes et al., 2010). After the campaign, the urban population considered risk to be decreased and unsafe behaviour increased. In the rural areas producing poultry, the reaction was opposite.

Health professionals should be able to evaluate epidemiological and biological research. In a web-based survey of 947 health-care workers in Australia 59% were not convinced that Australia was sufficiently prepared for the swine-flu (Tebruegge et al., 2010). A third person would refuse to participate in screening suspected individuals. Almost half of the group had a private supply of vaccines, and only half of the group had a realistic estimate of the mortality associated with an influenza epidemic. The sheer magnitude of people involved in an epidemic is not properly comprehended. Knowledge about risk communication is limited or the practical application of it is clumsily handled (Moore et al., 2008).

A pandemic has to be met by sufficient and effective countermeasures. However, a choice must be made between preemptive fast reactions on the basis of assumptions in the early face of an epidemic, and fact-based reactions resting on more information. Some would argue that a combined approach would be necessary, but such a strategy could be bewildering for the public (Cornier et al., 2009). The observation of the strategy followed by Norwegian authorities and its ensuing cost as depicted in newspapers and non-scientific journals was the aim of the present commentary.

## MATERIALS AND METHODS

The materials of this study were newspaper and broadcasted information of recommendations from the health authorities. The newspapers and journals read were both Norwegian and European. The strategy of the World Health Organisation (WHO) emanated from some of the media references. The communicated recommendations and facts were analyzed using a framework of a dichotomized strategy of risk minimization and maximization as followed by the Norwegian health authorities. A list of the articles from newspapers and periodicals used in the work may be obtained from the author

## RESULTS AND OBSERVATIONS

Data on the spread of common flu and swine flu in Norway and USA during 2009 are depicted in Table 1. The figures are not exact, as no country does test all who would have clinical signs of influenza, and post-mortem investigations are few and results not always reliable for viral diseases. Swine-flu is a new version of influenza disease which has affected more young than old people. Thus, it is suggested that the data for the case of swine-flu would be more correct than those for the common flu.

**Table 1.** Approximate death toll from common influenza and the swine-flu in 2009 in Norway and USA.

	Norway*	Norway Per 100,000 population	USA#	USA Per 100,000 population
Swine-flu	29	0.62	8330 -17160	2.71 – 5.60
Common flu	100	2.13	36000	11.73

\*) Folkehelsa (State Institute of Public Health), #) Center of disease control and prevention.

**Table 2.** Number of tests for swine flu virus (H1N1) and rhinovirus and percentage of positive tests according to month of testing in Norway.

	H1N1 tests	H1N1 % positive tests	Rhinovirus tests	Rhinovirus % positive tests
August 2009	544	3.5	123	39.8
September 2009	440	0.7	67	56.7
October 2009	521	25.3	92	46.7
November 2009	1267	39.8	114	32.5

**Table 3.** Two strategies for risk communication to the population during an epidemic.

<b>Strategy 1: Minimize risk perception and calm the population</b>	<b>Strategy 2: Maximize risk perception and keep the population alerted</b>
Buy vaccines at same level as for the common flu	Front edge strategy: Order and buy vaccines for the whole population (for vaccination twice)
Face mask use discouraged	Face mask use enhanced through free delivery
Keep schools open	Close schools and kindergartens
Vaccination according to narrowly defined risk groups	Open vaccination of politicians and senior health officials first
Doubts about effectiveness of vaccination among virologists	Dissuade hugging in schools
The economic impact of the swine flu is small	

Some 900 000 Norwegians were allegedly infected. 2.2 million inhabitants got the vaccine. 1300 persons were remitted to hospital and 200 received intensive care. Laboratory testing was initially recommended, but laboratory capacity was not sufficient and the authorities soon recommended not testing of persons without serious signs of disease. General practitioners sent the samples to the laboratory. The percentage of positive tests among those tested is shown in Table 2.

### How did the Norwegian health authorities meet this challenge?

Over time, the health authorities and health care politicians gave disparate and changing information, both according to scope and content. Two different paradigms of information can be summarized as in Table 3:

i. Pandaemia with less health effects than the seasonal

influenza will develop, strategy 1 in Table 3. This point, if true, would not generate a need for other actions than in a normal seasonal influenza year. No intervention would be recommended in schools and hospitals, and recommendations for vaccination would be the usual weak and immunosuppressed groups of patients. But early observations indicated a substantial mortality rate in younger age groups than for the well known seasonal influenza. One might suppose that, the health authorities would be afraid of being condemned as reckless if they maintained the advice of strategy 1, especially if media wrote extensively on the first child dying in the early face of the epidemic. This was the case in some of the newspaper articles listed below. The Norwegian health authorities appeared on TV and radio informing the public on both strategies depicted in Table 3, often within the same five minute broadcast.

ii. Pandaemia with serious health effects will develop strategy 2 in Table 3. According to this strategy there is a

need for harsh measures and immediate action. This was demonstrated in Norway by a very rapid decision. The government bought 9.4 million doses of the vaccine under development, that is, enough to vaccinate the whole population twice. The price was 69 NOK = \$ 11 per dose, that is, \$ 108 mill. Early indications from WHO suspected a need for two vaccinations in every person under risk. As far as we know no other country did order so many vaccines.

Some members of the medical profession were interviewed in the media exposing recommendation with unclear epidemiological meaning. Like stating that women should not get pregnant during the epidemic, although a risk in early pregnancy was not documented, and the uncertainty introduced by such a statement would make life intolerable for some. Especially if inadvertently getting pregnant during the epidemic. Information regarding putative actions in schools, rest homes and kindergartens had a double standard. One day no actions were advocated, the next day closing of schools was recommended. Vaccination of health workers was initially done only in emergency medical units, not in emergency psychiatric units, not taking into account that persons with serious psychiatric illnesses would constitute a greater risk of getting infected or spreading the infection to others. By maximizing risk perception before enough vaccines were available, large queues and aggressive incidents occurred at general practitioner offices.

## Conclusions

The consequences of uncertain and dispersed advice from health authorities and its reception in media were:

1. Huge costs of ordering swine flu vaccine at a time when it was not even put into production in order to secure delivery before other countries came up with a decision. WHO has indicated that hitherto 18 337 people died of the H1N1 influenza virus compared to some 500 000 who die of the common flu each year (Aftenposten 25th July 2010, p. 2). More than \$ 14 billion has been spent in the World on vaccines and other medical tasks (> \$ 750 000 per fatality). The Norwegian cost of 9.4 mill. vaccine doses in 2009 is equivalent to \$ 3.7 mill per fatality that year.
2. Untoward buying of two vaccines per person at risk. This turned out to be unnecessary. The cost could thus have been the half of the above mentioned.
3. Creating havoc at vaccine offices, general practice offices and some hospitals as people rushed to get a rationed good.
4. Vaccination of health workers in a sequence ignoring the risk of acutely ill persons with mental disorders. Only health workers caring for acutely somatically ill persons were initially vaccinated. No compulsory vaccination of any group was instituted. Top health authorities and

members of the government got priority vaccinations.

5. Trust in health authorities reduced. Both the general public and medical and other experts had difficulties following and understanding advice given.
6. The death toll of common flu is according to data from 2009 about four times higher per 100,000 inhabitants than for the swine flu (Table 1).
7. The media coverage contributed to two strategy initiatives focusing on the few severe illness episodes and the organization of distributing a rationed good.

Risk communication must be based on knowledge and given to the public in an understandable and coherent way. Standard explanations of risk models should be available to all media as soon as an epidemic or other catastrophes occur, and they should be produced and ready in the relevant public relation offices of the health authorities. It would be difficult and probably unreliable what journalists themselves could produce at short notice. If media could run such pre-made broadcasts instead of repeating stories on extreme cases, both the public and health authorities would be able to absorb the different messages of Table 3 in a meaningful manner. Some newspaper articles (Vårt Land 17.11.09) indicated that the vaccine producing companies had a very strong negotiating power at the start of the epidemic, maybe contributing to the huge costs incurred.

## ADDENDUM

After the main work with this paper was done reports have been published showing uncertainty regarding the decision on buying the vaccines (Aftenposten 23.10.10). Three levels of the health authorities disagree on who was responsible for the decision.

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