

## **Pandemic Influenza: Current disaster**

We will start this discussion by briefly outlining the aetiological basis of influenza followed by a description of the epidemiological trend of current influenza pandemic in Scotland using the information provided by HPS (Health Protection Scotland), Scotland. Then there is a word about the Scottish government's framework to quash the impact of influenza. A concise list of some challenges and areas is stated thereafter where paying attention might be worth. At last the argument is concluded by emphasising that it's unfair to confer that the pandemic is hyped and health sector must carry on its efforts

Influenza (flu) is a viral disease caused by influenza viruses (A, B and C) belonging to orthomyxoviridae family of RNA viruses. Influenza like illness (ILI) and acute respiratory illness (ARI) is quite common in winters (winter flu) and is a result of known strains of virus attack. Pandemic occurs due to the emergence of a new strain of Influenza 'A' virus (recent pandemic is due to H1N1v) with little or no pre-existing immunity exists amongst people. This leads to its spread more effectively and quickly over large geographical areas.<sup>[1,2]</sup> Here the common symptoms of cough, fever, chills, malaise and generalized body ache are far more severe and clinically significant.<sup>[1,2]</sup> It is transmitted directly via droplets (person to person) or indirectly by touching virus contaminated surfaces.<sup>[1,3]</sup>

In Scotland flu rate surveillance is routinely carried out by Fluspotter, SERVIS (Scottish Enhanced Respiratory Virus Infection Surveillance) and PIPeR (Pandemic Influenza Primary Care Reporting scheme) but the recent pandemic outburst caused cessation of Fluspotter and introduction of Sentinel swabbing scheme, H1N1v confirmed hospitalized cases and death rates for monitoring trends though timely surveillance can be improved.

HPS publishes its influenza update report on a regular basis and enlightens the latest epidemiological trend of influenza in Scotland. The pattern of daily GP consultation rates for ILI and ARI by NHS board based on 984 practices across Scotland since August 2009 showed an increase until November end (2009) followed by a decline in early December. Again a small peak was noticed by the month end. Similar diminishing pattern since November 2009 was observed via PIPeR and NHS 24 cold/flu calls as well.<sup>[4]</sup>

If we specifically focus on Influenza 'A' H1N1v trend there was a constant reduction in

swab positivity at sentinel GP practice since November 2009. As of 15<sup>th</sup> March (2010) 1514 cases of confirmed H1N1v were admitted to hospitals amongst all age groups resulting in a total of 69 deaths due to H1N1v infection. Majority of the illness and death occurred in individuals who suffered from chronic respiratory ailment or diabetes and possessed an immunocompromised status. The highest death toll was observed at NHS Greater Glasgow and Clyde.<sup>[4]</sup>

A preliminary H1N1v vaccine was administered as a preventive measure amongst high risk population and its cumulative uptake rate was 57% (aged 65 and over), 54.5% (aged less than 65 including pregnant women) and 46.7% for pregnant women separately.<sup>[4]</sup> This can further be enhanced as stated by a research that incentive based voluntary vaccination might be helpful in achieving necessary critical coverage.<sup>[5]</sup> Another study on the same guidelines suggests that population based pre-pandemic vaccines may be helpful in reducing infection attack rates.<sup>[6]</sup> Also pregnant women despite their high vulnerability for influenza infection impose challenge for health personnel because of their reluctance to uptake vaccine as well as medication perceiving ill foetal effects.<sup>[7]</sup>

Scottish government has a definite framework for pandemic influenza and it's meant for officials who are developing management policies. It was designed in March 2007 keeping in mind Scotland's geographical location, its population structure and resources available. Its main aim is to prevent and limit the spread of pandemic as well as provide protection against influenza complications both at individual and community levels.

The strategies devised here follow the UK committee's ethical framework for pandemic influenza keeping personal and professional interest of population in mind. The structures such as Cabinet sub-committee on civil contingencies, Emergency Action team etc are expected to implement plans. Diagnostic investigations are carried out at National Influenza Research Lab in case of detection of any new unusual virus in Scotland. Despite that there is still scope to ameliorate as far as quick identification and sharing epidemiological evidence is concerned.<sup>[8]</sup>

Some of the actions include international travellers screening, pre pandemic vaccination, antiviral medication, closure of schools and group children settings etc.<sup>[8]</sup> As a whole all these conscientious efforts help in minimising

the impact of influenza pandemic this time and it wasn't as catastrophic as the previous ones. So far old age and children (less than 15 years) are targeted as high vulnerable groups for influenza illness but a cross sectional study collecting samples before and after 2009 pandemic found that there was some pre-existing immunity amongst elderly individuals this time around. On the contrary almost one third of the children got infected in high incidence areas and this was almost ten times greater as estimated by previous surveillances before. As a result it was recommended that children should be targeted more profusely from now on to quash infection spread in future.<sup>[9]</sup>

It is a known fact that health care worker (HCWs) are under immense pressure during a pandemic outbreak and they are more prone to infections than anyone else. They are concerned about infecting their families and close ones creating dilemma in their minds about continuing work. This might affect their output quality posing challenge for the managerial staff to take notice of their agitation and provide them hassle free environment for work.<sup>[10]</sup>

Evidence from the previous pandemics suggest that cause of death from influenza isn't informative enough to pinpoint a particular aetiology but bacterial pneumonia was one of the strong contenders especially amongst immuno compromised and elderly individuals with chronic respiratory ailments. This affirmation as stated by a study can be used to tackle pandemic influenza as viral-bacterial copathogenesis and interventions should prioritise prevention, diagnosis, prophylaxis and treatment of secondary bacterial pneumonia as well along with antiviral vaccination and medication.<sup>[11]</sup>

Ancillary workers of poultry units (e.g. slaughterers and catchers etc) and veterinarian staff (e.g. Animal Health Agency, Meat Health Service etc) are vaccinated routinely for influenza but since the outbreak of Avian flu there has been considerable debate about the extent of risk exposure. Owing to their occupational exposure they form a link of virus transfer between humans and animals causing zoonotic virus spread in communities and vice versa. As a result it's fair enough to categorize them as priority target group.<sup>[12]</sup>

Though Scottish government has clear guidelines about high risk and target groups but it's sometime demanding to identify them in local populations during pandemic outburst. Similarly vaccine distribution to state and locality during that phase is quite difficult and different from individual vaccination as well.

Issues such as maintenance of a consistent and continuous communication amongst all sectors, educating health personnel, disseminating unbiased information to people via media etc are yet to be sorted completely.<sup>[13]</sup>

"The threat of pandemic flu has been much hyped but is not a major public health problem and never will be again in Scotland".

From a historical perspective the cataclysmic impact of the three influenza pandemics so far equips us to take it seriously. The 1918 Spanish Flu was the first one and its impact was undoubtedly hazardous but can be argued that it belonged to pre modern medication era. But the 1957: Asian Influenza (H2N2) and the 1968: Hong Kong Influenza (H3N2) were pretty much part of modern virology and global coordination era and the consequence of each one of them is devastating.<sup>[14]</sup>

And if we analyse the global of seasonal influenza it is estimated to cause severe disease amongst 3-5 million people and 250 000- 500 000 deaths annually.<sup>[15]</sup> More specifically in Scotland 5 - 10 % of the population are affected by influenza each year during seasonal winter outbreaks which can shoot up to 20% in epidemic years (last one in 1989/90).<sup>[16]</sup> This is the routine scenario and pandemic is expected to be at least three folds more catastrophic than this.

Despite enormous media coverage and public health efforts not much difference was observed in people's demeanour towards influenza as elicited by a cross sectional study conducted across England, Scotland and Wales during current pandemic. They have anticipated that there would be increased anxiety and frequency of hand washing and less outing to public places. But no significant change was observed for anyone of the above mentioned presumptions and in fact 62% people didn't alter themselves at all.<sup>[17]</sup>

As a whole keeping in mind the impact of past influenza pandemics, the usual seasonal influenza mortality around the globe, the general populations behaviour and attitude towards influenza along with the fact that the current influenza epidemic is less severe, it can be said that the threat isn't hyped and public health implications are mandatory for delivering a healthy future in Scotland.

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