

Pandemics, pestilence and plague. Are health care professionals prepared to work in infectious disease environments?

Introduction

Throughout history, nurses and other health workers have delivered care to those suffering infectious disease, often at significant risk to their own health. All societies from antiquity to the present day have been fearful of infection and humanity has always been filled with trepidation and in awe of the inevitable threat of pestilence and disease. The Christian bible is littered with references to this fear. For example, when the Pharaoh refused to let the captive Israelites leave Egypt for the Promised Land, Moses called upon God to send 10 plagues on Egypt. It was the 10th plague that finally forced the pharaoh's hand and acquiesce to Moses demands

“And death will come to every mother’s first male child in all the land of Egypt, from the child of Pharaoh on his seat of power, to the child of the servant-girl crushing the grain; and the first births of all the cattle. (Exodus 11.5)”

Later, as Moses leads the Israelites through the wilderness to the promised land of Canaan many years are spend living in temporary camps, and as with refugee camps in contemporary times, infection flourished. In the book of Numbers God instructs Moses to:

“Command the people of Israel that they put out of the camp everyone who is leprous or has a discharge and everyone who is unclean through contact with the dead. (Numbers 5.2)”

It is the frequent citing of the words “leper” and “unclean” throughout history, which conveys public attitudes towards, and fear of infectious disease. For example in the Old Testament book of Leviticus God instructs Moses about how to manage leprosy.

“The leprous person who has the disease shall wear torn clothes and let the hair of his head hang loose, and he shall cover his upper lip and cry out, ‘Unclean, unclean.’ He shall remain unclean as long as he has the disease. He is unclean. He shall live alone. His dwelling shall be outside the camp. (Leviticus 13.45)”

Modern day infectious disease

Since biblical times plagues, pestilence and pandemics have continued to erupt in societies with the middle ages seeing the arrival of the Black Death, further bubonic plague in the 17th century and Spanish influenza, which killed 50 million people in the early 20th century. In this current millennium as with the self-scouring flagellants who appeared during the Black Death, shroud wavers have predicted worldwide pandemics and outbreaks of avian influenza and swine influenza, neither of which have had anything like the impact of earlier pestilences. Despite this, the Hollywood movie industry continues to reflect the public’s fascination and horror of infectious disease especially when linked to biological warfare. It is however the emergence of Ebola which has captivated the attention of the public worldwide. Ebola haemorrhagic fever (EHF) (also known as Ebola virus disease or EVD) has reported mortality rates of up to 88% .making EHF one of the deadliest diseases known to humankind thus far, exceeding the kill rate of the Black Death in the middle ages.

<https://web.stanford.edu/group/virus/filo/history.html>

Ebola haemorrhagic fever is a serious contagious disease, which can be transmitted through direct contact with the infected organs or body fluids of living or dead infected persons and animals. The Ebola pandemic of 2014 in East Africa has thus far killed over 4,500 people which is actually far less deaths than that caused by seasonal influenza in England and Wales during the winter of 2014.

<http://www.nhs.uk/news/2013/11November/Pages/Excess-winter-deaths-rose-by-a-third-last-winter.aspx>

Dr Alan Gasper is Professor of Children’s and Young People’s Nursing within the Faculty of Health Sciences at the University of Southampton.

Are nurses and other health care professionals prepared to care for patients with highly contagious diseases?

A number of African health care professionals have already died of Ebola in the line of duty while caring for infected patients. It is therefore timely for health care professionals to remind themselves of the personal dangers of delivering care to infected fever patients. This is especially poignant following the admission of adult nurse William Pooley to the Royal Free Hospital in London, after being flown to the UK by a military aircraft after contracting Ebola haemorrhagic fever whilst working as a volunteer nurse in Sierra Leone.

<http://www.theguardian.com/society/2014/sep/09/william-pooley-ebola-sierra-leone-outbreak-epidemic>

William survived Ebola and is planning to return to East Africa, to continue his caring role in Sierra Leone. Although the eyes of the world are focused on the unfolding events in Africa, closer to home it is the 2014 flu plan initiative by the Department of Health in conjunction with NHS England and Public Health England, which is noteworthy for its ambition to increase flu vaccine uptake among frontline health care workers.

As autumn slowly merges into winter, the first signs of seasonal illnesses begin to appear. Runny noses and sore throats herald the increased incidence of the common cold during the autumn and winter months but Influenza a much more malevolent virus is also prevalent during the same period. Deaths from Influenza in England and Wales were 21,497 for the 1999-2000 influenza season (Donaldson et al., 2010) and disappointingly nearly 50% of frontline health and social care workers failed to avail themselves of the Flu vaccination.

In doing so, they put themselves and their patients in danger of infection and the 20/14/15 Flu Plan has been designed to tackle the issue of non-compliance among health care workers who fail to immunise themselves against flu infection.

Every year Public Health England publishes a collection of information entitled the "Green book". This book of information about infectious disease is designed to help health care professionals keep abreast of new developments within the field of infectious disease.

<https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book>.

The Green Book recommends annual influenza immunisation for health workers directly involved in the care of patients or clients.

Seasonal influenza which unlike Ebola, is transmitted by droplet infection primarily affects the respiratory tract and impacts on susceptible people such as the elderly, people with long term conditions and the very young. Flu can be a serious illness and in susceptible people, there is a risk of them developing illnesses that are life threatening. In certain situations, flu may prove fatal and Glasper (2011) cites the Swine Flu epidemic of 2009, which infected 540,000 people and caused many deaths in the UK.

Although often overlooked it is health care professionals working on the front line of care delivery that are particularly at risk of contracting influenza. Such workers who are involved with direct patient care are highly vulnerable to contacting influenza and should avail themselves of the annual flu vaccine to protect themselves and the patients they care for. Many argue that influenza vaccination of frontline health care staff should be mandatory and this has been considered in some countries. For example, Isaacs and Leask (2008) provide evidence, which shows that vaccinating frontline health staff who care for the inpatient elderly protects them against influenza. However, this same paper also reports that a 2004 North American Hospital initiative to introduce mandatory influenza vaccination for healthcare workers resulted in over 600 complaints by nursing staff. Despite this, immunization uptake within this same hospital rose from 56% to 96%. It needs to be stressed that unimmunized health care workers pose a threat to their patients.

Currie (2012) portrays an insightful assessment of fever nursing, once an important field of practice of the nursing profession, which was developed in the nineteenth century and was part of the original General Nursing Council's register of nurses (part 9 of the register). After the success of antibiotics in the post war years and a belief that this specialised area of nursing was redundant, the fever nursing part of the register was closed.

<http://discovery.nationalarchives.gov.uk/SearchUI/details/C6416-general-nursing-council-for-england-and-wales--details>

In the context of changing and emerging viruses like Ebola and potential avian influenza and possibly biological weapons, Currie (2012) questions the demise of both the fever nurse and the fever hospital.

Increasing seasonal influenza vaccination among health care workers to meet the challenge of caring for infectious patients.

In the absence of mandatory immunisation, strategies to promote immunisation against flu must be pursued with vigilance. Clearly, there are some groups of health professionals who should be vaccinated against seasonal influenza both for their

own defense and to protect their patients, many of whom will be highly vulnerable. Of interest in 2012, a Royal College of Nursing (RCN) Congress resolution, which stated:

"That this meeting of RCN Congress asks Council to lobby for all nursing staff and students to be required to have an annual flu vaccination and for it to be provided free of charge"

failed to be accepted and after debate over 90% of the congress delegates did not support the resolution

http://www.rcn.org.uk/newsevents/congress/2012/submit_an_agenda_item/12_flu_jabs_for_all

It was Florence Nightingale first stated the mantra of modern health care

"It may seem a strange principle to enunciate as the very first requirement in a Hospital that it should do the sick no harm" (Nightingale 1863).

In contemporary practice, health care regulators such as the Nursing and Midwifery Council, have a primary mission

"to safeguard the health and wellbeing of the public by ensuring that nurses and midwives consistently deliver high quality healthcare"

(<http://www.nmc-uk.org/About-us/Our-vision-mission-and-values/>)

Although it would be inconceivable for any health care professional to deliberately infect a vulnerable patient, it should be recognised that frontline workers such as nurses are highly susceptible because of their increased exposure, to contracting influenza when compared to members of the public.

Undoubtedly, some may unintentionally become both a harbinger and a vector of influenza for patients, colleagues and members of their own families. Additionally when health workers take sick leave because of influenza, they can contribute to a staffing crisis within a health care institution, which further puts patients at risk. Importantly National Health Service can deal effectively with the winter pressures caused by seasonal illnesses, but high levels of sickness leave among key health worker groups can put a strain on the ability of individual institutions to deliver optimum care standards.

Crucially were seasonal flu outbreaks to reach pandemic proportions as seen in previous years the ability of the NHS to provide a national service could well be put in jeopardy.

The 2014 seasonal influenza policy initiative from the Department of Health aspires to raise the issues of non-compliance with the aim of achieving higher levels of immunisation among health care staff. A key component of the flu plan is "Flu fighter" which is an initiative by The NHS Employers organization, which works closely with England, and the Department of Health to improve levels of flu immunization among NHS staff. It is important to stress that uptake of flu immunization by NHS frontline staff achieved its highest level of 55 per cent in 2013/14 but much more needs to be done to encourage further uptake

<http://www.nhsemployers.org/campaigns/flu-fighter>

How can health professionals help improve flu immunisation?

There are many misconceptions about the flu vaccine and health care professionals can deride these by promoting the following messages, which stem from the 2014/15 government flu plan.

<https://www.gov.uk/government/publications/flu-plan-winter-2014-to-2015>

- It is the duty of health care professionals such as nurses to do everything in their power to protect patients against infection, including being immunised against flu.
- Self-protection, patient protection and personal family protection can be enhanced by flu immunisation.
- All citizens are vulnerable to seasonal influenza even when in good general health but frontline health and social care staff are particularly vulnerable especially those whose job brings them into direct contact with sufferers.
- Importantly the flu vaccine is safe and effective and despite myths cannot cause flu. When health care professionals avail themselves of the vaccine, it encourages others to follow suit.

Conclusion

Infectious disease will always threaten human kind, and diseases such as Ebola and seasonal infections such as flu can be fatal in certain groups. Health care professionals can minimise the risk to themselves and their patients by availing themselves of vaccines such as that offered annually to protect against flu. Immunisation to flu is free for most target groups but can be purchased for not more than £12 in most pharmacies.

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