



Mission of the HKICNA: promulgating infection control best practice in health care organization and the community.

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Respiratory Protection for Healthcare Workers: Are N-95 Respirators and Fit Testing Necessary?

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Introduction:

Respiratory protection has become a highly visible and controversial area since criteria for respirators were outlined in the 1994 Centers for Disease Control and Prevention (CDC) Guideline for the Prevention of Transmission of Mycobacterium tuberculosis in Healthcare Facilities (1). The publication of these

criteria was followed by the certification and subsequent recommendation of N95 respirators for protection of healthcare workers from M. tuberculosis. With this recommendation came the requirement for healthcare worker respirator fit testing programs (2). Before the 1994 TB guideline, the Occupational Safety and Health

18th AGM : online registration coming up by Mid October 2007

Administration (OSHA) and the CDC's National Institute for Occupational Health and Safety (NIOSH) had not issued specific recommendations for respiratory protection for healthcare workers or enforced general regulations for respiratory protection of workers in general (previously enforced for industrial and manufacturing settings). It is critical that those outside the United States responsible for making recommendations for respiratory protection for healthcare workers better understand how the current U.S. healthcare worker respiratory protection recommendations were made. In particular, it is critical to understand: 1) the circumstances that led to the first respirator recommendations for healthcare workers in the United States; 2) the U.S. Federal Agencies that formulate those recommendations; 3) the methods used by these Agencies to derive these recommendations, and 4) the scientific evidence that support or refute those recommendations.

The U.S. Federal Agencies and Respiratory Protection Programs:

In the United States, OSHA, a Federal Agency in the Department of Labor, has legal authority for worker protection. Such protection includes regulation of respiratory protection of workers, including healthcare workers. OSHA, which has for many years regulated worker protection in non-healthcare settings, such as mines and manufacturing plants where they protect workers from chemicals and fumes, had not been applied respiratory protection standards in healthcare settings until the United States experienced multidrug-resistant *M. tuberculosis* (MDR-TB) outbreaks in the early 1990s (3-8). Prior to these outbreaks, masks (not certified by NIOSH) had been recommended for protection of healthcare workers against infectious agents (9-11). At the time of these MDR-TB outbreaks, many healthcare workers, particularly those in non-patient contact positions and their unions, were concerned that they were at risk of *M. tuberculosis* infection in healthcare settings and that adequate respiratory protection was not being mandated for them. As a result, OSHA established the Tuberculosis (TB) Standard in 1992. This Standard required the use of N95 respirators

(or higher levels of protection) for protection of healthcare workers from *M. tuberculosis*. In addition, the Standard required that healthcare workers be fit tested to insure that the respirator fit well.

NIOSH Respirator Certification Program:

When making respirator recommendations, the OSHA works closely with the CDC's NIOSH, the U.S. Federal Agency that certifies respirators. By certifying respirators, NIOSH tests and documents that the specific respirator will filter particles of a specific size, depending upon the level of the respirator. NIOSH only certifies respirators; that is they do specified testing of different types of respirators, evaluate their filtration characteristics, and certify what size and per cent of particles of various sizes that the respirators will filter. Such testing is not designed for masks and NIOSH does not test or certify masks. For example, an N95 respirator is certified to filter 95% of particles >0.3 microns in size. Since, NIOSH does not certify masks (such as surgical masks) and OSHA must recommend a NIOSH-certified respirator, OSHA would never recommend masks for healthcare worker respiratory protection, even if published data showed they are as protective as a NIOSH-certified respirator. NIOSH certifies three levels of filter efficiency, 95%, 99%, and 99.97% and three levels of filter resistance to efficiency degradation (N, R, and P). Thus, there are a total of 9 classes of filters.

OSHA Respirator Programs:

OSHA is the U.S. Federal Agency that develops Standards that regulate worker's safety and health, including those in healthcare settings. The Respiratory Protection Standard (29 CFR 1910.134) includes a wide variety of topics including: permissible practice; definitions; respirator program; selection of respirators; medical evaluation; fit testing; use of respirators; maintenance and care; breathing air quality and use; identification of filters, cartridges, and canisters; training and information; program evaluation; recordkeeping; dates; and appendices of fit testing procedures, user seal checks, cleaning procedures, and medical questionnaire. The standard defines two different

respirator types: air purifying which removes contaminants before reaching the breathing zone and atmosphere supplying which provides fresh air from an external source. High efficiency particulate air filters (HEPA) are defined as filters that have at least 99.97% efficient in removing mono-dispersed particles 0.3 micrometers in diameter; equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters. A negative pressure respirator is one in which the air pressure inside the face-piece is negative during inhalation with respect to the ambient air pressure outside the respirator. An air purifying respirator uses a blower to force the ambient air through air-purifying elements to the inlet covering.

In the United States, OSHA's Respiratory Protection Standard applies to physicians or other licensed health care professionals. OSHA requires a respirator program for healthcare workers. The respirator program must include a written program with work-specific procedures when respirators are needed, a program administrator, and the employer must provide respirators, training, and medical evaluations at no cost to the employees. The respirator program elements include: selection, medical evaluation, fit testing, use, maintenance and care, breathing air quality and use, training, and program evaluation. For selection of respirators, the employer must select and provide an appropriate respirator based on the respiratory hazards to which the worker is exposed and workplace and other factors that affect respirator performance. The respirator must be selected from a NIOSH-certified respirator. A medical evaluation to determine the employee's ability to use a respirator must be provided before fit testing and use. Before an employee uses any respirator with a negative or positive pressure tight-fitting face-piece, OSHA requires that the employee must be fit tested with the same make, model, style, and size of respirator that will be used (using an OSHA-accepted protocol). Employees must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) before initial use, whenever a different respirator face-piece is used and at least annually thereafter. In addition, fit testing must be conducted whenever there are changes in the employee's physical condition (e.g., facial

scarring, dental changes, cosmetic surgery, or obvious changes in body weight) that could affect respirator fit. The QLFT uses a challenge agent, vapor, or aerosol. Fit is inadequate if a presence of the agent is detected (irritation, taste, or odor). The QNFT uses an actual measurement of the level of the agent both inside and outside the respirator. The fit test must be administered using an OSHA-accepted QLFT or QNFT protocol. For the QLFT, isoamyl acetate, saccharin, bitrex, or irritant smoke is used. For the QNFT, a generated aerosol (corn, salt or DEHP), condensation nuclei counter, or controlled negative pressure is used. Using the QNFT a fit factor can be estimated; this is a quantitative estimated of the fit of the particular respirator to a specific individual. The fit factor is a ratio of the concentration of a substance in the ambient air to the concentration of a substance inside the respirator.

Respirator Selection:

To select the correct respirator for protection against particulates, OSHA and NIOSH require that the following conditions must be known: the identity and concentration of the particulates in the workplace air; the OSHA permissible exposure limit (PEL), the NIOSH recommended exposure limit (REL), or other occupational exposure limit for the contaminant; the hazard ratio (HR) (i.e., the airborne particulate concentration divided by the exposure limit); the Assigned Protection Factor (APF) for the class of respirator (the APF should be greater than the HR); and the immediately dangerous to life or health (IDLH) concentration, including oxygen deficiency. Multiplying the occupational exposure limit by the APF for a respirator gives the maximum workplace concentration in which that respirator can be used. Many of these levels/factors can be determined for chemicals, but are not known for infectious agents.

In most industrial settings, OSHA and NIOSH have used a respirator selection logic (RSL) process to provide guidance to respiratory program administrators on respiratory selection. Such an RSL was used in 1994 to arrive at the respiratory protection recommendations for M. tuberculosis. To use this selection logic, the user

must first assemble the necessary toxicologic, safety, and other relevant information for each respiratory hazard, including the following: general use conditions, including determination of contaminant(s); physical, chemical, and toxicological properties of the contaminant(s); NIOSH-recommended exposure limit (REL), OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), State-OSHA exposure limit, American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Limit (WEEL), or other applicable occupational exposure limit; expected concentration of each respiratory hazard; immediately dangerous to life or health (IDLH) concentration; oxygen concentration or expected oxygen concentration; eye irritation potential; and environmental factors, such as presence of oil aerosols. For most infectious agents, many of these factors are unknown.

In 1987, NIOSH published the NIOSH Respirator Decision Logic (RDL). Since then, the OSHA has promulgated a revision to their respirator use regulation (29CFR1910.134 published on January 8, 1998), and NIOSH has promulgated the revised respirator certification standard (42CFR84 on June 8, 1995). The 2004 NIOSH RSL specifically states that “this RSL is not intended to be used for selection of respirators for protection against infectious agents or for chemical, biological, radiological or nuclear (CBRN) agents of terrorism. While respirators can provide appropriate protection against these agents, the information necessary to use the selection logic is generally not available for infectious disease or bioterrorism agents (e.g., exposure limits, airborne concentration” (NIOSH Publication No. 2005-100: NIOSH Respirator Selection Logic 2004). Thus, many of the mainly theoretical aspects of respirator selection, including the RSL are not appropriate for application to infectious agents in healthcare settings.

Science vs. Regulation: Is N95 Fit Testing Required?

In the United States, OSHA and NIOSH have

regulatory powers and legal authority to make respirator recommendations and require use of fit testing whenever a respirator is used to protect a healthcare worker. However, in contrast to industry or manufacturing workers with exposures to chemicals, as mentioned above, often the data needed to determine which respirator or respiratory protection device filtration capacity is needed for infectious agents to which healthcare worker might have exposure are not available. In such instances (and thus most healthcare setting recommendations), the respirator recommendations often are made using the worst case scenario, such as that one particle of the agent will cause infection and death, rather than in-use data that might document that a non-NIOSH certified respiratory protective device, such as a mask, might be effective in preventing healthcare worker infection. Current OSHA policy permits the use of a Part 11 HEPA filter or any Part 84 particulate filter for protection against *M. tuberculosis*. On December 31, 2003, OSHA announced that it would apply the general respiratory protection standard to healthcare facilities and that this would require annual fit testing. This includes OSHA applying the General Industry Respiratory Protection Standard to respiratory protection against *M. tuberculosis*. However, on December 9, 2004, President Bush signed the Omnibus Appropriations bill (fiscal year 2005 spending bill) in which the U.S. Congress stated that the fit testing requirement cannot be enforced by OSHA in healthcare settings and that OSHA is not to use any FY2005 funds to enforce the fit testing sections of this Standard in healthcare settings.

What Respiratory Protection Works for Protection from *M. tuberculosis*?

M. tuberculosis is the most common airborne pathogen to which healthcare workers throughout the world are exposed. Furthermore, the *M. tuberculosis* outbreaks in the United States led to the enhancement of and enforcement of OSHA respiratory standards to healthcare workers (3-11). Thus, *M. tuberculosis* transmission to healthcare workers is a perfect situation to evaluate whether the evidence supports either the use of N95 respirators or the need for

fit testing. Numerous studies were conducted in the 1990s documenting that the use of dust-mist or dust-mist-fume respirators are effective in protecting healthcare workers from becoming infected when taking care of patients with *M. tuberculosis* (9-11). Neither these respirators nor N95 respirators were worn during the period when the MDR-TB outbreaks in the healthcare settings were occurring (3-8). Dust-mist or dust-mist-fume respirators rather than N95 respirators were worn by healthcare workers during the intervention period when the MDR-TB outbreaks were terminated and these respirators protected healthcare workers from becoming infected with *M. tuberculosis* (9-11). In addition, several surveys documented that most U.S. healthcare workers wore dust-mist respirators (or equivalent masks) during their care of TB patients and that their risk of *M. tuberculosis* infection was low (12-13). Thus, the in-use science documents the efficacy of dust-mist respirators or equivalent non NIOSH-certified masks in protecting healthcare workers from becoming infected with *M. tuberculosis*. In fact, most data from U.S. hospitals show that the risk of acquiring *M. tuberculosis* infection is higher in the community than while the healthcare worker is in the hospitals setting (12-13). In all of these examples of use of dust-mist respirators to prevent *M. tuberculosis*, no fit testing program existed or was required, yet the healthcare workers were protected. Similarly, even when N95 respirators were initially widely introduced, most healthcare workers were not fit tested.

Does Fit Testing Predict In-use Protection and is it Worth the Cost?

A number of studies have documented that the various QLFTs or QNFTs used vary in their ability to predictive good respirator fit and protection (14-18). In one study comparing three commercially available fit test QNFT methods, demonstrated that (1) the apparent performance of any fit-test depends on the reference method used, and (2) the fit-tests evaluated use different criteria to identify adequately fitting respirators (19). Even in laboratory studies, there has been variation in the ability of fit testing to predict protection. (14-18). Thus, a variety of very

complicated QNFT procedures have been developed by NIOSH; it is not clear that any of these procedures would be practical for use in healthcare settings (14-18). In fact, the rationale for the protocols for QNFT that have been developed are not available and there are few data available to describe the effect or effectiveness of the fit test exercises currently specified in the respiratory protection standards. In one study, the method of exercise used in the fit test had a marked impact on the outcome of the test (single vs. multiple respirator donning and bend over vs. talking exercise) (20). Thus, it is not surprising that most studies of in-use protection, fit testing has not been predictive of the ability of the respirator to protect workers even in the industrial setting. In one study of the ability of the fit test to predict worker protection in the pharmaceutical industry, found a 69% failure rate of the respirators in use (21). Respirator failure was not associated with frequency of use, years of experience using a respirator, respirator training in the current or previous job.

Several conclusions can be derived from existing data: 1) that QLFT not predict respiratory protection as well as QNFT; 2) that even QNFT can be quite complicated and vary in their ability to protect the worker; 3) that both QNFT and QLFT add substantial extra expense to the respirator protection program (22); 4) few, if any, studies have evaluated the value of QLFT in predicting healthcare worker protection and 5) education of healthcare workers in the appropriate way to don respirators can significantly enhanced QLFT results (23). With all these uncertainties, the scientific data do not support routine fit testing for healthcare workers.

What Respiratory Protection is Needed for Severe Acute Respiratory Syndrome (SARS)?

Since the first identification of SARS, we have witnessed an explosion in the expansion of science relating to SARS. First, the etiologic agent of SARS, a novel coronavirus, was identified using a combination of diagnostic methods, including virus isolation, electron microscopy, histology, and molecular and serologic assays (24). A variety of studies were performed to evaluate transmission,

particularly after the CDC initially recommended N95 respirators and suggested airborne transmission. Isakbaeva et al evaluated potential transmission from seven laboratory confirmed SARS-CoV infected persons and their 10 household contacts and found that only one possible transmission to a household contact may have occurred (as the person had traveled to a SARS affected area) (25). Seto et al evaluated what respiratory protection is necessary to prevent SARS-CoV transmission to healthcare workers (26). At five hospitals in Hong Kong, a case-control study was performed and healthcare workers were surveyed about their personnel protective equipment use ([PPE], i.e., masks, gowns, gloves, and hand hygiene [four measures], as recommended by contact and droplet precautions). They compared 241 non-infected healthcare workers to 13 SARS-CoV-infected healthcare workers; all healthcare workers had documented exposure to 11 patients with SARS. When all four PPE measures were implemented, 69 healthcare workers had exposures and none became infected. With the omission of >1 measure, all 13 healthcare workers with exposures became SARS-CoV-infected. In logistic regression analyses, only masks (of any type, not just N-95 or greater) were associated with protection. It was concluded that: a) droplet and contact precautions were adequate to significantly reduce the risk of transmission of SARS-CoV and b) the protective role of masks suggests that, in hospitals, SARS-CoV is transmitted by droplets. Only indirect and somewhat circumstantial data were used to assess the temporal and spatial distribution of SARS patients from the Amoy Gardens housing complex in Hong Kong; data suggested the possibility of a rising plume of contaminated ward air (27). However, an accompanying editorial raised the possibility that we need to think of airborne transmission of infectious agents as obligate, preferential or opportunistic; the later being what happened at the Amoy Gardens and being a rare event (28). Three studies evaluated the risk of transmission of SARS-CoV to household members or healthcare workers (29-31). In Pennsylvania, a person with SARS exposed 26 household members and none became infected (29). In

Taiwan, five patients with SARS exposed 223 healthcare workers (many with unprotected exposures); only one physician seroconverted and he had used a surgical mask for respiratory protection (30). Park et al evaluated 110 healthcare workers with exposure to laboratory-confirmed SARS-CoV patients who had exposures within three feet of six patients (31). Of those exposed, 45 healthcare workers used no mask, 72 used no eye protection, and 40 healthcare workers had skin contact. No healthcare workers became infected. These data suggest that airborne transmission is rare if ever, that the SARS coronavirus does not have transmission characteristics consistent with an airborne transmitted pathogen, but rather is spread by contact and/or droplet transmission, and that simple masks (in addition to N95 or higher respirators) would protect healthcare workers from SARS infection.

Conclusion:

In the United States, respiratory protection programs are regulated by two Federal Agencies (OSHA and NIOSH). Many aspects of these programs are based upon estimates (e.g., REL), laboratory data, or are entirely theoretical in nature, particularly when applied to infectious agents, and are not based on data derived from respirator use in hospital settings. It is inappropriate to extrapolate or apply industry and/or manufacturing respiratory protection programs and respirator standards to healthcare workers, particularly with workers who desire scientific evidence to support the recommendations and not just assumptions, theoretical algorithms, formulae, and conclusions ignoring in-use data. In the United States, respirator recommendations are confused and complicated by the requirement that OSHA only recommend a NIOSH-certified respirator. NIOSH does not certify masks and therefore cannot evaluate, consider, or recommend the respiratory protective device commonly used by healthcare workers in the hospital setting. Similarly, there are no specific data documenting that respirator fit testing is needed in healthcare settings or that it enhances protection from the few infectious agents that are transmitted via the airborne route.

Those in international healthcare facilities or regulatory agencies who are responsible for making respirator and fit testing recommendations for healthcare workers, should objectively evaluate the existing scientific evidence, particularly assessing the risk, the agents involved and their documented mode of transmission, the appropriateness of the respirator type, and whether fit testing performed in an artificial setting (i.e., classroom) and using artificial exercise (talking or walking) rather than the tasks the healthcare worker will be doing while wearing the mask, really predicts or enhances healthcare worker protection. Until such data exist, fit testing should not be required of healthcare workers who don respirators.

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Respiratory Syncytial Virus (RSV) outbreak : Visitor is a Potential Vehicle

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Introduction

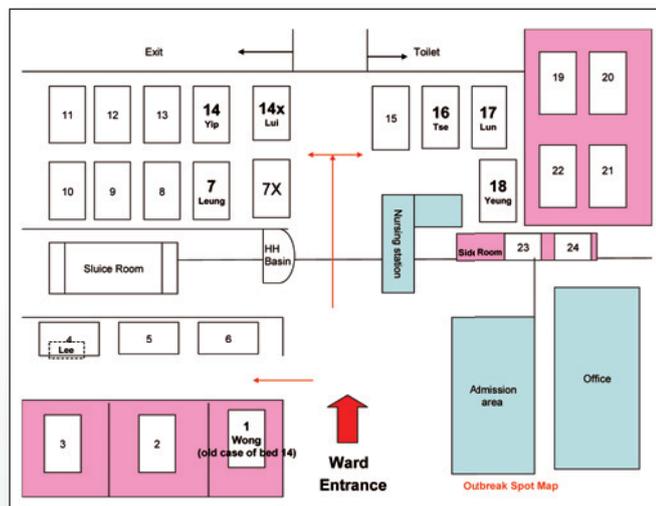
Respiratory syncytial virus (RSV) is a common cause of childhood bronchiolitis and pneumonia and most children have serologic evidence of RSV infection by 2 years of age. RSV is highly contagious and easily spreads from person to person via respiratory droplets, close contact with infected persons or contact with contaminated surfaces or objects, via sharing food, toys or drinking utensils. The usual incubation period is 4 to 6 days (ranges from 2 to 8 days). In Hong Kong, RSV infection occurs mainly in spring and summer months (Lo & et al 1994, Chan & et al 1999).

The body does not develop complete immunity to the virus, and infection can occur repeatedly. RSV infections cause flu like symptoms : stuffy or runny nose, sore throat, wheezing and coughing, low-grade fever, and ear ache. Majority of the children (98.4%) presented with cough locally (Chan & et al 2007). Most children recover within 8 to 15 days. Severe disease may occur at any age, particularly among the elderly, premature babies under 6 months and in infants with chronic lung, heart, or immune problems.

Outbreak Investigation

The Infection Control Team was informed of case cluster of respiratory illness in a paediatric surgical ward on Feb 26. Record review, line listing of cases, site visit and staff interview were carried out. The ward was crowded with bed spacing less than 3-feet (Figure 1). Staff routinely wears surgical masks during Flu season and none of them reported respiratory symptoms.

(Figure 1) Outbreak spot map



(Table 1) : Epidemic Curve of the RSV Outbreak showing the Symptoms Onset Date

No.	3	2	1	Date
3				20/2
2				21/2
1				22/2
				23/2
				24/2
				25/2
				26/2
				27/2
				1/3
				2/3

*family members with respiratory symptoms Δ domestic helper with respiratory symptoms
italics = attended by visitors of other patients

↓
Date Alert
ICT

The first case (baby Wong) was confirmed by both immunofluorescence & culture for RSV from nasopharyngeal aspirate and had onset of symptoms on Feb 23. Subsequent investigations revealed another laboratory confirmed case (baby Lee in bed 4) with earlier symptoms which started on Feb 20 (Table 1).

Case definition:

Patients presenting with one or more of the symptoms of runny nose, sore throat, cough, fever and laboratory evidence of RSV infection (by immunofluorescence and /or culture)

A total of 8 patients fulfilled the case definition, with age ranged from 1-17 months old. Six cases had prolonged hospitalization (from 6 weeks to 16 months), the other 2 were admitted for more than 10 days. The predominant symptom for seven cases was cough.

Further interviews showed that three families had recent respiratory illness. The domestic helper of baby Wong had severe cough and acute respiratory symptoms. She had frequent visits to baby Wong, and also attended baby Yeung without the permission of ward staff.

(Table 2) Patient Line Listing

Bed No.	Patient name	Sex / Age	Date of adm.	symptom onset date	Lab result NPA for RSV	Remarks
Bed 1	Wong (1st +ve case)	F / 10m	18/12/2006	23/2 cough & sputum	23/2 RSV +ve. 2/3 RSV -ve.	Domestic helper cough. Care Leung (Bed 7).
Bed 4	Lee	M / 79 days	17/2/2007	20/2 Runny nose & cough	25/2 RSV +ve. 5/3 RSV -ve.	Daily home-leave, URTI noted on 23/2. Mom noted to have mild cough on 6/3, advice mask.
Bed 7	Leung	F / 3m	5/11/2006	25/2 cough & desaturation	25/2 RSV +ve. 5/3 RSV +ve. 8/3 RSV -ve.	
Bed 14	Yip	F / 40 days	18/1/2007	25/2 cough, sputum & spike fever	25/2 RSV +ve. 5/3 RSV -ve.	Frequent home-leave & elder sister had URI at home.
Bed 16	Tse	M / 7m	12/7/2006	24/2 cough & sputum	25/2 RSV +ve. 5/3 RSV +ve. 8/3 RSV -ve.	Mother was a frequent visitor to Wong (old bed 14)
Bed 17	Lun	M / 11m	16/1/2007	24/2 cough 25/2 fever	25/2 RSV +ve. 5/3 RSV +ve.	Clinically frequent vomiting & cough. Mother is friendly with Tse's (Bed 16) mom & shared meal together.
Bed 18	Yeung	M / 4m	4/10/2005	21/2 Runny nose 26/2 Runny nose + fever	26/2 -ve. Repeat 27/2 NPA RSV +ve. 5/3 RSV -ve.	15/2 - 17/2 home-leave. Mom had URI.
Bed 14x	Lui	M / 17m	9/2/2007	25/2 cough	25/2 -ve. 2/3 RSV +ve. 5/3 RSV +ve. 8/3 RSV +ve.	25/2 Only cough & afebrile. 25/2 NPA -ve. Condition deteriorated, 2/3 cough & Desaturation.

Infection Control Measures for Outbreak Situation

- Cohorting / isolation applied with droplet & contact precautions. Designated equipment offered to suspected cases.
- Thorough environmental disinfection by the hospital cleansing team
- Ward entrance controller was assigned and visitors were limited with advice on hand hygiene & mask wearing.
- Ward was closed to new admission
- Discharged patients were given with discharge advice letter
- Computer management system (CMS) alert code activated for all exposed contacts during the surveillance period
- Contact tracing of the whole ward was performed
- Medical surveillance for 10 days to search for further cases

Outcome

Two babies developed respiratory distress requiring intensive care, one of them was put on mechanical ventilation. All babies gradually recovered. There was no secondary spread. The ward resumed normal service after the surveillance period.

Discussion

A definite source could not be identified in this outbreak. Several potential risk factors were observed. There was an oversight of patient clinical conditions. Most of the patients were long-stay cases, 5 of them had chronic chest problems with frequent cough that masked the index of suspicious. Clinically stable patients were frequently given home-leaves and could potentially acquire infections from the community. Infection control monitoring on visitors was difficult. Parents / visitors of these long term patients built up friendship and offer to take care of each other's babies, promoting the risk of cross contamination / infection.

Infection Control Implications

1. High vigilance in flu season.
2. Prompt implementation of infection control measures when respiratory symptoms of infectious origin are suspected.
3. Isolation and cohorting of symptomatic patients, in particular for those with identified pathogens.

- Education to visitor is essential. Staff should raise the infection control awareness of visitors, remind them of personal and hand hygiene, mask wearing and, preferably, refrain from hospital visit if they have respiratory symptoms.

Conclusion

Our investigation suggested that this outbreak is likely to be associated with visitors or community- acquired cases returned from home leaves. Nosocomial spread of RSV infection can be reduced by visitor education, strict adherence with droplet and contact precautions including cohort nursing, gown and glove wearing and hand hygiene.

References

- DCW Chan, WK Chiu & PLS Ip. Respiratory Syncytial Virus and Influenza Infections among Children ≤ 3 Years of Age with Acute Respiratory Infections in a Regional Hospital in Hong Kong HK J Paediatr (New Series) 2007;12:15-21
- Janice Y. C. Lo, Wilina W. L. Lim and Anita F. Y. Yeung. Respiratory syncytial virus infection in Hong Kong, 1990-91. J Hong Kong Med Assoc Vol.46, No., March 1994; 42-45
- PKS Chan, RYT Sung, KSC Fung, M Hui, KW Chik, FAB Adeyemi-doro & AF Cheng Epidemiology of respiratory syncytial virus infection among paediatric patients in Hong Kong: seasonality and disease impact. Epidemiology and Infection (1999), 123: 257-262

News and Information

A. Congress / Symposium :

- 18th SHEA (Society for Healthcare Epidemiology of America) Annual Meeting
5-8 April, 2008 Orlando, Florida USA <http://www.shea-online.org>
- 18th European Congress of Clinical Microbiology & Infectious Diseases
19-22 April , 2008 Barcelona, Spain <http://www.akm.ch/eccmid2008>
- 26th Annual Meeting of European Society for Paediatric Infectious Diseases (ESPID)
14-16 May , 2008 Graz, Austria <http://www.kenes.com/ESPID>
- 2008 National Annual Education Conference by Community and Hospital Infection Control Association (CHICA) :
29 May – 5 Jun , 2008 Montreal, PQ , Canada <http://www.chica.org>
- APIC (Association for Professionals in Infection Control & Epidemiology) 35th Annual Educational Conference
15-19 June 2008 Colorado, Denver, USA <http://www.apic.org>
- 13th ICID (International Congress on Infectious Diseases) by International Society for Infectious Diseases
19-22 June, 2008 Kuala Lumpur, Malaysia http://www.isid.org/13th_icid

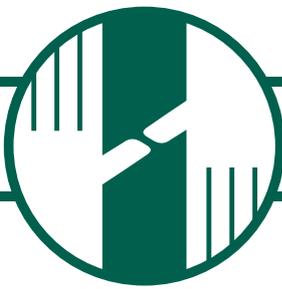
B. Guidelines

- CDC Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007
http://www.cdc.gov/ncidod/dhqp/gl_isolation.html
- WHO Interim guideline on Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care (2007)
http://www.who.int/csr/resources/publications/WHO_CD_EPR_2007_6/en/index.html

C. Course

Course	Duration	No of participants
Infection Control Course for Nurses	3rd September -5th November 2007	185

Starting from this course, HKICNA initiates to put the course materials onto our home page for course members' access.



D. Sponsorship

An exercise sponsoring members participating APSIC congress in Malaysia was organized in April 2007. There were 10 full (\$6000) and 13 regular (\$3000) sponsorships approved. Full sponsorship has been granted to those who submitted abstracts to the congress.

If application for reimbursement has been sent and the check does not reach you by 30th September 2007, please visit home to contact us. Failure to submit documents as required will result to unsuccessful reimbursement.

E. Research Grant Application 2007-2008

There was NO application received.

F. 18th Annual General Meeting : 24th November 2007

The coming Annual General Meeting has scheduled on 24th November 2007 (Saturday). The registration will be available online in October 2007. Please visit our home to register and enjoy yourself at the happy gathering.

G. NEW E-mail : hkicna@hkicna.org and PO box- 89336 Kowloon City

HKICNA has moved to a new e-mail : hkicna@hkicna.org while the old one (hkicna@hotmail.com) was discontinued already. Besides, our PO box has been moved to P.O. Box 89336, Kowloon City Post Office, Kowloon, while the old one (~~99089~~) was discontinued.

H. Newsletter

1. Submission

This newsletter welcomes articles related to prevention and control of infection like surveillance & etc. You are welcome to share your valuable data and report with us. Please visit our website for details of submission.

2. Subscription

This newsletter is free to all members. To remind members to renew membership, a note will be sent by March for those whose membership was expired in the preceding year. If the membership has not been renewed before the coming September yet, the free subscription of this newsletter will be discontinued in the September issue.

J. Acknowledgement : ICN Ms CHOW Sin-Cheung (RH) & Amy SIT (TPH)

Ms CHOW & Ms SIT have resigned recently. HKICNA has to acknowledge their contributions and wishes them all the best in their future endeavours.

K. Congratulations

A CMC CQI project "Quality Improvement on Infection Control in Developmental Disabilities Unit (DDU)" was awarded an "Excellence Project" in the Patient Safety / Quality Medical Care Project category of the Asian Hospital Management Awards 2007. There were 282 competitors from 75 hospitals in 17 countries. CHEERS.

A photo of award presentation - (From left to right) : Mr. Andrew YEUNG (GMN); Ms. Betty AU YEUNG (APN, Q&RM) ; Ms. Florence YEUNG (WM, DDU) & Ms. Annie LEUNG (NS, ICT).

