



CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA



CAPRISA IS A UNAIDS
COLLABORATING CENTRE
FOR HIV PREVENTION RESEARCH

TB Infection Control (any airborne infection)

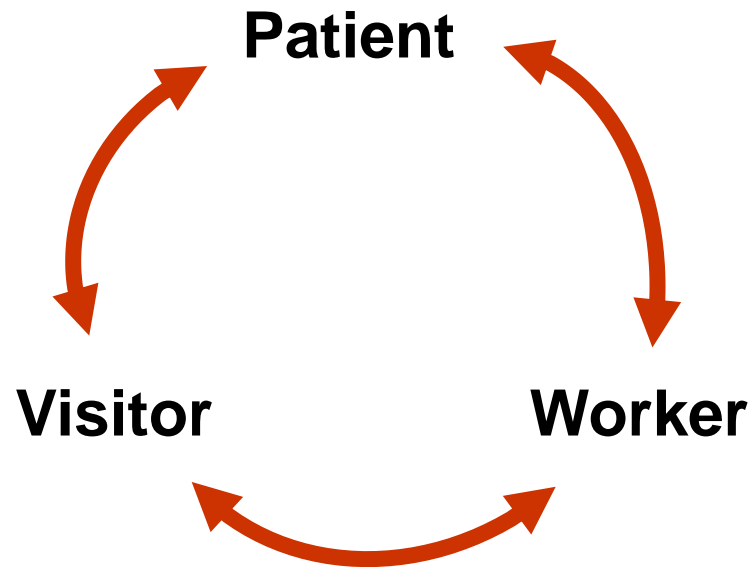
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Presented at AWACC on 1 October 2009

What is Infection Control?

Reduce the risk



TB infection control begins outside the health facility

- Active case finding
 - Find more cases of active TB and treat them earlier
 - People living with HIV must know if they have TB
- IPT
 - Reduce reactivation of latent TB in those individuals who do not yet have active TB
- Civil Society: Fighting stigma – TB and HIV care/treatment literacy is key

HIERARCHY OF IC and AIMS

- **Administrative controls:** to reduce risk of exposure, infection, and disease through policy and practice
- **Environmental (engineering) controls:** to reduce concentration of infectious bacilli in air
- **Personal Respiratory protection:** to protect those who are exposed to contaminated air

Administrative Controls

- Patients
 - Rapid diagnosis
 - Delays in obtaining results
 - Adherence support
 - Encourage completion of treatment – user friendly service
 - SMILE
 - call patients by name
- HCW
 - HIV test and treat
 - TB surveillance
 - IPT
 - Smear negative TB
 - Train HCW to better manage both smear-positive and smear-negative TB
 - Carry out investigations in parallel rather than in sequence

Health education

Cough etiquette and respiratory hygiene

Cover your cough



- When coughing or sneezing, use a tissue to cover your nose and mouth
- Dispose of the tissue afterwards
- Wear a surgical mask, if possible

Wash your hands



- After coughing, sneezing or blowing your nose, wash your hands with soap and water
- Use alcohol-based liquids, gels or wipes if you do not have access to soap and water

Remember hand washing is the single most effective way to reduce the spread of germs that cause respiratory disease.

Always use paper and synthetic or respiratory infection, regardless of the illness, should be instructed to cover their nose and mouth when coughing or sneezing, use tissues to contain respiratory secretions, dispose of tissues into waste receptacles, use soap and water to wash hands.



IMPORTANT NOTICE TO ALL PATIENTS

Please tell staff immediately if you have flu symptoms

凡有感冒或流鼻水、喉痛、發燒、咳嗽、喉痛、氣喘、嘔吐、腹瀉等症狀，請立即通知職員。



1

Cover Your Cough and Sneeze

- Use a tissue to cover your mouth and nose when you cough or sneeze.
- Drop your used tissue in a waste basket.
- You may be asked to wear a mask if you are coughing or sneezing.

and

2

Clean Your Hands

- Wash your hands with soap and warm water or clean with gels or wipes with alcohol.
- Cleaning your hands often keeps you from spreading germs.



Macau, China, 2003. Photo: C Murphy.



- Triage / fast track
- Reduce waiting time
- Renovate existing space
- Smaller, but more, waiting areas with restricted numbers of patients

Organise patient flow in a way that minimises the exposure of non-infectious to infectious



TRIAGE

Avoid overcrowding in waiting areas and wards





- Prioritise community care approaches for TB management
- Community based screening (de-centralize diagnostics)
- Outreach programmes
- Reduce stigma and discrimination

Natural Ventilation

Advantages

- High rates of ventilation
- Cost free
- Maintenance free
- Applicable to a wide variety of hospital settings-waiting rooms, casualty depts
- Applies to all congregate settings: prisons, homeless shelters, ARV clinics

Disadvantages

- Climate dependent
- No control over direction of contaminated air, but dilution in outside air is large
- Noisy

Natural ventilation



Re-think the use of available areas



Environmental / Engineering Controls

Reduce the concentration of infectious aerosols in the air

- technical, requires engineering expertise, obtain professional advice
- Positive pressure in “clean areas” e.g examination room
- Negative pressure in “dirty areas” e.g waiting room
- any ventilation system must be monitored and properly maintained – ensure adequate resources
- UVGI – complementary to ventilation systems

Respiratory Protection

- The CDC recommended the use of **N95** respirators by HCW
- Respirator: in high risk areas (e.g. bronchoscopy DR-TB)
- **N95** (or greater)
 - ‘N’: Not resistant to oil
 - ‘95’: filtration efficiency of the respirator is at least 95% at the most penetrative particle size of 0.3 μ m
- face mask does not protect health care workers, visitors against inhalation of TB (>20 min)

Respirator vs. Face mask

- Respirator has tiny pores which block droplet nuclei and relies on an air tight seal around the face
- Face mask has large pores and lacks air tight seal around face







MASKS N MORE MEDICAL SAMPLER
(All are N95 and fluid resistant and meet the CDC guidelines for tuberculosis exposure control.)

Gerson 1730
Gerson 2130-B
3M 1860 (available in regular & small)
3M 1870
Kimberly Clark Tecnol Fluidshield (available in regular & small)

www.masksnmore.com
(405-340-8669)

Respirators: Use and efficiency

- Reduced efficiency in the presence of beards and other facial hair
- The fit on wearers face needs to provide a tight seal so that inhaled air is pulled through the respirators filter material, and not through the gaps between the face and the respirator
- Can be re-used until damaged or contaminated

Filtration Methods

- To achieve high particle capture efficiency while maintaining relatively low breathing resistance, the N95 respirator filters are made with charged fibers '**Electret Filters**'
- Particle capture efficiency of electret filters decreases with filter loading

Fitting an N95 Respirator

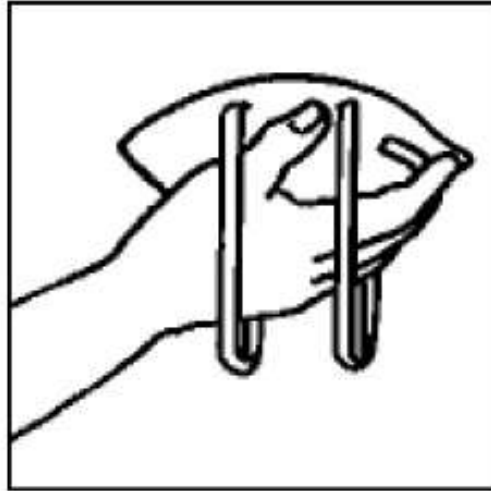


Fig.1

Cup the respirator in your hand, with the nosepiece at your fingertips, allowing the headbands to hang freely below your hand



Fig. 2

Position the respirator under your chin with the nosepiece up. Pull the top strap over your head resting it high at the top back of your head. Pull the bottom strap over your head and position it around the neck below the ears.



Fig. 3

Place your fingertips from both hands at the top of the metal nosepiece. Using two hands, mold the nose area to the shape of your nose by pushing inward while moving your fingertips down both sides of the nosepiece.

*** Pinching the nosepiece using one hand may result in improper fit and less effective respirator performance. Use two hands.**



Fig. 4

Perform a User Seal Check prior to each wearing. To check the respirator-to-face seal, place both hands completely over the respirator and exhale. Be careful not to disturb the position of the respirator. If air leaks around the nose, readjust the nosepiece as described in step 3. If air leaks at the respirator edges, work the straps back along the sides of your head.

SA National TB guidelines

Respirators

- To be used as a last resort when other measures have not eliminated the risk of TB
- Most appropriate for short-term protection against high risk exposures
- Long term use not advocated – discomfort, cost, and difficulties created with communication

Masks

- Recommended for infectious patients or staff on a short-term basis meant to prevent the spread of infectious particles from the person wearing the mask to others

Concluding remarks

- Don't forget MONITORING and EVALUATION
- Be Innovative
- Administrative controls
 - relatively simple
 - can be readily implemented
- Environmental controls
 - Technical and requires maintenance
- Personal respiratory protection

Acknowledgments

- Dr Rod Escombe
- Dr Kogie Naidoo
- Dr T Apalata
- WHO infection control guidelines