Discussion Brief: TB Infection Control in single-room homes
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Especially relevant to community-based tuberculosis programs with patients in single-room homes, this discussion covers a range of interventions to reduce risk of transmission between start of treatment and sputum culture conversion and highlights the need for new approaches for MDR and XDR cases in cold climate areas where home ventilation is very difficult (because of heat loss).

A number of common sense approaches have been advocated, although like most infection control interventions, high-level proof of efficacy is generally lacking.

Key Points

- Early identification of vulnerable or infectious contacts:
  - Teaching family and community members to identify and refer suspected secondary cases for early diagnosis.
  - Screening household contacts for TB and HIV infection and offering LTBI treatment if available for drug susceptible TB. There is no proven LTBI treatment for MDR-TB.
  - Conducting home assessments before initiation of treatment to determine the vulnerabilities of household members, ages, people with HIV or other chronic illnesses, crowding, and ventilation.

- Minimizing the risk of transmission:
  - Educating patients and family members on proper cough hygiene: covering nose and mouth while coughing, avoiding spitting, proper disposal of sputum to avoid aerosolization.
  - Distributing paper masks to patients in overcrowded or closed conditions following home risk assessment. Surgical masks cannot be worn 24/7 but in theory reduce the production of infectious droplet nuclei while worn.
  - If possible, separating the infectious patient from uninfected family members in the home, reducing contact with vulnerable family members, having patient sleep separately. This is often not possible.
  - In single-room homes, temporarily relocating patient to another home or rented room until he/she becomes noninfectious, or, if possible, building an additional room onto a small single-room dwelling if the family does not want to be separated (patients have been hospitalized until culture conversion or a separate room has been rented or built).
  - Ensuring maximum possible ventilation in the home (keeping windows and doors open in warm climates, and possibly installing “Whirly Birds” – low cost roof turbines. These devices employ the wind to generate exhaust airflow without a mechanical fan. Like open windows, however, wind turbines do cause energy losses in cold climates.
  - Protecting community health workers during home visits by providing N95 (or similarly certified) respirator to each CHW per month and ensuring fit testing and education on proper respirator use for all health care workers.
  - Germicidal UV might be possible in some residential settings, but the challenges are great, including low ceilings and lack of technical expertise to install and maintain the units. Most homes do not have adequate ceiling height. Fixtures are relatively expensive for home use and quality fixtures that are safe and properly installed may be difficult to organize. Generally, UV fixtures are used in congregate settings rather than homes.

Key References

- Member resource: "Whirly Bird” device specifications.

Enrich the GHDonline Knowledge Base: Please consider replying to this discussion with the following information

- Practices and pieces of advice to control TB infection in the home for community programs.
- Protocols and guidelines for TB IC at home, challenges or barriers to implementation of these practices in varying countries and climates.
Recommendations
You may also be interested in the following discussions and resources in GHDonline communities.

- Disposal of sputum for home infection control in MDR TB treatment
- Level of risk during consultation of TB/MDR TB patients/droplet transmission?
- Advice on TB/Respiratory infection control in low resource outpatient settings
- Infection control tools