

TB Policy Update for Transitional Care Unit

Caleb Newcomer

October 10, 2016

Table of Contents

<i>Process Description</i>	3
<i>Theoretical Framework</i>	4
<i>Evidence</i>	5
<i>Proposed Policy</i>	7
<i>Implementation into Professional Practice</i>	9
<i>Conclusion</i>	9
<i>References</i>	11

Process Description

The basis for this evidence based project was found on a Transitional Care Unit. The unit had yet to update their TB risk-assessment and treatment policy in response to the new guidelines set by the Kentucky Department for Public Health in April of 2016. This policy falls under the infection control program, but each unit director is tasked with updating the policy in specificity to their unit, basing their changes on the skillsets and tendencies of their staff. The Director of the TCU identified this as one of the primary concerns in regards to infection control on the unit, as the policy was not only outdated but was also failing to be correctly followed by most, if not all of the staff.

The largest current problem is the old policy being outdated in terms of following the most recent evidence based research. The new Kentucky Department of Health Guidelines in relation to TB testing and treatment find their basis in studies done by the World Health Organization and the Centers for Disease Control and Prevention. In particular, the new guidelines set a different structure of treatment based on the induration results of the Mantoux Skin Test and also establish a protocol for HIV positive patients or those suspected of being HIV positive. The former policy at The facility does not provide detailed rules for HIV treatment in relation to a positive Tuberculosis Skin Test (TST). The lack of specificity in this policy is concerning when compared to the detailed description of care and infection control for HIV positive patients and those who could be positive for Tuberculosis.

There are numerous interventions that could be implemented to help reconcile this issue. The most basic of interventions can be done from the administrative level in the form of employee education. The largest concern for me when talking to the director was that most employees only partially completed the TB Risk Assessment Form, which is up to date with Kentucky standards. Completion of the assessment is crucial to the first step of finding a possible Mycobacterium tuberculosis infection. Non-compliance in regards to completion of the entire assessment puts the unit,

its employees, and its patients at risk. Employee education on the importance of assessment for TB and Latent TB Infections could result in a more vigorous testing of patients admitted to the unit, and a better quality control of infection.

A second intervention that could be useful in establishing a more rigorous infection control program is education on the Kentucky guideline changes, and the associated changes to the old policy on the unit. An education seminar or information posted throughout the unit could help employees to understand not only the changes made to the policy but also the evidence behind the alterations to the policy. Any education on the topic could help nurses become more understanding of the Risk Assessment Form and more compliant in its completion.

Theoretical Framework

The theoretical framework that I chose to base my research on was one presented by Faye Abdellah from her article "Better Patient Care Through Nursing Research", which was published in the *International Journal of Nursing Studies*. In the article she describes 21 nursing problems related to patient care, with each one identifying an area of patient care that needs improvement. One of those problem areas she states is "To promote safety through prevention of accidents, injury, or other trauma and through the prevention of the spread of infection," (Abdellah, 1965). She describes nursing as a service to patients that should focus on disease control on a patient specific basis, rather than as a blanket technique for all.

This framework suits the topic of TB Policy and Risk Assessment best due to the patient specific nature of the Risk Assessment Form. The Risk Assessment is done on each patient, and although some may have similar answers we are still able to identify those who need treatment based on the Risk Assessment Identifiers that they've been linked to. In this way, a detailed Risk Assessment Form and

Policy will help the unit to hone in on the patient and their needs, rather than blanketing everyone in hopes of preventing the spread of TB infections.

Evidence

The research method was careful reading of the old and new policy, as well as the Kentucky guidelines for the new policy. The research from the WHO that the Kentucky Department for Public Health based their guidelines on was available. The article is a Level 1 meta-analysis from the World Health Organization that combined the research from numerous studies done by their TB Impact Task Force, which works each year to research and identify better ways of identifying and treating TB. Their meta-analysis on the impact of TB in a world scope and its implications on world health identified TB screening and prevention as a top priority to aid in reducing the number of active TB cases each year. They have set goals for 2050 to “reverse the number of TB cases per year” as well as honing current treatment and isolation practices (World Health Organization, 2009).

A second useful research article was completed in 2011 in South Africa by researchers from multiple countries. The study focused on the effectiveness of a Tuberculin Skin Test in contrast to the more recent testing using QuantiFERON Gold, a blood assay test. This study was performed in South Africa in the town of Worcester, which has a TB prevalence of 1400 per 100,000 individuals. The experiment was completed by enrolling adolescents between the ages of 12-18 years old, drawing blood from each individual to be used for the interferon blood assay test, then immediately administering a Mantoux test, which was read 48-96 hours later. Results show that the TST was equally as effective in diagnosing possible TB skin test infections as the blood assay tests with a 96% confidence rate. The article mentions that although the blood assays test may be more effective at discovering latent TB infections and do not require a follow up visit, the cost-benefit analysis shows that the extra resources

spent on laboratory testing materials for the blood assays does not increase screening effectiveness adequately to justify the expense (Mahomed et al., 2011).

Among other research completed, a final noteworthy piece was one completed by a group of European practitioners and infection researchers studying current approaches to tuberculosis case detection and improving upon them. The study focused on a local approach to individualizing assessment and evaluation of case detection methods, rather than a blanket approach proposed by multinational healthcare corporations. It focused on high risk patients living in different socioeconomic conditions in different locations in the world and attempted to find a way to individualize case detection by using local healthcare professionals' expertise on the area in order to customize assessment accordingly. The group found that "Identifying key populations with high numbers of undiagnosed TB and understanding health-seeking behavior and the barriers to TB detection are necessary first steps when developing an intervention and an approach to measure its effectiveness," (Blok et al., 2014). Study results showed that Risk Assessments tailored to the patient population and recognizing barriers to detection in unique areas helped to increase case detection and subsequent interventions for treatment.

Proposed Policy

The following is an updated version of the old policy on the Transitional Care Unit. The changes are almost entirely based on the sample unit policy presented by the Kentucky Department of Public Health, which is in turn based on recommendations from the WHO and CDC. The text from the old policy is written in black, with the new changes shown in red text. The bulk of the policy change is contained in two sections, so only those sections are included. The updates are written in the format used by the facility.

TCU shall not admit a person under medical treatment for suspected or confirmed pulmonary or extra-pulmonary tuberculosis disease cause by mycobacterium tuberculosis or any other infectious form of tuberculosis regardless of drug-resistant status unless declared noninfectious by a physician, APRN, or physician assistant in collaboration with the local and state health departments. Documentation of infectious status shall be included upon admission or transfer.

1. A TB Risk Assessment shall be completed in full on each patient admitted to TCU. To perform a risk assessment the following factors will be assessed:
 - a. The clinical symptoms of active TB disease
 - b. Events and behaviors that increase the risk of exposure to mycobacterium tuberculosis and the risk of requiring latent TB infection (LTBI).
 - c. Medical risk factors that increase the risk for a patient with LTBI to develop active TB disease

Risk assessment results will be documented in the patient's medical record.
2. TB skin testing of all residents on admission using the Mantoux technique (5 units of PPD intradermally) will be completed before or during the first week of admission unless the resident has provided medical documentation for one of the following as part of a TB risk assessment.
 - a. Previous documented skin test of 10mm induration if interpreted as positive
 - b. A prior TST of 5mm to 9mm of induration interpreted as positive if the patient has a medical reason described below:
 - i. HIV infection (Farmer et al., 2011)
 - ii. Immunosuppression from disease or medications
 - iii. Fibrotic changes on a chest radiograph consistent with TB
 - iv. Recent contact with someone diagnosed with active TB
 - c. Is currently receiving or has completed 6 months of prophylactic therapy or a course of multiple-drug chemotherapy for TB as recommended by the Centers for Disease Control and Prevention.
 - d. Can supply documentation of a TB skin test within 3 months prior to admission.
 - e. A positive BAMT (Blood Assay for Mycobacterium Tuberculosis).
 - f. A TST or BMT conversion.
3. For residents whose initial first step skin test is interpreted as negative, the two step skin test is required (a second skin test is given within 7-14 days of the first) unless they can document that they have had a negative TB skin test within 1 year of admission.
4. A BAMT may be used in place of, but not in addition to the 2 step TB testing. If a BAMT is performed before or during the first week of admission and the result is determined only one BAMT test result shall be required. A second BAMT shall be performed if the result of the initial BAMT is borderline, indeterminate, or invalid.
5. Residents found on admission to have a skin test of 10mm or more of induration may be interpreted as positive.
6. Residents found on admission to have a skin test of 5mm to 9mm of induration may interpreted as positive for the following medical reasons:

- a. HIV infection
 - b. Immunosuppression from disease or medication
 - c. Changes on a chest radiograph consistent with TB disease
 - d. Recent contact with someone diagnosed with active TB.
7. The TST result of each patient will be documented in the medical record, recording date, millimeters of induration, and interpretation of results.
 8. Residents with a positive TST, BAMT, TST conversion, or BAMT conversion shall receive a chest x-ray unless a chest x-ray done within 2 months prior shows no evidence of TB or documentation of completion of a course of prophylactic treatment for TB. A medical evaluation will be performed and include HIV testing unless the patient or responsible party opts out of HIV testing.
 9. A patient with a positive TST, BAMT, TST conversion, or BAMT conversion but has no clinical evidence of active TB upon evaluation by a licensed physician, APRN, or PA and has a negative chest x-ray will be offered treatment for LTBI.
 10. Residents with positive skin tests (10mm or more, 5-9mm in patients with medical reasons indicated above) or positive BAMT result will be reported to the Infection Control Practitioner (ICP) who will in turn notify the local public health department coordinator and be monitored for signs and symptoms of infection.
 11. All residents will be monitored for signs and symptoms of infection. The ICP, Employee Health, or designated relief nurse should be consulted for any potential or actual infections which place the resident, other residents, visitors, family, or employees at risk.
 12. A long-term care setting's administrator or their designee shall report a resident identified with one of the following to the local health department having jurisdiction within one business day upon identification:
 - a. A TST or BAMT conversion upon testing or identified in a contact investigation.
 - b. A chest x-ray suspicious for TB disease.
 - c. A sputum smear positive for acid-fast bacilli.
 - d. A rapid lab test positive for Mycobacterium tuberculosis DNA or RNA.
 - e. Sputum cultures positive for mycobacterium tuberculosis.
 - f. The initiation of multi-drug tuberculosis treatment for a resident.

Implementation into Professional Practice

The implementation of this policy should focus on employee education in regards to the research behind the new guidelines, rather than simply outlining the changes to the policy. If the employees understand why the changes have been made and how that affects patient care, outcomes,

and infection control, then they are more likely to adhere to the new policy long-term. Outlining the changes and spending no time educating employees about the evidence based research behind the changes will likely cause a short-term compliance with the new policy.

The best way to educate the staff can be split into two steps. The first step requires an education in-service presentation to the employees of the unit in person. The most convenient way to do this would be to record a video of the in-service and send it to employees, but the question of compliance to watching the video remains. Therefore, the most effective education method would be to present the in-service in person one time each day during both the day and night shift for the duration of a week. This method would allow the material to be presented to everyone on the staff once, and some will receive it multiple times. The second step is to create high-visibility posters or flyers to be placed on the unit by the director in areas that are frequently visited by unit staff. Providing these flyers provides constant education on the topic that is easy to access and is readily available.

Assessment of compliance will be a multidisciplinary task. While the director should certainly observe the employees of the unit to assess compliance, this is not enough. By providing education on the impact of the research and the necessity of the new policy, the unit can become accountable for itself. If the employees successfully recognize the importance of the topic, they will hold each other accountable through observation. Should employees fail to comply with the new policy the director will determine how they should be reprimanded. Long-term compliance will be achieved once employees recognize the impact of the Risk Assessment and TB screening that is outlined in the research studies.

Conclusion

In conclusion, the updated policy should reflect all of the guidelines set forth by the Kentucky Department of Public Health, which in turn reflects the global goals of the World Health Organization

and the Centers for Disease Control and Prevention. Adherence to this policy will be key in accurately identifying patients who are at risk for developing TB or LTBI, especially those who may be HIV positive. The Risk Assessment Tool will be crucial in the detection of new cases and prevention of the spread of infection. The Transitional Care Unit at this facility will greatly benefit from the updated policy, and will continue their excellence in infection control and prevention.

References

- Abdellah, F. G., & Levine, E. (1965). Better patient care through nursing research. *International Journal of Nursing Studies*, 2(1), 1-12.
- Blok, L., Creswell, J., Stevens, R., Brouwer, M., Ramis, O., Weil, O., ... & Bakker, M. I. (2014). A pragmatic approach to measuring, monitoring and evaluating interventions for improved tuberculosis case detection. *International health*, 6(3), 181-188.
- Cain, K. P., McCarthy, K. D., Heilig, C. M., Monkongdee, P., Tasaneeyapan, T., Kanara, N., Phanuphak, P. (2010). An algorithm for tuberculosis screening and diagnosis in people with HIV. *New England Journal of Medicine*, 362(8), 707-716.
- Farmer, P., Léandre, F., Mukherjee, J. S., Claude, M., Nevil, P., Smith-Fawzi, M. C., & Attaran, A. (2011). Community-based approaches to HIV treatment in resource-poor settings. *Lancet*, 358(9279), 404-409.
- Kentucky Department for Public Health. (2016). Tuberculosis (TB) testing for residents in long-term care facilities. Retrieved on October 10, 2016 from <http://www.lrc.ky.gov/kar/902/020/200.htm>
- Mahomed, H., Hawkrige, T., Verver, S., Abrahams, D., Geiter, L., Hatherill, M., Hussey, G. D. (2011). The tuberculin skin test versus QuantiFERON TB Gold® in predicting tuberculosis disease in an adolescent cohort study in South Africa. *PloS one*, 6(3), e17984.
- World Health Organization. (2009). Stop TB policy paper: TB impact measurement: Policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control.