

**DESCRIBE AND EXPLAIN THE MAIN APPROACHES AND STRATEGIES USED TO
MEASURE, MONITOR, AND CONTROL THE INCIDENCE of TUBERCULOSIS (TB)**

STUDENT NAME: GODDEY AMEH

STUDENT ID: 2213513

ASSIGNMENT TITLE: INCIDENCE OF DISEASES IN COMMUNITIES

LECTURER: LAILA SURANI

MODULE CODE: LCHS4004

MODULE: INTRODUCTION TO PUBLIC HEALTH

Table of Contents

	Page
1.0 Introduction	1
2.0 Strategies used in the UK to measure the incidence of Tuberculosis.....	1
3.0 Strategies used in the UK to monitor the incidence of Tuberculosis.....	2
4.0 Strategies used in the UK to control the incidence of Tuberculosis.....	3
5.0 Conclusion	3

1.0 Introduction

With more than 4,000 cases reported yearly, tuberculosis (TB) continues to be a major public health concern in the United Kingdom (Garrido-Cardenas et al., 2020). Different approaches and strategies are used to measure, monitor, and manage the occurrence of TB (Jain et al., 2020). Active surveillance, early diagnosis, contact tracing, treatment, and prevention are some of them. Programmes for immunising high-risk populations as well as public education initiatives to raise awareness and lessen stigma are examples of prevention strategies. With the number of reported cases falling by about 4% annually, the UK has made great strides in lowering the incidence of TB in recent years (Chakaya et al., 2020). Additionally, the prevalence of drug-resistant TB strains is rising, making treatment more difficult (Grey et al., 2021).

2.0 Strategies used in the United Kingdom to measure the incidence of tuberculosis

The United Kingdom has established a number of TB incidence measurement measures, such as active surveillance and early diagnosis, which are essential to limiting the disease's spread (Cole et al., 2020)

i. Active surveillance: According to Cole et al. (2020), the UK uses a nationwide surveillance system to collect information on all TB cases that have been recorded, including patient details, test findings, and treatment outcomes. The incidence of TB is tracked using this data, which is also used to inform public health initiatives.

ii. Early detection: To increase the accuracy and speed of TB diagnosis, the UK also has a strong laboratory network for the disease. This network combines traditional diagnostic techniques, like sputum microscopy and culture, with more modern technologies, like molecular testing. This is crucial for early case detection and ensuring rapid treatment.

iii. Contact tracing: According to Hoang et al. (2019), contact tracing is used to locate people who may have been exposed to TB and offer them testing and treatment if necessary. This aids in stopping the spread of TB and locating those who may be infected with latent TB, which can then be treated to stop the development of active TB.

Despite having excellent laboratory networks, contact tracing programmes, and sophisticated surveillance systems in place to measure the incidence of TB, However, difficulties persist, especially in high-risk groups such as those who are homeless or refugees (Alsdurf et al., 2021).

3.0 Strategies used in the UK to monitor the incidence of TB in the United Kingdom

The UK has established a number of TB monitoring measures that have helped lower the overall incidence rate of the disease in the nation (Al Abri et al., 2020). These measures can still be

improved in some areas, though. The UK's effective national surveillance system, which collects information on all reported TB cases, is one of the strategy's strong points (Dodd et al., 2021). According to Malakoane et al. (2020), this approach enables public health officials to track trends and patterns in TB incidence and to direct public health actions. This system's reliance on medical professionals to report TB cases, however, could be a drawback (Schnall et al., 2019). The accuracy of the surveillance data may be impacted in cases where cases are underreported or not reported at all.

The UK also has a good laboratory network for diagnosing tuberculosis (TB), which combines more modern technology with established diagnostic techniques (Ismoilovich 2022). In order to detect cases early and guarantee prompt treatment, this has contributed to improving the accuracy and speed of TB diagnosis. However, there might be regional variations in the accessibility of these diagnostic techniques, which could lead to inequalities in the availability of prompt and accurate TB diagnosis (Shah et al., 2022).

Another strategy of the UK's TB monitoring is the use of contact tracing (Danquah et al., 2019). By doing so, it is possible to stop the spread of TB and identify people who may have latent TB infections that can be treated to stop them from becoming active (Migliori et al., 2019). However, it may be difficult to find and test contacts in some populations, such as individuals who are illegal or homeless, making contact tracing complicated (Celly 2022).

In order to increase the efficacy of TB control strategies, the UK invests more in research and evaluation (Collin et al., 2019). This entails creating novel diagnostic techniques and therapies as well as assessing the effectiveness of current approaches. This is a crucial part of TB monitoring since it identifies areas for improvement and provides guidance for the creation of new therapies (Dodd et al., 2021). The overall incidence rate of TB in the UK has decreased due to excellent measures for tracking the disease's occurrence (Collin et al., 2019). These measures can yet be improved in several areas, such as guaranteeing universal access to diagnostic instruments and addressing difficulties in contact tracing among vulnerable people.

4.0 Strategies used in the UK to control the incidence of TB in the United Kingdom

The UK has undertaken several tactics to reduce the incidence of TB, including:

i. Vaccination: According to the UK's childhood TB vaccination programme, newborns and kids who are at a high risk of contracting the disease are given the Bacillus Calmette-Guérin (BCG) vaccine (Lobo et al., 2021). This vaccination can aid in preventing the emergence of serious TB infections, such as TB meningitis, in children.

ii. Treatment completion: The UK has put in place measures to make sure people with TB finish their entire course of treatment, which can be difficult given the lengthy nature of TB treatment (Lobo, et al., 2021). This is crucial to ensure that people are completely cured of the illness and to stop the emergence of drug-resistant TB.

iii. Health promotion: Through health promotion programmes and education activities, the UK works to increase public awareness of tuberculosis (TB) (Shahzad et al., 2019). This promotes early detection and treatment by encouraging people to learn more about the illness and how it spreads.

iv. Early detection and treatment: The UK have a robust laboratory network for TB diagnosis that combines older diagnostic techniques with more modern ones to provide rapid and accurate diagnosis (Ismoilovich 2022). TB may be controlled and its effects on people and communities can be lessened with early diagnosis and treatment.

5.0 Conclusion

In conclusion, the UK has established a number of successful measures to assess, track, and manage the prevalence of tuberculosis (TB). An efficient national surveillance system and an effective laboratory network for TB diagnosis, contact tracing, surveillance, research, and evaluation are a few of these strategies. The total incidence rate of TB in the nation has decreased as a result of these strategies. There are still certain areas that need improvement, such as ensuring that everyone has access to diagnostic tools and addressing difficulties with contact tracing among disadvantaged people. To fill in these gaps and guarantee that the UK's TB control measures are still effective in the years to come, continuous efforts are required.

Reference

- Al Abri, S., Kasaeva, T., Migliori, G.B., Goletti, D., Zenner, D., Denholm, J., Al Maani, A., Cirillo, D.M., Schön, T., Lillebæk, T. and Al-Jardani, A., 2020. Tools to implement the World Health Organization End TB Strategy: Addressing common challenges in high and low endemic countries. *International Journal of Infectious Diseases*, 92, pp.S60-S68.
- Alsdurf, H., Empringham, B., Miller, C. and Zwerling, A., 2021. Tuberculosis screening costs and cost-effectiveness in high-risk groups: a systematic review. *BMC Infectious Diseases*, 21, pp.1-22.
- Celly, P., 2022. 28 Contact tracing. *Social Work in Health Settings: Practice in Context*.
- Chakaya, J., Khan, M., Ntoumi, F., Aklillu, E., Fatima, R., Mwaba, P., Kapata, N., Mfinanga, S., Hasnain, S.E., Katoto, P.D. and Bulabula, A.N., 2021. Global Tuberculosis Report 2020–Reflections on the Global TB burden, treatment and prevention efforts. *International journal of infectious diseases*, 113, pp.S7-S12.
- Lobo, N., Brooks, N.A., Zlotta, A.R., Cirillo, J.D., Boorjian, S., Black, P.C., Meeks, J.J., Bivalacqua, T.J., Gontero, P., Steinberg, G.D. and McConkey, D., 2021. 100 years of Bacillus Calmette–Guérin immunotherapy: from cattle to COVID-19. *Nature Reviews Urology*, 18(10), pp.611-622.
- Ismoilovich, A.F., 2022. Tuberculosis Diagnostics with Modern Solutions (Literature Review). *Central Asian Journal of Medical and Natural Science*, 3(3), pp.377-383.
- Shahzad, M., Upshur, R., Donnelly, P., Bharmal, A., Wei, X., Feng, P. and Brown, A.D., 2019. A population-based approach to integrated healthcare delivery: a scoping review of clinical care and public health collaboration. *BMC Public Health*, 19(1), pp.1-15.
- Cole, B., Nilsen, D.M., Will, L., Etkind, S.C., Burgos, M. and Chorba, T., 2020. Essential components of a public health tuberculosis prevention, control, and elimination program: recommendations of the advisory council for the elimination of tuberculosis and the national tuberculosis controllers association. *MMWR Recommendations and Reports*, 69(7), p.1.
- Collin, S.M., Wurie, F., Muzyamba, M.C., de Vries, G., Lönnroth, K., Migliori, G.B., Abubakar, I., Anderson, S.R. and Zenner, D., 2019. Effectiveness of interventions for reducing TB incidence in countries with low TB incidence: a systematic review of reviews. *European respiratory review*, 28(152).
- Danquah, L.O., Hasham, N., MacFarlane, M., Conteh, F.E., Momoh, F., Tedesco, A.A., Jambai, A., Ross, D.A. and Weiss, H.A., 2019. Use of a mobile application for Ebola contact tracing

- and monitoring in northern Sierra Leone: a proof-of-concept study. *BMC infectious diseases*, 19(1), pp.1-12.
- Dodd, P.J., Osman, M., Cresswell, F.V., Stadelman, A.M., Lan, N.H., Thuong, N.T.T., Muzyamba, M., Glaser, L., Dlamini, S.S. and Seddon, J.A., 2021. The global burden of tuberculous meningitis in adults: a modelling study. *PLoS Global Public Health*, 1(12), p.e0000069.
- Garrido-Cardenas, J.A., de Lamo-Sevilla, C., Cabezas-Fernández, M.T., Manzano-Agugliaro, F. and Martínez-Lirola, M., 2020. Global tuberculosis research and its future prospects. *Tuberculosis*, 121, p.101917.
- Gray, A.T., Wood, C.E., Boyles, T., Luedtke, S., Birjovanu, G., Hughes, J., Kostkova, P. and Esmail, H., 2021. Following Guidelines for Drug-Resistant Tuberculosis: “Yes, it’s a challenge”. *Frontiers in Tropical Diseases*, 2, p.645933.
- Hoang, T.T.T., Nguyen, V.N., Dinh, N.S., Thwaites, G., Nguyen, T.A., van Doorn, H.R., Cobelens, F. and Wertheim, H.F., 2019. Active contact tracing beyond the household in multidrug resistant tuberculosis in Vietnam: a cohort study. *BMC public health*, 19(1), pp.1-8.
- Ismoilovich, A.F., 2022. Tuberculosis Diagnostics with Modern Solutions (Literature Review). *Central Asian Journal of Medical and Natural Science*, 3(3), pp.377-383.
- Jain, V.K., Iyengar, K.P., Samy, D.A. and Vaishya, R., 2020. Tuberculosis in the era of COVID-19 in India. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 14(5), pp.1439-1443.
- Laycock, K.M., Enane, L.A. and Steenhoff, A.P., 2021. Tuberculosis in adolescents and young adults: Emerging data on TB transmission and prevention among vulnerable young people. *Tropical Medicine and Infectious Disease*, 6(3), p.148.
- Malakoane, B., Heunis, J.C., Chikobvu, P., Kigozi, N.G. and Kruger, W.H., 2020. Public health system challenges in the Free State, South Africa: a situation appraisal to inform health system strengthening. *BMC Health Services Research*, 20, pp.1-14.
- Migliori, G.B., Tiberi, S., Zumla, A., Petersen, E., Chakaya, J.M., Wejse, C., Torrico, M.M., Duarte, R., Alffenaar, J.W., Schaaf, H.S. and Marais, B.J., 2020. MDR/XDR-TB management of patients and contacts: Challenges facing the new decade. The 2020 clinical update by the Global Tuberculosis Network. *International Journal of Infectious Diseases*, 92, pp.S15-S25.
- Nikolayevskyy, V., Holicka, Y., van Soolingen, D., van der Werf, M.J., Ködmön, C., Surkova, E., Hillemann, D., Groenheit, R. and Cirillo, D., 2021. Impact of the COVID-19 pandemic on tuberculosis laboratory services in Europe. *European Respiratory Journal*, 57(1).

- Schnall, J., Rajkhowa, A., Ikuta, K., Rao, P. and Moore, C.E., 2019. Surveillance and monitoring of antimicrobial resistance: limitations and lessons from the GRAM project. *BMC medicine*, 17(1), pp.1-3.
- Shah, H.D., Nazli Khatib, M., Syed, Z.Q., Gaidhane, A.M., Yasobant, S., Narkhede, K., Bhavsar, P., Patel, J., Sinha, A., Puwar, T. and Saha, S., 2022. Gaps and interventions across the diagnostic care cascade of TB patients at the level of patient, community and health system: a qualitative review of the literature. *Tropical Medicine and Infectious Disease*, 7(7), p.136.