Confirmed and "Suspected" Cases of Tuberculosis in Kentucky: An Eight-Year Update

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Background

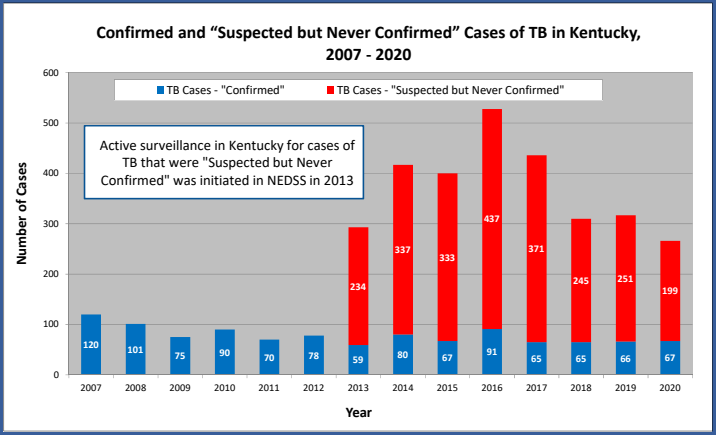
Tuberculosis (TB) is primarily an airborne infectious disease transmitted from person-to-person by microscopic particles containing *Mycobacterium tuberculosis* (MTB) bacteria that are generated when an infected person coughs, sneezes, speaks, laughs, or sings. The World Health Organization (WHO) estimated that nearly 10 million people developed TB disease in 2019, and 1.2 million died from the disease, making it one of the top ten causes of death worldwide[1]. In the United States, 7,163 new TB cases were reported in 2020[2]. The Kentucky Department for Public Health (KDPH) has annually reported all confirmed TB cases to the Center for Disease Control and Prevention (CDC). All TB cases are considered "suspected" until laboratory evidence or provider confirmation is received to classify a confirmed case. Since 2013, the Kentucky Tuberculosis Prevention and Control Program (KTP) has conducted enhanced TB surveillance to track both confirmed and "suspected but never confirmed" cases[3] (i.e., "suspected" TB cases). Until verified they can be classified as "not a confirmed TB case". Each "suspected" TB case requires about 60 days of similar medical and public health services for evaluation, diagnosis, medication administration via directly observed therapy for treatment, monitoring, and contact investigations.

Suspect TB Case Definition[4]

A person for whom there is high index of suspicion for active TB (e.g., a known contact to an active TB case) or someone who is currently under evaluation for TB disease.

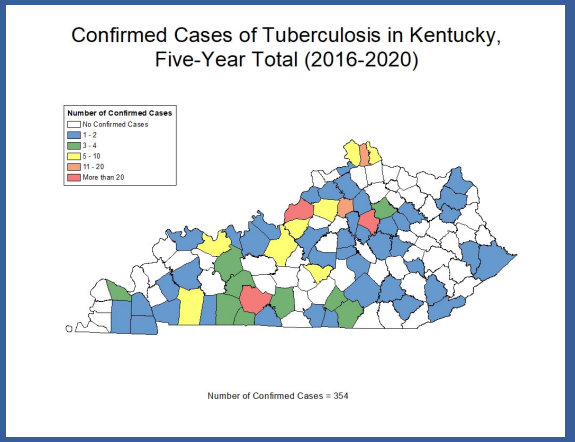
Methods

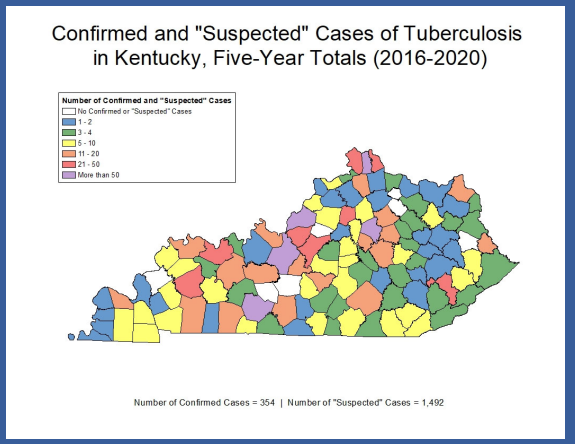
Data were collected and electronically reported to the CDC via the TB National Electronic Disease Surveillance System (TB-NEDSS) by all 120 Kentucky (KY) local health departments (LHDs). A 49-variable Report of Verified Case of Tuberculosis (RVCT)[4] form was used for reporting cases that met the Council of State and Territorial Epidemiologists case definition for confirmed cases[5]. Demographic, behavioral, medical and clinical information were reported for all confirmed TB cases in KY per the objectives set forth by the TB Elimination and Laboratory Cooperative Agreement with CDC. "Suspected" TB cases, as defined by CDC[4], were reported to KTP by phone, fax or mail using the required KY reportable disease form, or electronically through TB-NEDSS. However, only some RVCT variables were initially required to be collected or reported until the reported case was classified as a "confirmed" TB case.



Results

In 2013, KY reported an all-time low of 59 confirmed TB cases. However, the reported number of "suspected" TB cases (234) was about 4 times greater than the 59 confirmed TB cases. Since 2013, confirmed TB case reports have increased, marking the first sustained upward trend in the 21st century. Most recently, from 2016 - 2020, Kentucky counted 354 confirmed TB cases occurring in just over half (53%) of the counties in the state. Additionally, LHDs investigated 1,503 "suspected" TB cases during this same period. The number of "suspected" TB cases reported was 4.3 times higher the number confirmed TB cases reported. Further, Appalachian counties reported 6.9 times more "suspected" cases than confirmed cases, while non-Appalachian counties reported 3.9 times more "suspected" TB cases than confirmed TB cases. Statewide, the burden for all reported TB cases (i.e., confirmed cases plus "suspected" cases") was 5.2 times greater than the reported confirmed TB case numbers.





Conclusions

Healthcare professionals, government officials, and the general public should be aware of the much larger burden of "suspected" TB cases in Kentucky that use public health resources compared to reported confirmed TB cases. Government funding for TB prevention and control programs, and the public's perception of the burden of TB, is usually based on the much smaller reported number of confirmed TB cases. Federal standardization of "suspected" TB case reporting is needed for national recognition of medical and public health resources expended for the increased TB caseloads caused by "suspected" TB cases.

Acknowledgements

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