



Multiple Drug Resistant Tuberculosis in Snohomish County

Snohomish Health District's (SHD) Tuberculosis (TB) Control Program diagnoses and treats 25 to 30 cases of active TB each year. Referrals, contact investigations, and targeted testing in Snohomish County are the mechanisms by which the TB Program identifies these patients. To prevent and control the spread of TB, patients with the pulmonary form of the disease may be isolated and contacts are investigated. Patients start treatment with standard first-line anti-TB medications, e.g., Isoniazid (IHN), Rifampin (RIF), Pyrazinamide (PZA), and Ethambutol (EMB), according to Centers for Disease Prevention and Control (CDC) guidelines. Once treatment begins the role of SHD has just begun. Nine to 12 months of in-person follow-up occurs to ensure medications are properly taken, side effects are monitored, and continuous sputum samples are collected to determine pulmonary bacterial load and drug sensitivity. A TB Program physician also visits

patients to evaluate the patient's overall health and progress by ordering Chest X-Rays and various blood panel tests.

Most active TB cases are sensitive to the first-line TB medications that are the more cost effective drugs. However, in 2010 Snohomish County reported its first two cases of Multiple Drug Resistant Tuberculosis (MDR-TB). Since 2008 Washington State has reported two to five cases of MDR-TB each year. MDR-TB is defined by CDC as strains resistant to two of the most effective, least expensive, and most widely used drugs - Isoniazid (INH) and Rifampin (RIF).

The impact of the two Snohomish County MDR cases has been drastic as patient care has drained scarce Health District resources. To cover the costs, the TB program requested \$140,000 from the TB reserve fund in 2010. However, care for MDR patients will exceed this amount because while:

- Treating one TB case can cost several thousand dollars; treating one MDR case is estimated to **cost tens or hundreds of thousands of dollars.**
- The duration of treatment for a TB case is generally 9-12 months; an MDR case requires at least **twice the duration of treatment (18-24 months).**
- The cure rate for a drug susceptible TB case is 95-97%; an MDR case cure rate drops to **60-70%.**
- MDR-TB infected individuals experience severe drug side-effects, require intense monitoring including twice daily Directly Observed Therapy, injection drugs, and a **long period of isolation during which social services must be provided for them.**

Unfortunately, two cases of MDR-TB may be just the beginning of a trend in our county. The number of MDR-TB and other more virulent TB cases in the world is rapidly increasing. With increases in migration and inter-continental travelling, distant countries are now close neighbors. According to the World Health Organization, approximately 500,000 new cases of MDR-TB are added to the world's TB burden each year. With only 3% of cases undergoing treatment, the development of even more resistant strains of TB is a public health concern.

The rise of MDR is a human-made phenomenon. The most impactful factor contributing to its rise is treatment failure. Examples include: non-adherence to anti-TB drug regimen, inadequate regimen, direct observed therapy failure, unavailability of drugs, and substandard drugs.

MDR-TB is a global epidemic. Small to medium sized counties with limited public health resources will be seriously affected. Eventually, the United States will see higher numbers of MDR-TB, in addition to the previously diagnosed TB cases. Key questions that need to be addressed include: Are we prepared to take on a number of MDR patients simultaneously? Is the community ready to contribute? Will there be a comprehensive plan to address this phenomenon at the local levels?

For more information about TB infection, screening, and treatment, contacts the TB Program and Refugee Health at 425.339.5225, or email: jaharchi@shd.snohomish.wa.gov.

Report Snohomish County Communicable Diseases

STD's: 425.339.5298/Fax: 425.339.8707

After hours emergency only: 425.339.5295

Tuberculosis: 425.339.5225/Fax: 425.339.5217

24-hr Reporting: 425.339.5235

Communicable Diseases: 425.339.5278/Fax: 425.339.8706

Health Statistics &
Assessment
3020 Rucker Ave
Everett, WA 98201

EpiNews

CD Cases Reported Jan – June, 2010

Disease	2010	2009
AIDS	14	10
Arboviral Disease	0	0
Campylobacteriosis	68	53
Chlamydial infections [§]	873	876
E.Coli 0157:H7	5	10
Giardiasis	37	39
Gonorrhea [§]	82	81
Hepatitis A	0	4
Hepatitis B, acute	2	1
Hepatitis B, chronic*	53	78
Hepatitis C, acute	1	1
Hepatitis C, chronic*	334	275
HIV infection	21	19
Listeriosis	0	1
Measles	0	0
Meningococcal disease (N. meningitidis)	4	2
Mumps	0	0
Pertussis	8	22
Rubella	0	0
Salmonellosis	40	33
Shigellosis	5	6
Syphilis; primary, secondary and other	4	13
Tuberculosis, pulmonary	8	6
Tuberculosis, other	6	3

*Includes probable and confirmed cases
[§] Previously counted by date reported; now counted by date of diagnosis

Revised Health Planning Areas

For many years the Snohomish Health District has used six Health Planning Areas (HPAs) to identify parts of the county that experienced an increased burden of disease or risk factors for disease. The HPAs, which are defined as contiguous groups of Zip Codes or block groups, are intended to provide sub-county estimates for key health indicators such as all-cause mortality, cancer incidence, obesity, tobacco use, and low birth weight. This information can be used to guide prevention work, target educational campaigns, or to leverage resources in the areas of greatest need.

Population growth and changes in the demographics of Snohomish County over the past 15 years permitted the Snohomish Health District to develop new HPA designations in 2010. Developing new HPAs allows us to break the county into smaller units for analysis and provide more useful information for program planning and evaluation purposes. For example, the original HPAs for Snohomish County show that age-adjusted mortality rates vary by 13% between the area with the highest and lowest mortality rate. The new HPAs show greater disparities, e.g., the mortality rate in the HPA with the highest mortality rate is now 27% greater than in the area with the lowest mortality rate.

HPAs were designed to vary in terms of socioeconomic indicators (e.g., percent below 200% of the Federal Poverty Level [FPL]), since many health indicators are associated with socioeconomic status. Though the data are somewhat dated (from the 2000 Census), the North Everett HPA has the highest poverty rate, with almost

30% of residents living below 200% of the FPL; the Mill Creek-Bothell HPA has the lowest poverty level. We will update the demographic profiles of each HPA as data from the 2010 Census becomes available. Existing municipal boundaries and housing and transportation patterns were also taken into consideration, as were anticipated areas of growth. Future Snohomish Health District reports will provide data by HPA when available or appropriate.

The table below displays the ZIP Codes and cities that are covered by each HPA. Also, be sure to check the Health Data section of the website www.snohd.org and look under Publications & Reports for data by HPA. Two new fact sheets about smoking and obesity use the revised HPAs and are posted on the website.

HPA	ZIP Code Definition	Including the cities of...
Arlington-Stanwood	98223, 98292	Arlington and Stanwood
East County	98241, 98251, 98252, 98294	Sultan, Gold Bar, Index, Granite Falls and Darrington
Marysville-Tulalip	98270, 98271	Marysville and Tulalip Tribes
Lake Stevens	98205, 98258	Lake Stevens
Monroe-Snohomish	98272, 98290	Monroe and Snohomish
North Everett	98201, 98203	Everett (partial)
South Everett	98204, 98208	Everett (partial)
Edmonds-Mukilteo	98020, 98026, 98275	Edmonds, Mukilteo and Woodway
Lynnwood-Mountlake Terrace-Brier	98036, 98037, 98087, 98043	Lynnwood, Mountlake Terrace and Brier
Mill Creek-Bothell	98012, 98021, 98072*, 98077*, 98296	Mill Creek and Bothell

*Indicates that ZIP Code is partially in King County