

STATE OF NEVADA
DEPARTMENT OF HEALTH AND HUMAN SERVICES - HEALTH DIVISION
TUBERCULOSIS PREVENTION AND CONTROL PROGRAM
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ANNUAL PROGRESS REPORT FOR 2008

MARCH 31, 2009



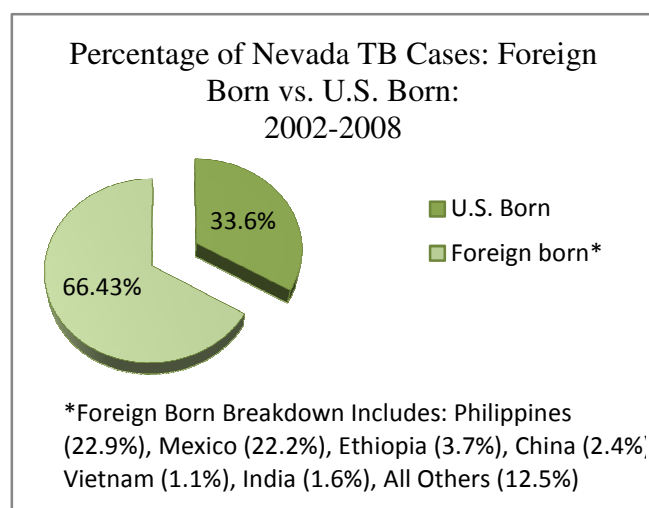
Annual Progress Report of Current Budget Period Objectives and Activities

The Nevada TB Program Overview:

The mission of the Nevada State Health Division's (NSHD) Tuberculosis Prevention and Control Program is to prevent, control, track, and ultimately eliminate tuberculosis in the citizens of Nevada. Statewide the TB Program is made up of: the NSHD, three local health districts (Clark County, Washoe County and Carson City), the public health laboratory, the NSHD Frontier and Rural Public Health Services Program, the Department of Corrections, and all agencies and organizations interested in advancing Nevada's progress toward improving our TB practices.

Nevada's population is concentrated in three urban areas: Clark, Washoe and Carson City Counties. These three areas account for 88 percent of the State's population, with the remainder of the population being divided among Nevada's rural and frontier counties¹. Nevada's 14 rural and frontier counties cover 96,000 square miles, making access to these communities challenging and time-consuming.

Nevada has been experiencing extreme and persistent population growth. Only recently, has the US Census Bureau reported a slight slowing for Nevada, which had been among the four fastest-growing states each of the last 24 years, (1.8 percent growth reported between 2007 and 2008 now ranks it eighth²). However, Clark County remains one of the fastest growing areas in the country today, with a population of approximately 1.9 million residents and an overwhelming 36 million visitors a year. The ability to control and prevent the spread of tuberculosis within this diverse population has become increasingly difficult each year. This challenge has been especially difficult among the Foreign-born population which, according to the 2007 American Community Survey is $\geq 15\%$ of Nevada's total population³.



The foreign-born population is at high risk for developing active tuberculosis, as well as having resistant forms of TB which require more extensive treatment regimens. This is consistent with the fact that two-thirds of Nevada's TB cases have been among foreign-born residence, and of the 15 cases of resistant forms of TB that Nevada has treated since 1993, (two of which were XDR-TB) ten were among the foreign-born. The continuous growth in this demographic population is having a compound affect in regards to the burden of TB on Nevada's public health system.

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¹ http://www.nsbdc.org/what/data_statistics/demographer/pubs/pop_increase

² <http://www.census.gov/Press-Release/www/releases/archives/population/013049.html>

³ http://www.dhs.gov/xlibrary/assets/statistics/publications/ois_ill_pe_2008.pdf (page 4) and <http://www.census.gov/Press-Release/www/2009/ForeignBorn.pdf>

2008 Program Update

Susanne Paulson has been the Tuberculosis Program Coordinator for the NSHD since April of 2007. Patricia O' Rourke-Langston manages the Southern Nevada Health District (SNHD) TB Program, Kara Bennis is the TB Clinic Manager and Laurie Hickstein is the TB Program Coordinator. The SNHD TB clinic staff also includes one Registered Nurse Case Manager, Elsa Casco; one CDC Public Health Advisor (PHA), Kim Do; four Public Health Nurses (PHN), Penny Orr, Judy Slaney, Diane Valencia and one vacant position; two Disease Investigator Intervention Specialist (DIIS), Sage Nagai and Hailey Blake; one Licensed Practical Nurse (LPN), Sheila Gutierrez and; two clerical staff, Kim Ogren and Monique Johnson. Candy Hunter manages the TB Program for Washoe County Health District (WCHD) where Diane Freedman is the TB Program Coordinator and Judy Medved-Gonzalez and Joyce Minter are the two TB Clinic Case Manager PHNs. Marena Works, R.N. is the Director for Carson City Health and Human Services (CCHHS) and Dustin Booth, is the case manager for the TB cases in Carson City. The Frontier and Rural Public Health Services Program (FaR) currently has 19 Community Health Nurses on staff, which coordinate the care for TB and LTBI patients in the remaining 14 counties.

The Nevada State Health Division's Tuberculosis Program is continuing to host monthly statewide TB conference calls (reinstated in August of 2007). The participants discuss topics of interest, propose potential changes in protocol, review specifics regarding current cases, as well as plan and implement improvements to standardize TB practices statewide.

Nevada had 102 newly diagnosed active TB cases in 2008. Nevada also gained seven additional cases due to individuals moving to Nevada from other states. Seven of the 102 cases died before their diagnosis or shortly thereafter. Twelve children were diagnosed with TB in 2008 (one with Potts disease and another with a spinal abscess were cared for in the same home). The source case was identified as an uncle that lived in the garage who had weight loss and cough, which the family attributed to his cocaine use. Two other children were diagnosed as a result of the TB outbreak contact investigation. Another of the cases was a 2yr old Class B immigrant from the Philippines.

Nevada received 293 Class B immigrant notifications in 2008, 136 (46%) of these have received complete TB evaluations as of February 2009, the remaining 157 will either be receiving evaluations, have returned to their country of origin or are lost to follow-up. (See objective 5)

Clark County received TB outbreak assistance (Epi-Aid) from the CDC in August 2008. An outbreak was genotypically identified in a group of foreign-born illicit drug users. Due to the elusive nature of these individuals the contact investigation was difficult. Five hundred and thirty four (534) contacts have been identified to date, 78% (416) of these contacts have been evaluated, 17% (93) of which had positive skin tests. A total of 8 TB cases have been linked to this outbreak.

A complete debriefing of this outbreak will be scheduled in 2009 at that time final numbers will be generated.

Other significant contact investigations include:

- the Federal Emergency Management Agency (FEMA) Incident Command System (ICS) was utilized to manage a contact investigation at an elementary school with 487 contacts identified,
- a surgical center identified 472 contacts to a case, three of which received treatment for LTBI,

- a community college identified 178 contacts to a case (142 were evaluated),
- A contact investigation at a laundry mat elicited 38 contacts, and
- Catholic Charities screened 19 students and five were offered INH.

Aggregate Report of Program Evaluation (ARPE) data for all 2008 contact investigations will be submitted in August.

National TB Program Objectives and Performance Targets

Annual Progress Report of Current Budget Period Objectives and Activities

The following are the NSHD's Tuberculosis Program current goals and objectives:

Goal 1: Increase the percentage of tuberculosis (TB) patients who complete a course of curative TB treatment within 12 months of initiation of treatment.

Objective 1.1: Ensure that at least 90% percent of patients with newly diagnosed, pan-sensitive TB, for whom therapy for one year or less is indicated, complete therapy within 12 months.

Status: Ongoing

Completion of Treatment – Data does not include deceased

2000	2001	2002	2003	2004	2005	2006	2007	2008*
97%	94%	99%	97%	98%	94%	93%	88%	49%

* Data as of February 2009

Discussion: One case from 2007 is continuing to receive a MDR-extended treatment regimen and is scheduled to complete therapy in March of 2010. Of the remaining 101 cases from 2007, eleven died, three moved and seven are either missing or lost leaving 80 cases which successfully completed treatment within 12 months. The complexity of the cases seen in Nevada has greatly extended treatment regimens; therefore, the adherence to treatment has been more difficult to sustain. Every effort will be made to restore these numbers to 90% or better. It is anticipated that the objective will be met for 2008 once all data is available.

Goal 2: Increase the percentage of TB patients with initial positive cultures who also are tested for and receive drug susceptibility results.

Objective 2.1: At least 90 percent of all newly reported culture positive TB cases will be tested for drug susceptibility.

Status: Met

Initial Drug Susceptibility Complete

2000	2001	2002	2003	2004	2005	2006	2007	2008
96%	99%	100%	100%	100%	100%	100%	97%	99%

Discussion: Only 84 of the 102 cases in 2008 produced positive cultures, enabling susceptibility testing to be performed. Of cases with positive cultures 99% (83) received susceptibility testing. The Nevada State Health Laboratory either performs susceptibilities on every initial MTB positive organism or, when necessary, refers the organism to a reference laboratory. The one organism in 2008 that grew but did not

receive a drug susceptibility test was mixed with a mycobacterium other than *M. tuberculosis*. The laboratory was not able to obtain a pure isolate of the MTB organism for testing (a pure culture is not required for identification purposes). Eighteen of the 102 cases were either: clinically diagnosed or the specimen was compromised prior to culturing, rendering any organisms present non-viable.

Goal 3: Increase the percentage of infected contacts of infectious cases that are placed on treatment for latent TB infection (LTBI) and complete a treatment regimen.

Objective 3.1: Contacts will be identified for at least 90% of newly reported sputum AFB-smear positive TB cases.

Status: Met

Infectious cases that identified a contact

2000	2001	2002	2003	2004	2005	2006	2007	2008
96%	100%	100%	100%	100%	100%	100%	100%	100%

Discussion: Standard of care in Nevada is to conduct a contact investigation interview on every pulmonary case of TB regardless of the smear result, all household contacts of extra-pulmonary cases are evaluated for infection, and if tuberculosis is diagnosed post-mortem, the family, friends and coworkers are interviewed and contacts evaluated for infection. Since 2001, Nevada has not had a single pulmonary case in which the deceased did not have contacts identified.

Objective 3.2: At least 95% of contacts to sputum AFB-smear positive TB cases will be evaluated for infection and disease.

Status: Met

Contacts to sputum smear positive cases evaluated for infection and disease

2001	2002	2003	2004	2005	2006	2007
96%	99%	99%	87%*	99%	96%	94%

* Contacts not evaluated due to no forwarding address of released inmates

Discussion: Complete 2007 data and preliminary 2008 data will not be available until the completed ARPE data is submitted in June 2009. During the July 2008 Nevada TB stakeholders teleconference, the definition of ‘a contact to a case’ and ‘what constitutes a complete contact evaluation’ were discussed. It was determined that there had not been standardized interpretation and reporting in the past. After careful review of the ARPE instructions and many conversations, Nevada is now counting and reporting ARPE data per CDC recommendations. Nevada is extremely diligent in pursuing all contacts and performing complete evaluations. The TB programs will continue to aggressively perform thorough contact investigations to ensure this benchmark is consistently met.

Objective 3.3: At least 85% of infected contacts who are started on treatment for latent TB infection will complete therapy.

Status: Ongoing

Infected contacts started on treatment for LTBI that complete treatment

2001	2002	2003	2004	2005	2006	2007
69%	60%	93%	85%	91%	88%	64%*

* Data as of June 31, 2008, incomplete due to some patients still completing therapy

Discussion: Complete 2007 data and preliminary 2008 data will not be available until the completed ARPE data is submitted in June 2009. Preventative therapy is not mandatory, but highly recommended to all persons diagnosed with latent TB infection (LTBI). Due to the side effects associated with INH, many contacts prefer not to complete preventative therapy for LTBI. Incentives, enablers, and counseling are utilized to address this challenge. The program will continue with activities to ensure this goal is attained and maintained.

Goal 4: Increase the percentage of other high-risk infected persons who are placed on treatment for LTBI and complete a treatment regimen.

Objective 4.1: Increase targeted testing for persons who are at high risk for TB infection.

High-Risk for TB infection	
Contacts to smear + TB cases	Injection drug user
Excess alcohol use	Migrant Worker
Health care worker	Homeless
HIV positive	Resident of Correctional facility
Recent Immigrant from country with high incidence of TB (<five years of age)	

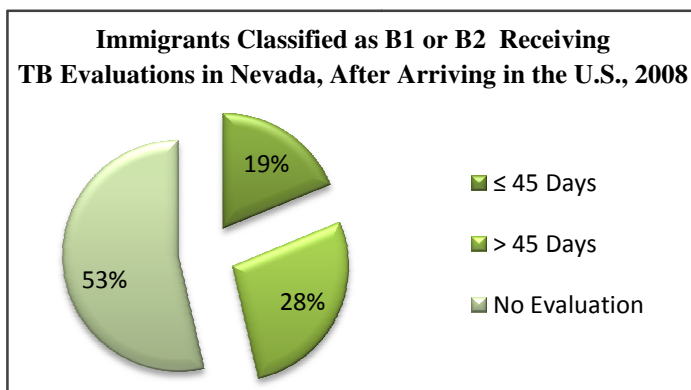
Discussion: The diagnosis and treatment of LTBI has not been a measured statistic and LTBI is not a reportable condition in Nevada. Some measures have been taken to identify LTBI in high-risk populations. The WCHD has developed community liaisons and protocols with the Washoe County Homeless Shelter, the three emergency departments in Washoe County, and some select Urgent Care facilities to provide the necessary tools for them to perform symptoms checks and the follow-up risk assessment according to TB program recommendations after-hours.

Goal 5: Increase the percentage of immigrants and refugees designated as Class A, B1, or B2 who are appropriately evaluated and treated.

Objective 5.1: At least 75 percent of all immigrants and refugees with a Class A, B1, or B2 designation should be evaluated for TB within 45 days of arrival.

Status: Ongoing

Discussion: Nevada is developing a real-time, shared database that models the Electronic Data Notification System (EDN) system recently deployed by the CDC's Department of Quarantine. The system will notify jurisdictions of an immigrant's arrival in Nevada, as well as

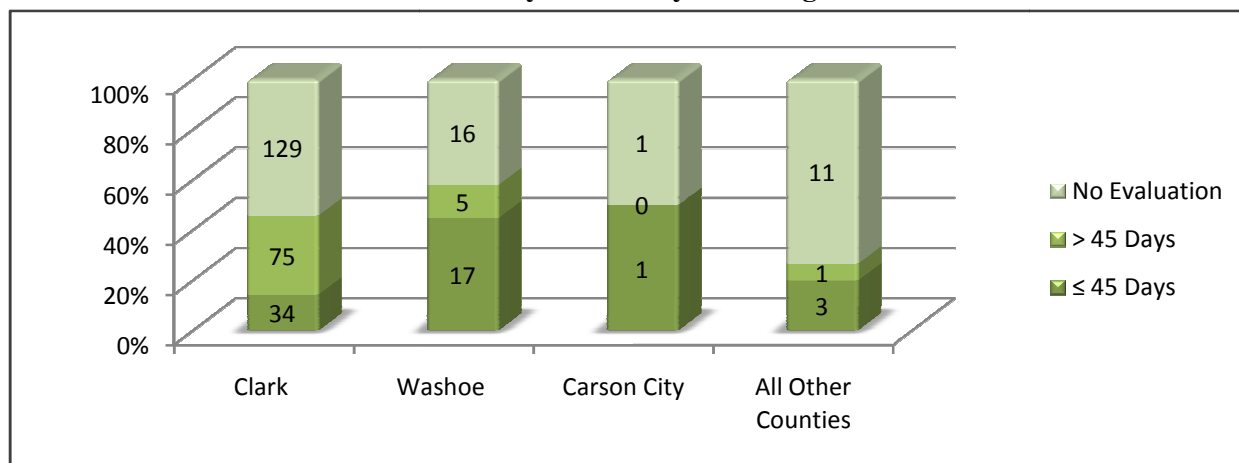


assess the evaluation information of the Class A, B1, B2, and B3 immigrants and refugees. Until the system is implemented, an Excel spreadsheet is being used to track class B immigrants relocating to Nevada. As this is the first time that this data has been tracked and reported by Nevada, it is incomplete. Therefore, the interpretation of this data will be assessed, analyzed and reported in the 2010 grant application submission, as the immigrants arriving in the last quarter of the year will have had time to receive evaluations.

The data presented here represents immigrants that arrived in the U.S. from January 1, 2008 through December 31, 2008. The 45-day evaluation period is calculated from the date the immigrant arrives in the U.S. to the first date the immigrant is seen by a health care provider regarding TB evaluation and follow-up. Of the 293 Class B immigrants entering Nevada in 2008, 136 (47%) have received evaluations to date. Eight of these were diagnosed with active TB (one of those with MDR-TB).

Should an immigrant refuse to participate in the U.S. follow-up medical evaluation plan there is no recourse or motivator which the TB Program can employ to encourage compliance. Therefore, the programs must rely solely on the cooperation of the immigrant. This makes achieving the objective challenging. As this high risk group is extremely important to Nevada's TB prevention and control efforts, State and County TB programs aggressively pursue obtaining TB evaluations for all Class B notifications.

**TB Classified Immigrants Receiving TB Evaluations in Nevada
Broken Down by the County Receiving the Notification**



Goal 6: For jurisdictions with greater than 50% reported cases of TB occurring annually in U.S. born African Americans, decrease the case rate.

Percentage of Black or African American TB cases in Nevada

2000	2001	2002	2003	2004	2005	2006	2007	2008
14%	15%	11%	12%	14%	11%	17%	13.7%	9.8%

Discussion: Nevada does not have $\geq 50\%$ reported cases of TB occurring in U.S. born African Americans; therefore, objectives have not been developed for this goal.

Goal 7: Increase the proportion of adults with TB who have been tested for HIV.**Objective 7.1: HIV status will be reported for at least 75% of all newly reported TB cases age 25-44 years.**Status: Met

Percentage of All Nevada TB cases that have been tested for HIV

2002	2003	2004	2005	2006	2007	2008
86%	92%	99%	99%	92%	90%	87%

Discussion: Of the 102 total TB cases, 12 cases were not offered HIV testing in 2008; 10 of these cases were children under age 15 and two cases died before TB was diagnosed. Due to the health districts routine testing of TB clients for HIV, 3 TB patients were identified as co-infected with HIV in 2008 (which is down from 6 TB/HIV co-infected identified in 2007). Southern Nevada Health District has revised their TB protocols to reflect their decision to test all TB patients for HIV, regardless of age. This objective reflects HIV reporting for all TB cases not just cases aged 25-44 years of age (which has been consistently above 95%) and Nevada exceeded the 75%) benchmark with 87% of cases being tested for HIV(87%).

Goal 8: For at least 95% of all TB cases, all information in the Report of Verified Case of Tuberculosis (RVCT) will be complete.**Objective 8.1: For at least 95% of all TB cases, all information in the RVCTs will be complete.**Status: Met

RVCT completeness rate

2001	2002	2003	2004	2005	2006	2007	2008
96.2%	98.1%	97.8%	98.6%	88.3%	95%	95%	70%*

* Data retrieved from TIMS MUNK reports as of February, 2009, incomplete due to patients still completing therapy

Discussion: Nevada met this goal in 2007 and plans to exceed the 95% benchmark in 2008 by diligently pursuing the completeness of data for all TB cases.

TB Public Health Laboratory**Goal 1: Meeting Recommended Turnaround Times.****Objective 1.1: Improve sample delivery from outside Washoe County to enable the laboratory to meet the 24-hour Turn-Around-Time (TAT) statistic relating to time of receipt from time of collection.**Status: Unmet

Discussion: For 2008, the number of AFB smears reported within 24 hours of sample receipt by the Nevada State Health Laboratory (NSHL) has been 100%. Identification of MTB complex within 21 days of specimen or referral receipt averaged 96%. The percentage of MTB susceptibility testing completed within 28 days averaged 96%. The percentage of specimens received within 24 hours of receipt has dropped to 43% due to the biweekly batching of specimens from the Southern Nevada Health Department (Clark County), from which the majority of samples are received. There are no current plans to improve this logistical dilemma as shipping costs are a major cost for the laboratory.

Goal 2: Establish an algorithm that the Nevada State Health Laboratory can incorporate to move them closer to the Healthy People 2010 concepts.

Objective 2.1: Improve the utilization of the MTB PCR test.

Status: Met

Discussion: Currently the NSHL performs MTB PCR on new smear positive cases every Monday, Wednesday and Friday, which allows for the detection of new cases of MTB complex within 48 hours of specimen receipt. In keeping with the recent CDC guidelines, the NSHL may perform MTB PCR on smear negative samples in the future. The patient presentation must strongly suggest tuberculosis and the request must be made by the clinician in writing then the laboratory may use their discretion to perform this test on smear negative samples.

Goal 3: Develop an Integrated System that Ensures Timely Laboratory Testing and Timely Flow of Information.

Objective 3.1: Install a laboratory information system that can transmit data electronically to TB control program officials.

Status: Ongoing

Discussion: Ongoing efforts are underway to implement the Laboratory Information Management System (LIMS). The new software would improve laboratory efficiency and effectiveness, data collection and reporting and statistical analysis. The State Public Health Laboratory is currently soliciting comments regarding the laboratory's performance and specific suggestions for improving laboratory deliverables from State and County Programs.

Objective 3.2: Establish a schedule of regular meetings for TB Program and Laboratory Staff.

Status: Ongoing

Discussion: The NSHD TB Coordinator conducts regular meetings with statewide TB program participants and the laboratory. The participants discuss topics of interest, propose protocol changes, share specifics regarding current cases and plan and implement

improvements to standardize TB practices statewide. The NSHL and the NSHD TB Program meet throughout the year via a combination of conference calls and site visits. These meetings may be combined with training and evaluation activities.

Objective 3.3: Develop and provide collection instructions for at-home sample collection in both English and Spanish to be included in the collection kit.

Status: Met

Discussion: The NSHL has collection instructions following CDC specimen collection guidelines available with English on one side Spanish on the other. The NSHL includes the printed instructions with the TB Collection Kits provided to clients for specimen collection.

Objective 3.4: Maintain a highly trained workforce by sending two employees to a week-long training course.

Status: Met

Discussion: Robert Hoffman, Microbiology Supervisor for the Nevada State Health Laboratory (NSHL), attended a 4 day workshop at CDC February 12-15, 2008 'Advanced Diagnostic Mycobacteriology' sponsored by the National Laboratory Training Network. He also attended 'Practical Applications of Genotyping in Tuberculosis Control Web-based Workshop' (Francis J. Curry TB Center) January 23, 2008 and the Statewide TB Conference in Las Vegas, December 3, 2008.

The NSHD TB Program is seeking additional training opportunities for NSHL staff in 2009.

Recipient Activities: TB Public Health Laboratory

- a. The following table indicates the number of new TB cases that the NSHL reported for each of the last 4 years, 2005-2008.

New NSHL TB Cases			
2005	2006	2007	2008
93	87	89	80

Not all Nevada cases are processed by NSHL. Some cultures do not grow and some cases are clinically diagnosed, therefore NSHL annual culture count does not match Nevada's annual RVCT case count.

- b. All specimens are processed the day of receipt. All AFB smears are read and reported within 24 hours of processing. Processed specimens are inoculated to culture media (MGIT broth and 7H11 selective agar). Culture media is incubated for 6 weeks. Positive MGIT broths are smeared and Accuprobes are performed Tuesdays and Fridays. MTBC PCR is performed Monday, Wednesday and Friday on first time positive AFB smear samples. All results are faxed and verbal reports are provided to the submitting clinic or laboratory, the county health departments, and the NSHD Office of Epidemiology.

- c. By implementing MTBC PCR testing three times per week on all first time AFB positive smears, the goal of confirmation of a case of tuberculosis within 48 hours of specimen receipt should exceed 75%.

- d. The NSHL validated the MGIT TB susceptibility testing system to expand the current 5 tube susceptibility (SIRE-PZA) panel to include 2 dilutions of Streptomycin and INH. If additional susceptibility testing is requested by a provider (e.g., Molecular Beacon testing), the NSHL can refer these specimens to the California TB Department in Richmond, California for testing. If second line drug testing is requested, referral samples can be sent to the National Jewish TB Center in Denver, Colorado, or the CDC in Atlanta, Georgia. In 2008, the NSHL validated their susceptibility testing of second line drugs to detect MDR-TB isolates. Referral specimens were sent to the CDC and the second line drug results of the CDC matched those of the NSHL.

Laboratory Progress Report and Description of Current Laboratory Activities and Performance (see accompanying table for statistics)

Current Nevada State Health Laboratory Activities and Performance Statistics

	2003				2004				2005				2006				2007				2008			
	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr
Number of patients for whom the laboratory confirmed an initial diagnosis of TB by culturing <i>M. tuberculosis</i> from a primary patient specimen	21	47	30	37	49	26	13	7	10	8	26	21	24	21	18	30	16	26	28	24	20	20	23	12
Number of patient specimens processed and cultured	497	515	515	494	504	352	485	443	426	402	464	397	389	405	383	421	454	528	504	443	396	429	361	356
Number of proficiency samples processed											0	7	1	11	7	0		8	7	0	11	4	9	0
Number of samples determined to be unsatisfactory and were not processed											3		3	4	12	2		2	4	3	7	4	0	3
Number of patients for whom cultures were processed for mycobacterial identification testing, and/or whose isolates were referred to other laboratories for identification testing	204	211	200	202	231	167	176	169	166	157	283	249	280	254	249	283	272	293	296	280	257	285	246	189
Number of patients whose specimens produced cultures containing any species of <i>Mycobacterium</i>	202	230	199	224	137	91	82	68	61	61	109	59	98	79	89	103	89	102	124	96	80	98	83	61
Number of patients whose specimens produced cultures containing MTB	96	103	108	95	70	49	19	12	13	12	83	35	52	49	50	53	50	52	58	49	54	48	47	21
Number of patients for whom <i>M. tuberculosis</i> drug susceptibility tests were performed and/or whose isolates were referred to other laboratories for susceptibility testing	21	47	30	37	49	26	26	39	28	40	30	23	35	27	23	31	16	27	32	25	20	19	24	12
Number of patients for whom NAATS confirmed the presence of MTB in a primary patient specimen	25	26	29	38	27	13	15	7	11	12	30	26	14	17	22	26	13	29	35	24	23	26	23	19
Number of patients whose specimens were sent for genotyping											26	30	26	34	18	34	17	24	34	23	20	20	8	20

Description of turnaround times (TAT) for initial diagnostic specimens

	2003				2004				2005				2006				2007				2008			
	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr
% specimens received within 24 hours	29	43	41	52	53	39	56	51	44	51	54	49	53	51	49	45	50	45	46	47	42	49	44	35
% AFB smears reported within 24 hours of receipt of specimens	80	79	76	60	66	69	64	74	84	73	87	100	100	100	100	100	100	100	100	100	100	100	100	100
% MTB ID'd ≤21 days	23	44	75	63	40	73	34	25	28	47	79	90	100	64	93	69	97	91	65	91	96	98	94	96
% susceptibilities identified ≤28 days							79	54	67	88	94	92	94	96	90	81	93	85	82	44	100	95	96	92

Description of baseline activities with respect to the Healthy People 2010 Goal

	2003				2004				2005				2006				2007				2008			
	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr
Number of specimens received within 24 hours of collection	136	208	211	231	243	162	257	212	346	317	248	195	205	203	188	189	228	238	229	206	153	209	159	124
Number of patient specimens tested using rapid tests (e.g., NAA tests)	39	30	29	39	30	19	39	17	31	25	94	53	91	57	63	91	62	80	108	81	60	63	62	58
Number of samples for whom laboratory confirmation of TB was provided within 48 hours.	13	20	11	12	8	9	10	4	6	8	17	21	17	14	19	16	10	14	15	14	12	13	10	3
Number of samples for whom the laboratory confirmed TB by isolation of M. tuberculosis from a patient specimen.	273	144	69	105	146	60	73	55	54	59	63	35	75	55	64	62	68	64	66	54	57	50	52	24
Number of patients for whom laboratory confirmation of TB was provided within 48 hours.	11	16	10	9	8	7	7	4	6	8	17	20	19	14	18	17	10	14	15	14	12	13	11	3
Number of patients for whom the laboratory confirmed TB by isolation of M. tuberculosis from a patient specimen.	93	76	46	58	62	35	33	23	27	32	52	32	52	49	49	55	50	52	58	49	54	44	47	20

* Comment: Susceptibility TAT from time of receipt in the lab to report is generally 21-28 days. The exact percentage is unobtainable as this data is not stored in the computer system currently utilize the laboratory. Historical data not available.

HUMAN RESOURCE DEVELOPMENT

The following section reflects the status of NSHD TB Program objectives for training and professional development of Tuberculosis staff at both the state and county levels. The TB Coordinator is the designated training focal point for Nevada.

Objective 1: By September 1, 2008, provide in-service training to rural nursing staff.

Status: Met

Discussion: Connie Torres, Churchill County CHN attended The Francis J. Curry National Tuberculosis Center Tuberculosis Intensive, June 19-20, 2008 in Seattle, WA. This two-day course was designed for clinicians and other medical care providers who manage patients with or at risk for tuberculosis (TB). Topics include: transmission and pathogenesis of TB, TB radiology, diagnosis and management of TB disease and latent TB infection, legal and ethical issues in TB control, TB/HIV, pediatric TB, and more.

Objective 2: By December 31, 2008, MD Consultant will access a TB-related training program.

Status: Met

Discussion: Dr. Bruce Denney, a TB pulmonologists from Washoe County, accepted the NSHD's TB program offer to send him to a TB education and training course. He attended the November 2008 National Jewish Medical and Research Hospital, four-day TB Intensive in Denver, CO. He reported that it was a valuable, informative experience which will assist him with continuing to provide outstanding TB care to his patients as well as share new information with fellow pulmonologists. Neither of the larger counties funding enables them to send their physicians to TB training. NSHD TB Program proposed utilizing the carry forward funds from 2007 to extend this opportunity to pulmonologists committed to these two TB Programs (Washoe and Clark Counties). Although an M.D. from Clark County was not able to take advantage of this offer, we hope to have the opportunity to provide training for a Clark County TB Clinic M.D. in the future.

Objective 3: By August 31, 2008, training of Clark County Detention Center staff will be completed.

Status: Ongoing

Discussion: Kim Do, CDC, Public Health Advisor, has been working to develop working relationships and TB protocols between the Clark County Detention Centers and the SNHD TB Program. Since May 12, 2008, he has met with the Chief, Captains, Lieutenants, and the medical staff of four detention facilities and one Juvenile Detention Center in Clark County. The importance of working collaboratively to form a strong coalition between correctional staff and the Southern Nevada Health District staff has been stressed. The goal of the collaboration is to encourage correctional facilities to become more vigilant in regards to testing and reporting suspect TB cases to the Health District. The major activities accomplished include the following:

- The Southern Nevada Health District service area correctional facilities were surveyed and negative pressure rooms evaluated.
- The number of correctional facilities reporting TB cases, including past TB cases reported, was assessed.
- TB related information was elicited from correctional facility staff to assess the knowledge base regarding TB testing, treatment, and contact investigation.
- Worked with correctional facility medical staff to address their questions and concerns and assisted with policy implementation.
- Established quarterly meetings with the Las Vegas Metropolitan Police Safety Coordinator.
- Established quarterly presentations/in-services for correctional facilities.
- Conducted quarterly presentations/in-services for medical and correctional officer staff.
- Provided TB educational materials to all correctional facility employees.

- Educated medical staff regarding the importance of reporting TB cases, clinically diagnosed patients, and TB infected persons without active disease (LTBI).
- Stressed the importance of reporting clinically diagnosed TB, and symptoms suggestive of TB, as well as the referral of inmates who need continued treatment to the TB clinic.
- Trained correctional facility staff to evaluate inmates for TB symptoms, as well as perform TB skin testing (TST).

As a result of these efforts, SNHD has experienced an increase in the number of correctional facilities that are reporting TB related issues to the TB clinic. One of the largest correctional facilities in Clark County, the Clark County Detention Center (CCDC), is regularly reporting suspect TB cases. The staff from this facility are consistently seeking consultation when they have doubts or concerns regarding TB-related issues. Expedient reporting of TB related issues triggers quick interventions which reduce the spread of TB not only in the correctional facilities, but also in the inmates' families, as well as the community at large.

Objective 4: By December 1, 2008, facilitate training for the rural nurse manager.

Status: Unmet

Discussion: Due to the large Hepatitis C outbreak experienced in Las Vegas in early 2008, the demands of developing state budgets and implementing and monitoring Community Health Nursing programs, and the need to be available while Nevada's legislature is in session, the rural nurse manager, Pam Graham, has been unable to schedule TB training in 2008. Every effort will be made for her to attend a tuberculosis seminar in 2009.

Objective 5: Washoe County Health District and Southern Nevada Health District TB staff will attend the June 2008 TB Controllers' Workshop in Atlanta.

Status: Met

Discussion: Diane Freedman from WCHD, Patricia O' Rourke-Langston and Laurie Hickstein from SNHD and Susanne Paulson, the NSHD TB Program Coordinator, attended the 2008 National TB Controller's Workshop: "Many Cultures - One Cause," which was held in Atlanta, GA, June 9 -13, 2008.

Objective 6: By December 31, 2008, TB Program Coordinator will attend a TB-related training program.

Status: Met

Discussion: The TB Program Coordinator attended the National Jewish Medical and Research Hospital Four-day TB Intensive in Denver, CO, April 15-19, 2008. The course presented a large body of TB knowledge to healthcare professionals who are responsible for the management and care of tuberculosis.

Objective 7: By December 31, 2008, the program will conduct a statewide TB stakeholder educational meeting.

Status: Met

Discussion: Thirty one people attended the December 3, 2008 statewide TB conference in Las Vegas. The agenda consisted of the State TB Coordinator, Susanne Paulson, presenting the national TB program objectives and Nevada's TB program performance indicators. Kim Do and Laurie Hickstein presented an overview of the Clark County 2008 TB outbreak. Lilia Manangan from the CDC presented the changes to the new RVCT forms and conducted an interactive discussion regarding possible scenarios and how to interpret and document them using the new forms. The evaluation results are below:

Results of the 2008 Statewide TB Conference Evaluations				
26 of the 30 attendees filled out evaluation form				
Question				
1	100% (26 of 26) of the evaluations marked "agree" that 1. The information presented was relevant.			
2	100% (26 of 26) of the evaluations marked "agree" that 2. The Facilities/accommodations were satisfactory			
3	88% (23 of 26) of the evaluations marked "agree" that 3. The information provided was new to me and helpful.			
3	4% (1 of 26) of the evaluations marked "Disagree" that 3. The information provided was new to me and helpful.			
3	8% (2 of 26) of the evaluations marked "No OPINION" that 3. The information provided was new to me and helpful.			
4	81% (21 of 26) of the evaluations marked "Disagree" that 4. The information was too elementary for me.			
4	19% (5 of 26) of the evaluations marked "Agree" that 4. The information was too elementary for me.			
5	100% (26 of 26) of the evaluations marked "Agree" that 5. The facilitators were knowledgeable about the subject and materials.			
6	88% (23 of 26) of the evaluations marked "agree" that 6. I learned a number of things I didn't know before the conference.			
6	4% (1 of 26) of the evaluations marked "Disagree" that 6. I learned a number of things I didn't know before the conference.			
6	8% (2 of 26) of the evaluations marked "No OPINION" that 6. I learned a number of things I didn't know before the conference.			
7	100% (26 of 26) of the evaluations marked "Agree" that 7. I am looking forward to the next annual conference and training session.			
8	The following comments were written when asked; 8. This conference/training could be improved by:			
	<ul style="list-style-type: none"> Two people wanted "More Topics/presentations" Three people "Did not want to have to get up so early (no 6:00 AM flight)" One person said "Add whole wheat (protein) to the .AM snack" one person suggested "Have each participating county and the laboratory present a short update for their region" Two people "were unsure or felt No improvement needed" Two people wrote that they, "want to have a time table of the agenda " Many participants verbalized that they would like to earn CEU's for attending One person wanted to see a comparison of NV data to other states 			
9	The following comments were written when asked; 9. I particularly liked:			
	<ul style="list-style-type: none"> 4 people said "The contact investigation presented by SNHD" 4 people said "Networking / meeting other people in the field / sharing ideas / becoming a team" 3 people answered the "Just for the love of it video" One person wrote "the XDR video" 10 people answered the "case discussions, open forum , informal nature of discussions, story exchange" two people said "hospitality, food, games/prizes" "The variation in topics and presentors" "The speakers" 			
10	10. Overall I would rate this conference/training as follows:			
	Excellent	Good	Fair	Poor
	88% (23/26)	12% (3/26)	0% (0/26)	0% (0/26)

Objective 8: By December 31, 2008, facilitate training for the Tuberculosis Information Management System (TIMS) replacement database.

Status: Ongoing

Discussion: Nevada has decided to replace TIMS with the NEDSS TB PAM. The State Health Division's Office of Information Technology (OIT) has been working with the CDC to coordinate the implementation of the new module, the date of completion has not yet been determined. Susanne Paulson, the TB Coordinator Dr. Carmen Cruz, the NEDSS Coordinator for Communicable Disease Surveillance and Jane Dreiling, data support staff will comprise Nevada's "first ever" TB data management and surveillance team.

Objective 9: Facilitate training for a TB bench technician at the Nevada State Public Health Laboratory.

Status: Met

Discussion: Robert Hoffman, Microbiology Supervisor for the Nevada State Health Laboratory (NSHL), attended a 4-day workshop at CDC, February 12-15, 2008 'Advanced Diagnostic Mycobacteriology' sponsored by the National Laboratory Training Network. He also attended 'Practical Applications of Genotyping in Tuberculosis Control Web-based Workshop' (Francis J. Curry TB Center), January 23, 2008 and attended the Statewide TB Conference in Las Vegas, December 3, 2008.

Nevada State Health Division ~ Tuberculosis Program

Tuberculosis Fast Facts, 2004 - 2008

County	2008			2007			2006			2005			2004		
	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**
Clark	91	89.2%	4.7	92	90.2%	4.7	89	88.1%	4.7	90	80.4%	5.0	70	73.7%	4.1
Washoe	11	10.8%	2.6	6	5.9%	1.4	11	10.9%	2.7	16	14.3%	4.0	19	20.0%	5.0
Carson City	0	0.0%	0.0	2	2.0%	3.5	0	0.0%	0.0	1	0.9%	1.8	2	2.1%	3.8
All Other Counties*	0	0.0%	0.0	2	2.0%	0.7	1	1.0%	0.4	5	4.5%	1.9	4	4.2%	1.6

Gender	2008			2007			2006			2005			2004		
	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**
Male	68	66.7%	4.9	61	59.8%	4.4	66	65.3%	5.0	68	60.7%	5.3	61	64.2%	5.0
Female	34	33.3%	2.5	41	40.2%	3.1	35	34.7%	2.7	44	39.3%	3.6	34	35.8%	2.9

Race/Ethnicity	2008			2007			2006			2005			2004		
	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**
White, non-Hispanic	16	15.7%	0.9	18	17.6%	1.1	18	17.8%	1.1	28	25.0%	1.8	29	30.5%	1.9
Black, non-Hispanic	10	9.8%	5.3	14	13.7%	7.5	17	16.8%	9.4	11	9.8%	6.4	12	12.6%	7.2
Hispanic	43	42.2%	6.8	37	36.3%	5.8	38	37.6%	6.2	36	32.1%	6.1	34	35.8%	6.2
Asian	32	31.4%	18.5	32	31.4%	18.5	28	27.7%	16.8	37	33.0%	23.2	17	17.9%	11.4
Native American	1	1.0%	2.8	1	1.0%	2.8	0	0.0%	0.0	0	0.0%	0.0	3	3.2%	9.3

Age	2008			2007			2006			2005			2004		
	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**
0 to 9	12	11.8%	3.1	8	7.8%	2.1	3	3.0%	0.8	4	3.6%	1.1	1	1.1%	0.3
10 to 19	3	2.9%	0.8	8	7.8%	2.1	3	3.0%	0.8	5	4.5%	1.4	3	3.2%	0.9
20 to 29	13	12.7%	3.3	15	14.7%	3.8	16	15.8%	4.2	14	12.5%	3.8	20	21.1%	5.7
30 to 39	14	13.7%	3.5	13	12.7%	3.3	15	14.9%	3.9	17	15.2%	4.7	13	13.7%	3.7
40 to 49	20	19.6%	5.0	11	10.8%	2.7	20	19.8%	5.2	24	21.4%	6.5	13	13.7%	3.6
50 to 59	14	13.7%	4.2	16	15.7%	4.8	22	21.8%	6.9	16	14.3%	5.2	13	13.7%	4.5
60+	26	25.5%	6.0	31	30.4%	7.2	22	21.8%	5.3	32	28.6%	8.1	32	33.7%	8.5

HIV Status	2008			2007			2006			2005			2004		
	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**
HIV Positive	3	2.9%	N/A	6	5.9%	N/A	4	4.0%	N/A	11	9.8%	N/A	3	3.2%	N/A
HIV Negative	86	84.3%	N/A	84	82.4%	N/A	85	84.2%	N/A	91	81.3%	N/A	87	91.6%	N/A
Not Offered	12	11.8%	N/A	11	10.8%	N/A	12	11.9%	N/A	10	8.9%	N/A	4	4.2%	N/A
Refused HIV Test	0	0.0%	N/A	0	0.0%	N/A	0	0.0%	N/A	0	0.0%	N/A	1	1.1%	N/A
Unknown	1	1.0%	N/A	1	1.0%	N/A	0	0.0%	N/A	0	0.0%	N/A	0	0.0%	N/A

Country of Origin	2008			2007			2006			2005			2004		
	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**
United States	32	31.4%	N/A	37	36.3%	N/A	31	30.7%	N/A	33	29.5%	N/A	37	38.9%	N/A
Philippines	22	21.6%	N/A	26	25.5%	N/A	20	19.8%	N/A	26	23.2%	N/A	13	13.7%	N/A
Mexico	25	24.5%	N/A	24	23.5%	N/A	26	25.7%	N/A	31	27.7%	N/A	21	22.1%	N/A
Ethiopia	5	4.9%	N/A	3	2.9%	N/A	5	5.0%	N/A	3	2.7%	N/A	5	5.3%	N/A
China	3	2.9%	N/A	4	3.9%	N/A	4	4.0%	N/A	1	0.9%	N/A	2	2.1%	N/A
Vietnam	1	1.0%	N/A	0	0.0%	N/A	0	0.0%	N/A	2	1.8%	N/A	1	1.1%	N/A
India	0	0.0%	N/A	1	1.0%	N/A	1	1.0%	N/A	2	1.8%	N/A	3	3.2%	N/A
Other	14	13.7%	N/A	7	6.9%	N/A	14	13.9%	N/A	14	12.5%	N/A	13	13.7%	N/A

TOTAL	2008			2007			2006			2005			2004		
	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**	No.	% of Total	Rate per 100,000**
Nevada	102	100%	3.8	102	100%	3.8	101	100%	3.9	112	100%	4.5	95	100%	3.9

Source: Nevada Tuberculosis Information Management System (TIMS), 2004-2008 (January 2009)

All Other Counties includes the counties of Churchill, Douglas, Elko, Esmeralda, Eureka, Humboldt, Lander, Lincoln, Lyon, Mineral, Nye, Pershing, Storey, and White Pine

**Please note: Rates were calculated using the Interim 2007 Population Estimates which are based on 2005 Population Estimates. Updated July 2008, by the Nevada State Health Division, Bureau of Health Planning and Statistics, based on the 2007 Total Population Estimates provided by the Nevada State Demographer, March 2008.

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